



GENERAL CATALOG

2014



1

ELECTRONICS IN THE CONTROL CABINET



2

INTERFACES



3

CONNECTION TECHNOLOGY



4

I/O SYSTEMS



MURRELEKTRONIK GOES EVEN GREENER!

Being sustainable and respecting nature are part of our core values here. That's why we print our catalogs on uncoated paper which is produced without any solvents, chlorine and is environmentally friendly. Our supply chain is also an environmentally friendly production process.

We, here at Murrelektronik, are proud to say we act responsibly and protect the environment.



Note:

With this new main catalog, all information contained in previous brochures/catalogs expires. All drawings, diagrams, indications of weight, dimensions, ratings or other details printed in this catalog are only binding when specifically agreed upon.

Murrelektronik reserves the right to changes and modifications. The customer is responsible for using the components and units that they ordered in the way they are designed.

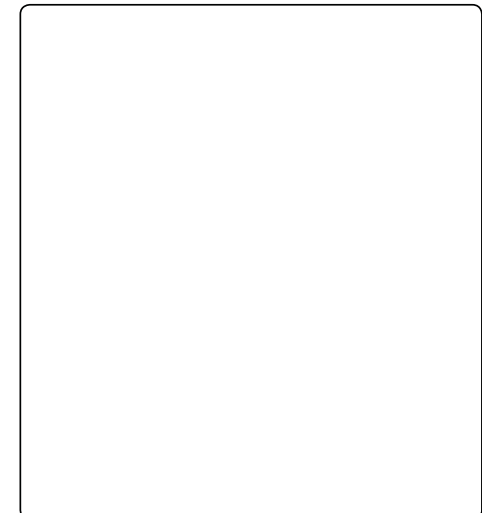
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Falkenstr. 3, D-71570 Oppenweiler








www.murrelektronik.com

With compliments:



GENERAL CATALOG PRODUCT NEWS

 **SOME OF THE NEW PRODUCTS
IN THIS CATALOG:**

	<p>EMPARRO SIMPLY THE BEST</p> <ul style="list-style-type: none"> Efficiency up to 95 % 150 % Power Boost Practical metal housing <p>Page 1.3.1</p>		<p>CUBE20S SMALL, SPEEDY, SAFE</p> <ul style="list-style-type: none"> Quick setup and service Repeater included <p>Page 4.3.1</p>
	<p>MVK SAFETY ACTIVE SAFETY</p> <ul style="list-style-type: none"> Optimum protection Safe inputs/outputs Easy installation <p>Page 4.4.12</p>		<p>ETHERNET CABLES FOR ANY CONNECTION</p> <ul style="list-style-type: none"> Plug available in five different angles Cables suitable for C-Tracks Molded or field-wireable <p>Page 3.6.7</p>
	<p>MICO+ INTELLIGENTLY SECURED</p> <ul style="list-style-type: none"> Protects 24VDC systems 90 % warning as digital signal Shut off channels with control <p>Page 1.5.1</p>		<p>MODLIGHT XTREME 440 FOR PERFECT LIGHTING</p> <ul style="list-style-type: none"> Bright as daylight IP69K for the toughest environments Energy saving LED technology <p>Page 2.4.4</p>
	<p>MODLINK MSDD FRONT PANEL INTERFACES</p> <ul style="list-style-type: none"> For service work IP65 protection Modular Inserts <p>Page 2.1.1</p>		<p>... AND MANY MORE NEW PRODUCTS</p>

1

ELECTRONICS IN THE CONTROL CABINET



- 1.1 Transformers
- 1.2 Rectified Power Supplies
- 1.3 Power Supply Units
- 1.4 Buffer Modules / Redundancy Modules
- 1.5 Intelligent Power Distribution
- 1.6 Converters / Rectifiers
- 1.7 Control Cabinet Power Outlets
- 1.8 EMC Filters
- 1.9 EMC Suppressors
- 1.10 Relays / Safety Relays
- 1.11 Optocouplers / Semiconductors
- 1.12 Active Interface Technology
- 1.13 Passive Interface Technology
- 1.14 Eurocard Holders / Control Modules

2

INTERFACES



- 2.1 Front Panel Interfaces
- 2.2 Control Cabinet Interfaces / Cable Entry Systems
- 2.3 Hybrid Fieldbus Coupling
- 2.4 Lighting Elements

3

CONNECTION TECHNOLOGY



- 3.1 M8 Round Plug Connectors
- 3.2 M12 Round Plug Connectors
- 3.3 T-couplers M8, M12, 7/8"
- 3.4 Flange Connectors
- 3.5 MQ12 Round Plug Connectors
- 3.6 Fieldbus Connectors
- 3.7 Plug Connectors for Food & Beverage
- 3.8 M23 Round Plug Connectors
- 3.9 7/8" Round Plug Connectors
- 3.10 Valve Connectors
- 3.11 Technical Appendix

4

I/O SYSTEMS



- 4.1 Cube67
- 4.2 Cube20
- 4.3 Cube20S
- 4.4 MVK Metal
- 4.5 Impact67
- 4.6 Impact20
- 4.7 MASI00/20
- 4.8 MASI67
- 4.9 MASI68
- 4.10 M8 Distribution Systems
- 4.11 M12 Distribution Systems (Metal)
- 4.12 M12 Distribution Systems (Plastic)



24 BRANCH OFFICES
AND 4 PRODUCTION PLANTS

Oppenweiler
Production Fieldbus Systems,
Interface modules

Stollberg, Germany
Production of Connectors

Stod, Czech Republic
Production of Interface, Switch Mode
Power Supplies, Transformers



**STAY CONNECTED – REPRESENTED
ON ALL CONTINENTS WORLDWIDE**

The company was founded in
1975 by Franz Hafner

Over 1,800 employees, including
200 sales reps and customer
service center technicians

Top student training is very important
for Murrelektronik. Each year we offer
apprenticeships in technical and
commercial areas, as well as in logistics.





MURRELEKTRONIK FIGURES & FACTS



**CUSTOMER
LOYALTY WITH
INDIVIDUAL
AND
COMPETENT
ON-SITE HELP**

Shanghai, China
Production for the
Asian markets

MURRELEKTRONIK IS YOUR PARTNER...

- Over 42,000 products available to order conveniently in our online shop
- Subdivided into four product fields:
 - **Electronics in the Control Cabinet**
 - **Interfaces**
 - **Connection Technology**
 - **I/O Systems**
- For industries and market segments as for example:
 - **Machine Tools**
 - **Machine Building and Plant Engineering**
 - **Assembly and Handling Technology**
 - **Food and Beverage**
 - **Automotive Industry**
 - **Warehousing and Logistics**
- Founded in Oppenweiler, Germany, in 1975
- Family-owned company
- Over €190 million turnover in the year 2012

MURRELEKTRONIK OFFER VALUABLE BENEFITS

- Over 200 sales reps
- On-site support
- 4 international warehouses
- 1 million products in stock

- Murrelektronik Express Service

mex
More service

MURRELEKTRONIK YOUR BENEFITS



International approvals for
flexible applications worldwide



MURRELEKTRONIK QUALITY



MURRELEKTRONIK STANDS FOR QUALITY

- In-house test center and EMC lab for tested and accredited products
- Individual and competent on-site advice and support
- No use of hazardous materials
- Complies with RoHS requirements
- First-class design and production quality
- Systematic and sustainable quality management according to DIN EN ISO 9001

Tested and accredited:
In-house test center
and EMC laboratory



Endurance tests
under extreme
conditions



Product testing begins
at the beginning of the
project



connec+ivity®
by Murrelektronik

**THE BACK BONE OF YOUR MACHINE
AND SYSTEM INSTALLATIONS**

ASSESSING STATUS

- On-site analysis
- Exchanging the basic documentation
- Discussing the current status

SELECTING THE DESIGN

- Concept overview
- Analyzing advantages and disadvantages
- Bills of materials

CREATING A CONCEPT

- Customer-specific requirements
- Industry-specific requirements
- Several concept options

PROJECT SUPPORT

- E-plan and CAD data
- Electronic catalog data (BMEcat)
- Setup support





CONNECTIVITY BY MURRELEKTRONIK

CONNECTIVITY MEANS INDIVIDUAL SOLUTIONS

- Best advice increases your competitive advantage
- Decrease your budget significantly
- We optimize your machine and system installation
- Highly skilled, specially trained staff
- Individual system solutions
- Consistent from a single source

SYSTEM ADVICE WITH CONNECTIVITY CITY

Go from the industry overview
to your application ...

... to the appropriate products.



Download the
CONNECTIVITY app
for your iPad here:



MURRELEKTRONIK REPRESENTED ON ALL CONTINENTS WORLDWIDE



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ELECTRONICS IN THE CONTROL CABINET

1



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ELECTRONICS IN THE
CONTROL CABINET

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INTERFACES

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I/O SYSTEMS



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Buffer Modules / Redundancy Modules	1.4
Intelligent Power Distribution	1.5
Converters / Rectifiers	1.6
Control Cabinet Power Outlets	1.7
EMC Filters	1.8
EMC Suppressors	1.9
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Transformers



TRANSFORMERS SAFE AND RELIABLE

- Approvals for the global market
- Flexible and versatile
- Customized solutions

MTS, MST, MET OR MTL – THE RIGHT TRANSFORMER FOR EVERY APPLICATION

Different situations require different voltages. Transformers have to be just as flexible as the application. Murrelektronik's range provides you with the flexibility you need! No matter if it's an isolation transformer, control transformer, or safety transformer – we have the right solution for any application. Murrelektronik's transformers are reliable, safe and their approvals and voltage ranges make them ideal for worldwide use.

Transformers



MTS – Isolation class T 40/B

- Nominal power rating: 40...250 VA
- Input voltage: 230, 400 VAC or multi voltage (± 15 VAC)
- Output voltage: 24 V AC or 230 V AC
- Ambient temperature: 40 °C

Page 1.11



MST – Isolation class T 40/B

- Nominal power rating: 320...1000 VA
- Input voltage: 230, 400 VAC or multi voltage
- Output voltage: 24 V AC or 230 VAC
- Ambient temperature: 40 °C

Page 1.14



MET – Isolation class T 60/B

- Nominal power rating: 500...5000 VA
- Input voltage: 230 V AC $\pm 5\%$, 400 VAC $\pm 5\%$, 240/415 V AC $\pm 5\%$
- Output voltage: 24, 230, 110/240 VAC
- Ambient temperature: 60 °C

Page 1.17



MTL – Isolation class T 60/B

- Nominal power rating: 25...2500 VA
- Input voltage: 230/400 VAC ± 15 V AC
- Output voltage: 2 x 24 V AC or 2 x 115 V AC
- Ambient temperature: 60 °C

Page 1.111

TRANSFORMERS

1-/2-phase

– INPUT: 230/400 V AC

– Isolation class T 40/B

Approvals: 

MTS

OUTPUT: 230 V AC
Screw terminals



MTS

OUTPUT: 230 V AC
Spring clamp terminals



MTS

OUTPUT: 24 V AC
Screw terminals



MTS

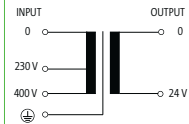
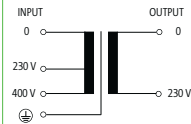
OUTPUT: 24 V AC
Spring clamp terminals



MURR
ELEKTRONIK
stay connected

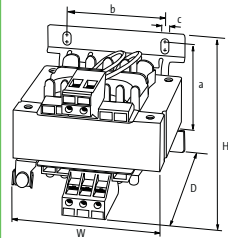
Transformers

Circuit diagram



Order Data	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.
40 VA	79x78x93/0.8	86346	79x78x93/0.8	6686346	79x78x93/0.8	86340	79x78x93/0.8	6686340
63 VA	79x78x93/1.2	86347	79x78x93/1.2	6686347	79x78x93/1.2	86341	79x78x93/1.2	6686341
100 VA	86x84x98/2.0 – GL	86348	86x84x98/2.0	6686348	86x84x98/2.0 – GL	86342	86x84x98/2.0	6686342
160 VA	101x96x106/2.7 – GL	86349	101x96x106/2.7	6686349	101x96x106/2.7 – GL	86343	101x96x106/2.7	6686343
250 VA	102x96x108/3.5 – GL	86351	102x96x108/3.5	6686351	102x96x108/3.5 – GL	86345	102x96x108/3.5	6686345

Input	Output
Frequency	50/60 Hz
Input voltage	230/400 V AC
Output voltage	230 V AC
Output voltage	24 V AC (SELV)
General data	
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Test isolation voltage	4 kV (prim./sec.)
Temperature range	-20...+40 °C, no condensation
Mounting method	Long-hole mounting or DIN-rail mountable TH35 (EN 60715)



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onlineshop.murrelektronik.com/en

Notes

GL-Approval from 100 VA and with screw terminals

1.1.1

TRANSFORMERS

1-/2-phase

– INPUT: 230/400 ±15 V AC

– Isolation class T 40/B

Approvals: 

MTS+

OUTPUT: 230 V AC
Screw terminals



MTS+

OUTPUT: 230 V AC
Spring clamp terminals



MTS+

OUTPUT: 24 V AC
Screw terminals



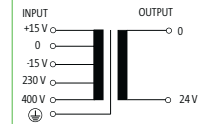
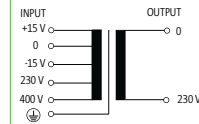
MTS+

OUTPUT: 24 V AC
Spring clamp terminals



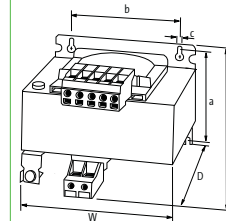
Transformers

Circuit diagram



Order Data	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.
40 VA	79x78x93/0.8	86366	79x78x93/0.8	6686366	79x78x93/0.8	86360	79x78x93/0.8	6686360
63 VA	79x78x93/1.2	86367	79x78x93/1.2	6686367	79x78x93/1.2	86361	79x78x93/1.2	6686361
100 VA	86x84x98/2.0 – GL	86368	86x84x98/2.0	6686368	86x84x98/2.0 – GL	86362	86x84x98/2.0	6686362
160 VA	101x96x106/2.7 – GL	86369	101x96x106/2.7	6686369	101x96x106/2.7 – GL	86363	101x96x106/2.7	6686363
250 VA	102x96x108/3.5 – GL	86371	102x96x108/3.5	6686371	102x96x108/3.5 – GL	86365	102x96x108/3.5	6686365

Input	Output
Input voltage	230/400 ±15 V AC
Frequency	50/60 Hz
Output voltage	230 V AC
Output voltage	24 V AC (SELV)
General data	
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Test isolation voltage	4 kV (prim./sec.)
Temperature range	-20...+40 °C, no condensation
Mounting method	Long-hole mounting or DIN-rail mountable TH35 (EN 60715)



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Notes

GL-Approval from 100 VA and with screw terminals

1.1.2

TRANSFORMERS

1-/2-phase

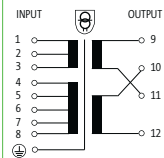
– Multi voltage output

– Isolation class T 40/B

Approvals: 

Circuit diagram

MTS Multi
OUTPUT: 2 × 115 V AC/230 V AC
Screw terminals



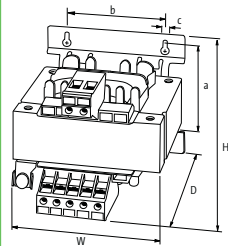
Order Data	H×W×D/kg	Art-No.
25 VA	90×78×102/0.7	86140
40 VA	88×78×93/1.1	86141
63 VA	97×78×93/1.4	86142
100 VA	105×84×98/2.0 – GL	86143
160 VA	101×96×106/2.7 – GL	86144

Input	
Input voltage	208, 230, 380, 400, 440, 460, 480, 500, 525, 550 V AC
Frequency	50/60 Hz

Output	
Output voltage	2 × 115 V AC/230 V AC

General data	
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Test isolation voltage	4 kV (prim./sec.)
Temperature range	-20...+40 °C, no condensation
Mounting method	Long-hole mounting or DIN-rail mountable TH35 (EN 60715)

Dimension drawing



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Notes

GL-Approval from 100 VA and with screw terminals

1.1.3



Transformers

TRANSFORMERS

1-/2-phase

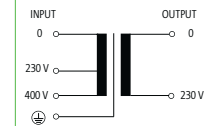
– INPUT: 230/400 V AC

– Isolation class T 40/B

Approvals: 

Circuit diagram

MST
OUTPUT: 230 V AC
Screw terminals



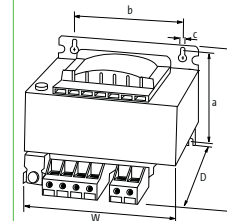
Order Data	H×W×D/kg	Art-No.	H×W×D/kg	Art-No.	H×W×D/kg	Art-No.	H×W×D/kg	Art-No.
320 VA	92×120×122/4.2 – GL	86306	92×120×122/4.2	6686306	92×120×122/4.2 – GL	86326	92×120×122/4.2	6686326
400 VA	104×120×122/5.2 – GL	86307	104×120×122/5.2	6686307	104×120×122/5.2 – GL	86327	104×120×122/5.2	6686327
500 VA	108×135×134/6.5 – GL	86308	108×135×134/6.5	6686308	108×135×134/6.5 – GL	86328		
630 VA	113×150×145/7.7 – GL	86309	113×150×145/7.7	6686309	113×150×145/7.7 – GL	86329		
800 VA	129×150×145/10.1 – GL	86310	129×150×145/10.1	6686310	136×150×149/10.1 – GL	86330		
1000 VA	128×174×160/12.3 – GL	86311	128×174×160/12.3	6686311	133×174×165/12.3 – GL	86331		

Input	
Input voltage	230/400 V AC
Frequency	50/60 Hz

Output	
Output voltage	230 V AC
	24 V AC (SELV)

General data	
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Test isolation voltage	4 kV (prim./sec.)
Temperature range	-20...+40 °C, no condensation
Mounting method	Key-hole mounting

Dimension drawing



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Notes

1.1.4

TRANSFORMERS

1-/2-phase

- INPUT: 230/400 ±15 V AC

- Isolation class T 40/B

Approvals: 

MST+

OUTPUT: 24 V AC, 48 V AC
Screw terminals



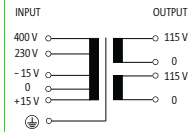
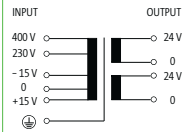
MST+

OUTPUT: 115 V AC, 230 V AC
Screw terminals

MURR
ELEKTRONIK
stay connected

Transformers

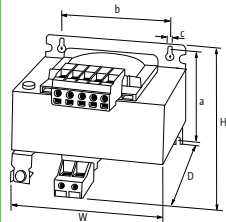
Circuit diagram



Order Data	H×W×D/kg	Art.No.	H×W×D/kg	Art.No.
630 VA	121×150×165/8.0	86463	113×150×146/8.2	86483
1000 VA	156×150×197/13.5	86464	156×150×146/13.5	86484
1600 VA	168×174×222/19.5	86465	168×174×163/19.5	86485
2500 VA	182×192×242/27.0	86466	182×192×196/27.0	86486

Input	230/400 ±15 V AC
Input voltage	230/400 ±15 V AC
Frequency	50/60 Hz
Output	1 × 24, 1 × 48, 2 × 24 V AC
Output voltage	1 × 24, 1 × 48, 2 × 24 V AC
General data	1 × 230, 1 × 115, 2 × 115 V AC
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Test isolation voltage	5.8 kV (prim./sec.)
Temperature range	-20...+40 °C, no condensation
Mounting method	Key-hole mounting

Dimension drawing



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Notes

1.1.5

TRANSFORMERS

1-/2-phase

- INPUT: 208...520 V AC

- Isolation class T 40/B

Approvals: 

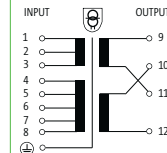
MST Multi

OUTPUT: 2 × 115 V AC/230 V AC
Screw terminals



Transformers

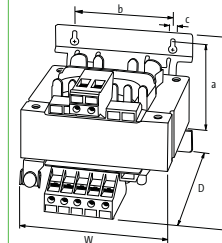
Circuit diagram



Order Data	H×W×D/kg	Art.No.
250 VA	104×120×122/4.0	86145
320 VA	115×135×132/5.8	86146
400 VA	115×135×132/6.2	86147
500 VA	108×135×134/6.5	86148
800 VA	129×150×145/10.1	86150
1000 VA	128×174×160/12.3	86151
1600 VA	128×174×160/12.3	86152
2000 VA	128×174×160/12.3	86153
2500 VA	200×195×217/26.3	86154
3000 VA	250×197×193/29.5	86155
5000 VA	248×147×250/37.0	86157

Input	208, 230, 380, 400, 440, 460, 480, 500, 525, 550 V AC
Input voltage	208, 230, 380, 400, 440, 460, 480, 500, 525, 550 V AC
Frequency	50/60 Hz
Output	2 × 115 V AC/230 V AC
Output voltage	2 × 115 V AC/230 V AC
General data	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Test isolation voltage	4 kV (prim./sec.)
Temperature range	-20...+40 °C, no condensation
Mounting method	Key-hole mounting

Dimension drawing



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Notes

1.1.6

TRANSFORMERS

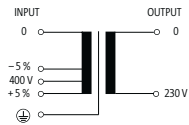
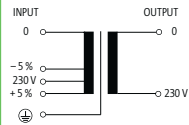
1-/2-phase

– OUTPUT: 230 V AC

– Isolation class T 60/B

Approvals: 

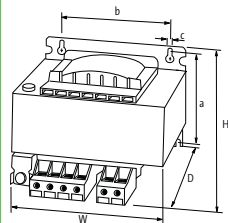
Circuit diagram



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
500 VA	113x150x146/6.8 – GL	86020	113x150x146/6.8	6686020	113x150x146/6.8 – GL	86021	113x150x146/6.8	6686021
630 VA	131x150x148/8.2 – GL	86030	131x150x148/8.2	6686030	130x150x146/8.2 – GL	86031	130x150x146/8.2	6686031
800 VA	118x175x160/11.2 – GL	86040	118x175x160/11.2	6686040	118x175x160/11.2 – GL	86041	118x175x160/11.2	6686041
1000 VA	138x174x160/14.8 – GL	86050	138x174x160/14.8	6686050	138x174x160/14.8 – GL	86051	138x174x160/14.8	6686051
1500 VA	168x174x162/21.0 – GL	86060	168x174x162/21.0	6686060	168x174x162/21.0 – GL	86061	168x174x162/21.0	6686061

Input	Output
Input voltage	230 V AC ±5 %
Frequency	50/60 Hz
Output voltage	230 V AC
General data	
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Test isolation voltage	4 kV (prim./sec.)
Temperature range	-20...+60 °C, no condensation
Mounting method	Key-hole mounting

Dimension drawing



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Notes

1.1.7



Transformers

TRANSFORMERS

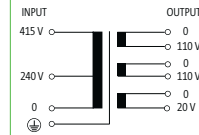
1-/2-phase

– OUTPUT: 110/240 V AC

– Isolation class T 60/B

Approvals: 

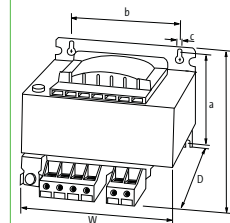
Circuit diagram



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
500 VA	113x150x170/6.8 – GL	86025	113x150x170/6.8	6686025
630 VA	129x150x148/8.2 – GL	86035	129x150x148/8.2	6686035
800 VA	118x174x148/11.2 – GL	86045	118x174x148/11.2	6686045
1000 VA	138x174x160/14.8 – GL	86055	138x174x160/14.8	6686055

Input	Output
Input voltage	240/415 V AC
Output voltage	110/240 V AC
General data	
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)
Test isolation voltage	4 kV (prim./sec.)
Temperature range	-20...+60 °C, no condensation
Mounting method	Key-hole mounting

Dimension drawing



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Notes

1.1.8

TRANSFORMERS

1-/2-phase

– OUTPUT: 230 V AC

– Isolation class T 40/B

Approvals: 

MET

INPUT: 230 V AC
Screw terminals



MET

INPUT: 230 V AC
Spring clamp terminals

MET

INPUT: 400 V AC
Screw terminals

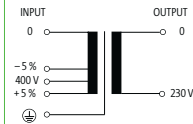
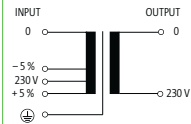
MET

INPUT: 400 V AC
Spring clamp terminals

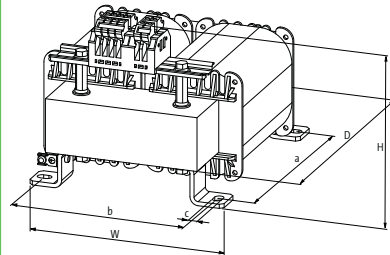


Transformers

Circuit diagram



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
2000 VA	170x195x250/24.0 – GL	86070	170x195x250/24.0	6686070	170x195x250/24.0 – GL	86071	170x195x250/24.0	6686071
3000 VA	195x198x250/30.0 – GL	86090	195x198x250/30.0	6686090	195x198x250/30.0 – GL	86091	195x198x250/30.0	6686091
4000 VA	206x198x250/32.0 – GL	86110	206x198x250/32.0	6686110	206x198x250/32.0 – GL	86111	206x198x250/32.0	6686111
5000 VA	225x198x250/40.0 – GL	86130	225x198x250/40.0	6686130	225x198x250/40.0 – GL	86131	225x198x250/40.0	6686131
Input								
Input voltage	230 V AC ±5 %				400 V AC ±5 %			
Frequency	50/60 Hz							
Output								
Output voltage	230 V AC							
General data								
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)							
Test isolation voltage	4 kV (prim./sec.)							
Temperature range	-20...+40 °C, no condensation							
Mounting method	Long-hole mounting							
Dimension drawing								



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Notes

1.1.9

TRANSFORMERS

1-/2-phase

– OUTPUT: 24 V AC

– Isolation class T 60/B

Approvals: 

MET

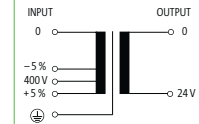
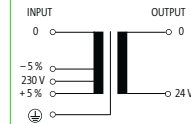
INPUT: 230 V AC
Screw terminals



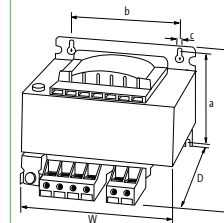
MET

INPUT: 400 V AC
Screw terminals

Circuit diagram



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
500 VA	113x150x146/6.8	86023	113x150x146/6.8	86024
630 VA	129x150x148/8.2	86033	129x150x148/8.2	86034
800 VA	117x174x160/11.2	86043	117x174x160/11.2	86044
1000 VA	137x174x160/14.8	86053	137x174x160/14.8	86054
Input				
Input voltage	230 V AC ±5 %		400 V AC ±5 %	
Frequency	50/60 Hz			
Output				
Output voltage	24 V AC (SELV)			
General data				
Standards	(EN 61558-1), (EN 61558-2-6), (EN 62041 category 0)			
Test isolation voltage	4 kV (prim./sec.)			
Temperature range	-20...+60 °C, no condensation			
Mounting method	Key-hole mounting			
Dimension drawing				



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Notes

1.1.10

TRANSFORMERS

1-/2-phase

– INPUT: 230/400 ±15 V AC

– Isolation class T 60/B

Approvals:   



MTL

OUTPUT: 24 V AC, 48 V AC
Screw terminals



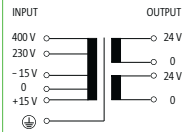
MTL

OUTPUT: 115 V AC, 230 V AC
Screw terminals

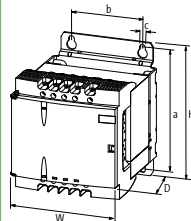


Transformers

Circuit diagram



Order Data	H×W×D/kg	Art-No.	H×W×D/kg	Art-No.
25 VA	108×87×98/1.1	86450	108×87×98/1.1	86470
40 VA	108×87×104/1.4	86451	108×87×104/1.4	86471
63 VA	108×87×116/2.0	86452	108×87×116/2.0	86472
100 VA	108×87×139/2.9	86453	108×87×139/2.9	86473
160 VA	153×123×128/4.4	86454	153×123×128/4.4	86474
250 VA	153×123×142/5.7	86455	153×123×142/5.7	86475
320 VA	153×123×160/7.2	86456	153×123×160/7.2	86476
Accessories		Art-No.		
Label plates for MTL/MTPS		89661		
Jumper		89660		
Technical Data				
LED display	LED (green) for input voltage			
Input				
Input voltage	230/400 ±15 V AC			
Frequency	50/60 Hz			
Output				
Output voltage	1 × 24, 1 × 48, 2 × 24 V AC		1 × 230, 1 × 115, 2 × 115 V AC	
General data				
Standards	(EN 61558-2-4), (EN 61558-2-6), (EN 62041 category 0)		(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)	
Test isolation voltage	5.1 kV (prim./sec.)		4 kV (prim./sec.)	
Temperature range	-20...+60 °C, no condensation			
Mounting method	DIN-rail mountable TH35-15 (EN 60715) or for key-hole mounting			
Dimension drawing				



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Notes

1.1.11

TRANSFORMERS

1-/2-phase

– INPUT: 230/400 ±15 V AC

– Isolation class T 60/B

Approvals:   

Circuit diagram

MTL

OUTPUT: 24 V AC, 48 V AC
Screw terminals



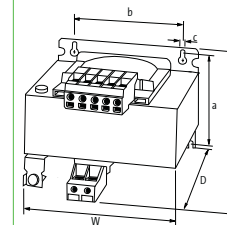
MTL

OUTPUT: 24 V AC, 48 V AC
Spring clamp terminals

Transformers

Transformers

Order Data	H×W×D/kg	Art-No.	H×W×D/kg	Art-No.
400 VA	113×150×160/7.5 – ENEC, GL	86457	113×150×160/7.5	6686457
Input				
Input voltage	230/400 ±15 V AC			
Frequency	50/60 Hz			
Output				
Output voltage	1 × 24, 1 × 48, 2 × 24 V AC			
General data				
Standards	(EN 61558-2-4), (EN 61558-2-6), (EN 62041 category 0)			
Test isolation voltage	5.1 kV (prim./sec.)			
Temperature range	-20...+60 °C, no condensation			
Mounting method	DIN-rail mountable TH35-15 (EN 60715) or for key-hole mounting			
Dimension drawing				



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Notes

1.1.12

TRANSFORMERS

1-/2-phase

– INPUT: 230/400 ±15 V AC

– Isolation class T 60/B

Approvals: 

MTL

OUTPUT: 115 V AC, 230 V AC
Screw terminals



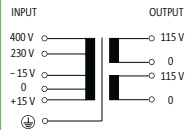
MTL

OUTPUT: 115 V AC, 230 V AC
Spring clamp terminals

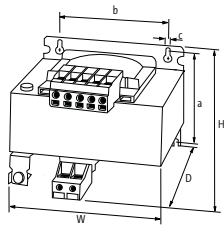


Transformers

Circuit diagram



Order Data	H×W×D/kg	Art-No.	H×W×D/kg	Art-No.
400 VA	113×151×146/7.4 – ENEC, GL	86477	113×151×146/7.4	6686477
Input				
Input voltage	230/400 ±15 V AC			
Frequency	50/60 Hz			
Output				
Output voltage	1 × 230, 1 × 115, 2 × 115 V AC			
General data				
Standards	(EN 61558-1), (EN 61558-2-4), (EN 62041 category 0)			
Test isolation voltage	4 kV (prim./sec.)			
Temperature range	-20...+60 °C, no condensation			
Mounting method	DIN-rail mountable TH35-15 (EN 60715) or for key-hole mounting			
Dimension drawing				



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Notes



RECTIFIED POWER SUPPLIES RELIABLE AND DURABLE

- Highly reliable
- Long life span saves money
- Low interference

Rectified Power Supplies

BASIC FUNCTIONS

Rectified power supplies galvanically separate input and output. They convert mains voltage into Protected Extra Low Voltage. The electronic unit rectifies and smooths the voltage.

Rectified power supplies are designed for a frequency of 50/60 Hz. Their slow reaction prevents voltage spikes from being passed from the mains side to the output, which would interfere with peripheral devices.

They have fixing brackets with keyholes that ensure easy wall mounting. Models for DIN-rail mounting are available for applications up to 5 A.

Single-phase, single/two-phase, smoothed



- MEN**
- Input voltage: 115/230 V AC and 230/400 V AC ±15 V AC reconnectable
 - Output voltage: 24 V DC SELV
 - Output current: 1.0/2.5/5/7.5/10/15/20 A

Page 1.2.1



- MTPS**
- Input voltage: 230/400 V AC ±15 V AC reconnectable
 - Output voltage: 24 V DC SELV
 - Output current: 0.5/1/2/4/6/10 A

Page 1.2.5

Single-phase, linear regulated



- MKN**
- Input voltage: 230 V AC ±15 V AC reconnectable
 - Output voltage: 5/10/±10/±15 or 24 V DC and 9.5...15 V DC (per SELV)
 - Output current: 70...200 mA

Page 1.2.7

Three-phase, smoothed



- MPL**
- Input voltage: 3 × 400 V AC ± 5 % reconnectable
 - Output voltage: 3 × 208...520 V AC
 - Output current: 24 V DC SELV
 - Output current: 5...60 A

Page 1.2.8

RECTIFIED POWER SUPPLIES

Single-phase

MEN

INPUT: 115/230 V AC

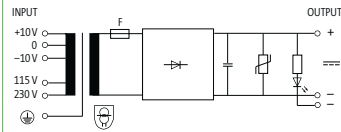


MEN

INPUT: 115/230 V AC
with DIN-rail adapter

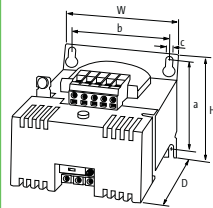
Approvals:

Circuit diagram



Order Data	HxWxD / kg	Art-No.	HxWxD / kg	Art-No.
24 V DC / 1 A	64x78x120 / 1.3	85360	64x78x120 / 1.3	8985360
24 V DC / 2.5 A	83x84x124 / 2.1	85361	83x84x124 / 2.1	8985361
24 V DC / 5 A	95x96x136 / 3.0	85362	95x96x136 / 3.0	8985362
24 V DC / 7.5 A	103x105x151 / 5.6	85363		
Accessories				Art-No.
Automotive fuses FKS (3 A)				90401
Automotive fuses FKS (5 A)				90403
Automotive fuses FKS (10 A)				90405
Automotive fuses FKS (15 A)				90406
Input				
Input voltage	115 / 230 V AC ±10 V AC			
Frequency	50 / 60 Hz			
Output				
Output voltage	24 V DC (SELV)			
Ripple	max. 5 % rms			
Output filter	LED, VDR and smoothing capacitor			
General data				
Standards	(EN 61558-2-6), (EN 62041 category I), (EN 55011 B), (EN 61000-3-2)			
Temperature range	-20...+60 °C, no condensation			
Mounting method	Key-hole mounting	DIN-rail mountable TH35-15 (EN 60715) or for key-hole mounting		

Dimension drawing



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Notes

1.2.1



Rectified Power Supplies

Rectified Power Supplies

RECTIFIED POWER SUPPLIES

Single-phase

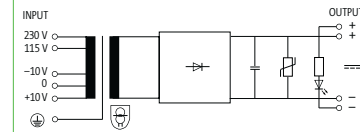
MEN

INPUT: 115/230 V AC

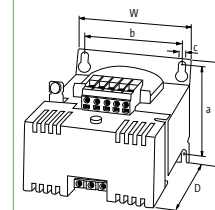


Approvals:

Circuit diagram



Order Data	HxWxD / kg	Art-No.
24 V DC / 10 A	113x120x160 / 6.0	85364
24 V DC / 15 A	139x135x182 / 8.2	85356
24 V DC / 20 A	127x174x214 / 12.8	85356
Accessories		Art-No.
Automotive fuses FKS (20 A)		90407
Input		
Input voltage	115 / 230 V AC ±10 V AC	
Frequency	50 / 60 Hz	
Output		
Output voltage	24 V DC (SELV)	
Ripple	max. 5 % rms	
Output filter	LED, VDR and smoothing capacitor	
General data		
Standards	(EN 61558-2-6), (EN 62041 category I), (EN 55011 B), (EN 61000-3-2)	
Temperature range	-20...+60 °C, no condensation	
Mounting method	Key-hole mounting	
Dimension drawing		



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Notes

1.2.2

RECTIFIED POWER SUPPLIES



1-/2-phase

MEN

INPUT: 230/400 V AC

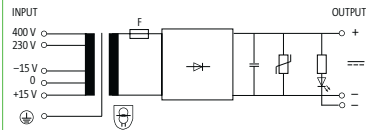


MEN

INPUT: 230/400 V AC
with DIN-rail adapter

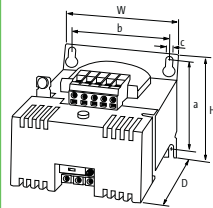
Approvals:

Circuit diagram



Order Data	H×W×D / kg	Art-No.	H×W×D / kg	Art-No.
24 V DC / 1 A	64×78×120 / 1.3	85349	64×78×120 / 1.3	8985349
24 V DC / 2.5 A	83×84×124 / 2.1	85350	83×84×124 / 2.1	8985350
24 V DC / 5 A	95×96×136 / 3.0	85351	95×96×136 / 3.0	8985351
24 V DC / 7.5 A	103×105×151 / 5.6	85357		
Accessories				Art-No.
Automotive fuses FKS (3 A)				90401
Automotive fuses FKS (5 A)				90403
Automotive fuses FKS (10 A)				90405
Automotive fuses FKS (15 A)				90406
Input				
Input voltage	230/400 ±15 V AC			
Frequency	50/60 Hz			
Output				
Output voltage	24 V DC (SELV)			
Ripple	max. 5 % rms			
Output filter	LED, VDR and smoothing capacitor			
General data				
Standards	(EN 61558-2-6), (EN 62041 category I), (EN 55011 B), (EN 61000-3-2)			
Temperature range	-20...+60 °C, no condensation			
Mounting method	Key-hole mounting	DIN-rail mountable TH35-15 (EN 60715) or for key-hole mounting		

Dimension drawing



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Notes

1.2.3

RECTIFIED POWER SUPPLIES

1-/2-phase

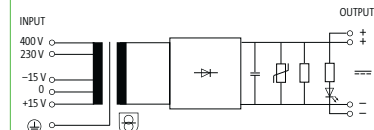
MEN

INPUT: 230/400 V AC

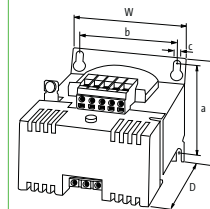


Approvals:

Circuit diagram



Order Data	H×W×D / kg	Art-No.
24 V DC / 10 A	113×120×160 / 6.0	85352
24 V DC / 15 A	139×135×182 / 8.2	85353
24 V DC / 20 A	127×174×214 / 12.8	85354
Accessories		Art-No.
Automotive fuses FKS (20 A)		90407
Input		
Input voltage	230/400 ±15 V AC	
Frequency	50/60 Hz	
Output		
Output voltage	24 V DC (SELV)	
Ripple	max. 5 % rms	
Output filter	LED, VDR and smoothing capacitor	
General data		
Standards	(EN 61558-2-6), (EN 62041 category I), (EN 55011 B), (EN 61000-3-2)	
Temperature range	-20...+60 °C, no condensation	
Mounting method	Key-hole mounting	
Dimension drawing		



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Notes

1.2.4

RECTIFIED POWER SUPPLIES

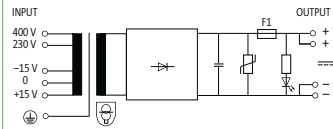


1-/2-phase

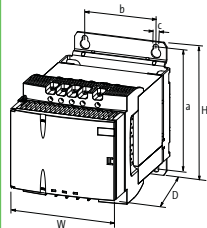
MTPS
INPUT: 230/400 V AC



Circuit diagram



Order Data	H×W×D / kg	Art-No.
24 V DC/0.5 A	108×87×124/1.3	85400
24 V DC/1 A	108×87×124/1.3	85401
24 V DC/2 A	108×87×142/2.0	85402
24 V DC/4 A	108×87×165/2.9	85403
Accessories		Art-No.
Glass automotive fuse 0.5 A (T)		89650
Label plates for MTL/MTPS		89661
Glass automotive fuse 1 A (T)		89651
Glass automotive fuse 2 A (T)		89652
Glass automotive fuse 4 A (T)		89653
Input		
Input voltage	230/400 ±15 V AC	
Frequency	50/60 Hz	
LED display	LED (green) for input voltage	
Output		
Output voltage	24 V DC (SELV)	
Ripple	max. 5 % rms	
Output filter	LED, VDR and smoothing capacitor	
General data		
Standards	(EN 61558-2-6), (EN 62041 category I), (EN 55011 B), (EN 61000-3-2)	
Temperature range	-20...+60 °C, no condensation	
Mounting method	DIN-rail mountable TH35-15 (EN 60715) or for key-hole mounting	
Dimension drawing		



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Notes

1.2.5

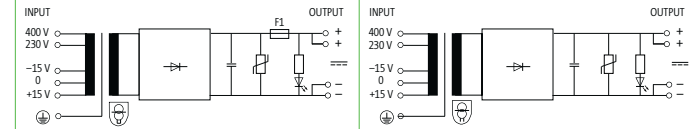
RECTIFIED POWER SUPPLIES

1-/2-phase

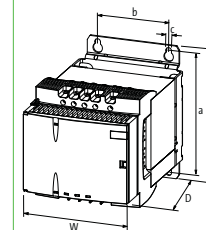
MTPS
INPUT: 230/400 V AC



Circuit diagram



Order Data	H×W×D / kg	Art-No.	H×W×D / kg	Art-No.
24 V DC/6 A	153×123×153/4.9	85404		
24 V DC/10 A			153×123×185/7.7	85405
Accessories				Art-No.
Label plates for MTL/MTPS				89661
Input				
Input voltage	230/400 ±15 V AC			
Frequency	50/60 Hz			
LED display	LED (green) for input voltage			
Output				
Output voltage	24 V DC (SELV)			
Ripple	max. 5 % rms			
Output filter	LED, VDR and smoothing capacitor			
General data				
Standards	(EN 61558-2-6), (EN 62041 category I), (EN 55011 B), (EN 61000-3-2)			
Temperature range	-20...+60 °C, no condensation			
Mounting method	Key-hole mounting			
Dimension drawing				



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Notes

1.2.6

RECTIFIED POWER SUPPLIES



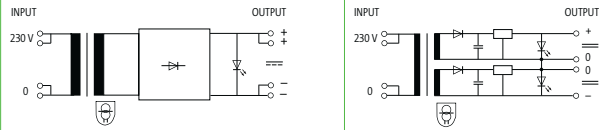
Single-phase, compact
– stable output voltage

MKN
INPUT: 230 V AC



Approvals:

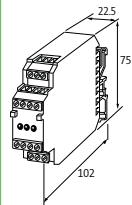
Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/70 mA	85610	
10 V DC/80 mA	85615	
5 V DC/200 mA	85620	
9.5...15 V DC/100 mA	85625	
2 × 10 V DC/2 × 50 mA		85616
2 × 15 V DC/2 × 35 mA		85617

Input		
Input voltage	207...253 V AC	
Frequency	50/60 Hz	
Output		
Ripple	max. 10 mV p-p	
Output filter	VDR and smoothing capacitor	LED, VDR and smoothing capacitor
Short-circuit and overload protection	yes	
LED display	LED (green): in operation	
General data		
Standards	(EN 61558-2-6), (EN 62041 category II), (EN 55011 B), (EN 61000-3-2)	
Temperature range	0...+60 °C, no condensation	
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)	

Dimension drawing



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Notes

1.2.7

RECTIFIED POWER SUPPLIES

3-phase

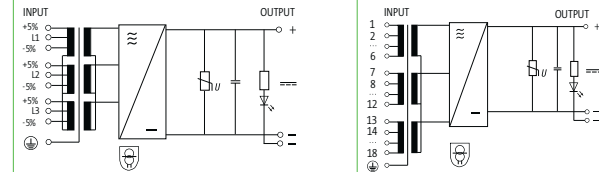
MPL

INPUT: 3 × 400 V AC, ±5% reconnectable



Approvals:

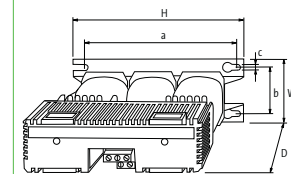
Circuit diagram



Order Data	H×W×D/kg	Art-No.	H×W×D/kg	Art-No.
24 V DC/5 A	125×73×153/2.9 – cURus	85921		
24 V DC/7.5 A	185×78×188/4.4 – cURus	85923		
24 V DC/10 A	185×78×188/4.5 – cURus	85925	185×93×188/6.6	85953
24 V DC/15 A	220×82×208/8.2 – cURus	85927	220×82×208/7.5	85954
24 V DC/20 A	220×103×213/10.5 – cURus	85929		
24 V DC/25 A	220×103×213/11.0 – cURus	85931	220×103×213/11.1	85955
24 V DC/30 A	240×107×250/13.5 – cURus	85933		
24 V DC/40 A	280×124×313/17.8 – cURus	85935	280×124×313/17.9	85956
24 V DC/50 A	280×134×313/20.9 – cURus	85937	280×134×313/20.9	85957
24 V DC/60 A	280×154×313/26.1 – cURus	85939		

Input	
Input voltage	3 × 400 V AC ±5 %
Frequency	50/60 Hz
Output	
Output voltage	24 V DC (SELV)
Ripple	max. 2 % rms
Output filter	LED, VDR and smoothing capacitor
General data	
Standards	(EN 61558-2-6), (EN 62041 category I), (EN 55011 B), (EN 61000-3-2)
Temperature range	-20...+55 °C, for any mounting position at vertical wall, no condensation
Mounting method	Key-hole mounting

Dimension drawing

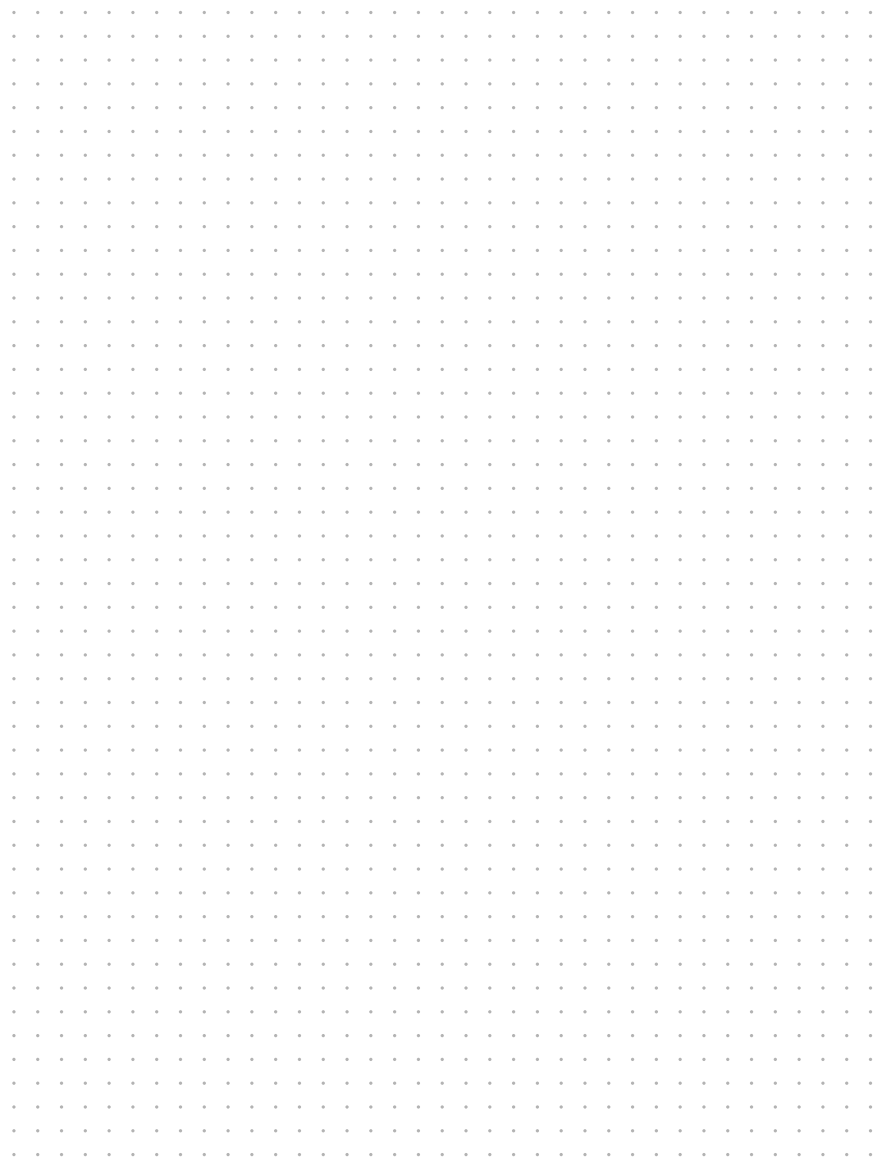


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Notes

1.2.8

NOTES



POWER SUPPLY UNITS EMPARRO – SIMPLY THE BEST

- Up to 95% efficiency
- 150% power boost for 4 seconds
- Cutting edge technology

EMPARRO – THE POWER SUPPLY WITH MAXIMUM EFFICIENCY

- Efficiency up to 95 %
- 150% power boost for 4 seconds
- Metal housing with optimum EMC characteristics
- No derating between -25°C to +60°C
- Very small width
- High mains failure bridging time
- Seven models, the solution for many applications

Emparro Compared to the Competitors

The comparison is based on the same input current: Emparro (left) emits significantly less heat energy than conventional power supply units. The device itself remains cooler which protects the components installed near the unit. This increases their lifetime.



Power Supply Units

 <p>Emparro</p> <ul style="list-style-type: none"> • Single-phase • 150 % power boost • Spring clamp terminals <p>Page 1.3.1</p>	 <p>ECO Rail/ECO Power</p> <ul style="list-style-type: none"> • Single-phase • Full power up to 40 °C ambient temperature • Screw terminal connection <p>Page 1.3.3</p>
 <p>PICCO</p> <ul style="list-style-type: none"> • 16 models • 12 V or 24 V outputs • 10 W, 30 W, 60 W oder 100 W <p>Page 1.3.7</p>	 <p>MCS-B</p> <ul style="list-style-type: none"> • Single-phase • Wide voltage input • Parallel and series operation possible <p>Page 1.3.9</p>
 <p>Evolution67</p> <ul style="list-style-type: none"> • Single-phase • IP67 <p>Page 1.3.13</p>	 <p>Evolution/Evolution+</p> <ul style="list-style-type: none"> • Two-/three-phase • Extended temperature range of -25 °C... +70 °C • Approvals for applications worldwide <p>Page 1.3.14</p>

POWER SUPPLY UNITS



Single-phase, primary switched

– short-circuit and overload protected

Emparro
OUTPUT: 12 V DC



Emparro
OUTPUT: 48 V DC



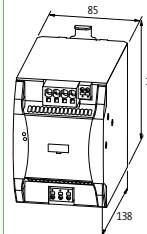
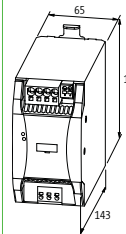
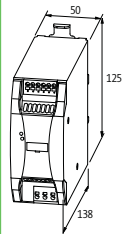
Emparro
OUTPUT: 48 V DC



Emparro
OUTPUT: 48 V DC



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
12 V DC/10 A	cURus, cULus	85434		
48 V DC/2.5 A		cURus, cULus	85437	
48 V DC/5 A			cURus, cULus	85438
48 V DC/10 A				85439
Input				
Input voltage	85...265 V AC/90...250 V DC			
Input current	1.2 A (100 V AC); 0.6 A (230 V AC)	1.2 A (100 V AC); 0.6 A (240 V AC)	2.6 A (100 V AC); 1.1 A (240 V AC)	5.1 A (100 V AC); 2.4 A (240 V AC)
Inrush current after 1 ms	max. 10 A (230 V AC)	max. 3.5 A (230 V AC)	max. 5.5 A (230 V AC)	max. 11 A (230 V AC)
Power factor	0.88 (230 V AC)	0.87 (230 V AC)	0.95 (230 V AC)	0.94 (230 V AC)
External fuse	max. 20 A (T), cable protection			
Frequency	50/60 Hz			
Output				
Output voltage	12 V DC (SELV), ±1 %; 12...15 V adjustable	48 V DC (SELV), ±1 %; 48...56 V adjustable		
Powerboost	+150 % (min. 4 seg.)			
Constant current	10 A	2.5 A	5 A	10 A
Mains failure bridging time	min. 30 ms (100 V AC); 10 A (12 V DC)	min. 30 ms (100 V AC); 2.5 A (48 V DC)	min. 30 ms (100 V AC); 5 A (48 V DC)	min. 30 ms (100 V AC); 10 A (48 V DC)
Ripple	max. 50 mV rms			
Spikes	max. 200 mV p-p			
Short-circuit and overload protection	yes			
LED display	LED (green): OK; LED (red): overload, overheating or short-circuit			
Parallel usage/serial usage	max. 5 units/max. 2 units			
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55011 B), (EN 61000-3-2)			
Relative humidity	5...95 %, no condensation			
Efficiency	92.7 % (12 V DC/7.5 A)	93.7 % (48 V DC/1.88 A)	94.5 %	95 %
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)			
Mounting method	DIN-rail mountable TH35 (EN 60715)			
Dimension drawing				



Power Supply Units

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Notes

1.3.1

POWER SUPPLY UNITS

Single-phase, primary switched

– short-circuit and overload protected

Emparro
OUTPUT: 24 V DC



Emparro
OUTPUT: 24 V DC

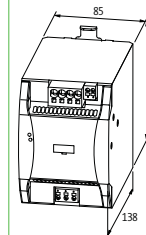
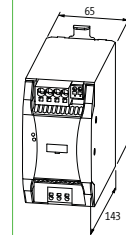
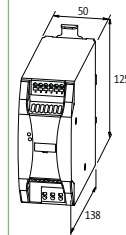


Emparro
OUTPUT: 24 V DC



Power Supply Units

Order Data	Art-No.	Art-No.	Art-No.
24 V DC/5 A	cURus, cULus	85440	
24 V DC/10 A		cURus, cULus	85441
24 V DC/20 A			85442
Input			
Input voltage	85...265 V AC/90...250 V DC		
Input current	1.3 A (100 V AC); 0.61 A (240 V AC)	2.6 A (100 V AC); 1.1 A (240 V AC)	5.2 A (100 V AC); 2.2 A (240 V AC)
Inrush current after 1 ms	max. 5.5 A (230 V AC)		max. 13 A (230 V AC)
Power factor	0.87 (230 V AC)	0.95 (230 V AC)	0.96 (230 V AC)
External fuse	max. 20 A (T)		
Frequency	50/60 Hz		
Output			
Output voltage	24 V DC (SELV), ±1 %; 24...28 V adjustable		
Powerboost	+150 % (min. 4 seg.)		
Constant current	5 A	11.8 A	20 A
Mains failure bridging time	min. 30 ms (230 V AC); 5 A (24 V DC)	min. 30 ms (230 V AC); 10 A (24 V DC)	min. 30 ms (230 V AC); 20 A (24 V DC)
Ripple	max. 50 mV rms		
Spikes	max. 200 mV p-p		
Short-circuit and overload protection	yes		
LED display	LED (green): OK; LED (red): overload, overheating or short-circuit		
Parallel usage/serial usage	max. 5 units/max. 2 units		
General data			
Standards	(EN 60950-1), (EN 61204-3), (EN 55011 B), (EN 61000-3-2)		
Relative humidity	5...95 %, no condensation		
Efficiency	84.7 % (100 V AC); 93.4 % (230 V AC)	94.3 % (230 V AC)	93.8 % (230 V AC)
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)		
Mounting method	DIN-rail mountable TH35 (EN 60715)		
Dimension drawing			



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Notes

1.3.2

POWER SUPPLY UNITS



Single-phase

– short-circuit and overload protected

Eco Rail

OUTPUT: 24 V DC
Current: 1.3 A



Eco Rail

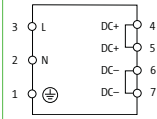
OUTPUT: 24 V DC
Current: 2.5 A

Eco Rail

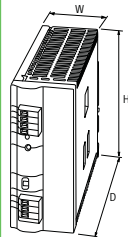
OUTPUT: 24 V DC
Current: 5 A

Approvals:

Circuit diagram



Order Data	HxWxD	Art-No.	HxWxD	Art-No.	HxWxD	Art-No.
24 V DC/1.3 A	125x50x70 mm	85301				
24 V DC/2.5 A			125x50x80 mm	85302		
24 V DC/5 A					125x50x125 mm	85303
Input						
Input voltage	100...240 V AC		90...132 V AC/173...264 V AC			
Input current	0.7 A (115 V AC); 0.4 A (230 V AC)		1.1 A (115 V AC); 0.6 A (230 V AC)		2.3 A (115 V AC); 1.2 A (230 V AC)	
Inrush current after 1 ms	max. 20 A					
External fuse	max. 20 A					
Frequency	50/60 Hz					
Output						
Output voltage	24 V DC $\pm 1\%$					
Output current	1.3 A (+40 °C); 1.0 A (+55 °C)		2.5 A (+40 °C); 2.0 A (+55 °C)		5 A (+40 °C); 4 A (+55 °C)	
Mains failure bridging time	min. 25 ms (115 V AC); min. 130 ms (230 V AC)		min. 20 ms (115 V AC); min. 100 ms (230 V AC)		min. 40 ms (115 V AC); min. 40 ms (230 V AC)	
Ripple	max. 20 mV rms					
Short-circuit and overload protection	yes					
Spikes	max. 100 mV p-p				max. 60 mV p-p	
LED display	LED (green) for output voltage					
Parallel usage/serial usage	no/yes (max. 2 units)					
General data						
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)					
Mounting method	DIN-rail mountable TH35 (EN 60715)					
Efficiency	84 % (115 V AC); 84 % (230 V AC)		85 % (115 V AC); 87 % (230 V AC)		84 % (115 V AC); 86 % (230 V AC)	
Relative humidity	20...90 %, no condensation					
Temperature range	0...+40 °C, to +55 °C derating (storage temperature -20...+85 °C)					
Dimension drawing						



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Notes

1.3.3

POWER SUPPLY UNITS

Single-phase

– short-circuit and overload protected

Eco Rail

OUTPUT: 24 V DC
Current: 10 A



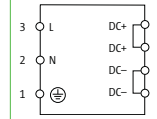
Eco Rail

OUTPUT: 24 V DC
Current: 20 A

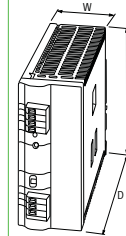


Approvals:

Circuit diagram



Order Data	HxWxD	Art-No.	HxWxD	Art-No.
24 V DC/10 A	125x72x125 mm	85305		
24 V DC/20 A			125x105x127 mm	85307
Input				
Input voltage	90...132 V AC/173...264 V AC			
Input current	4 A (115 V AC); 2.4 A (230 V AC)		9 A (100 V AC); 4.5 A (200 V AC)	
Inrush current after 1 ms	max. 20 A		max. 30 A	
External fuse	max. 20 A			
Frequency	50/60 Hz			
Output				
Output voltage	24 V DC $\pm 1\%$			
Output current	10 A (+40 °C); 7.5 A (+55 °C)		20 A (+40 °C); 16 A (+55 °C)	
Mains failure bridging time	min. 20 ms (115 V AC); min. 20 ms (230 V AC)		min. 15 ms (115 V AC); min. 30 ms (230 V AC)	
Ripple	max. 20 mV rms		max. 50 mV rms	
Short-circuit and overload protection	yes			
Spikes	max. 150 mV p-p		max. 100 mV p-p	
LED display	LED (green) for output voltage			
Parallel usage/serial usage	no/yes (max. 2 units)			
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B)			
Mounting method	DIN-rail mountable TH35 (EN 60715)			
Efficiency	87 % (115 V AC); 88 % (230 V AC)		87 % (115 V AC); 89 % (230 V AC)	
Relative humidity	20...90 %, no condensation			
Temperature range	0...+40 °C, to +55 °C derating (storage temperature -20...+85 °C)			
Dimension drawing				



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Notes

1.3.4

POWER SUPPLY UNITS



Single-phase

– short-circuit and overload protected

Eco Power

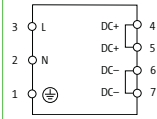
OUTPUT: 24 V DC
Current: 1.3 A



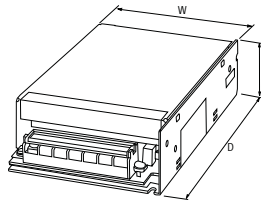
Eco Power

OUTPUT: 24 V DC
Current: 2.5 A

Circuit diagram



Order Data	HxWxD	Art-No.	HxWxD	Art-No.
24 V DC/1.3 A	36x77x105 mm	85151		
24 V DC/2.5 A			40x98x135 mm	85152
Input				
Input voltage	100...240 V AC			
Input current	0.7 A (115 V AC); 0.4 A (230 V AC)		1.2 A (115 V AC); 0.5 A (230 V AC)	
Inrush current after 1 ms	max. 20 A			
External fuse	max. 16 A			
Frequency	50/60 Hz			
Output				
Output voltage	24 V DC ±1 %			
Output current	1.3 A (+40 °C); 1.04 A (+50 °C)		2.5 A (+40 °C); 2.0 A (+50 °C)	
Mains failure bridging time	min. 10 ms (115 V AC); min. 90 ms (230 V AC)			
Ripple	max. 20 mV rms			
Short-circuit and overload protection	yes			
Spikes	max. 100 mV p-p			
LED display	LED (green) for output voltage			
Parallel usage/serial usage	no/yes (max. 2 units)			
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55011 B)			
Mounting method	screw fixing, M3			
Efficiency	85 % (115 V AC); 85 % (230 V AC)		85 % (115 V AC); 87 % (230 V AC)	
Relative humidity	20...90 %, no condensation			
Temperature range	0...+40 °C, to +50 °C derating (storage temperature -20...+85 °C)			
Dimension drawing				



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Notes

1.3.5

POWER SUPPLY UNITS

Single-phase

– short-circuit and overload protected

Eco Power

OUTPUT: 24 V DC
Current: 5 A



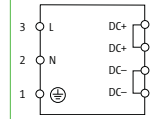
Eco Power

OUTPUT: 24 V DC
Current: 7.5 A

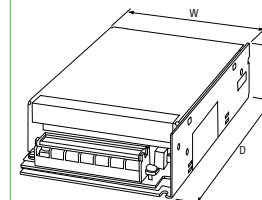
Eco Power

OUTPUT: 24 V DC
Current: 10 A

Circuit diagram



Order Data	HxWxD	Art-No.	HxWxD	Art-No.	HxWxD	Art-No.
24 V DC/5 A	41x98x164 mm	85153				
24 V DC/7.5 A			50x100x205 mm	85154		
24 V DC/10 A					50x115x230 mm	85155
Input						
Input voltage	100...240 V AC		100...120 V AC/200...240 V AC			
Input current	2.4 A (115 V AC); 1.0 A (230 V AC)		3.4 A (115 V AC); 1.9 A (230 V AC)		4.6 A (115 V AC); 2.8 A (230 V AC)	
Inrush current after 1 ms	max. 20 A					
External fuse	max. 16 A					
Frequency	50/60 Hz					
Output						
Output voltage	24 V DC ±1 %					
Output current	5 A (+40 °C); 4 A (+50 °C)		7.5 A (+40 °C); 6.0 A (+50 °C)		10 A (+40 °C); 8 A (+50 °C)	
Mains failure bridging time	min. 15 ms (115 V AC); min. 80 ms (230 V AC)		min. 20 ms (115 V AC); min. 20 ms (230 V AC)		min. 15 ms (115 V AC); min. 15 ms (230 V AC)	
Ripple	max. 30 mV rms		max. 50 mV rms		max. 30 mV rms	
Spikes	max. 100 mV p-p				max. 200 mV p-p	
Short-circuit and overload protection	yes					
LED display	LED (green) for output voltage					
Parallel usage/serial usage	no/yes (max. 2 units)					
General data						
Standards	(EN 60950-1), (EN 61204-3), (EN 55011 B)					
Mounting method	screw fixing, M3			screw fixing, M4		
Efficiency	86 % (115 V AC); 87 % (230 V AC)		85 % (115 V AC); 86 % (230 V AC)		84 % (115 V AC); 85 % (230 V AC)	
Relative humidity	20...90 %, no condensation					
Temperature range	0...+40 °C, to +50 °C derating (storage temperature -20...+85 °C)					
Dimension drawing						



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Notes

1.3.6

POWER SUPPLY UNITS



Single-phase

– short-circuit and overload protected

Picco

OUTPUT: 24 V DC ± 1%
Current: 0.42 A



Picco

OUTPUT: 24 V DC ± 1%
Current: 1.25 A



Picco

OUTPUT: 24 V DC ± 1%
Current: 2.5 A



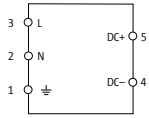
Picco

OUTPUT: 24 V DC ± 1%
Current: 4.2 A



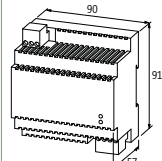
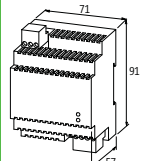
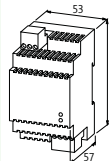
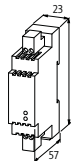
Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
Screw terminals	24 V DC/0.42 A 87011	24 V DC/1.25 A 87013	24 V DC/2.5 A 87015	24 V DC/4.2 A 87017
Spring clamp plug-in terminals	24 V DC/0.42 A 87111	24 V DC/1.25 A 87113	24 V DC/2.5 A 87115	24 V DC/4.2 A 87117
Input				
Input voltage	100...240 V AC; 120...370 V DC			
Input current	0.2 A (115 V AC); 0.12 A (230 V AC)	0.6 A (115 V AC); 0.4 A (230 V AC)	1.1 A (115 V AC); 0.6 A (230 V AC)	1.7 A (115 V AC); 1 A (230 V AC)
Inrush current after 1 ms	max. 30 A	max. 40 A	max. 60 A	
External fuse	max. 10 A		max. 16 A	max. 10 A
Frequency	50/60 Hz			
Output				
Output voltage	24 V DC (SELV), ±1%; 24...28 V adjustable			
Output current	0.42 A (+50 °C); 0.042 A (+70 °C)	1.25 A (+50 °C); 0.125 A (+70 °C)	2.5 A (+50 °C); 0.25 A (+70 °C)	4.2 A (+50 °C); 0.42 A (+70 °C)
Mains failure bridging time	10...25 ms (115 V AC)			
Ripple	max. 20 mV rms			
Short-circuit and overload protection	yes			
Spikes	max. 100 mV p-p			
LED display	LED (green) for output voltage			
Parallel usage/serial usage	max. 5 units/max. 2 units			
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)			
Relative humidity	20...90 %, no condensation			
Efficiency	79 % (110 V AC); 80 % (230 V AC)		86 % (110 V AC); 88 % (230 V AC)	
Temperature range	0...+50 °C, to +70 °C derating (storage temperature -25...+70 °C)			
Mounting method	DIN-rail mountable TH35 (EN 60715)			

Dimension drawing



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Notes

Power Supply Units

POWER SUPPLY UNITS

Single-phase

– short-circuit and overload protected

Picco

OUTPUT: 12 V DC ± 1%
Current: 0.85 A



Picco

OUTPUT: 12 V DC ± 1%
Current: 2.5 A



Picco

OUTPUT: 12 V DC ± 1%
Current: 4.5 A



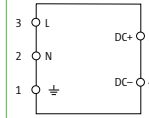
Picco

OUTPUT: 12 V DC ± 1%
Current: 6 A



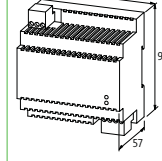
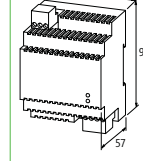
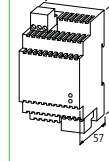
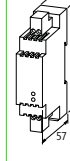
Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
Screw terminals	12 V DC/0.85 A 87012	12 V DC/2.5 A 87014	12 V DC/4.5 A 87016	12 V DC/6 A 87018
Spring clamp plug-in terminals	12 V DC/0.85 A 87112	12 V DC/2.5 A 87114	12 V DC/4.5 A 87116	12 V DC/6 A 87118
Input				
Input voltage	100...240 V AC; 120...370 V DC			
Input current	0.2 A (115 V AC); 0.12 A (230 V AC)	0.6 A (115 V AC); 0.4 A (230 V AC)	1 A (115 V AC); 0.58 A (230 V AC)	1.3 A (115 V AC); 0.75 A (230 V AC)
Inrush current after 1 ms	max. 30 A	max. 40 A	max. 60 A	
External fuse	max. 10 A		max. 16 A	max. 10 A
Frequency	50/60 Hz			
Output				
Output voltage	12 V DC (SELV), ±1%; 12...15 V adjustable			
Output current	0.85 A (+50 °C); 0.085 A (+70 °C)	2.5 A (+50 °C); 0.25 A (+70 °C)	4.5 A (+50 °C); 0.45 A (+70 °C)	6 A (+50 °C); 0.6 A (+70 °C)
Mains failure bridging time	10...25 ms (115 V AC)			
Ripple	max. 20 mV rms			
Short-circuit and overload protection	yes			
Spikes	max. 100 mV p-p			
LED display	LED (green) for output voltage			
Parallel usage/serial usage	max. 5 units/max. 2 units			
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)			
Relative humidity	20...90 %, no condensation			
Efficiency	86 % (110 V AC); 88 % (230 V AC)			
Temperature range	0...+50 °C, to +70 °C derating (storage temperature -25...+70 °C)			
Mounting method	DIN-rail mountable TH35 (EN 60715)			

Dimension drawing



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Notes

POWER SUPPLY UNITS



Single-phase, primary switched

– stable output voltage,
(short-circuit and overload
protected)

Approvals:

MCS-B

OUTPUT: 24 V DC \pm 1%
Current: 0.6 A



MCS-B

OUTPUT: 24 V DC \pm 1%
Current: 1.3 A

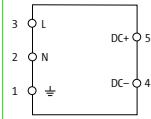
MCS-B

OUTPUT: 24 V DC \pm 1%
Current: 2.5 A

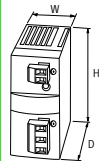


Power Supply Units

Circuit diagram



Order Data	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.
24 V DC/0.6 A	76x38x80/0.1	85160				
24 V DC/1.3 A			76x38x80/0.1	85161		
24 V DC/2.5 A					76x38x101/0.2	85162
Input						
Input voltage	90...265 V AC; 110...300 V DC				95...265 V AC; 110...300 V DC	
Input current	0.3 A (100 V AC); 0.2 A (230 V AC)		0.65 A (100 V AC); 0.37 A (230 V AC)		1.04 A (110 V AC); 0.63 A (230 V AC)	
Inrush current after 1 ms	max. 20 A					
External fuse	max. 10 A					
Frequency	50/60 Hz					
Output						
Output voltage	24 V DC (SELV), \pm 1%; 22...28 V adjustable					
Output current	0.6 A (+50 °C); 0.5 A (+60 °C)		1.3 A (+60 °C, U _{in} min.170 V AC)		2.5 A (+40 °C); 2.0 A (+55 °C)	
Mains failure bridging time	min. 25 ms (100 V AC); min. 150 ms (230 V AC)		min. 15 ms (100 V AC); min. 100 ms (230 V AC)		min. 15 ms (110 V AC); min. 80 ms (230 V AC)	
Ripple	max. 50 mV rms					
Spikes	max. 350 mV p-p		max. 120 mV p-p			
Short-circuit and overload protection	yes					
LED display	LED (green) for output voltage					
Parallel usage/serial usage	max. 5 units/max. 2 units					
General data						
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)					
Relative humidity	5...95 %, no condensation					
Efficiency	81 % (100 V AC); 83 % (230 V AC)		82 %		85 % (110 V AC); 87 % (230 V AC)	
Temperature range	0...+50 °C, to +70 °C derating (storage temperature -25...+85 °C)		0...+40 °C, to +70 °C derating (storage temperature -25...+85 °C)			
Mounting method	DIN-rail mountable TH35 (EN 60715)					



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Notes

1.3.9

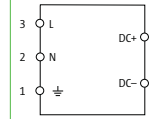
POWER SUPPLY UNITS

Single-phase, primary switched

– stable output voltage,
(short-circuit and overload
protected)

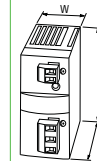
Power Supply Units

Circuit diagram



Order Data	HxWxD/kg	Art.No.	HxWxD/kg	Art.No.
5 V DC/3 A	76x38x80/0.1	85371		
12 V DC/1 A			76x38x80/0.1	85372
Input				
Input voltage	95...265 V AC; 110...300 V DC		90...265 V AC; 110...300 V DC	
Input current	0.3 A (115 V AC); 0.2 A (230 V AC)		0.29 A (115 V AC); 0.16 A (230 V AC)	
Inrush current after 1 ms	max. 15 A		max. 20 A	
External fuse	max. 10 A			
Frequency	50/60 Hz			
Output				
Output voltage	5 V DC (SELV), \pm 1%; 4.2...6 V adjustable		12 V DC (SELV), \pm 1%; 12...15 V adjustable	
Output current	3 A (+40 °C); 2.5 A (+55 °C)		1 A (+50 °C); 0.8 A (+60 °C)	
Mains failure bridging time	min. 30 ms (115 V AC); min. 180 ms (230 V AC)		min. 20 ms (115 V AC); min. 150 ms (230 V AC)	
Ripple	max. 20 mV rms		max. 50 mV rms	
Spikes	max. 120 mV p-p		max. 300 mV p-p	
Short-circuit and overload protection	yes			
LED display	LED (green) for output voltage			
Parallel usage/serial usage	no/yes (max. 2 units)			
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)			
Relative humidity	5...95 %, no condensation			
Efficiency	80 %		77 %	
Temperature range	0...+40 °C, to +55 °C derating (storage temperature -25...+85 °C)		0...+50 °C, to +60 °C derating (storage temperature -25...+85 °C)	
Mounting method	DIN-rail mountable TH35 (EN 60715)			

Dimension drawing



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Notes

1.3.10

POWER SUPPLY UNITS



Single-phase, primary switched

– stable output voltage,
(short-circuit and overload
protected)

MCS-B

OUTPUT: 12 V DC ± 1%
Current: 2.5 A



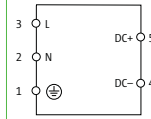
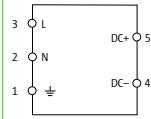
MCS-B

OUTPUT: 24 V DC ± 1%
Current: 5 A



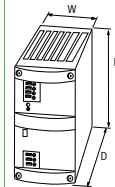
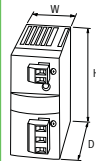
Power Supply Units

Circuit diagram



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
12 V DC/2.5 A	76x38x80/0.2	85373		
24 V DC/5 A			115x54x125/0.5 – cULus, cURus, GL	85163
Accessories				Art-No.
Mounting plate 40 mm				89851
Input				
Input voltage	95...265 V AC; 110...300 V DC		100...265 V AC	
Input current	0.56 A (115 V AC); 0.31 A (230 V AC)		2 A (110 V AC); 1.16 A (230 V AC)	
Inrush current after 1 ms	max. 20 A		max. 30 A	
External fuse	max. 10 A			
Frequency	50/60 Hz			
Output				
Output voltage	12 V DC (SELV), ±1 %; 12...15 V adjustable		24 V DC (SELV), ±1 %; 22...28 V adjustable	
Output current	2.5 A (+40 °C); 2.1 A (+55 °C)		5 A (+40 °C); 4 A (+55 °C)	
Mains failure bridging time	min. 20 ms (115 V AC); min. 110 ms (230 V AC)		min. 10 ms (110 V AC); min. 80 ms (230 V AC)	
Ripple	max. 50 mV rms		max. 20 mV rms	
Spikes	max. 120 mV p-p		max. 100 mV p-p	
Short-circuit and overload protection	yes			
LED display	LED (green) for output voltage			
Parallel usage/serial usage	no/yes (max. 2 units)		max. 5 units/max. 2 units	
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)		(EN 60950-1), (EN 61204-3), (EN 55011 A)	
Relative humidity	5...95 %, no condensation			
Efficiency	82 %		86 % (115 V AC); 87 % (230 V AC)	
Temperature range	0...+40 °C, to +55 °C derating (storage temperature -25...+85 °C)		0...+40 °C, to +70 °C derating (storage temperature -25...+85 °C)	
Mounting method	DIN-rail mountable TH35 (EN 60715)			

Dimension drawing



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Notes

1.3.11

POWER SUPPLY UNITS

Single-phase, primary switched

– stable output voltage,
(short-circuit and overload
protected)

MCS-B

OUTPUT: 24 V DC ± 1%
Current: 7.5 A



MCS-B

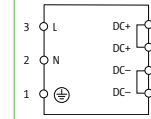
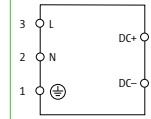
OUTPUT: 24 V DC ± 1%
Current: 10 A



Power Supply Units

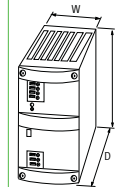
Approvals: **ULus**
Listed

Circuit diagram



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
24 V DC/7.5 A	115x54x145/0.7	85164		
24 V DC/10 A			128x68x165/0.8 – cURus, GL	85165
Accessories				Art-No.
Screw mounting set				89514
Input				
Input voltage	100...265 V AC			
Input current	2.9 A (115 V AC); 1.6 A (230 V AC)		3.4 A (115 V AC); 2.2 A (230 V AC)	
Inrush current after 1 ms	max. 37 A		max. 40 A	
External fuse	max. 10 A		max. 16 A	
Frequency	50/60 Hz			
Output				
Output voltage	24 V DC (SELV), ±1 %; 22...28 V adjustable			
Output current	7.5 A (+40 °C), 6 A (+55 °C)		10 A (+40 °C); 8 A (+55 °C)	
Mains failure bridging time	min. 14 ms (115 V AC); min. 80 ms (230 V AC)		min. 15 ms (115 V AC); min. 115 ms (230 V AC)	
Ripple	max. 20 mV rms			
Spikes	max. 100 mV p-p			
Short-circuit and overload protection	yes			
LED display	LED (green) for output voltage			
Parallel usage/serial usage	max. 5 units/max. 2 units			
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55011 A)			
Relative humidity	5...95 %, no condensation			
Efficiency	87 %		83 % (115 V AC); 85 % (230 V AC)	
Temperature range	0...+40 °C, to +70 °C derating (storage temperature -25...+85 °C)			
Mounting method	DIN-rail mountable TH35 (EN 60715)			

Dimension drawing



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Notes

1.3.12

POWER SUPPLY UNITS



Single-phase, primary switched

– stable output voltage,
(short-circuit and overload
protected)

Approvals:

MCS

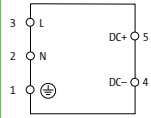
OUTPUT: 12 V DC ± 1%
Current: 5 A



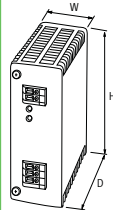
MCS

OUTPUT: 5 V DC ± 1%
Current: 6 A

Circuit diagram



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
12 V DC/5 A	108x42x98/0,4	85040		
5 V DC/6 A			108x42x98/0,4	85041
Input				
Input voltage	90...265 V AC; 110...300 V DC		100...240 V AC	
Input current	1.1 A (115 V AC); 0.6 A (230 V AC)		0.5 A (115 V AC); 0.3 A (230 V AC)	
Inrush current after 1 ms	max. 28 A		max. 22 A	
External fuse	max. 10 A			
Frequency	50/60 Hz			
Output				
Output voltage	12 V DC (SELV), ±1 %; 10...15 V adjustable		5 V DC (SELV), ±1 %, 4...6 V adjustable	
Output current	5 A (+55 °C); 6 A (+45 °C)		6 A (+60 °C); 7.5 A (+50 °C)	
Mains failure bridging time	min. 10 ms (115 V AC); min. 70 ms (230 V AC)		min. 12 ms (115 V AC); min. 90 ms (230 V AC)	
Ripple	max. 20 mV rms		max. 10 mV rms	
Spikes	max. 200 mV p-p		max. 50 mV p-p	
Short-circuit and overload protection	yes			
LED display	LED (green) for output voltage			
Parallel usage/serial usage	no/yes (max. 2 units)			
General data				
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)			
Relative humidity	5...95 %, no condensation		80 %	
Efficiency	85 %			
Temperature range	0...+55 °C (storage temperature -25...+85 °C)		0...+60 °C (storage temperature -25...+85 °C)	
Mounting method	DIN-rail mountable TH35 (EN 60715)			
Dimension drawing				



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Notes

1.3.13

POWER SUPPLY UNITS

Single-phase, primary switched

– stable output voltage,
(short-circuit and overload
protected)

Evolution67

OUTPUT: 24 V DC ± 2%
Current: 3.8 A



Evolution67

OUTPUT: 24 V DC ± 2%
Current: 8 A



Evolution67

OUTPUT: 24 V DC
Current: 2 x 3.8 A galvanically separated



Order Data

24 V DC/3.8 A
24 V DC/8 A
24 V DC/2 x 3.8 A

Art-No.
85673

Art-No.
85674

Art-No.
85675

Input

Input voltage 100...240 V AC
Input current 2 A (115 V AC); 1 A (240 V AC)
External fuse max. 10 A (C)
Inrush current after 1 ms –
Frequency 50/60 Hz

90...264 V DC
2.4 A (115 V AC); 1.2 A (230 V AC)
max. 9 A

100...240 V AC
2 A (115 V AC); 1 A (230 V AC)

Output

Output voltage 24 V DC (SELV), ±2 %
Output current 3.8 A (+50 °C); 2.3 A (+70 °C) | 8 A (+60 °C); 6.4 A (+70 °C) | 2 x 3.8 A (+50 °C); 2 x 2.3 A (+70 °C)
Mains failure bridging time min. 50 ms (230 V AC); 3.8 A (24 V DC) | min. 50 ms (230 V AC); 8 A (24 V DC) | min. 50 ms (230 V AC); 3.8 A (24 V DC)
Powerboost – | +150 % (min. 4 seg.) | –
Ripple max. 1 %
Spikes max. 240 mV p-p
LED display LED (green): OK

General data

Standards (EN 60950-1), (EN 61204-3), (EN 55011 A), (EN 61000-3-2)
Relative humidity 5...95 %, no condensation
Protection IP67 inserted and tightened (EN 60529)
Efficiency 90 % | 89 %
Temperature range -25...+70 °C (storage temperature -40...+85 °C) | -25...+60 °C (storage temperature -40...+85 °C) | -25...+70 °C (storage temperature -40...+85 °C)

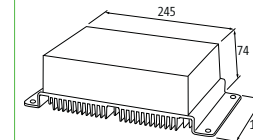
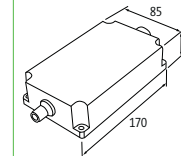
Connection

IN: M12, C-coded; OUT: 7/8"

Mounting method

screw fixing, M5

Dimension drawing



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Notes

1.3.14

POWER SUPPLY UNITS

2-/3-phase

– stable output voltage,
(short-circuit and overload
protected)

Approvals:  

Evolution

OUTPUT: 24 V DC ± 1%
Current: 5 A



Evolution

OUTPUT: 24 V DC ± 1%
Current: 10 A



Evolution

OUTPUT: 24 V DC ± 1%
Current: 20 A

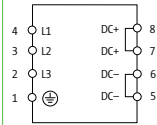


Evolution

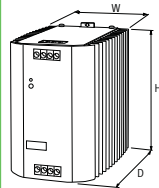
OUTPUT: 24 V DC ± 1%
Current: 40 A



Power Supply Units



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
24 V DC/5 A	132x83x98/1,0	85000						
24 V DC/10 A			132x93x114/1,3	85001				
24 V DC/20 A					132x113x136/2,0	85002		
24 V DC/40 A							132x164x142/3,0	85004
Input								
Input voltage	3 × 324...572 V AC/480...745 V DC							
Input current	3 × 0,3 A		3 × 0,8 A		3 × 1,3 A		3 × 2,4 A	
Inrush current after 1 ms	max. 10 A		max. 15 A		max. 19 A		–	
External fuse	max. 3 × 10 A				max. 3 × 20 A			
Frequency	50/60 Hz							
Output								
Output voltage	24 V DC (SELV), ±1 %; 22...28 V adjustable							
Output current	5 A (+55 °C); 3 A (+70 °C)		10 A (+55 °C); 6,5 A (+70 °C)		20 A (+55 °C); 15,8 A (+70 °C)		40 A (+55 °C); 30 A (+70 °C)	
Powerboost	+150 % (min. 4 seg.)							
Mains failure bridging time	min. 30 ms (400 V AC)		min. 19 ms (400 V AC)					
Ripple	max. 50 mV rms							
Spikes	max. 100 mV p-p							
LED display	LED (green): OK; LED (red): overload							
Parallel usage/serial usage	max. 5 units/max. 2 units							
General data								
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)				(EN 60950-1), (EN 61204-3), (EN 55011 A)			
Temperature range	-25...+70 °C (storage temperature -40...+85 °C)							
Relative humidity	5...95 %, no condensation							
Efficiency	86 %		90 %					
Mounting method	DIN-rail mountable TH35 (EN 60715)							
Protection	IP20							
Dimension drawing								



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Notes

13.15

POWER SUPPLY UNITS

2-/3-phase

– stable output voltage,
(short-circuit and overload
protected)

Approvals:  

Evolution+

OUTPUT: 24 V DC ± 1%
Current: 5 A



Evolution+

OUTPUT: 24 V DC ± 1%
Current: 10 A



Evolution+

OUTPUT: 24 V DC ± 1%
Current: 20 A

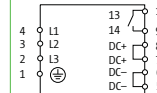


Evolution+

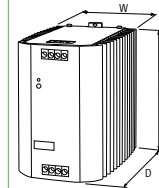
OUTPUT: 24 V DC ± 1%
Current: 40 A



Power Supply Units



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
24 V DC/5 A	132x83x98/1,0	85640						
24 V DC/10 A			132x93x114/1,2	85641				
24 V DC/20 A					132x113x136/2,0	85642		
24 V DC/40 A							132x164x142/3,0	85644
Input								
Input voltage	3 × 324...572 V AC/480...745 V DC							
Input current	3 × 0,45 A		3 × 0,8 A		3 × 1,3 A		3 × 2,4 A	
Inrush current after 1 ms	max. 10 A		max. 15 A		max. 19 A		–	
External fuse	max. 3 × 10 A							
Frequency	50/60 Hz							
Output								
Output voltage	24 V DC (SELV), ±1 %; 22...28 V adjustable							
Output current	5 A (+55 °C); 3 A (+70 °C)		10 A (+55 °C); 6,5 A (+70 °C)		20 A (+55 °C); 15,8 A (+70 °C)		40 A (+55 °C); 30 A (+70 °C)	
Powerboost	+150 % (min. 4 seg.)							
Mains failure bridging time	min. 30 ms (400 V AC)		min. 19 ms (400 V AC)					
Ripple	max. 50 mV rms							
Spikes	max. 100 mV p-p							
LED display	LED (green): OK; LED (red): overload							
Parallel usage/serial usage	max. 5 units/max. 2 units							
Alarm output	electronic relay max. 30 V DC/0,1 A, group alarm							
General data								
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)				(EN 60950-1), (EN 61204-3), (EN 55011 A)			
Temperature range	-25...+70 °C (storage temperature -40...+85 °C)							
Relative humidity	5...95 %, no condensation							
Protection	Circuit board with protective varnish							
Efficiency	86 %		90 %					
Mounting method	DIN-rail mountable TH35 (EN 60715)							
Protection	IP20							
Dimension drawing								



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Notes

13.16

POWER SUPPLY UNITS



2-/3-phase

– stable output voltage,
(short-circuit and overload
protected)

Evolution

OUTPUT: 12 V DC ± 1%
Current: 20 A



Evolution+

OUTPUT: 48 V DC
Current: 5 A



Evolution+

OUTPUT: 48 V DC
Current: 10 A



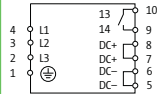
Evolution+

OUTPUT: 48 V DC
Current: 20 A



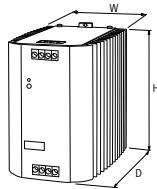
Power Supply Units

Circuit diagram



Order Data	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.	HxWxD/kg	Art-No.
12 V DC/20 A	132x93x114/1.3	85016	132x93x114/1.4	85009				
48 V DC/5 A					132x113x136/2.0	85010		
48 V DC/10 A							132x164x142/3.0	85011
48 V DC/20 A								
Input								
Input voltage	3 × 324...572 V AC/480...745 V DC							
Input current	3 × 0.8 A		3 × 1.3 A		3 × 1.9 A		3 × 1.9 A	
Inrush current after 1 ms	max. 15 A	max. 9 A	max. 23 A	–				
External fuse	max. 3 × 10 A		max. 3 × 20 A					
Frequency	50/60 Hz							
Output								
Output voltage	12 V DC (SELV), ±1 %; 12...13.5 V adjustable		48 V DC (SELV), ±1 %; 48...56 V adjustable					
Output current	20 A (+55 °C); 15.8 A (+70 °C)		5 A (+55 °C); 3.73 A (+70 °C)		10 A (+55 °C); 8 A (+70 °C)		20 A (+55 °C); 15 A (+70 °C)	
Powerboost	+150 % (min. 4 seg.)							
Mains failure bridging time	min. 19 ms (400 V AC)		min. 17 ms (400 V AC)		min. 24 ms (400 V AC)		min. 17 ms (400 V AC)	
Ripple	max. 50 mV rms							
Spikes	max. 100 mV p-p							
LED display	LED (green): OK; LED (red): overload							
Parallel usage/serial usage	max. 5 units/max. 4 units		max. 5 units/no					
Alarm output	electronic relay max. 30 V DC/0.1 A, group alarm							
General data								
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B), (EN 61000-3-2)				(EN 60950-1), (EN 61204-3), (EN 55011 A)			
Temperature range	-25...+70 °C (storage temperature -40...+85 °C)							
Relative humidity	5...95 %, no condensation							
Efficiency	90 %		91.3 %		92.3 %		92.5 %	
Protection	–							
Protection	Circuit board with protective varnish							
Mounting method	DIN-rail mountable TH35 (EN 60715)							
Protection	IP20							

Dimension drawing



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Notes

1.3.17

POWER SUPPLY UNITS

Single-phase

– AS-Interface

MCS-A 4

OUTPUT: 30.5 V DC
Current: 4 A



MCS-A 4 EFD

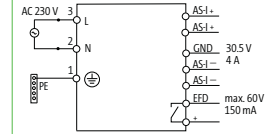
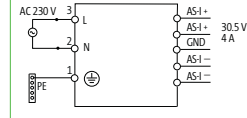
OUTPUT: 30.5 V DC
Current: 4 A
with EFD (earth fault detection)



Approvals:

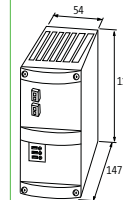
Power Supply Units

Circuit diagram



Order Data	Art-No.	Art-No.
30.5 V DC/4 A	85381	85382
Accessories		
Mounting plate 65 mm		89853
Input		
Input voltage	95...265 V AC	
Input current	2.1 A	
Inrush current after 1 ms	max. 35 A (230 V AC)	
External fuse	max. 10 A (T)	
Frequency	50/60 Hz	
Output		
Output voltage	30.5 V DC (SELV), ±2 %	
Output current	max. 4.0 A (+40 °C); 3.4 A (+55 °C)	
Output rating	122 W	
Mains failure bridging time	min. 14 ms (110 V AC); min. 80 ms (230 V AC)	
Ripple	max. 20 mV rms	
LED display	LED (green) for output voltage	
Output filter	Filter acc. to AS-Interface specification	
General data		
Standards	(EN 60950-1), (EN 61204-3), (EN 55022 B)	
Temperature range	-10...+40 °C, to +55 °C derating (storage temperature -25...+85 °C)	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Efficiency	83 % (110 V AC); 85 % (240 V AC)	
AS-Interface	Unit complies to AS-Interface specification for power supplies (PELV)	

Dimension drawing






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Notes


1.3.18

POWER SUPPLY UNITS



Mounting accessories			Art-No.
	Mounting plate 40 mm		
	for side mounting	for MCS and MCS-B	89851
	for side mounting	for MCS	89852
	for side mounting	for MCS, MCS-B and MCS-A	89853
	Label plates		
	KES 20 x 8 (white)	(10 pieces/2 plates)	996067
	DIN-Rail Clip		
	DIN-rail mountable TH35 (EN 60715)		85148

Power Supply Units



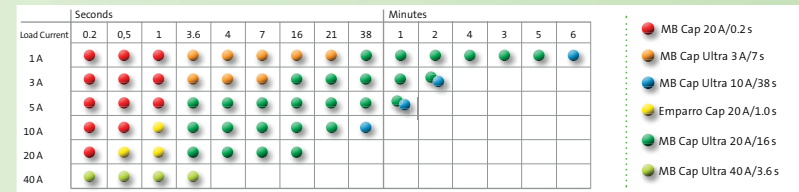
BUFFER MODULES / REDUNDANCY MODULES

- Stable power supply
- Safe processes
- Increased machine availability

SAFE, INTELLIGENT, COST EFFECTIVE

Murrelektronik offers a wide range of buffer modules that bridge voltage fluctuations for **38 seconds at 10 A or up to several minutes at 1 A**. They are equipped with ultra capacitors instead of lead batteries like conventional uninterruptible power systems (UPS). This makes sure they are maintenance-free and cost-effective because you never have to change the batteries in Murrelektronik's buffer modules.

Overview of Buffer Modules



To ensure that machines run at maximum capacity, power supply systems are often designed redundantly with two power supply units. Murrelektronik's redundancy modules decouple independent power supply units and generate a redundant 24 V DC control voltage.

Buffer Modules / Redundancy Modules

Buffer Modules / Redundancy Modules



Buffer Modules
• Maintenance-free ultra capacitors

Page 1.4.1



Redundancy Modules
• Active
• Passive

Page 1.4.4

BUFFER MODULES / REDUNDANCY MODULES



Buffer modules

MB Cap Ultra 3/24 7s
7 s (3 A); 21 s (1 A)

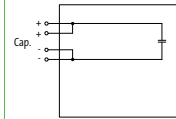
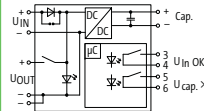


MB Cap Ultra expansion module 3/24 12s
12 s (3 A); 36 s (1 A)



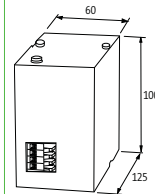
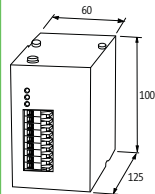
Approvals: Listed

Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/3 A	85460	85462
Input	use with Art-Nr. 85460	
Input voltage	20.4...26.4 V DC	0...26.4 V DC
Input current	3 A	
Loading time	min. 25 s	-
Output		
Output voltage	23 V DC ±2 %	0...26.4 V DC
Output current	max. 3 A (+60 °C)	
Buffer time	7 s (3 A); 21 s (1 A)	12 s (3 A); 36 s (1 A)
General data		
Standards	(EN 60950), (EN 50178) SELV/PELV	
Temperature range	-20...+60 °C (storage temperature -20...+60 °C)	
Mounting method	DIN-rail mountable TH35 (EN 60715)	
Efficiency	90 %	

Dimension drawing



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Notes

BUFFER MODULES / REDUNDANCY MODULES

Buffer modules

MB Cap Ultra 10/24 38s
38 s (10 A); 380 s (1 A)



MB Cap Ultra 20/24 16s
16 s (20 A); 320 s (1 A)

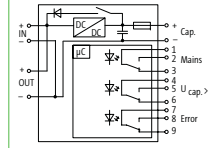
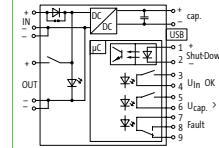
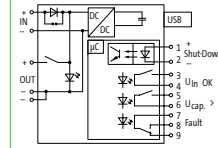


MB Cap Ultra 40/24 170s
3.6 s (40 A); 170 s (1 A)



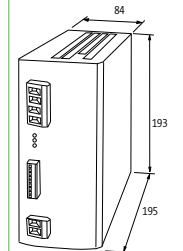
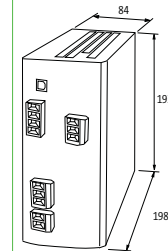
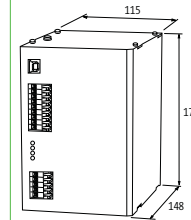
Approvals: Listed

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
24 V DC/10 A	85467		
24 V DC/20 A		85468	
24 V DC/40 A			85469
Input			
Input voltage	10.5...15 V DC; 24...27 V DC	24...26.4 V DC	21.6...26.4 V DC
Input current	10 A	20 A	40 A
Inrush current	max. 35 A/2 ms	max. 36.5 A	
Loading time	typ. 100 s; max. 210 s	typ. 40 s; max. 500 s	typ. 140 s; max. 300 s
Output			
Output voltage	11.3 V DC ±4 %; 23.3 V DC ±2 %	23.3 V DC ±2 %	25.5...19 V DC ±2 %
Output current	max. 10 A (+60 °C)	max. 20 A (+60 °C)	max. 40 A (+60 °C)
Buffer time	38 s (10 A); 380 s (1 A)	16 s (20 A); 320 s (1 A)	3.6 s (40 A); 170 s (1 A)
General data			
Standards	(EN 60950), (EN 50178) SELV/PELV		
Temperature range	-20...+60 °C (storage temperature -20...+60 °C)		
Mounting method	DIN-rail mountable TH35-7.5/TH35-15 (EN 60715)		
Efficiency	90 %		

Dimension drawing



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Notes

BUFFER MODULES / REDUNDANCY MODULES



Buffer modules

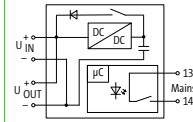
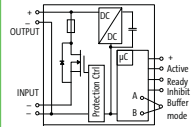
MB Cap 20/24 4s
0.2 s (20 A); 4 s (1 A)



Emarro Cap 20/24 40s
1.0 s (20 A); 40 s (1 A)

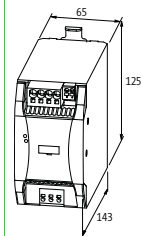
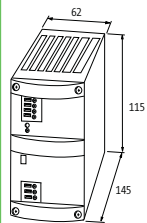


Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC / 20 A	85394	85458
Input	cULus	
Input voltage	23...30 V DC (SELV/PELV)	21.6...26.4 V DC
Input current	85 mA	20 A
Inrush current	–	max. 25 A
Protection of voltage spikes	max. 35 V DC	–
Loading time	20...45 s	max. 75 s
Loading current	max. 500 mA	max. 3 A
Output		
Output voltage	24 V DC, 22...28 V DC	25.5...19 V DC ±2 %
Output current	max. 20 A (+70 °C)	max. 20 A
Current limit	26 A	65 A
Buffer time	–	1.0 s (20 A); 40 s (1 A)
Ripple	max. 200 mV rms	–
Parallel circuit	possible	–
General data		
Standards	(EN 61000-6-2), (EN 61000-6-3), (EN 55022) category B, (EN 60950-1) SELV	(EN 61000-6-2), (EN 61000-6-4)
Temperature range	0...+70 °C (storage temperature -25...+85 °C)	-40...+60 °C (storage temperature -40...+60 °C)
Mounting method	DIN-rail mountable TH35 (EN 60715)	DIN-rail mountable TH35-7.5/TH35-15 (EN 60715)
Efficiency	95 %	min. 90 %

Dimension drawing



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Notes

BUFFER MODULES / REDUNDANCY MODULES

Redundancy modules

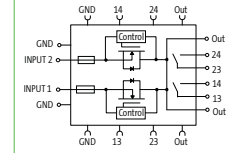
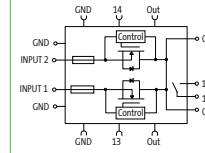
MB Redundancy Balance 2 × 20/24



MB Redundancy Balance 2 × 20/24
Auto-Balancing (50/50)

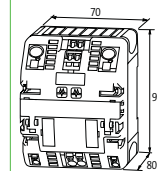
Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC / 2 × 20 A / 1 × 40 A	85495	85496
Accessories		
Bridge system 10 pcs.		9000-41034-0000001
Bridge system VE 1		9000-41034-0000002
Label plates		996067
Input		
Input voltage	24 V DC (18...30 V DC)	
Input current	2 × 20 A	
Total current	max. 40 A	
Protection against reverse polarization	max. 30 V DC	
Auto-Balancing (50/50)	no	yes
Output		
Output voltage	24 V DC (18...30 V DC)	
Output current (40 A)	(-25...+60 °C) continuous	
Output current (52 A)	(-25...+40 °C)	(-25...+40 °C) without balance
Output current (26 A)	(-25...+40 °C) for redundancy operation	
LED display	LED (red/green)	
Alarm output	potential free (relay contact) for input voltage	potential free (relay contact) for input voltage / load distribution
General data		
Standards	(EN 61000-6-2), (EN 61000-6-3)	
Bridging concept	two sides, with spring clamp terminals or bridge set (max. 40 A)	
Relative humidity	5...95 %, no condensation	
Efficiency	99.5 %	
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)	
Connection	Spring clamp terminals	
Mounting method	DIN-rail mountable TH35 (EN 60715)	

Dimension drawing



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Notes

BUFFER MODULES / REDUNDANCY MODULES



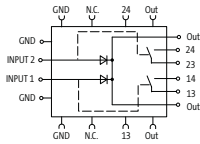
Redundancy modules

MB Diode

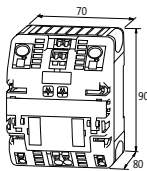


Approvals: UL Listed

Circuit diagram



Order Data		Art-No.	85396
24 V DC / 2 × 20 A / 1 × 40 A		Art-No.	9000-41034-0000001
Accessories		Art-No.	9000-41034-0000002
Bridge system 10 pcs.			996067
Bridge system VE 1			
Label plates			
Input			
Input voltage	24 V DC (21...30 V DC)		
Input current	2 × 20 A / 1 × 40 A		
Total current	max. 40 A		
Protection against reverse polarization	Internal protection against reverse polarization up to 60 V DC		
Auto-Balancing (50/50)	no		
Output			
Output voltage	24 V DC (21...30 V DC)		
Output current	20 A (-25...+55 °C); 40 A (-25...+40 °C)		
Overload	at 20 A +50 % for 4 s		
LED display	LED (green)		
Alarm output	potential free alarm output per channel (relay contact)		
General data			
Standards	(EN 61000-6-2), (EN 61000-6-3)		
Bridging concept	two sides, with spring clamp terminals or bridge set (max. 40 A)		
Relative humidity	5...95 %, no condensation		
Power loss	U (approx. 0.5 V) × I		
Efficiency	97 %		
Temperature range	-25...+55 °C (20 A); -25...+40 °C (40 A); (storage temperature -25...+85 °C)		
Connection	Spring clamp terminals		
Mounting method	DIN-rail mountable TH35 (EN 60715)		
Dimension drawing			



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Notes

Buffer modules / Redundancy Modules

Intelligent Power Distribution

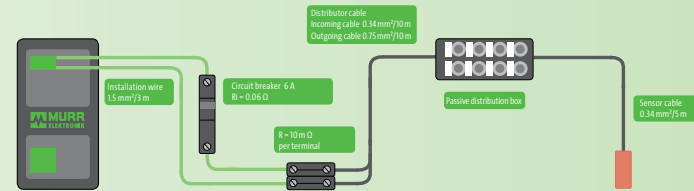
MICO INTELLIGENT POWER DISTRIBUTION

- Monitor
- Detect
- React

FIRST CLASS POWER DISTRIBUTION

MICO is the intelligent power distribution module from Murrelektronik for 24 V DC. It monitors currents, indicates when approaching the maximum load and make targeted circuit isolations during overload or short circuit conditions. This makes sure systems run at maximum capacity.

EXAMPLE: Why don't circuit breakers trigger reliably in a 24 VDC system?



Specific resistance of copper (ρ) = 0.0178 ($\Omega \times \text{mm}^2 / \text{m}$)

Total loop resistance = 1.32 Ω

Calculation of maximum current flow

$$I = \frac{U}{R} = \frac{24 \text{ V}}{1.32 \Omega} = 18.18 \text{ A}$$

(Limited by loop resistance)

Required tripping current for the 6 A type C circuit breaker

$14 \times I_{\text{max}} = 14 \times 6 \text{ A} = 84 \text{ A}$

⚠ Tripping current 84 A > max. Current flow 18.18 A

<p>MICO CLASSIC</p> <ul style="list-style-type: none"> • Adjustable current ranges • Channels with remote switch on function • Group alarm output <p>Page 1.5.3</p>	<p>MICO+</p> <ul style="list-style-type: none"> • Adjustable current ranges • Channels with remote switch on/off function • Preventive diagnostics <p>Page 1.5.7</p>
<p>MICO BASIC</p> <ul style="list-style-type: none"> • Preset current ranges • Small size <p>Page 1.5.7</p>	<p>MICO FUSE</p> <ul style="list-style-type: none"> • Socket for glass tube fuses <p>Page 1.5.10</p>

INTELLIGENT POWER DISTRIBUTION

Over current protection device

– adjustable current ranges

– Early warning (90%)



MICO+ 4.6
4 channels

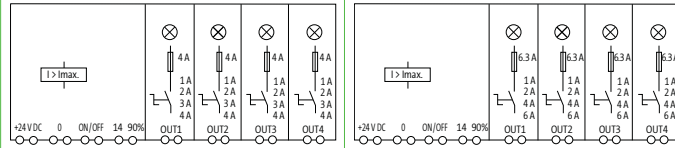


MICO+ 4.6
4 channels



Intelligent Power Distribution

Circuit diagram



Order Data

1 A, 2 A, 3 A, 4 A
1 A, 2 A, 4 A, 6 A

Art-No.

9000-41084-0100400

Art-No.

9000-41084-0100600

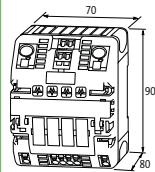
Technical Data

Operating voltage	24 V DC (18...30 V DC)
Current adjustment	1 A, 2 A, 3 A, 4 A, by countersunk rotary switch, sealed
Group alarm output	max. 20 mA; high: all channels ON; low: not all channels ON
Inrush capacity	max. 20 mF (per channel)
Remote start (ON)	10...30 V DC
Remote start (OFF)	10...30 V DC
Impulse length	min. 20 ms
Early warning (90%)	max. 20 mA; high: one channel over 90%; low: all channels under 90%

General data

Connection	Spring clamp terminals
Input terminals	2 × 16 mm ²
Output terminals	per output 2 × 1.5 mm ²
Alarm terminals	2.5 mm ²
Bridging concept	two sides, with spring clamp terminals or bridge set (max. 40 A)
Mounting method	DIN-rail mountable TH35 (EN 60715)
Temperature range	0...+55 °C (storage temperature -40...+80 °C)

Dimension drawing



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Notes

1.5.1

INTELLIGENT POWER DISTRIBUTION

Over current protection device

– adjustable current ranges

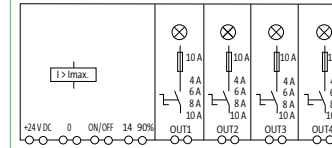
– Early warning (90%)



MICO+ 4.10
4 channels



Circuit diagram



Order Data

4 A, 6 A, 8 A, 10 A

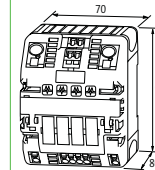
Technical Data

Operating voltage	24 V DC (18...30 V DC)
Current adjustment	4 A, 6 A, 8 A, 10 A, by countersunk rotary switch, sealed
Group alarm output	max. 20 mA; high: all channels ON; low: not all channels ON
Inrush capacity	max. 20 mF (per channel)
Remote start (ON)	10...30 V DC
Remote start (OFF)	10...30 V DC
Impulse length	min. 20 ms
Early warning (90%)	max. 20 mA; high: one channel over 90%; low: all channels under 90%

General data

Connection	Spring clamp terminals
Input terminals	2 × 16 mm ²
Output terminals	per output 2 × 1.5 mm ²
Alarm terminals	2.5 mm ²
Bridging concept	two sides, with spring clamp terminals or bridge set (max. 40 A)
Mounting method	DIN-rail mountable TH35 (EN 60715)
Temperature range	0...+55 °C (storage temperature -40...+80 °C)

Dimension drawing



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Notes

1.5.2

INTELLIGENT POWER DISTRIBUTION



Over current protection device

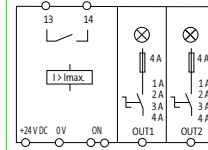
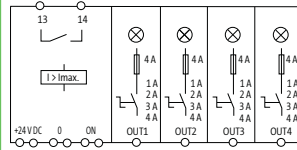
MICO 4.4
4 channels



MICO 2.4
2 channels



Circuit diagram



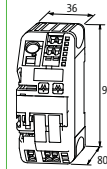
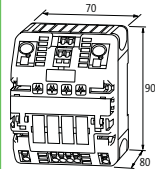
Order Data
1 A, 2 A, 3 A, 4 A

Art-No.
GL 9000-41034-0100400

Technical Data
Operating voltage 24 V DC (18...30 V DC)
Current adjustment 1 A, 2 A, 3 A, 4 A, by countersunk rotary switch, sealed
Inrush capacity max. 20 mF (per channel)
Group alarm output potential free alarm output 30 V AC/DC, 100 mA
Remote start (ON) 10...30 V DC
Impulse length min. 20 ms

General data
Connection Spring clamp terminals
Input terminals 2 × 16 mm²
Output terminals per output 1 × 4 mm²
Alarm terminals 2.5 mm²
Bridging concept two sides, with spring clamp terminals or bridge set (max. 40 A)
Mounting method DIN-rail mountable TH35 (EN 60715)
Temperature range 0...+55 °C (storage temperature -40...+80 °C)

Dimension drawing



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Notes

1.5.3

INTELLIGENT POWER DISTRIBUTION

Over current protection device

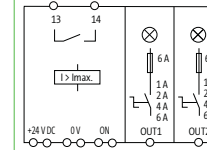
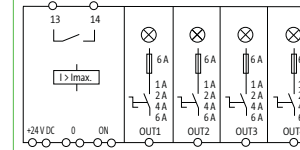
MICO 4.6
4 channels



MICO 2.6
2 channels



Circuit diagram



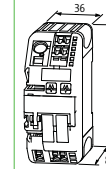
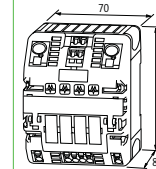
Order Data
1 A, 2 A, 4 A, 6 A

Art-No.
GL 9000-41034-0100600

Technical Data
Operating voltage 24 V DC (18...30 V DC)
Current adjustment 1 A, 2 A, 4 A, 6 A, by countersunk rotary switch, sealed
Inrush capacity max. 20 mF (per channel)
Group alarm output potential free alarm output 30 V AC/DC, 100 mA
Remote start (ON) 10...30 V DC
Impulse length min. 20 ms

General data
Connection Spring clamp terminals
Input terminals 2 × 16 mm²
Output terminals per output 1 × 4 mm²
Alarm terminals 2.5 mm²
Bridging concept two sides, with spring clamp terminals or bridge set (max. 40 A)
Mounting method DIN-rail mountable TH35 (EN 60715)
Temperature range 0...+55 °C (storage temperature -40...+80 °C)

Dimension drawing



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Notes

1.5.4

INTELLIGENT POWER DISTRIBUTION



Over current protection device

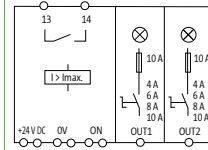
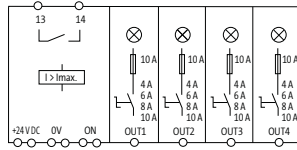
MICO 4.10
4 channels



MICO 2.10
2 channels

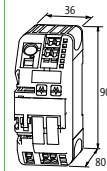
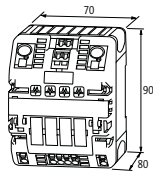


Circuit diagram



Order Data	Art-No.
4 A, 6 A, 8 A, 10 A	9000-41034-0401000
Technical Data	
Operating voltage	24 V DC (18...30 V DC)
Current adjustment	4 A, 6 A, 8 A, 10 A, by countersunk rotary switch, sealed
Inrush capacity	max. 20 mF (per channel)
Group alarm output	potential free alarm output 30 V AC/DC, 100 mA
Remote start (ON)	10...30 V DC
Impulse length	min. 20 ms
General data	
Connection	Spring clamp terminals
Input terminals	2 × 16 mm ² 1 × 16 mm ²
Output terminals	per output 1 × 4 mm ²
Alarm terminals	2.5 mm ²
Bridging concept	two sides, with spring clamp terminals or bridge set (max. 40 A) one side, with spring clamp terminals or bridge set (max. 40 A)
Mounting method	DIN-rail mountable TH35 (EN 60715)
Temperature range	0...+55 °C (storage temperature -40...+80 °C)

Dimension drawing



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Notes

INTELLIGENT POWER DISTRIBUTION

Over current protection device

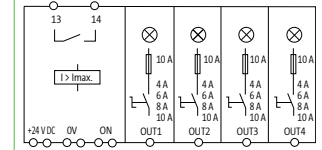
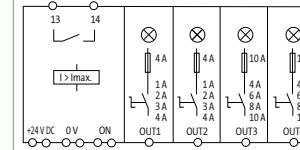
MICO 4.4.10 ACTUATOR-SENSOR



MICO 4.10 SPEED START
4 channels
optimized start-up behavior

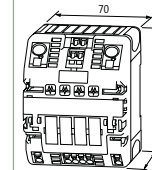


Circuit diagram



Order Data	Art-No.
1 A, 2 A, 3 A, 4 A; 4 A, 6 A, 8 A, 10 A	9000-41034-0101000
4 A, 6 A, 8 A, 10 A	9000-41034-0401005
Technical Data	
Operating voltage	24 V DC (18...30 V DC)
Current adjustment	1 A, 2 A, 3 A, 4 A; 4 A, 6 A, 8 A, 10 A, by countersunk rotary switch, sealed
Inrush capacity	max. 20 mF (per channel)
Group alarm output	potential free alarm output 30 V AC/DC, 100 mA
Remote start (ON)	10...30 V DC
Impulse length	min. 20 ms
General data	
Connection	Spring clamp terminals
Input terminals	2 × 16 mm ²
Output terminals	per output 1 × 4 mm ²
Alarm terminals	2.5 mm ²
Bridging concept	two sides, with spring clamp terminals or bridge set (max. 40 A)
Mounting method	DIN-rail mountable TH35 (EN 60715)
Temperature range	0...+55 °C (storage temperature -40...+80 °C)

Dimension drawing



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Notes

INTELLIGENT POWER DISTRIBUTION



Over current protection device
– preset tripping current

MICO BASIC 8.2
8 channels

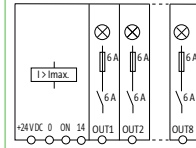
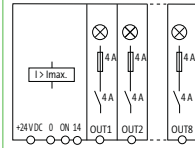
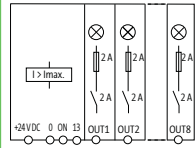


MICO BASIC 8.4
8 channels

MICO BASIC 8.6
8 channels



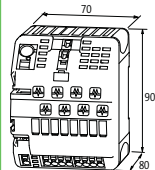
Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
2 A	9000-41068-0200000		
4 A		9000-41068-0400000	
6 A			9000-41068-0600000

Technical Data			
Operating voltage	24 V DC (18...30 V DC)		
Current adjustment	2 A	4 A	6 A
Group alarm output	max. 20 mA; high: all channels ON; low: not all channels ON		
Inrush capacity	max. 20 mF (per channel)		
Remote start (ON)	10...30 V DC		
Impulse length	min. 20 ms		
General data			
Input terminals	1 × 16 mm ²		
Output terminals	per output 1 × 4 mm ²		
Alarm terminals	2.5 mm ²		
Bridging concept	one side, with spring clamp terminals or bridge set (max. 40 A)		
Temperature range	0...+55 °C (storage temperature -40...+80 °C)		
Connection	Spring clamp terminals		
Mounting method	DIN-rail mountable TH35 (EN 60715)		

Dimension drawing



Intelligent Power Distribution

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Notes

1.5.7

INTELLIGENT POWER DISTRIBUTION

Over current protection device
– preset tripping current

MICO BASIC 4.2
4 channels

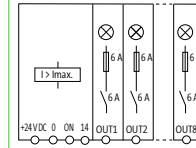
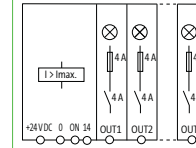
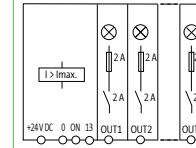


MICO BASIC 4.4
4 channels

MICO BASIC 4.6
4 channels



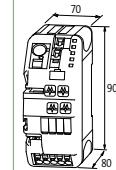
Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
2 A	9000-41064-0200000		
4 A		9000-41064-0400000	
6 A			9000-41064-0600000

Technical Data			
Operating voltage	24 V DC (18...30 V DC)		
Current adjustment	2 A	4 A	6 A
Inrush capacity	max. 20 mF (per channel)		
Group alarm output	max. 20 mA; high: all channels ON; low: not all channels ON		
Remote start (ON)	10...30 V DC		
Impulse length	min. 20 ms		
General data			
Connection	Spring clamp terminals		
Input terminals	1 × 16 mm ²		
Output terminals	per output 1 × 4 mm ²		
Alarm terminals	2.5 mm ²		
Bridging concept	one side, with spring clamp terminals or bridge set (max. 40 A)		
Mounting method	DIN-rail mountable TH35 (EN 60715)		
Temperature range	0...+55 °C (storage temperature -40...+80 °C)		

Dimension drawing



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Notes

1.5.8

INTELLIGENT POWER DISTRIBUTION



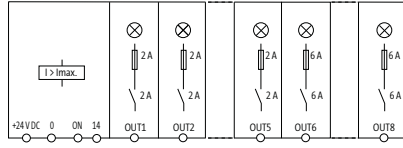
Over current protection device
– preset tripping current

MICO BASIC 5.2/3.6
8 channels



Approvals:

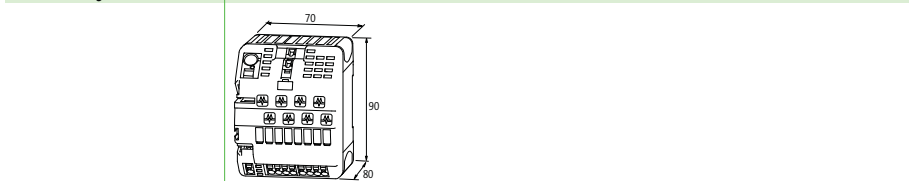
Circuit diagram



Order Data Art-No. 9000-41068-020600

Technical Data	
Operating voltage	24 V DC (18...30 V DC)
Current adjustment	5 × 2 A; 3 × 6 A
Inrush capacity	max. 20 mF (per channel)
Group alarm output	max. 20 mA; high: all channels ON; low: not all channels ON
Remote start (ON)	10...30 V DC
Impulse length	min. 20 ms

General data	
Connection	Spring clamp terminals
Input terminals	1 × 16 mm ²
Output terminals	per output 1 × 4 mm ²
Alarm terminals	2.5 mm ²
Bridging concept	one side, with spring clamp terminals or bridge set (max. 40 A)
Mounting method	DIN-rail mountable TH35 (EN 60715)
Temperature range	0...+55 °C (storage temperature -40...+80 °C)



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Notes

INTELLIGENT POWER DISTRIBUTION

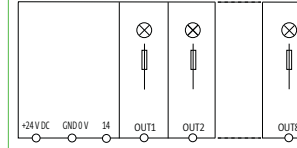
Socket for glass tube fuses

MICO FUSE 24 LED
8 channels



Approvals:

Circuit diagram



Order Data Art-No. 9000-41078-060001

Technical Data		Art-No. 9000-41078-0600002
Operating voltage	24 V DC (18...30 V DC)	max. 250 V AC/DC
Operating current	max. 6 A (40 °C)	
Total current	max. 40 A	
Group alarm output	max. 20 mA; high: all channels ON; low: not all channels ON	–

General data	
Connection	Spring clamp terminals
Input terminals	1 × 16 mm ²
Output terminals	1 × 0.5...4 mm ²
Alarm terminals	2.5 mm ²
Mounting method	DIN-rail mountable TH35 (EN 60715)
Temperature range	-25...+55 °C








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Notes

INTELLIGENT POWER DISTRIBUTION



stay connected
Art-No.

Accessories			Art-No.
	Bridge system	Quantity: 1 piece	9000-41034-000002
		Quantity: 10 pcs.	9000-41034-000001
	Shortened buttons 1 set (4 pcs.)		9000-41034-000003
	Label plates	KES 20 x 8 (white)	996067
		KMR 5 x 10 (white)	10 pieces / 2 plates (64 pieces / 4 plates)
	Glass automotive fuse	2 A (T)	9000-41078-000002
		4 A (T)	9000-41078-000004
		6 A (T)	9000-41078-000006
	Fuse cap		9000-41078-000010

Intelligent Power Distribution

CONVERTERS / RECTIFIERS



- Compact design
- Galvanic separation
- Switch mode models

SMALL VOLTAGE CONVERTERS

Voltages in control systems often have to be converted. The DC/DC converters in the MDD series do this perfectly! It doesn't matter if you need 5, 10, 12 or 24 volts – Murrelektronik has the right product.

If there is only AC voltage available, the NG rectifier series can convert into DC voltage. All models can be conveniently mounted in the control cabinet on DIN rail.

Converters / Rectifiers

AC/DC and DC/DC Converters



MDD, GLS, GSS, NG, NT
• Output current range: 0.5...4 A

Page 1.6.1

Rectifiers



NG
• Output current range: 2.6...10 A

Page 1.6.3

CONVERTERS / RECTIFIERS



Switched mode
– with galvanic isolation

MDD

OUTPUT: 24 V DC
Current: 0.3 A



MDD

OUTPUT: 12 V DC
Current: 0.7 A

MDD

OUTPUT: 5 V DC
Current: 1.5 A



MDD

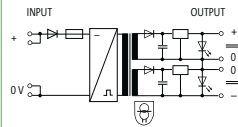
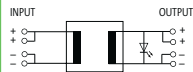
OUTPUT: ±10 V DC
Current: 2 × 0.25 A



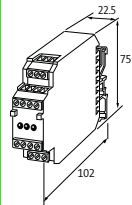
MDD

OUTPUT: ±15 V DC
Current: 2 × 0.25 A

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC/0.3 A	85655				
12 V DC/0.7 A		85656			
5 V DC/1.5 A			85657		
±10 V DC/2 × 250 mA				85658	
±15 V DC/2 × 250 mA					85659
Input					
Input voltage	24 V DC				
Input current	0.6 A				
Input fuse (external)	2 A (T)				
Input fuse (internal)	1.5 A (T)				
Output					
Output fuse	short-circuit and overload protected, restart after overload by removing power supply				
Output voltage	24 V DC (SELV), ±2 %	12 V DC (SELV), ±2 %	5 V DC (SELV), ±2 %	±10 V DC (SELV), ±5 %	±15 V DC (SELV), ±5 %
Output current	max. 0.3 A	max. 0.7 A	max. 1.5 A	max. 2 × 250 mA	
Ripple	max. 0.2 % eff				
General data					
Standards	(EN 61204-3)				
Test isolation voltage	4 kV (input/output)				
Temperature range	0...+50 °C, no condensation				
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)				
Dimension drawing					



Converters / Rectifiers

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Notes

1.6.1

CONVERTERS / RECTIFIERS

DC/DC converters
– AC/DC converters

GLS

OUTPUT regulated: 5 V DC
Current: 1.2 A



GSS

OUTPUT switched mode: 5 V DC
Current: 4 A

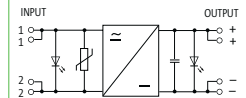
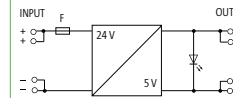


NT

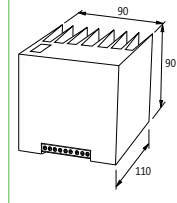
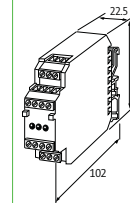
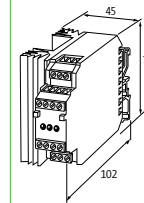
OUTPUT: 5...35 V DC
Current: 3.5 A



Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
5 V DC/1.2 A	85600		
5 V DC/4 A		85650	
5...35 V DC/3.5 A			85660
Input			
Input voltage	24 V DC (+10/-15 %)	15...40 V DC	10...32 V AC; 12...42 V DC
Input current	1.2 A	1 A, 4 A (24 V DC)	max. 3 A
Input fuse (internal)	2 A (T)		6.3 A (T)
Frequency	–		
Output			
Output voltage	5 V DC (SELV), ±5 %		5...35 V DC (SELV), U _{out} max. = U _{in} - 5 V
Output current	max. 1.2 A	max. 4 A	max. 3.5 A
Ripple	max. 0.2 % eff		
Output fuse	short-circuit protected		
General data			
Temperature range	-20...+60 °C, no condensation		
Mounting method	DIN-rail mountable TH35 (EN 60715)		
Dimension drawing			



Converters / Rectifiers

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Notes

1.6.2

CONVERTERS / RECTIFIERS



Rectifier modules

– Single-phase

– IP00

NG 2

INPUT: max. 41 V AC



NG 5

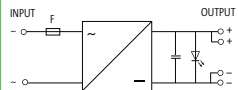
INPUT: max. 41 V AC

NG 10

INPUT: max. 29 V AC

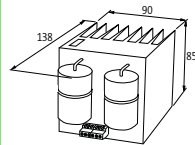
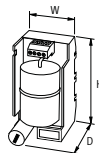


Circuit diagram



Order Data	H×W×D	Art.No.	H×W×D	Art.No.	H×W×D	Art.No.
24 V DC/2.6 A	86×45×92 mm	85700				
24 V DC/5 A			90×68×87 mm	85710		
24 V DC/10 A						85730
Input						
Input voltage	max. 5...44 V AC				max. 29 V AC	
Input current	max. 2.6 A; 1.8 A (+60 °C)		max. 5 A; 4 A (+60 °C)		max. 10 A	
Frequency	45...65 Hz				50/60 Hz (or as additional smoothing for DC)	
Input fuse (external)	–		8 A (T), 5 × 20 mm		16 A (T), 5 × 20 mm	
Input fuse (internal)	3.15 A (T), 5 × 20 mm		–			
Output						
Output voltage	U-IN × 1.16 / max. 60 V DC				U-IN × 1.16 / max. 39 V DC	
Output current	max. 2.6 A; 1.8 A (+60 °C)		max. 5 A; 4 A (+60 °C)		max. 10 A	
Ripple	max. 5 % rms					
Output filter	smoothed with smoothing capacitor and LED					
General data						
Temperature range	-20...+60 °C					
Mounting method	DIN-rail mountable TH35 (EN 60715)					

Dimension drawing



Converters / Rectifiers

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Notes

MODLINK MSVD – CONTROL CABINET POWER OUTLETS

- Safe
- Easy to install
- Meet international standards

KEEP IT SAFE – EVEN IN THE CONTROL CABINETS

Using components temporarily in the control cabinet require right power outlets. Murrelektronik has the right tools: a wide range of power outlets for different countries.

Components that still carry voltage after they are shut down need to be specially marked (according to DIN VDE 0105-1 and IEC 204-1 / EN 60504-1 / DIN VDE 0113 Part 1). These power outlets are orange.

Control Cabinet Power Outlets

Control Cabinet Power Outlets	
 <p>German standard (VDE)</p> <ul style="list-style-type: none"> • for DIN-rail mounting acc. to EN 60715 • with screw terminals or spring clamp terminals <p>Page 1.7.1</p>	 <p>French Standard (UTE)</p> <ul style="list-style-type: none"> • for DIN-rail mounting acc. to EN 60715 • with screw terminals or spring clamp terminals <p>Page 1.7.1</p>
 <p>American Standard (NEMA 5-15)</p> <ul style="list-style-type: none"> • for DIN-rail mounting acc. to EN 60715 • with screw terminals • LED display <p>Page 1.7.2</p>	 <p>Different international standards</p> <ul style="list-style-type: none"> • for DIN-rail mounting acc. to EN 60715 <p>Page 1.7.3</p>

CONTROL CABINET POWER OUTLETS



German standard (VDE)			Art-No.
	Germany (VDE) white Screw terminals: max. 2 × 6 mm ² Operating voltage: max. 250 V AC	VDE	67900
	Germany (VDE) white Screw terminals: max. 2 × 6 mm ² Operating voltage: max. 250 V AC LED (yellow)	VDE	67901
	Germany (VDE) yellow Screw terminals: max. 2 × 6 mm ² Operating voltage: max. 250 V AC	VDE	67950
	Germany (VDE) orange Screw terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: max. 250 V AC	VDE	4000-72000-0140000
	Germany (VDE) white Spring clamp terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: max. 250 V AC	VDE	4000-72000-0160000
French standard (UTE)			Art-No.
	France (UTE-NF) white Screw terminals: max. 2 × 6 mm ² Operating voltage: max. 250 V AC	UTE	67910
	France (UTE-NF) white Screw terminals: max. 2 × 6 mm ² Operating voltage: max. 250 V AC LED (yellow)	UTE	67911

Control Cabinet Power Outlets







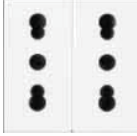
CONTROL CABINET POWER OUTLETS

French standard (UTE)			Art-No.
	France (UTE-NF) white Screw terminals: max. 2 × 4 mm ² Operating voltage: max. 250 V AC	UTE	4000-72000-3010000
	France (UTE-NF) red Screw terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: max. 250 V AC	UTE	4000-72000-0130000
	France (UTE-NF) orange Screw terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: max. 250 V AC	UTE	4000-72000-0150000
American standard			Art-No.
	USA (NEMA 5-15) Screw terminals: max. 2.5 mm ² (AWG 14) Operating voltage: max. 127 V AC LED (yellow)	cURus	676166
	USA (NEMA 5-15) Screw terminals: max. 2.5 mm ² (AWG 14) Operating voltage: max. 127 V AC LED (yellow)	Connection turned cURus	676152
	USA (2 × NEMA-GFCI 5-15) Screw terminals: max. 6 mm ² Operating voltage: max. 127 V AC max. 15 A LED (yellow)	(Ground Fault Circuit Interrupter) cURus	67980
	USA (2 × NEMA-GFCI 5-20) Screw terminals: max. 6 mm ² Operating voltage: max. 125 V AC max. 20 A LED (yellow)	(Ground Fault Circuit Interrupter) cURus	67981

Control Cabinet Power Outlets

CONTROL CABINET POWER OUTLETS



American standard			Art-No.
	USA (2 × NEMA 5-15) Screw terminals: max. 6 mm ² max. 15 A Operating voltage: max. 125 V AC	cURus	67982
	USA (2 × NEMA 5-20) Screw terminals: max. 6 mm ² max. 20 A Operating voltage: max. 125 V AC	cURus	67983
International standards			Art-No.
	EURO/ USA (white) Screw terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: EURO: max. 250 V AC, USA: max. 127 V AC		4000-72000-0100000
	USA (NEMA 5-15) white Screw terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: max. 125 V AC		4000-72000-0040000
	England (white) Screw terminals: max. 2 × 4 mm ² Operating voltage: max. 250 V AC	BS	4000-72000-0060000
	England (orange) Screw terminals: max. 2 × 4 mm ² Operating voltage: max. 250 V AC	BS	4000-72000-0190000
	Italy (white) Screw terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: max. 250 V AC	Double CEI 23-16	4000-72000-0070000

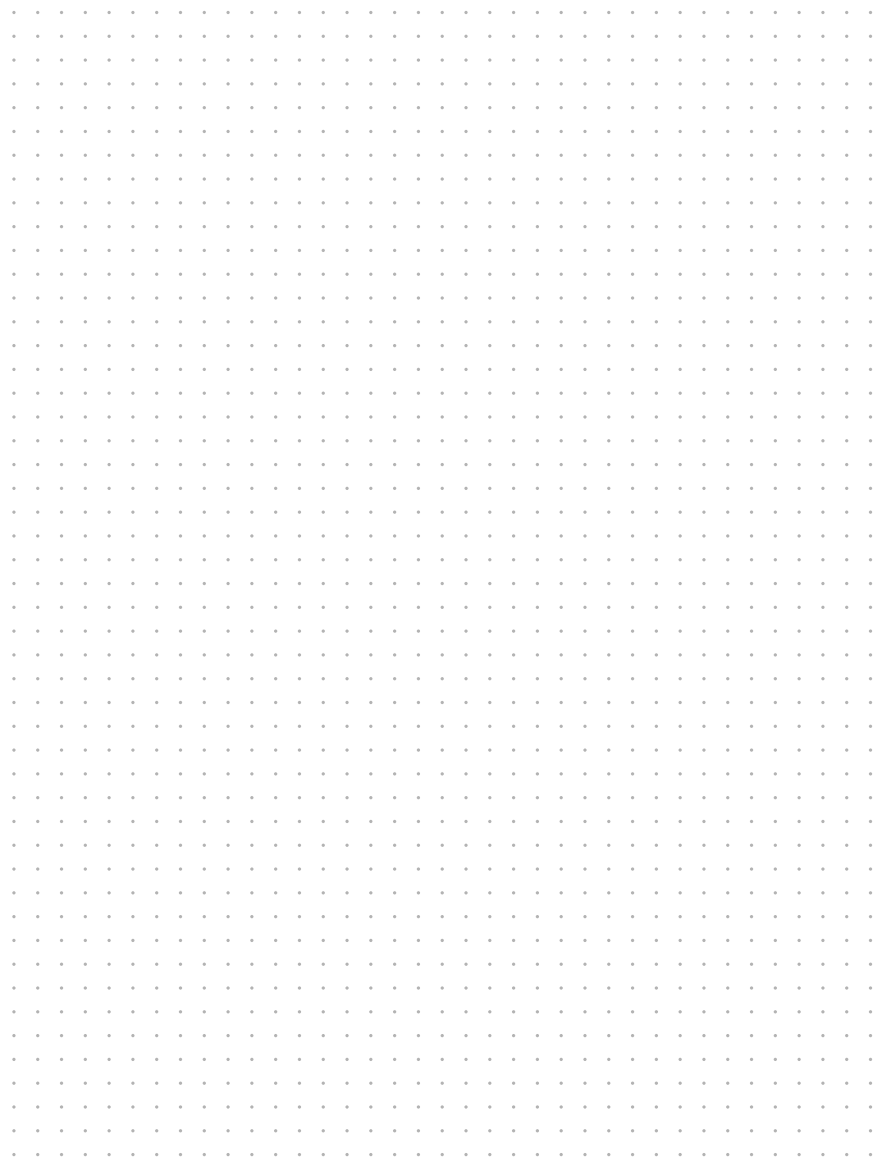
1.7.3

CONTROL CABINET POWER OUTLETS

International standards			Art-No.
	Italy (white) Screw terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: max. 250 V AC	VDE/CEI 23-16	4000-72000-0180000
	Denmark (white) Spring clamp terminals: max. 2 × 2.5 mm ² (AWG 14) Operating voltage: max. 250 V AC		4000-72000-0170000
	Swiss (white) Spring clamp terminals: max. 2 × 1.5 mm ² (AWG 16) Operating voltage: max. 250 V AC		4000-72000-0120000
	Australia (white) Screw terminals: max. 2 × 4 mm ² Operating voltage: max. 240 V AC		4000-72000-0090000
	India (white) Screw terminals: max. 2 × 4 mm ² Operating voltage: max. 240 V AC	IS 1293	4000-72000-3210000
	China (white) Screw terminals: max. 2 × 4 mm ² Operating voltage: max. 250 V AC	CCC	4000-72000-3250000

1.7.4

NOTES



EMC FILTERS FOR MAXIMUM SAFETY

- Meets EMC guidelines
- Increases interference protection
- Decreases interference emissions

KEEP IT SAFE – EVEN IN THE CONTROL CABINETS

Mains filters are used to reduce interference without affecting the supply. Murrelektronik's filters decrease incoming interference, which can affect sensitive equipment, and also decrease outgoing interference from the equipment they are connected to, which could damage the mains supply. Typical sources of continuous interference are switch mode power supplies, motors and phase controllers.

These sources are made up of inductive and capacitive components and work the best when their impedance is matched to the source of the interference. In regards to grounding, it's important to have a low impedance. Ideally, the filter should be as close as possible to the point where the cable enters the cabinet. If that's not possible, then shielded cables should be used between the filter and the entry point. Ground straps should be as short as possible and connection surfaces should be free from paint, etc.

EMC Filters

Single-phase



MEF 1/1 – one-stage

- Operating voltage: max. 250 VAC/DC, 0...60 Hz
- Nominal current: 10...20 A

Page 1.8.1



MEF 1/2 SY and MEF 1/2 AS – two-stage

- Operating voltage: max. 250 VAC/DC, 0...60 Hz
- Nominal current: 10...16 A

Page 1.8.2

Three-phase



MEF 3/1 N – one-stage

- Operating voltage: max. 3 x 440 VAC
- Nominal current: 3...20 A

Page 1.8.4



MEF 3/1 N HD – one-stage

- Operating voltage: max. 3 x 500 VAC
- Nominal current: 10...135 A

Page 1.8.5



MEF 3/1 and MEF 3/2 – one and two-stage

- Operating voltage: max. 3 x 500 VAC / 3 x 600 VAC
- Nominal current: 8...180 A

Page 1.8.6

EMC FILTERS

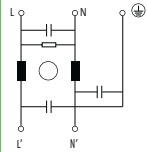
1-phase, 1-stage
- DIN-rail mountable

Approvals:   

MEF 1/1
for universal applications



Circuit diagram



Order Data

	Art-No.
10 A	10415
20 A	10416

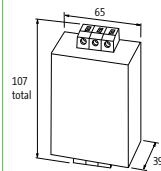
Technical Data

Operating voltage	max. 250 V AC/300 V DC
Operating frequency	50...60 Hz
Consumption at 250 V AC	max. 5 mA
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)

General data

Climatic category	25/085/21 (EN 60068-1)
Test isolation voltage	L - N: 2.7 kV DC, 2 s; L - L: 2.1 kV DC, 2 s (EN 60939-2)
Connection	Screw connection, touch protected
Mounting method	DIN-rail mountable TH35 (EN 60715)

Dimension drawing



EMC filters

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Notes

1.8.1

EMC FILTERS

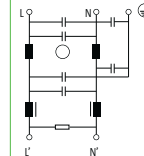
1-phase, 2-stage
- DIN-rail mountable

Approvals:   

MEF 1/2 SY
against symmetrical interferences



Circuit diagram



Order Data

	Art-No.
1 A	10460
2 A	10461
3 A	10462
4 A	10463
6 A	10464
16 A	10466

Technical Data

Operating voltage	max. 250 V AC/300 V DC
Operating frequency	50...60 Hz
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)
Consumption at 250 V AC	max. 5 mA

General data

Climatic category	25/085/21 (EN 60068-1)
Test isolation voltage	L - N: 2.7 kV DC, 2 s; L - L: 2.1 kV DC, 2 s (EN 60939-2)
Connection	Screw connection, touch protected
Mounting method	DIN-rail mountable TH35 (EN 60715)

Description

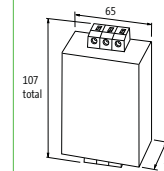
Functional description

The single phase 2-stage EMC filters MEF 1/2 are used in the range 0.1...30 MHz to suppress cable carried interference on mains and control cables. The best filter performance is achieved by using short connection wires (suggestion: earth connection < 10 cm) and the largest possible diameter. The EMC filters work bi-directionally (in both directions). The filters are for demanding applications. The filters are designed for use with fixed modules. One step of the filter is always for the suppression of asymmetrical interferences (magnetically compensated suppression). The second step is, dependant on application for symmetrical or asymmetrical interferences.

Application

symmetrical interferences: units with high repetitions of the switching processes, - switch mode P.S.U.s, - phase angle controller, - supply of universal motors, - behind transformers

Dimension drawing



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Notes

1.8.2

EMC filters

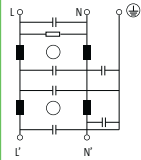
EMC FILTERS

- 1-phase, 2-stage
- DIN-rail mountable

Approvals: 

Circuit diagram

MEF 1/2 AS
against asymmetrical interferences



Order Data	Art-No.
3 A	10470
6 A	10471
10 A	10472

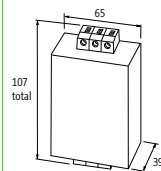
Technical Data	
Operating voltage	max. 250 V AC/300 V DC
Operating frequency	50...60 Hz
Consumption at 250 V AC	max. 5 mA
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)

General data	
Climatic category	25/085/21 (EN 60068-1)
Test isolation voltage	L - N: 2.7 kV DC, 2 s; L - L: 2.1 kV DC, 2 s (EN 60939-2)
Connection	Screw connection, touch protected
Mounting method	DIN-rail mountable TH35 (EN 60715)

Description	
Functional description	The single phase 2-stage EMC filters MEF 1/2 are used in the range 0.1...30 MHz to suppress cable carried interference on mains and control cables. The best filter performance is achieved by using short connection wires (suggestion: earth connection < 10 cm) and the largest possible diameter. The EMC filters work bi-directionally (in both directions). The filters are for demanding applications. The filters are designed for use with fixed modules. One step of the filter is always for the suppression of asymmetrical interferences (magnetically compensated suppression). The second step is, dependant on application for symmetrical or asymmetrical interferences.

Application	asymmetrical interferences: - units with high switching frequency and repetition, - switch mode PSUs, - in DC mains, - in front of transformers, - for frequency inverters
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Dimension drawing



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Notes



EMC filters

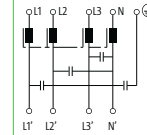
EMC FILTERS

- 3-phase, 1-stage
- DIN-rail mountable
- with neutral

Approvals: 

Circuit diagram

MEF 3/1 N
for universal applications



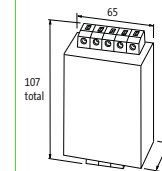
Order Data	Art-No.
3 A	10510
6 A	10511
10 A	10512
20 A	10513

Technical Data	
Operating voltage	max. 4 × 440 V AC
Operating frequency	50...60 Hz
Consumption at 250 V AC	max. 3 mA
Overload current	18 × (IN t) max. 0.5 ms; 1.5 × (IN t) max. 1 min. (1 × per hour)

General data	
Climatic category	25/085/21 (EN 60068-1)
Test isolation voltage	L - N: 2.7 kV DC, 2 s; L - L: 2.1 kV DC, 2 s (EN 60939-2)
Connection	Screw connection, touch protected
Mounting method	DIN-rail mountable TH35 (EN 60715)

Description	
Functional description	The 3-phase and one-stage EMC filters MEF 3/1 are used in the range 0.1...30 MHz and dampen interferences found in cables from the mains, supply units and control systems. They are suitable for TN-S, TN-C-S, and TT networks. The best results are obtained with short connection cables (suggestion: earth connection < 10 cm) of the largest possible cross-section. The EMC filters are bi-directional. They reduce symmetrical and asymmetrical interferences that regularly appear with electronically controlled three phase units through mains influences.

Dimension drawing



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Notes

EMC FILTERS

3-phase, 1-stage
– with neutral

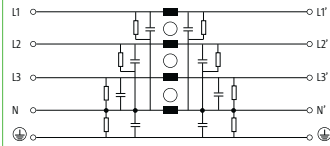
Approvals:



MEF 3/1 N HD
with increased damping



Circuit diagram



Order Data	HxWxD/kg	Art-No.
10 A	153x130x100/1.0	10571
18 A	153x130x100/1.0	10572
36 A	153x130x100/1.1	10574
72 A	153x118x125/1.6	10575
100 A	170x180x140/3.4	10577
135 A	170x180x140/4.5	10578

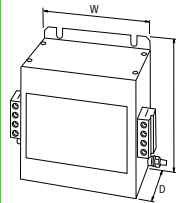
Accessories	Art-No.
Ground strap 16 mm ²	4000-71001-1620006
Ground strap 35 mm ²	4000-71001-3520006

Technical Data	
Operating voltage	max. 3 x 500 V AC
Operating frequency	50...60 Hz
Consumption at 250 V AC	max. 15 mA
Overload current	18 x (IN t) max. 0.5 ms; 1.5 x (IN t) max. 1 min. (1 x per hour)

General data	
Climatic category	25/085/21 (EN 60068-1)
Test isolation voltage	L - N: 3.3 kV DC, 2 s; L - L: 3.1 kV DC, 2 s
Mounting method	screw fixing, M6

Description	
Functional description	The 3-phase and one-stage EMC filters MEF 3/1 are used in the range 0.1...30 MHz and dampen interferences found in cables from the mains, supply units and control systems. They are suitable for TN-S, TN-CS, and TT networks. The best results are obtained with short connection cables (suggestion: earth connection < 10 cm) of the largest possible cross-section. The EMC filters are bi-directional. They reduce symmetrical and asymmetrical interferences that regularly appear with electronically controlled three phase units through mains influences.

Dimension drawing



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Notes

1.8.5

EMC FILTERS

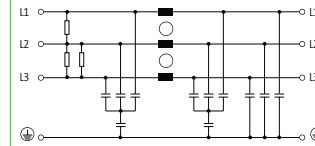
3-phase, 1-stage
– Space saving book form

Approvals:

MEF 3/1



Circuit diagram



Order Data	HxWxD/kg	Art-No.
8 A	250x90x100/1.3 – GOST	10531
16 A	250x90x100/1.3 – GOST	10532
25 A	250x90x100/1.3 – GOST	10533
36 A	250x90x100/1.5	10534
50 A	250x90x100/1.7 – GOST	10535
80 A	270x85x135/2.2 – GOST	10537
110 A	270x90x150/3.2 – GOST	10538
180 A	380x120x170/5.1 – GOST	10539

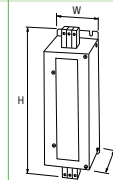
Accessories	Art-No.
Ground strap 16 mm ²	4000-71001-1620006
Ground strap 35 mm ²	4000-71001-3520006

Technical Data	
Operating voltage	max. 3 x 600 V AC
Operating frequency	50...60 Hz
Overload current	18 x (IN t) max. 0.5 ms; 1.5 x (IN t) max. 1 min. (1 x per hour)
Consumption at 250 V AC	max. 10 mA

General data	
Climatic category	25/085/21 (EN 60068-1)
Test isolation voltage	L - N: 3.3 kV DC, 2 s; L - L: 3.1 kV DC, 2 s
Connection	Screw connection, touch protected
Mounting method	screw fixing

Description	
Functional description	The 3-phase and 1-/2-stage EMC filters MEF 3/1/3/2 are used in the range 0.1...30 MHz and dampen interferences found in cables from the mains, supply units and control systems. They are suitable for TN-C and IT mains. The best results are obtained with short connection cables (suggestion: earth connection < 10 cm) of the largest possible cross-section. The EMC filters are bi-directional. They reduce symmetrical and asymmetrical interferences that often occur with frequency converters and switch mode power supplies.

Dimension drawing




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Notes

1.8.6

EMC FILTERS

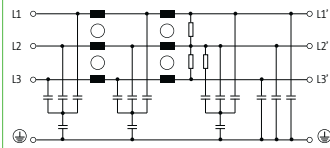
- 3-phase, 2-stage
- Space saving book form

Approvals: 

MEF 3/2



Circuit diagram



Order Data	H×W×D/kg	Art-No.
8 A	226×50×140/1,7	10550
12 A	226×50×140/1,7	10551
16 A	226×50×140/1,7	10552
25 A	226×50×140/1,7	10553
36 A	226×50×140/1,7	10554
50 A	295×70×177/3,7	10555
80 A	295×70×177/5,1	10556

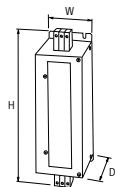
Accessories	Art-No.
Ground strap 16 mm ²	4000-71001-1620006
Ground strap 35 mm ²	4000-71001-3520006

Technical Data	
Operating voltage	max. 3 × 500 V AC
Operating frequency	50...60 Hz
Overload current	18 × (IN t) max. 0,5 ms; 1,5 × (IN t) max. 1 min. (1 × per hour)
Consumption at 250 V AC	max. 15 mA

General data	
Climatic category	25/085/21 (EN 60068-1)
Test isolation voltage	L - N: 3.3 kV DC, 2 s; L - L: 3.1 kV DC, 2 s
Connection	Screw connection, touch protected
Mounting method	screw fixing

Description	
Functional description	The 3-phase and 1-/2-stage EMC filters MEF 3/1-3/2 are used in the range 0.1...30 MHz and dampen interferences found in cables from the mains, supply units and control systems. They are suitable for TN-C and IT mains. The best results are obtained with short connection cables (suggestion: earth connection < 10 cm) of the largest possible cross-section. The EMC filters are bi-directional. They reduce symmetrical and asymmetrical interferences that often occur with frequency converters and switch mode power supplies.

Dimension drawing



Murrelektronik Online Shop
onlineshop.murrelektronik.com/en

Notes

MURR
ELEKTRONIK
stay connected

EMC filters

EMC Suppressors



EMC SUPPRESSORS SMALL DEVICE, BIG IMPACT

- Meets EMC guidelines
- Reduces voltage peaks
- Prevents coil short circuits

MURRELEKTRONIK SOLVES YOUR INTERFERENCE PROBLEMS

- Optimum interference results by adjusting your inductive load
- Prefabricated modules make it easy to install – reliably mounted every time
- Prevents operative failures and outages and increases availability
- Long service life of contacts and switching elements lower maintenance costs

THE RIGHT SUPPRESSION FOR ALL STANDARD INDUCTIVE LOADS

For Contactors

- Integrated system solutions for all standard contactors
- Universal suppressors for contactors or relays that snap in or stick to the mounting surface

For Motors

- Suppression directly next to the interference source or inside the motor terminal box
- Motor connector has 10 poles and an earth connection point with integrated suppressor module and pre-wired cable
- Integrated system solutions for direct connection to the contactor
- Universal suppressors snap in next to the motor contactor

For Valves

- Suppressors are simply mounted between valve base and valve plug instead of the flat gasket

EMC Suppressors

 <p>For Contactors ABB, General Electric, Eaton, Omron, Rockwell A. B., Schneider-Telemecanique, Siemens</p> <p>Universal Suppressors</p> <p>Page 1.9.1</p>	 <p>For Motors – Installation on the Motor RC 3 U, RC 3 R, RC 3 ST</p> <p>Page 1.9.14</p>
 <p>For Motors – Installation in the Cabinet RC 3 BUR, HRC 3 AS, RC 3 RT</p> <p>Page 1.9.17</p>	 <p>For Valves Form A, B, Bl, C, Cl</p> <p>Page 1.9.18</p>

EMC SUPPRESSORS



Suppressors for contactors

BC

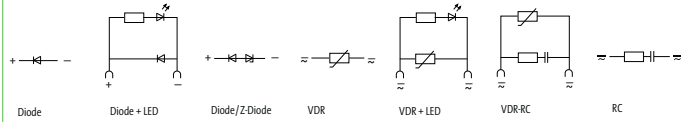
A 16

A 110



Approvals: PCB C RU US

Circuit diagram



Appropriate contactors

B 6, BC 6, VB 6, KC 6 A 9...A 16 A 26...A 110

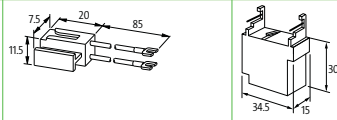
Ordering data

Voltage	Suppression	Approval	Art.-No.	Art.-No.	Art.-No.
24 ...240 V DC	Diode			26440	
24 V DC	Diode + LED				
	Diode/Z-Diode				
24 V AC/DC	VDR	CSA	26277		
	VDR + LED				
	RC				
48 V DC	Diode/Z-Diode				
48 V AC/DC	VDR	CSA	26278		
	RC				
110 V AC/DC	VDR				
	VDR + LED				
	VDR-RC				
	RC				
230 V AC/DC	VDR	CSA	26079	CSA 21172	CSA 21173
	VDR + LED				
	VDR-RC				
	VDR-RC + LED				
	RC				
400 V AC/DC	VDR			CSA 21172	CSA 21173
	RC				
415 V AC/DC	RC				

Technical data

Damping factor	~1,5 x U _N
Temperature range	-20...+70 °C
Material	plastic, flame retardant (UL 94)
Connection wires	self-securing cable forks

Dimension drawing



Notes

EMC Suppressors

EMC SUPPRESSORS

Suppressors for contactors

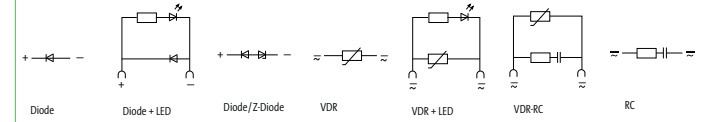
M

CL



Approvals: C RU US

Circuit diagram



Appropriate contactors

M CL00, 01, 02, 25 CL03, 04, 45 CL05...10

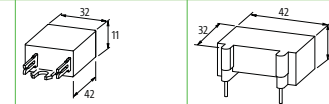
Ordering data

Voltage	Suppression	Art.-No.	Art.-No.	Art.-No.	Art.-No.
24 ...240 V DC	Diode	2000-68300-110 0000	2000-69100-110 0000	2000-69200-110 0000	
24 V DC	Diode + LED				
	Diode/Z-Diode				
24 V AC/DC	VDR	2000-68300-440 0000	2000-69100-440 0000	2000-69200-440 0000	2000-69100-440 0000
	VDR + LED				
	RC	2000-68300-430 0000	2000-69100-430 0000	2000-69200-430 0000	2000-69101-430 0000
48 V DC	Diode/Z-Diode				
48 V AC/DC	VDR	2000-68300-440 0000	2000-69100-440 0000	2000-69200-440 0000	2000-69100-440 0000
	RC	2000-68300-430 0000	2000-69100-430 0000	2000-69200-430 0000	2000-69101-430 0000
110 V AC/DC	VDR		2000-69100-740 0000	2000-69200-740 0000	2000-69100-740 0000
	VDR + LED				
	VDR-RC				
	RC		2000-69100-730 0000		
230 V AC/DC	VDR		2000-69100-242 0000	2000-69200-242 0000	
	VDR + LED				
	VDR-RC				
	VDR-RC + LED				
	RC				
400 V AC/DC	VDR		2000-69100-542 0000	2000-69200-232 0000	2000-69101-232 0000
	RC			2000-69200-542 0000	2000-69100-542 0000
415 V AC/DC	RC				

Technical data

Damping factor	~1,5 x U _N
Temperature range	-20...+70 °C
Material	plastic, flame retardant (UL 94)
Connection wires	plug contact

Dimension drawing



Notes

Art.-No. 2000-69200-110 0000 – also for CL05...10 DC-coils.

EMC SUPPRESSORS

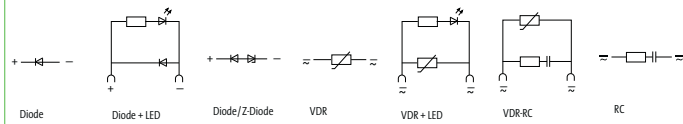
Suppressors for contactors



X-Start



Circuit diagram



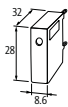
Appropriate contactors

	DIL M7...15 DIL MP20, DIL A	DIL M17...32	DIL M40...95
Ordering data	Art.-No.	Art.-No.	Art.-No.
Voltage	Suppression		
24 ...240 V DC	Diode		
24 V DC	Diode + LED		
	Diode/Z-Diode		
24 V AC/DC	VDR		
	VDR + LED	26013	26015
	RC		
48 V DC	Diode/Z-Diode		
48 V AC	VDR + LED	26013	26015
	RC		
110 V AC/DC	VDR		
	VDR + LED	26014	
	VDR-RC		
	RC	20007	20008
230 V AC/DC	VDR		
	VDR + LED	26014	
	VDR-RC		
	VDR-RC + LED		
	RC	20007	20008
400 V AC/DC	VDR		
	RC		

Technical data

Damping factor	~1,5 x U _n
Temperature range	-20...+70 °C
Material	plastic, flame retardant (UL 94)
Connection wires	plug contact

Dimension drawing



Notes

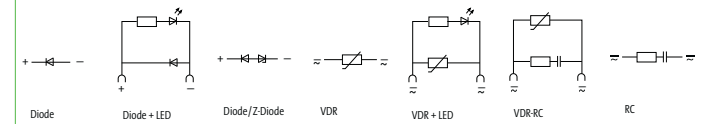
LED indicator for 24 V DC without suppression available on request.

EMC SUPPRESSORS

Suppressors for contactors



Circuit diagram



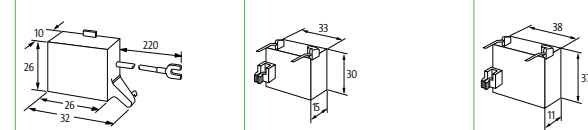
Appropriate contactors

	DIL E...	DIL 3 - 4...M DIL 3 H, DIL 4 H	DIL 0-2...M DIL R...
Ordering data	Art.-No.	Art.-No.	Art.-No.
Voltage	Suppression		Approval
24 ...240 V DC	Diode		26080
24 V DC	Diode + LED		26081
	Diode/Z-Diode		
24 V AC/DC	VDR		
	VDR + LED		
	RC		
48 V DC	Diode/Z-Diode		
48 V AC/DC	VDR		
	RC		
110V AC/DC	VDR		
	VDR + LED		
	VDR-RC		
	RC	21054	21073
230V AC/DC	VDR	26086	
	VDR + LED		
	VDR-RC		
	VDR-RC + LED		
	RC	21054	21073
400V AC/DC	VDR		
	RC		

Technical data

Damping factor	~1,5 x U _n
Temperature range	-20...+70 °C
Material	plastic, flame retardant (UL 94)
Connection wires	self-securing cable forks

Dimension drawing




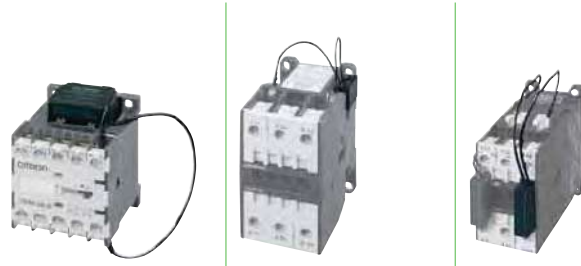
Notes

EMC SUPPRESSORS

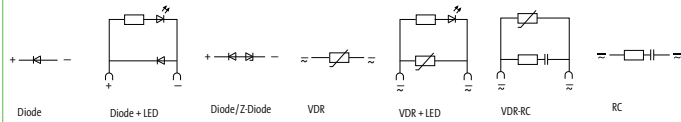
Suppressors for contactors

OMRON

Approvals: 



Circuit diagram



Appropriate contactors

J7KNA	J7KN	J7KN
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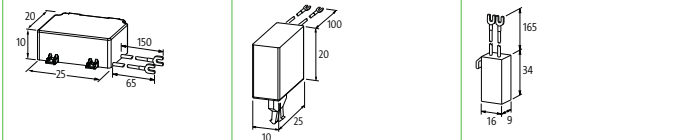
Ordering data

Voltage	Suppression	Art.-No.	Art.-No.	Art.-No.
24 ...240 V DC	Diode			Approval
24 V DC	Diode + LED			
24 V AC/DC	Diode/Z-Diode			
	VDR			cURus / CSA
	VDR + LED	2000-68800-230 0000	2000-69000-230 0000	26400
48 V DC	RC			
48 V AC	Diode/Z-Diode			
	VDR			cURus / CSA
	RC			26401
110 V AC/DC	VDR			
	VDR + LED			
	VDR-RC			
	RC	2000-68800-730 0000		
230 V AC/DC	VDR			cURus / CSA
	VDR + LED			26403
	VDR-RC			
	VDR-RC + LED			
	RC	2000-68800-232 0000		
400 V AC/DC	VDR			cURus / CSA
	RC			26404

Technical data

Damping factor	~1,5 x U _n
Temperature range	-20...+70 °C
Material	plastic, flame retardant (UL 94)
Connection wires	self-securing cable forks

Dimension drawing



Notes


Further types on request.

EMC Suppressors

EMC SUPPRESSORS

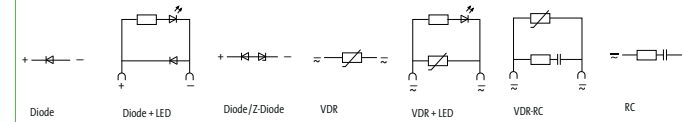
Suppressors for contactors

ALLEN-BRADLEY

Approvals: 



Circuit diagram



Appropriate contactors

100 M	100-C09_C85
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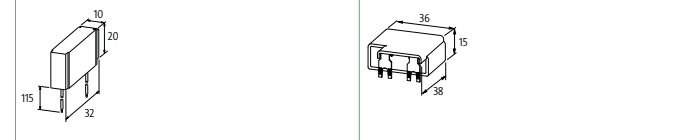
Ordering data

Voltage	Suppression	Approval	Art.-No.	Art.-No.
24 ...240 V DC	Diode			Approval
24 V DC	Diode + LED			cURus / CSA
24 V AC/DC	Diode/Z-Diode			
	VDR			cURus / CSA
	RC		26375	cURus / CSA
48V AC/DC	VDR			cURus / CSA
	VDR + LED			cURus / CSA
110V AC/DC	VDR-RC			cURus / CSA
	RC			2000-68200-430 0000
230 V AC/DC	VDR			cURus / CSA
	VDR + LED			cURus / CSA
	VDR-RC			cURus / CSA
	VDR-RC + LED			cURus / CSA
	RC		21143	cURus / CSA
400V AC/DC	VDR			cURus / CSA
	RC			2000-68200-440 0000
	VDR			cURus / CSA
	RC			2000-68200-430 0000
	VDR			cURus / CSA
	RC			2000-68200-440 0000
	VDR			cURus / CSA
	RC			2000-68200-740 0000
	VDR			cURus / CSA
	VDR + LED			cURus / CSA
	VDR-RC			cURus / CSA
	VDR-RC + LED			cURus / CSA
	RC		21143	cURus / CSA
400V AC/DC	VDR			cURus / CSA
	RC			2000-68200-532 0000
	VDR			cURus / CSA
	RC			2000-68200-542 0000

Technical data

Damping factor	~1,5 x U _n
Temperature range	-20...+70 °C
Material	plastic, flame retardant (UL 94)
Connection wires	ferrule ends

Dimension drawing



Notes

Further types on request.

EMC SUPPRESSORS

Suppressors for contactors



Approvals:

TeSys



TeSys



TeSys



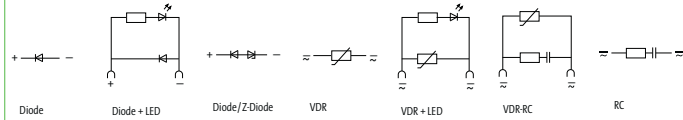
D



stay connected



Circuit diagram



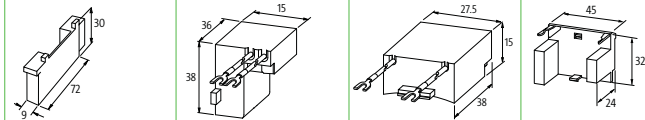
Appropriate contactors

Ordering data	Art.-No.	Approval	Art.-No.	Art.-No.	Art.-No.	
Voltage	Suppression					
24 ...240 V DC	Diode				26481	
24 V DC	Z-Diode	26476				
24 V AC/DC	VDR	cURus	2000-69400-440 0000	cURus	2000-69300-440 0000	
	RC	cURus	2000-69400-430 0000	cURus	2000-69300-430 0000	
30...250 V DC	Z-Diode					
48 V AC/DC	VDR	cURus	2000-69400-440 0000	cURus	2000-69300-440 0000	
	VDR + LED					
	RC	cURus	2000-69400-430 0000	cURus	2000-69300-430 0000	
110V AC/DC	VDR	cURus	2000-69400-740 0000	cURus	2000-69300-740 0000	
	VDR + LED					
	RC	21063	cURus	2000-69400-730 0000	cURus	2000-69300-730 0000
230V AC/DC	VDR	cURus	2000-69400-242 0000	cURus	2000-69300-242 0000	
	VDR + LED					
	VDR-RC + LED	21063	cURus	2000-69400-232 0000	cURus	2000-69300-232 0000
	RC					
400V AC/DC	VDR	cURus	2000-69400-542 0000			
	RC	cURus	2000-69400-532 0000			

Technical data

Damping factor	~1,5 x U _i			
Temperature range	-20...+70 °C			
Material	plastic, flame retardant (UL 94)			
Connection wires	plug contact	self-securing cable forks	self-securing cable forks	plug contact

Dimension drawing



Notes

1.9.7

EMC SUPPRESSORS

Suppressors for contactors

SIEMENS

Approvals:

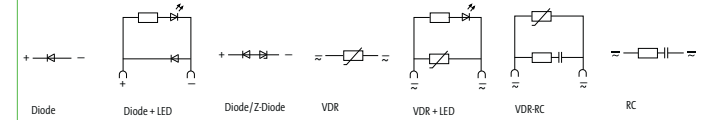
S00



S0



Circuit diagram



Appropriate contactors

Ordering data	Art.-No.	Art.-No.
Voltage	Suppression	
24 ...240 V DC	Diode	2000-68500-110 0000
24 V DC	Diode + LED	2000-68400-201 0000
	Diode/Z-Diode	
24 V AC/DC	VDR	2000-68500-440 0000
	VDR + LED	2000-68500-441 0000
	RC	2000-68500-430 0000
48 V AC/DC	VDR	
	RC	2000-68500-430 0000
110 V AC/DC	VDR	2000-68500-740 0000
	VDR + LED	2000-68500-741 0000
	VDR-RC	
	RC	2000-68500-730 0000
230V AC/DC	VDR	2000-68500-242 0000
	VDR + LED	2000-68500-247 0000
	RC	2000-68500-232 0000
400V AC/DC	VDR	2000-68500-542 0000
	RC	2000-68500-532 0000

Technical data

Damping factor	~1,5 x U _i
Temperature range	-20...+70 °C
Material	plastic, flame retardant (UL 94)
Connection wires	plug contact

Dimension drawing




Notes

1.9.8

EMC SUPPRESSORS

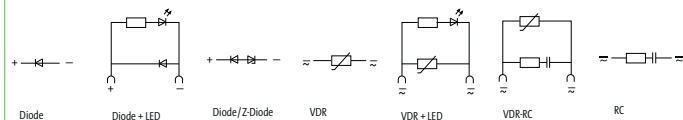
Suppressors for contactors

SIEMENS

Approvals: 



Circuit diagram



Appropriate contactors

3 RT 1.3/1.4 3 RT 1.5/6/7

Ordering data	Art.-No.	Art.-No.	Art.-No.
Voltage	Suppression	Approval	Approval
24 V DC	Diode + LED		
	Diode + Z-Diode + LED		
	Diode/Z-Diode	UR / CSA	26521
24 V AC/DC	VDR	UR / CSA	26524
	VDR + LED		
	VDR-RC	UR / CSA	21215
48 V DC	Diode/Z-Diode		
	VDR		
48 V AC/DC	VDR-RC		21220
	VDR		
110 V AC/DC	VDR + LED		
	VDR-RC		
	RC		
230 V AC/DC	VDR	UR / CSA	26526
	VDR + LED		
	VDR-RC		
400 V AC/DC	RC	UR / CSA	21217
	VDR		21222

Technical data

Damping factor $\sim 1,5 \times U_n$
 Temperature range $-20...+70$ °C
 Material plastic, flame retardant (UL 94)
 Connection wires plug contact

Dimension drawing




Notes

EMC SUPPRESSORS

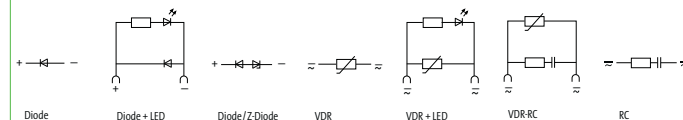
Suppressors for contactors

SIEMENS

Approvals: 



Circuit diagram



Appropriate contactors

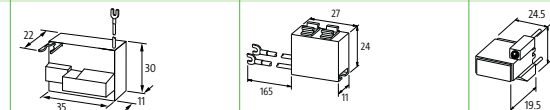
3 TH 3/4 3 TH 3/4/8, 3 TF 30...45
 3 TF 30...35, 3 TF 40...45 3 TB 40...3 TB 44
 3 TH 2, 3 TF 2 3 TH 20, 3 TF 20

Ordering data	Art.-No.	Art.-No.	Art.-No.
Voltage	Suppression	Approval	Approval
24...240 V DC	Diode	26588	UR / CSA
	Diode + LED		26283
	Diode/Z-Diode		26036
24V DC	VDR	UR / CSA	26530
	VDR + LED		26034
	VDR-RC	UR / CSA	26051
24V AC/DC	VDR	CSA	26576
	VDR + LED		
	RC		UR / CSA
48V DC	Diode/Z-Diode		22050
	VDR	CSA	26576
	RC		UR / CSA
110 V AC/DC	VDR		22051
	VDR + LED		
	VDR-RC		
230 V AC/DC	RC	UR / CSA	22051
	VDR	CSA	26578
	VDR + LED		UR / CSA
400 V AC/DC	VDR-RC		26317
	RC		UR / CSA
	VDR		UR / CSA
400 V AC/DC	VDR		22052
	RC		UR / CSA
	VDR		22054
400 V AC/DC	VDR		UR / CSA
	RC		22054
	VDR		UR / CSA

Technical data

Damping factor $\sim 1,5 \times U_n$
 Temperature range $-20...+70$ °C
 Material plastic, flame retardant (UL 94)
 Connection wires self-securing cable forks

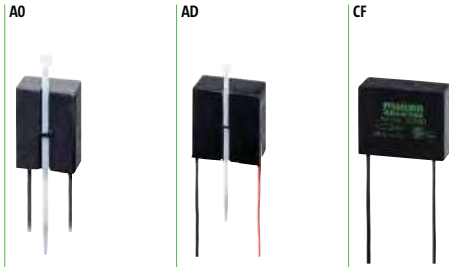
Dimension drawing



Notes

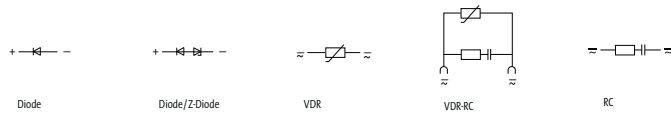
EMC SUPPRESSORS

Suppressors
– universal



Approvals:

Circuit diagram



Appropriate contactors

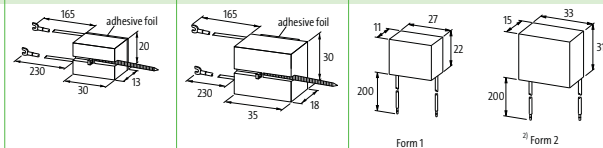
universal universal universal

Ordering data		Art.-No.		Art.-No.		Art.-No.		sugg. coil valves		
Voltage	Suppression	Approval		Approval		Approval		AO	AD	CF
Max. 240 V DC	Diode	CSA	26001					15 W		
24 V DC	Z-Diode	CSA	26120	CSA	26073			25 W	75 W	
24 V AC/DC	VDR	cURus / CSA	26180	CSA	26720			50 VA/W	200 VA/W	
	RC					CSA	20680			20 VA
48 V AC/DC	VDR	cURus / CSA	26181					70 VA/W		
	RC	cURus / CSA	20001	cURus / CSA	20013			15 VA	15 VA	
110 V AC/DC	VDR	cURus / CSA	26182	CSA	26722			100 VA/W	200 VA/W	
	VDR-RC									
	RC									
230 V AC/DC	VDR	cURus / CSA	26183	CSA	26723			200 VA/W	200 VA/W	
	VDR	cURus / CSA	26184					200 VA/W		
	RC			CSA	20014	CSA	20682		25 VA	20 VA
	RC	cURus / CSA	20002	cURus / CSA	20010	CSA	20683	15 VA	75 VA	20 VA
	RC			cURus / CSA	20011	CSA	20687		100 VA	50 VA
400 V AC/DC	VDR			CSA	26724				200 VA/W	
	RC	cURus / CSA	20004	cURus / CSA	20012	CSA	20688	15 VA	100 VA	50 VA
	RC									

Technical data

Damping factor ca. 1,5
 Temperature range -20...+70 °C
 Material plastic, flame retardant (UL 94)
 Connection wires self-securing cable forks

Dimension drawing



Notes

Art.-No. 26184 – up to 300 V AC/DC

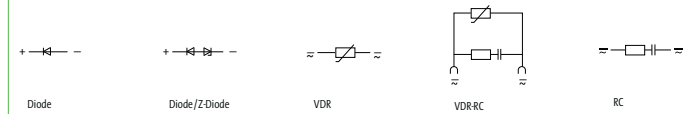
EMC SUPPRESSORS

Suppressors
– universal



Approvals:

Circuit diagram



Appropriate contactors

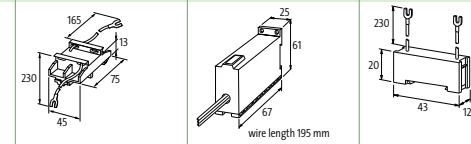
universal universal universal

Ordering data		Art.-No.		Art.-No.		Art.-No.		sugg. coil valves		
Voltage	Suppression	Approval		Approval		Approval		H	RC-BUG 2	BU + UB
24...240 V DC	Diode	CSA	26097			CSA	26020	25 W		50 W
24 V DC	Z-Diode	CSA	26095			CSA	26130	25 W		50 W
24 V AC/DC	VDR	cURus / CSA	26090			cURus / CSA	26150	50 VA/W		50 VA/W
	RC									
48 V AC/DC	VDR									
	RC	CSA	20100					15 VA		
110 V AC/DC	VDR									
	VDR-RC									
	RC			CSA	26613					146 VA
230 V AC/DC	VDR									
	VDR			CSA	26619	cURus / CSA	26155		100 VA/W	200 VA/W
	RC	CSA	20101	CSA	26614	CSA	20031	15 VA	146 VA	25 VA
	RC	CSA	20102			CSA	20033	25 VA		25 VA
	RC	CSA	20103			CSA	20034	75 VA		25 VA
400 V AC/DC	VDR									
	RC			CSA	26615	CSA	20032		146 VA	25 VA
	RC			CSA	26616				146 VA	

Technical data

Damping factor ca. 1,5
 Temperature range -20...+70 °C
 Material plastic, flame retardant (UL 94)
 Mounting method DIN-rail mounting (EN 60715) with adapter ASA Art.-No. 20900, DIN-rail mounting (EN 60715)
 Connection wires self-securing cable forks

Dimension drawing



Notes

Art.-No. 20034 – without adapter, can be directly snapped onto DIN-rail, ASA adapter Art.-No. 20900 included in delivery.
 Art.-No. 26616 – up to 600 V AC/DC

EMC SUPPRESSORS



Suppressors for motors

Mounting methods:

- on the motor terminal box
- inside the motor terminal box
- inside the distribution box
- on 35 mm DIN-rail acc. to EN 60715

Approvals:



RC 3 U

With M16 x 1,5



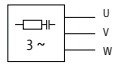
RC 3 BU



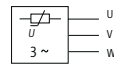
RC 3 BUG



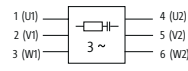
Circuit diagram



RC



VDR

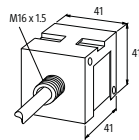


RC (1) per phase

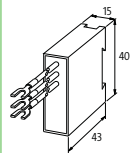
Ordering data		Art.-No.	Art.-No.	Art.-No.
Voltage	Motor rating	Suppression/Approval	Suppression/Approval	Suppression/Approval
3 x 400 V AC	4 kW	RC	23022	RC/cURus
	4 kW			VDR
	4 kW			VDR/cURus
	7,5 kW			RC
	10 kW	RC	23011	VDR/cURus
	10 kW	RC per phase	23043	RC
3 x 575 V AC	20 kW			VDR/cURus
	4 kW			RC/cURus
	7,5 kW	RC/cURus	23035	RC
	20 kW			VDR
3 x 690 V AC	4 kW			RC per phase
	7,5 kW			RC/v
	20 kW			RC

EMC Suppressors

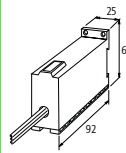
Technical data	
Frequency	for RC: 50...60 Hz for VDR: 10...400 Hz
Material	plastic, flame retardant (UL 94)
Potting compound	2-component epoxy
Temperature range	-20...+60 °C
Connection method	approx. 500 mm PVC cable 3 x 0,75 mm ² or 7 x 0,75 mm ²



For DIN-rail mounting use
2 x Art.-No. 20900 adapter feet



For DIN-rail mounting use
1 x Art.-No. 20900 adapter feet



For DIN-rail mounting use
2 x Art.-No. 20900 adapter feet

Notes

Do not use RC motor suppressors on variable frequency drives.
1 x Art.-No. 23103, 23043 required per phase.

1.9.13

EMC SUPPRESSORS

Suppressors for motors

Mounting methods:

- with M16 x 1.5 and M20 x 1.5
- on the motor terminal box with plug connectors

Approvals:



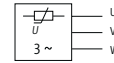
RC 3 R

With M16 x 1,5 screw



RC 3 R

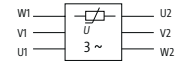
With M16 x 1,5 screw



RC

RC 3 RG

With M20 x 1,5 screw



VDR (1) per phase

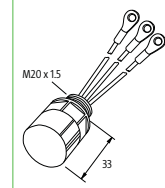
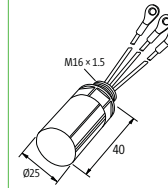
Circuit diagram

Ordering data		Art.-No.	Art.-No.	Art.-No.
Voltage	Motor rating	Suppression/Approval	Suppression/Approval	Suppression/Approval
3 x 400 V AC	4 kW	RC	23170	VDR/cURus
	4 kW			VDR
	4 kW			VDR/cURus
	7,5 kW	VDR	23171	RC
	10 kW			VDR
	20 kW			VDR
3 x 575 V AC	4 kW	VDR/cURus	23172	RC/cURus
	7,5 kW	VDR/cURus	23173	RC/cURus
	10 kW			VDR/cURus
	20 kW			VDR/cURus
3 x 690 V AC	7,5 kW	VDR	23174	VDR per phase
	20 kW			VDR

EMC Suppressors

Technical data	
Frequency	for RC: 50...60 Hz for VDR: 10...400 Hz
Material	plastic, flame retardant (UL 94)
Potting compound	2-component epoxy
Temperature range	-20...+60 °C
Connection method	approx. 100 mm single core 0,5 mm ²
Ring terminals	isolated M6

Dimension drawing



Notes

Do not use RC motor suppressors on variable frequency drives.
Art.-No. 23174 - wire diameter 1.5 mm².

1.9.14

EMC SUPPRESSORS

Suppressors for motors

Mounting methods:

- on the motor terminal box with plug connectors

Approvals:



RC 3 ST

Connector with cable and integrated motor suppression
Cable outlet in the back

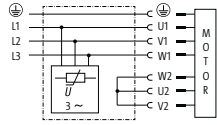


RC 3 ST

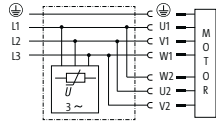
Connector with cable and integrated motor suppression
Cable outlet (right angle)



Circuit diagram



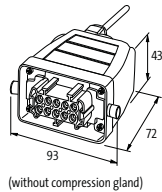
Varistor-suppression (star)



Varistor-suppression (delta)

Ordering data			Art.-No.	Art.-No.
Voltage	Motor rating	Cable length	Suppression	Suppression
max.	5.5 kW	5 m	VDR/star	VDR/star
3 x 575 V AC	5.5 kW	8 m	VDR/star	VDR/star
	5.5 kW	10 m	VDR/star	VDR/star
			236139	236148
			236141	236149
			236142	236149

Technical data	
Frequency	10...400 Hz
Plug connector	females, 10-pole + PE
Housing	aluminium pressure diecasting
Temperature range	-20...+60 °C
Connection method	PUR cable black, 4 x 1.5 mm ² ; numbered wires, halogen free
Dimension drawing	PUR cable black, 4 x 1.5 mm ² ; numbered wires, DESINA® compliant



Notes

EMC SUPPRESSORS

Suppressors for motors

Mounting methods:

- on 35 mm DIN-rail acc. to EN 60715
- bolted together, stacked
- DIN-rail mounting under the control gear

Approvals:



HRC 3



HRC 3 K



RC 3 BUC

Connects onto Siemens SIRIUS 3 RT 20 contactors, with screw terminal

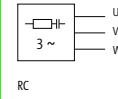


RC 3 BUC

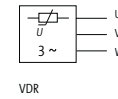
Connects onto Siemens SIRIUS 3 RT 20 contactors, with spring clamp terminal



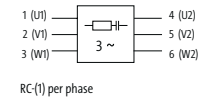
Circuit diagram



RC



VDR

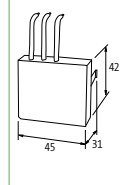
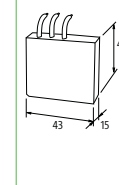
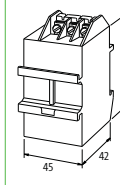
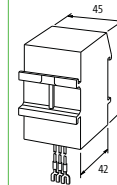


RC(1) per phase

Ordering data		Art.-No.	Art.-No.	Art.-No.	Art.-No.
Voltage	Motor rating	Suppression/Approval	Suppression/Approval	Suppression/Approval	Suppression/Approval
3 x 400 V AC	4 kW	RC/cURus	23004	RC	23005
	4 kW	RC/cURus	233463		
	5.5 kW			RC/cURus	236082
	7.5 kW				RC/cURus
	10 kW	RC/cURus	23002	RC	23003
	20 kW	RC/per phase/cURus	23009		
	20 kW	VDR/cURus	23015		
3 x 500 V AC +10 %	4 kW	RC/cURus	23000	RC	23001
3 x 575 V AC	5.5 kW				RC/cURus
	7.5 kW	RC/cURus	23006	RC	23007
	7.5 kW	RC/cURus	230563		
	10 kW	VDR/cURus	23016		RC/cURus
	20 kW			RC	23018
	10 kW	RC	23017		

Technical data	
Frequency	for RC: 50...60 Hz, for VDR: 10...400 Hz
Material	plastic, flame retardant (UL 94)
Potting compound	2-component epoxy
Temperature range	-20...+60 °C
Connection method	approx. 250 mm s. core
	(Art.-No. 23000: 300 mm)
	0.5 mm ² (Art.-No. 23000: 1.5 mm ²)
	with self-securing M4 cable forks
	3-pole terminal
	2 x (0,75...2,5 mm ²)
	wire (solid core)
	2,0 mm ²
	wire with ferrule ends
	2,0 mm ²

Dimension drawing



Notes

Do not use RC motor suppressors on variable frequency drives.
Art.-No. 233463 and 230563 – with ferrule ends.

EMC SUPPRESSORS

Suppressors for motors

Mounting methods:

- DIN-rail mounting under the control gear
- fixes onto contactors
- available with integrated coil suppression

Approvals:



HRC 3 AS

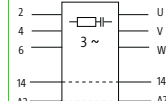
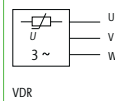
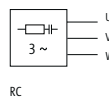


RC 3 RT

Connects onto Siemens SIRIUS 3 RT 10, 3 RT 20 contactors with screw terminal



Circuit diagram



Appropriate contactors

Motor contactors up to 5.5 kW from Siemens, Moeller, Sprecher + Schuh etc.

Siemens 3 RT 10

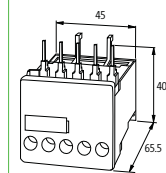
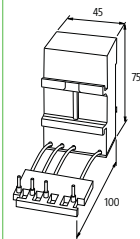
Ordering data	Art.-No.	Art.-No.	Art.-No.
Voltage	Motor rating	Suppression motor + coil	Suppression/approval
3 x 400 V AC	5,5 kW	RC 23160	VDR 23163
	5,5 kW	RC + Diode 23151	RC/cURus / CSA 23180
3 x 575 V AC	5,5 kW	RC 23161	VDR 23164
	5,5 kW	VDR + Diode 23157	RC/cURus / CSA 23181

Technical data

Suppression coil for RC: 230 V AC / 20 VA, for RC + Diode: 24...230 V DC / 36 W
 Frequency for RC: 50...60 Hz, for VDR: 10...400 Hz
 Material plastic, flame retardant (UL 94)
 Temperature range -20...+60 °C
 Connection method ferrules, load side securely fixed

fits directly into SIRIUS contactors, size 00

Dimension drawing



Notes

Do not use RC motor suppressors on variable frequency drives.

EMC SUPPRESSORS

Suppressors for valves

- with LED
- with suppression

VBS

Form A
 Pin spacing 18 mm
 EN 175301-803 (ISO 4400)

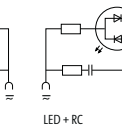
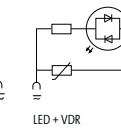
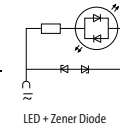
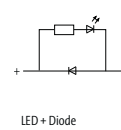
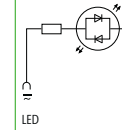


LBS

Form BI Industrial Standard
 Pin spacing 11 mm



Circuit diagram

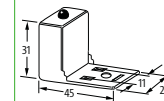
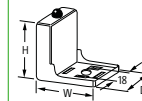


Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.	Art.-No.
Voltage	Suppression				
24 V DC	LED + Diode	3124021	3124221	Switch off delay time [ms]	200
24 V AC/DC	LED	3124015	3124215	Switch off voltage peak [V]	1
	LED + Z-Diode	3124033	3124233	Valve hold-on rating [W/VA]	50
	LED + VDR	3124048	3124248		20
	LED + RC	3124068			55
	LED + RC		3124269		45
					105
					70
48 V AC/DC	LED	3124017			10
	LED + VDR	3124052			75
	LED + RC	3124071			90
110 V AC/DC	LED	3124018			30
	LED + VDR	3124046			50
	LED + RC	3124070			10
	LED + RC	3124072			25
230 V AC/DC	LED	3124016	3124216		25
	LED + VDR	3124049	3124249		50
	LED + RC	3124063	3124263		15
	LED + RC	3124064			360
					300
					300

Technical data

Supply indicator LED yellow
 Contact material silvered bronze
 Protection IP65 when fully mounted
 Material polyamide black, flame retardant, temperature resistant up to 130 °C
 Temperature range -20...+60 °C

Dimension drawing



Housing H x W x D: 37 x 45 x 30 mm
¹⁾Housing H x W x D: 37 x 39 x 30 mm
²⁾Housing H x W x D: 37 x 53 x 33 mm
 0° and 180° version on request

Note PIN arrangement (PE at cable outlet of connector)
 180° version on request

Notes

Do not use plug gasket when fitting adapter. Other LED colors on request.
 For double valves the VA 2 series is suitable (please inquire). At Art.-No. **3124021** and **3124221** polarity dependent

EMC SUPPRESSORS



Suppressors for valves

- with LED
- with suppression

DAB/PBS

Form B/BI
Pin spacing 10/11 mm
EN 175301-803 (ISO 6952)

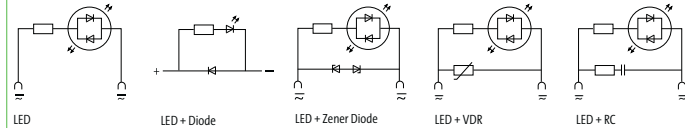


MVK/MVT

Form C/CI
Pin spacing 8/9.4 mm
EN 175301-803 (ISO 6952)



Circuit diagram



Ordering data		Art.-No.	Art.-No.	Art.-No.	Art.-No.	Switch off delay time	Switch off voltage peak	Valve hold-on rating
Voltage	Suppression	EN 175301-803 (ISO 6952)	EN 175301-803 (ISO 6952)	EN 175301-803 (ISO 6952)	EN 175301-803 (ISO 6952)	[ms]	[V]	[W/VA]
		Form B	Form BI	Form C	Form CI			
24 V DC	LED + Diode	3124871	3124121			200	1	50
24 V AC/DC	LED	3124875	3124115	3124811	3124815	-	-	50
	LED + Z-Diode	3124873	3124133	3124833	3124832	20	55	100
	LED + VDR		3124148			15	45	50
	LED + RC		3124169			20	70	20
110 V AC/DC	LED + RC		3124170			20	250	10
230 V AC/DC	LED		3124116			-	-	50
	LED + VDR					15	360	100
	LED + RC		3124163			20	300	10

EMC Suppressors

Technical data	
Supply indicator	LED yellow
Contact material	silvered bronze
Protection	IP65 when fully mounted
Material	polyamide black, flame retardant, temperature resistant up to 130 °C
Temperature range	-20...+60 °C

Dimension drawing	
<p>Suitable for 0° and 180° installation</p>	
<p>Note PIN arrangement (PE at cable outlet of connector) 180° version on request</p>	<p>0° and 180° version on request</p>

Notes	
Do not use plug gasket when fitting adapter. Other LED colors on request. Right-angle housing version with 10 mm pin spacing (DAR/DARU), on request. At Art.-No. 3124871 and 3124121 polarity dependent.	

RELAYS / SAFETY RELAYS INCREDIBLY VERSATILE

- Over 600 different modules ready for all applications
- Push-In technology, spring clamps or screw terminals available
- Worldwide approvals

TWICE AS SMALL, TWICE AS FAST!

Each system includes different kinds of active interface modules. Relay modules are used to separate two different potential levels. The control side is galvanically isolated from the load/contact side and should be protected from the wrong voltage. These interfaces adjust the different signal levels to work with the existing system.

With MIRO SAFE+, Murrelektronik offers safe switching devices for a wide range of safe industrial applications. They are the perfect solution to reach high safety standards – up to performance level e (PLe) according to EN 13849-1. **With MIRO SAFE+ you can design many different safety applications like: emergency stops, guard doors, two hand monitoring, light curtains, and safety magnet switch monitoring.**

Relays

<p>Relay 6.2 mm</p> <ul style="list-style-type: none"> • Output relay • Input relay <p>Page 1.10.1</p>	<p>Relay 12.4 mm</p> <ul style="list-style-type: none"> • Output relay • Input relay <p>Page 1.10.8</p>
<p>Relay 22.5 mm</p> <ul style="list-style-type: none"> • Output relay • Input relay <p>Page 1.10.17</p>	<p>Accessories</p> <p>Page 1.10.29</p>

Relays / Safety Relays

Safety Relays

<p>Safety Relay 22.5 / 45 mm</p> <ul style="list-style-type: none"> • MIRO SAFE+ <p>Page 1.10.21</p>

RELAYS / SAFETY RELAYS



Terminal relay
– with bridge system

MIRO 6.2
Output relay
1 NO/NC contact
Screw terminals



MIRO 6.2
Output relay
1 NO/NC contact
Spring clamp terminals



MIRO 6.2
Output relay
1 NO contact
Screw terminals

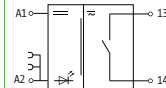
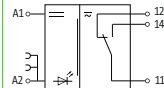


MIRO 6.2
Output relay
1 NO contact
Spring clamp terminals



Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
12 V DC (10...15 V DC - 20 mA)	52050	6652050		
24 V DC (19.2...30 V DC - 14 mA)	52000	6652000	52002	6652002
24 V DC (19.2...30 V DC - 17 mA)	52011	6652011	52015	6652015

Switching capacity (EN 60947-5-1)

AC-12	6 A (24 V AC; 110 V AC; 230 V AC)
AC-15	3 A (24 V AC; 110 V AC; 230 V AC)
DC-13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)

Input

LED display LED (green)

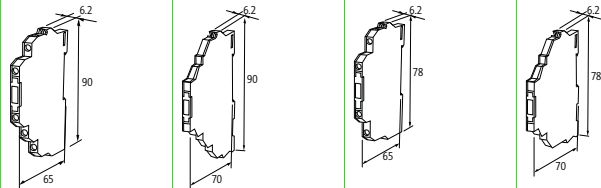
Output

Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Min. load current	10 mA (12 V DC)
Power rating (voltage dependent)	max. 1500 VA/120 W
Switching frequency	max. 10 Hz
Contact material	Ag Sn O2
Energize/release/contact bounce time	10/15/1.5 ms

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	-20...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



Murrelektronik Online Shop
onlineshop.murrelektronik.com/en

Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil

1.10.1

RELAYS / SAFETY RELAYS

Terminal relay
– with bridge system

MIRO 6.2
Output relay
1 NO/NC contact
Screw terminals

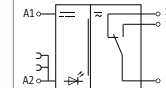


MIRO 6.2
Output relay
1 NO/NC contact
Spring clamp terminals



Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.
48 V DC (40...53 V DC - 12 mA)	52020	6652020
110 V AC/DC (95...121VAC/DC - 4 mA)	52030	6652030
230 V AC/DC (195...253 V AC/DC - 3 mA)	52040	6652040

Switching capacity (EN 60947-5-1)

AC-12	6 A (24 V AC; 110 V AC; 230 V AC)
AC-15	3 A (24 V AC; 110 V AC; 230 V AC)
DC-13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)

Input

LED display LED (green)

Output

Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Min. load current	10 mA (12 V DC)
Power rating (voltage dependent)	max. 1500 VA/120 W
Switching frequency	max. 10 Hz
Contact material	Ag Sn O2
Energize/release/contact bounce time	10/15/1.5 ms

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	-20...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



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Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil

1.10.2

Relays / Safety Relays

Relays / Safety Relays

RELAYS / SAFETY RELAYS



Terminal relay

– with bridge system

– Hand-0-Auto

MIRO 6.2

Output relay
1 NO contact
Screw terminals



MIRO 6.2

Output relay
1 NO contact
Spring clamp terminals

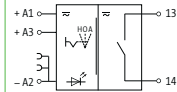
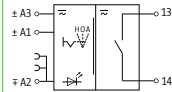


MIRO 6.2

Output relay
1 NO contact
Screw terminals



Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
24 V AC/DC (19.2...30 V AC/DC - 17 mA)	cURus, cCSAus, CCC	52007	
24 V AC/DC (19.2...28 V AC/DC - 7 mA)			526010

Switching capacity (EN 60947-5-1)	Art-No.
AC-12	6 A (24 V AC; 110 V AC; 230 V AC)
AC-15	3 A (24 V AC; 110 V AC; 230 V AC)
DC-13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)

Input	Art-No.
LED display	LED (green)
	LED (green): auto mode; LED (red): manual mode

Output	Art-No.
Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Min. load current	10 mA (12 V DC)
Power rating (voltage dependent)	max. 1500 VA/120 W

Switching frequency	max. 10 Hz
Contact material	Ag Sn O2
Energize/release/contact bounce time	10/15/1.5 ms
	8/20/2 ms

General data	Art-No.
Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	-20...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing	Art-No.

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Notes
For inductive loads we recommend EMC suppressors connected parallel to the coil

1.10.3

RELAYS / SAFETY RELAYS

Terminal relay

– with bridge system

– Isolation function in output circuit

MIRO 6.2

Output relay
1 NO/NC contact
Screw terminals



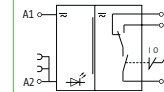
MIRO 6.2

Output relay
1 NO/NC contact
Spring clamp terminals



Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.
24 V AC/DC (19.2...30 V AC/DC - 17 mA)		52010
		6652010

Switching capacity (EN 60947-5-1)	Art-No.
AC-12	6 A (24 V AC; 110 V AC; 230 V AC)
AC-15	3 A (24 V AC; 110 V AC; 230 V AC)
DC-13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)

Input	Art-No.
LED display	LED (green)

Output	Art-No.
Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Min. load current	10 mA (12 V DC)
Power rating (voltage dependent)	max. 1500 VA/120 W
Switching frequency	max. 10 Hz
Contact material	Ag Sn O2
Energize/release/contact bounce time	10/15/1.5 ms

General data	Art-No.
Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	-20...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing	Art-No.

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Notes
For inductive loads we recommend EMC suppressors connected parallel to the coil

1.10.4

Relays / Safety Relays

Relays / Safety Relays

RELAYS / SAFETY RELAYS



Terminal relay

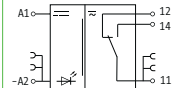
MIRO 6.2

Input relay
1 NO/NC contact
Screw terminals

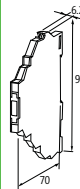
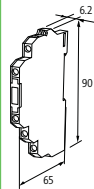


Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC (19.2...30 V DC - 14 mA)	52005	6652005
24 V AC/DC (19.2...30 V AC/DC - 17 mA)	52003	6652003
Switching capacity (EN 60947-5-1)		
AC12	6 A (24 V AC; 110 V AC; 230 V AC)	
AC15	3 A (24 V AC; 110 V AC; 230 V AC)	
DC13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)	
Input		
LED display	LED (yellow)	
Output		
Switching voltage	max. 30 V AC/36 V DC	
Switching current per output	max. 50 mA	
Min. load current	1 mA (12 V DC)	
Power rating (voltage dependent)	max. 1500 VA/120 W	
Switching frequency	max. 10 Hz	
Contact material	Ag Sn O2 hv	
Energize/release/contact bounce time	10/15/1.5 ms	
General data		
Mech./ elect. life	20.000.000 switching cycles/load dependent	
Test isolation voltage	4 kV; safe separation (EN 60947-1)	
Temperature range	-20...+55 °C	
Mounting method	DIN-rail mountable (EN 60715)	
Dimension drawing		



Relays / Safety Relays

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Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil. When the max. switching voltage/current is exceeded the gold plating is destroyed. The relay will then take on the properties of an output type.

1.10.5

RELAYS / SAFETY RELAYS

Terminal relay

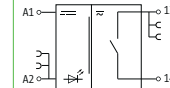
MIRO 6.2

Input relay
1 NO contact
Screw terminals

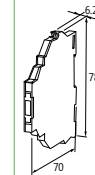
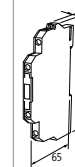


Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC (19.2...30 V DC - 14 mA)	52004	6652004
Switching capacity (EN 60947-5-1)		
AC12	6 A (24 V AC; 110 V AC; 230 V AC)	
AC15	3 A (24 V AC; 110 V AC; 230 V AC)	
DC13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)	
Input		
LED display	LED (yellow)	
Output		
Switching voltage	max. 30 V AC/36 V DC	
Switching current per output	max. 50 mA	
Min. load current	1 mA (12 V DC)	
Power rating (voltage dependent)	max. 1500 VA/120 W	
Switching frequency	max. 10 Hz	
Contact material	Ag Sn O2 hv	
Energize/release/contact bounce time	10/15/1.5 ms	
General data		
Mech./ elect. life	20.000.000 switching cycles/load dependent	
Test isolation voltage	4 kV; safe separation (EN 60947-1)	
Temperature range	-20...+55 °C	
Mounting method	DIN-rail mountable (EN 60715)	
Dimension drawing		



Relays / Safety Relays

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Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil. When the max. switching voltage/current is exceeded the gold plating is destroyed. The relay will then take on the properties of an output type.

1.10.6

RELAYS / SAFETY RELAYS



Terminal relay

MIRO 6.2

Input relay
1 NO/NC contact
Screw terminals



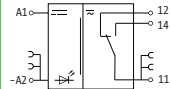
MIRO 6.2

Input relay
1 NO/NC contact
Spring clamp terminals



Approvals:

Circuit diagram

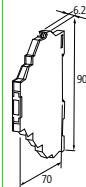
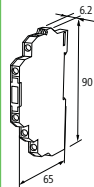


Order Data	Art-No.	Art-No.
48 V DC (40...53 V DC - 12 mA)	52021	6652021
110 V AC/DC (95...121VAC/DC - 4 mA)	52031	6652031
230 V AC/DC (195...253 V AC/DC - 3 mA)	52041	6652041
Switching capacity (EN 60947-5-1)		
AC12	6 A (24 V AC; 110 V AC; 230 V AC)	
AC15	3 A (24 V AC; 110 V AC; 230 V AC)	
DC13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)	
Input		
LED display	LED (yellow)	
Output		
Switching voltage	max. 30 V AC/36 V DC	
Switching current per output	max. 50 mA	
Min. load current	1 mA (12 V DC)	
Power rating (voltage dependent)	max. 1500 VA/120 W	
Switching frequency	max. 10 Hz	
Contact material	Ag Sn O2 hv	
Energize/release/contact bounce time	10/15/1.5 ms	

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	-20...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



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Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil. When the max. switching voltage/current is exceeded the gold plating is destroyed. The relay will then take on the properties of an output type.

1.10.7

Relays / Safety Relays

RELAYS / SAFETY RELAYS

Terminal relay

– with bridge system

MIRO 12.4

Output relay
2 NO/NC contacts
Screw terminals



MIRO 12.4

Output relay
2 NO/NC contacts
Spring clamp terminals



MIRO 12.4

Input relay
2 NO/NC contacts
Screw terminals



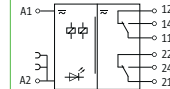
MIRO 12.4

Input relay
2 NO/NC contacts
Spring clamp terminals



Approvals:

Circuit diagram

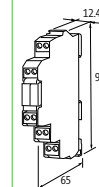
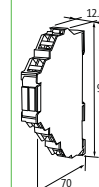
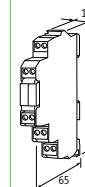


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC (19.2...30 V DC - 18 mA)	cCSAus, CCC	52102	cCSAus, CCC	6652102
24 V AC/DC (19.2...30 V AC/DC - 20 mA)	CCC	52103	CCC	6652103
48 V DC (40...53 V DC - 14 mA)		52120		6652120
110 V AC/DC (95...121 V AC/DC - 7 mA)		52130		6652130
230 V AC/DC (195...253 V AC/DC - 5 mA)	CCC	52140	CCC	6652140
Switching capacity (EN 60947-5-1)				
AC12	6 A (24 V AC; 110 V AC; 230 V AC)			
AC15	3 A (24 V AC; 110 V AC; 230 V AC)			
DC13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)			
Input				
LED display	LED (green)			
Output				
Switching voltage	max. 250 V AC/DC		max. 30 V AC/36 V DC	
Switching current per output	max. 6 A		max. 50 mA	
Min. load current	10 mA (12 V DC)		1 mA (12 V DC)	
Power rating (voltage dependent)	max. 1500 VA/120 W			
Switching frequency	max. 10 Hz			
Contact material	Ag Sn O2		Ag Sn O2 hv	
Energize/release/contact bounce time	10/15/1.5 ms			

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	-20...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



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Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil.

1.10.8

RELAYS / SAFETY RELAYS



Terminal relay
– with bridge system

MIRO 12.4
Output relay
2 NO contact
Screw terminals



MIRO 12.4
Output relay
2 NO contact
Spring clamp terminals



MIRO 12.4
Output relay
2 NO contact
Screw terminals

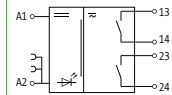
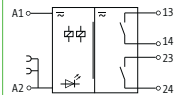


MIRO 12.4
Output relay
2 NO contact
Spring clamp terminals



Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V AC/DC (19.2...30 V AC/DC -17 mA)	52104	6652104	52106	6652106

Switching capacity (EN 60947-5-1)

AC12	6 A (24 V AC; 110 V AC; 230 V AC)
AC15	3 A (24 V AC; 110 V AC; 230 V AC)
DC13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)

Input

LED display LED (green)

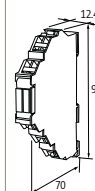
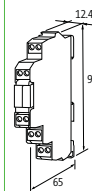
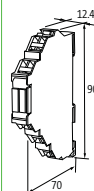
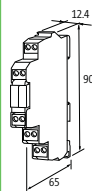
Output

Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Min. load current	10 mA (12 V DC)
Power rating	max. 1500 VA/120 W
(voltage dependent)	
Switching frequency	max. 10 Hz
Contact material	Ag Sn O2
Energize/release/contact bounce time	10/15/1.5 ms

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	-20...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



Relays / Safety Relays

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Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil

1.10.9

RELAYS / SAFETY RELAYS

Terminal relay

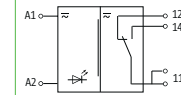
MIRO 12.4 Multi voltage

Output relay
1 NO/NC contact
Screw terminals



Approvals:

Circuit diagram



Order Data	Art-No.
24 V AC/DC/6...27 mA	52160
48 V DC/6...27 mA	52160
110 V AC/DC/6...27 mA	52160
230 V AC/DC/6...27 mA	52160

Switching capacity (EN 60947-5-1)

AC12	6 A (24 V AC; 110 V AC; 230 V AC)
AC15	3 A (24 V AC; 110 V AC; 230 V AC)
DC13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)

Input

LED display LED (green)

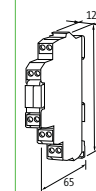
Output

Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Min. load current	10 mA (12 V DC)
Power rating	max. 1500 VA/120 W
(voltage dependent)	
Switching frequency	max. 10 Hz
Contact material	Ag Sn O2
Energize/release/contact bounce time	10/15/1.5 ms

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	-20...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



Relays / Safety Relays

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Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil

1.10.10

RELAYS / SAFETY RELAYS



Relays

– Screw terminals

RMM

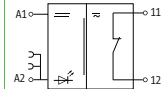
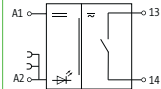
Output relay
1 relay; 1 NO contact
with minus plug link



RMM

Output relay
1 relay; 1 NC contact
with minus plug link

Circuit diagram



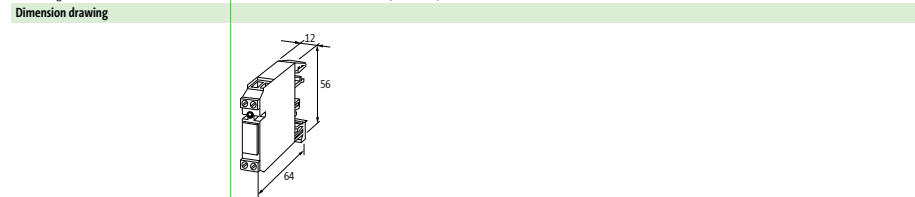
Order Data	Art-No.	Art-No.
24 V AC/DC ($\pm 10\%$ - 15 mA)	51851	51808
48 V AC/DC ($\pm 10\%$ - 10 mA)	51850	

Switching capacity (EN 60947-5-1)		
AC-1	5 A (24 V AC; 110 V AC; 230 V AC)	
AC-15	3 A (24 V AC; 110 V AC; 230 V AC)	
DC-13	1.5 A (24 V DC); 0.3 A (110 V DC); 0.15 A (230 V DC)	1.3 A (24 V DC); 0.3 A (110 V DC); 0.15 A (230 V DC)

Input	
Plug link (supplied)	Art.-Nr. 90960
LED display	LED (red)

Output	
Switching voltage	max. 250 V AC/300 V DC
Switching current per output	max. 5 A
Min. load current	100 mA
Power rating (voltage dependent)	max. 1250 VA/240 W
Switching frequency	max. 10 Hz
Contact material	Ag Ni 0.15 hv
Energize/release/contact bounce time	10/15/1.5 ms

General data	
Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV
Temperature range	-20...+50 °C
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)



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Notes

1.10.11

RELAYS / SAFETY RELAYS

Relays

– Screw terminals

RMM

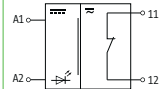
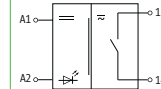
Output relay
1 relay; 1 NO contact



RMM

Output relay
1 relay; 1 NC contact

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V AC/DC ($\pm 10\%$ - 15 mA)	51551			51508
48 V AC/DC ($\pm 10\%$ - 10 mA)	51550			
24 V AC/DC/5 mA		512764		
110 V AC (+10 -15 % - 3.5 mA)			51552	
230 V AC (+10 -15 % - 3.5 mA)			51515	51562

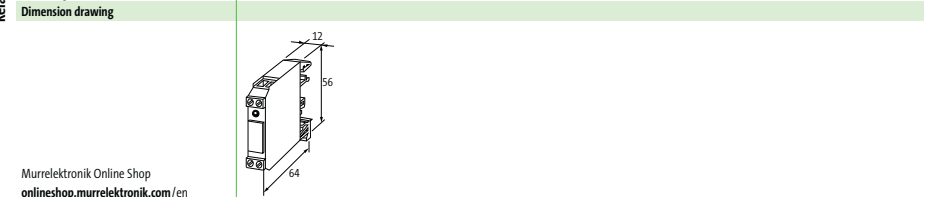
Switching capacity (EN 60947-5-1)				
AC-12	–	6 A (24 V AC; 110 V AC; 230 V AC)		5 A (24 V AC; 110 V AC; 230 V AC)
AC-1	5 A (24 V AC; 110 V AC; 230 V AC)			
AC-15	3 A (24 V AC; 110 V AC; 230 V AC)		4 A (24 V AC; 110 V AC; 230 V AC)	3 A (24 V AC; 110 V AC; 230 V AC)

DC-13	1.5 A (24 V DC); 0.3 A (110 V DC); 0.15 A (230 V DC)	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)	2 A (24 V DC); 0.25 A (110 V DC); 0.1 A (230 V DC)	1.3 A (24 V DC); 0.3 A (110 V DC); 0.15 A (230 V DC)
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Input				
LED display	LED (red)	LED (green)	LED (red)	

Output	
Switching voltage	max. 250 V AC/300 V DC
Switching current per output	max. 5 A
Min. load current	100 mA
Power rating (voltage dependent)	max. 1250 VA/240 W
Switching frequency	max. 10 Hz
Contact material	Ag Ni 0.15 hv; Ag hv
Energize/release/contact bounce time	10/15/1.5 ms

General data	
Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV
Temperature range	-20...+50 °C
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)



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Notes

1.10.12

Relays / Safety Relays

Relays / Safety Relays

RELAYS / SAFETY RELAYS



Relays

– Screw terminals

RMME

Input relay
1 relay; 1 NO contact
with minus plug link



RMME

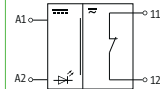
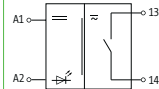
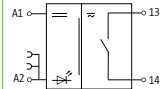
Input relay
1 relay; 1 NO contact



RMME

Input relay
1 relay; 1 NC contact

Circuit diagram

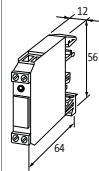
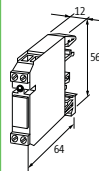


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V AC/DC ($\pm 10\%$ - 6 mA)	51860	51560		
48 V AC/DC ($\pm 10\%$ - 10 mA)		51553		
110 V AC ($\pm 10\%$ - 7 mA)		51526		
230 V AC ($\pm 10\%$ - 6 mA)			51517	
24 V AC/DC ($\pm 10\%$ - 15 mA)				51571
Switching capacity (EN 60947-5-1)				
AC15	1 A (24 V AC); 0.5 A (125 V AC)	0.25 A (50 V AC)	3 A (24 V AC; 110 V AC; 230 V AC)	
DC13	1 A (24 V DC); 0.5 A (125 V DC)	–	1.5 A (24 V DC); 0.3 A (110 V DC); 0.15 A (230 V DC)	
AC1	–		5 A (24 V AC; 110 V AC; 230 V AC)	
AC12	–	0.5 A (50 V AC)	–	
Input				
Plug link (supplied)	Art-Nr. 90960	–		
LED display	LED (yellow)			
Output				
Switching voltage	max. 125 V AC/DC			
Switching current per output	max. 1 A			
Min. load current	1 mA			
Power rating (voltage dependent)	max. 60 VA/30 W			
Switching frequency	max. 15 Hz			
Contact material	Pd Ni-Au Rh			
Energize/release/contact bounce time	10/10/1 ms			

General data

Mech./ elect. life	100.000.000 switching cycles/load dependent
Test isolation voltage	1.5 kV
Temperature range	-20...+60 °C
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)

Dimension drawing



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Notes

Relays / Safety Relays

1.10.13

RELAYS / SAFETY RELAYS

Relays

– with minus plug link

– Screw terminals

RMMD

Output relay
1 relay; 1 NO contact
Safe separation (IEC 61140/
EN 61140)



RMMD

Output relay
1 relay; 1 NO contact

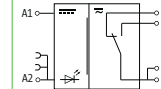
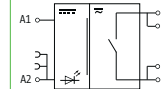
RMMD

Output relay
1 relay; 1 NO/NC contact
Safe separation (IEC 61140/
EN 61140)

RMMD

Output relay
1 relay; 1 NO/NC contact
with low connection current

Circuit diagram

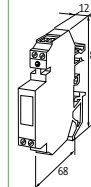


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC ($\pm 10\%$ - 17 mA)	51100		51120	
230 V AC ($\pm 10\%$ - 5 mA)		51108		
24 V AC/DC ($\pm 10\%$ - 10 mA)				51125
Switching capacity (EN 60947-5-1)				
AC1	8 A (24 V AC; 110 V AC; 230 V AC)	6 A (24 V AC; 110 V AC; 230 V AC)	8 A (24 V AC; 110 V AC; 230 V AC)	
AC15	3 A (24 V AC; 110 V AC; 230 V AC)	4 A (24 V AC; 110 V AC; 230 V AC)	3 A (24 V AC; 110 V AC; 230 V AC)	
DC13	2.5 A (24 V DC); 0.4 A (110 V DC); 0.3 A (230 V DC)	2 A (24 V DC); 0.25 A (110 V DC); 0.1 A (230 V DC)	2.5 A (24 V DC); 0.4 A (110 V DC); 0.3 A (230 V DC)	
Input				
Plug link (supplied)	Art-Nr. 90960	–	Art-Nr. 90960	
LED display	LED (red)			
Output				
Switching voltage	max. 250 V AC/DC			
Switching current per output	max. 8 A	max. 6 A	max. 8 A	
Min. load current	100 mA			
Power rating (voltage dependent)	max. 2000 VA/240 W			
Switching frequency	max. 10 Hz			
Contact material	Ag Ni			
Energize/release/contact bounce time	10/15/2 ms			

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent		
Test isolation voltage	5 kV	4 kV	5 kV
Temperature range	-20...+50 °C		
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)		

Dimension drawing



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Notes

1.10.14

RELAYS / SAFETY RELAYS



Relays

- with minus plug link
- Hand-0-Auto
- Screw terminals

RMMDH

Output relay
1 relay; 1 NO/NC contact



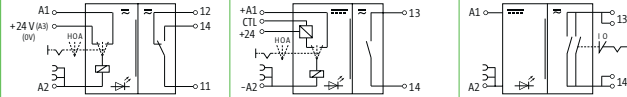
RMMDH

Output relay
1 relay; 1 NO contact
CTL alarm output

RMMDH

Output relay
1 relay; 2 NO contacts
Toggle switch for bridging the NO contact

Circuit diagram

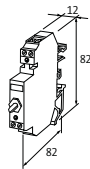


Order Data	Art-No.	Art-No.	Art-No.
24 V AC/DC (±10% - 16 mA)	51152		
24 V DC (±10% - 16 mA)		51153	
24 V DC (±10% - 10 mA)			51101
Switching capacity (EN 60947-5-1)			
AC-1	8 A (24 V AC; 110 V AC; 230 V AC)		3 A (24 V AC; 110 V AC; 230 V AC)
AC-15	3 A (24 V AC; 110 V AC; 230 V AC)		
DC-13	1.5 A (24 V DC); 0.3 A (110 V DC); 0.15 A (230 V DC)		
Input			
Plug link (supplied)	Art.-Nr. 90960		
LED display	LED (red)		
Output			
Switching voltage	max. 250 V AC/DC		max. 250 V AC/30 V DC
Switching current per output	max. 8 A	max. 8 A; CTL: 10 mA	max. 6 A
Min. load current	100 mA		
Power rating (voltage dependent)	max. 2000 VA/240 W		max. 750 VA/90 W
Switching frequency	max. 15 Hz		
Contact material	Ag Ni		
Energize/release/contact bounce time	10/10/2 ms		

General data

Mech./ elect. life	30.000.000 switching cycles/load dependent		
Test isolation voltage	3 kV	4 kV	3 kV
Temperature range	-20...+50 °C		
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)		

Dimension drawing



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Notes

Relays / Safety Relays

1.10.15

RELAYS / SAFETY RELAYS

Relays

- with minus plug link
- with bridge system
- Screw terminals

RMMDE

Input relay
1 relay; 1 NO contact/1 NC contact



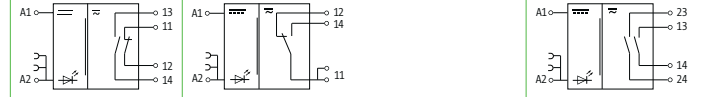
RMMDE

Input relay
1 relay; 1 NO/NC contact

RMMDE

Input relay
1 relay; 2 NO contacts

Circuit diagram

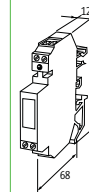


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC (±10% - 20 mA)	516014			
24 V DC (±10% - 15 mA)		51130		51140
230 V AC (+10 -15% - 5 mA)			51138	
Switching capacity (EN 60947-5-1)				
AC-1	3 A (24 V AC); 2 A (230 V AC)	5 A (24 V AC; 110 V AC; 230 V AC)		2 A (24 V AC; 110 V AC; 230 V AC)
AC-15	1 A (24 V AC); 0.1 A (230 V AC)	3 A (24 V AC; 110 V AC; 230 V AC)	4 A (24 V AC; 110 V AC; 230 V AC)	1 A (24 V AC); 0.1 A (230 V AC)
DC-13	0.8 A (24 V DC); 0.01 A (230 V DC)	1.3 A (24 V DC); 0.25 A (110 V DC); 0.10 A (230 V DC)	2 A (24 V DC); 0.25 A (110 V DC); 0.1 A (230 V DC)	0.8 A (24 V DC); 0.1 A (110 V DC); 0.01 A (230 V DC)
Input				
Plug link (supplied)	Art.-Nr. 90960		–	Art.-Nr. 90960
LED display	LED (red)		LED (yellow)	
Output				
Switching voltage	max. 250 V AC/DC			
Switching current per output	max. 3 A	max. 20 mA	max. 5 A	max. 2 A
Min. load current	1 mA			
Power rating (voltage dependent)	max. 500 VA/180 W	max. 1500 VA/180 W		max. 250 VA/150 W
Switching frequency	max. 10 Hz			
Contact material	Ag Ni 0.15 hv	Ag Ni 0.15 hv; Ag hv		Ag Au
Energize/release/contact bounce time	6/3/2 ms		10/10/1 ms	

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent	100.000.000 switching cycles/load dependent	20.000.000 switching cycles/load dependent
Test isolation voltage	2.5 kV	4 kV	1.5 kV
Temperature range	-20...+60 °C		
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)		

Dimension drawing



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Notes

1.10.16

RELAYS / SAFETY RELAYS



Relays

– Screw terminals

RM

Output relay
1 relay; 2 NO/NC contacts



RM

Output relay
1 relay; 4 NO/NC contacts



RM

Output relay
2 relays; each 1 NO/NC contact

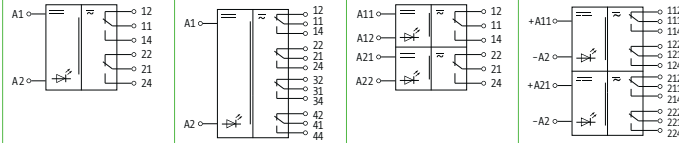


RM

Output relay
2 relays; each 2 NO/NC contacts



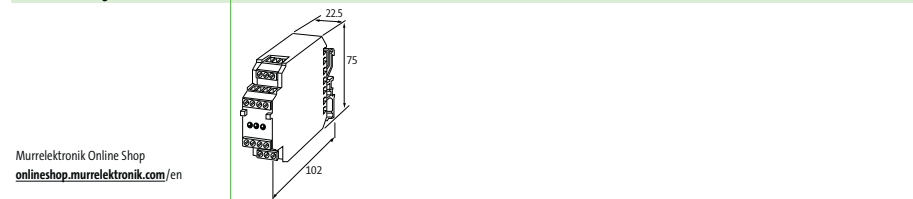
Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V AC/DC (±10 % -20 mA)	51540	51410		
230 V AC (+10-15 % -10 mA)		51413	51412	
24 V AC/DC (±10 % -10 mA)			51485	
24 V AC/DC (±10 % -14 mA)				51465

Switching capacity (EN 60947-5-1)				
AC1	8 A (24 V AC; 110 V AC; 230 V AC)	–	8 A (24 V AC; 110 V AC; 230 V AC)	
AC12	–	2 A (24 V AC); 0.5 A (230 V AC)	–	
AC15	3 A (24 V AC; 110 V AC; 230 V AC)	1 A (24 V AC); 0.1 A (230 V AC)	3 A (24 V AC; 110 V AC; 230 V AC)	
DC13	2 A (24 V DC); 0.3 A (110 V DC); 0.2 A (230 V DC)	0.8 A (24 V DC); 0.01 A (230 V DC)	1.5 A (24 V DC); 0.3 A (110 V DC); 0.15 A (230 V DC)	2 A (24 V DC); 0.3 A (110 V DC); 0.2 A (230 V DC)
Input				
LED display	LED (red)			
Output				
Switching voltage	max. 250 V AC/DC			
Switching current per output	max. 8 A	max. 2 A	max. 8 A	
Min. load current	100 mA	0.1 mA	100 mA	
Power rating (voltage dependent)	max. 1250 VA/240 W	max. 125 VA/60 W	max. 1250 VA/240 W	
Switching frequency	max. 0.1 Hz (with load)			
Contact material	Ag Ni 0.15 hv	Ag Au	Ag Sn O2	Ag Ni 0.15 hv
Energize/release/contact bounce time	10/10/2 ms	10/20/2 ms	10/10/2 ms	

General data				
Mech./ elect. life	50.000.000 switching cycles/load dependent		20.000.000 switching cycles/load dependent	
Test isolation voltage	4 kV	1.5 kV	4 kV	
Temperature range	-20...+50 °C			
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)			



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Notes

1.10.17

RELAYS / SAFETY RELAYS

Relays

– Screw terminals

– with force guided contacts

RM

Output relay
1 relay; 2 NO contacts/2 NC contacts



RM

Output relay
1 relay; 3 NO contacts/1 NC contact

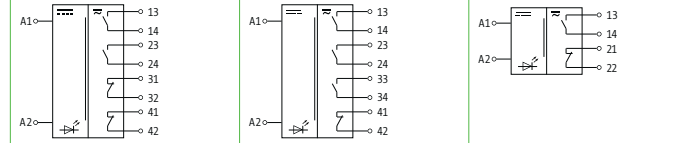


MKS

Output relay
1 relay; 1 NO contact/1 NC contact



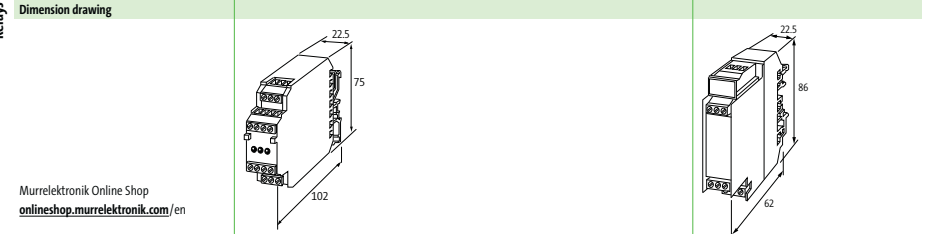
Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
24 V DC (±10 % -17 mA)	51300	51301	
24 V DC (±10 % -38 mA)			51302

Switching capacity (EN 60947-5-1)			
AC1	5 A (24 V AC; 110 V AC; 230 V AC)		6 A (24 V AC; 110 V AC; 230 V AC)
DC13	2 A (24 V DC); 0.4 A (110 V DC); 0.2 A (230 V DC)		3 A (24 V DC); 0.22 A (110 V DC); 0.1 A (230 V DC)
AC15	4 A (24 V AC); 3 A (110 V AC); 2 A (230 V AC)		3 A (24 V AC; 110 V AC; 230 V AC)
Input			
LED display	LED (red)		LED (green)
Output			
Switching voltage	max. 250 V AC/DC		
Switching current per output	max. 5 A		max. 6 A
Min. load current	300 mA		10 mA
Power rating (voltage dependent)	max. 1000 VA/50 W		max. 1500 VA/100 W
Switching frequency	max. 0.1 Hz (with load)	max. 1 Hz	max. 5 Hz
Contact material	Ag Ni 10 hv	Ag hv; Ag Sn O2	Ag Ni 10 hv
Energize/release/contact bounce time	15/15/2 ms		15/15/1.5 ms

General data			
Mech./ elect. life	1.000.000 switching cycles/load dependent		10.000.000 switching cycles/load dependent
Test isolation voltage	2.5 kV		4 kV
Temperature range	-20...+50 °C		
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)		



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Notes

1.10.18

RELAIS / SICHERHEITSRELAIS



Relaissockel

– für Steckrelais MRS

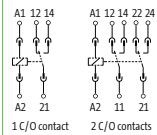
– Schraubklemmen

MRB

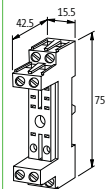
1 oder 2 Wechsler
Schraubklemmen



Schaltbild



Bestelldaten		Art-Nr.
max. 250 V AC		51353
Zubehör		Art-Nr.
Entstörmodul 24 V DC		61340
Entstörmodul 110/230 V AC		61342
Steckrelais, 1 Wechsler, 24 V DC		61352
Steckrelais, 1 Wechsler, 24 V AC		61354
Steckrelais, 1 Wechsler, 110 V AC		61356
Steckrelais, 1 Wechsler, 230 V AC		61358
Steckrelais, 2 Wechsler, 24 V DC		61353
Steckrelais, 2 Wechsler, 24 V AC		61355
Steckrelais, 2 Wechsler, 110 V AC		61357
Steckrelais, 2 Wechsler, 230 V AC		61359
Technische Daten		
Zusatzbeschaltung	aufsteckbares Entstörmodul MRE	
Schaltspannung	max. 250 V AC	
Schaltstrom	max. 16 A	
Allgemeine Daten		
Normen	berührungsgeschützt (VBG 4) und (VDE 0106) Teil 100 und 101	
Prüfisolationsspannung	5 kV	
Anschlussart	Schraubklemmen: max. 4 mm ²	
Befestigungsart	schnappbar auf Tragschiene (EN 60715)	
Maßskizze		



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Hinweis

Relais / Sicherheitsrelais

1.10.19

RELAIS / SAFETY RELAYS

Safety relay

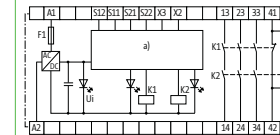
– Protection-door and
emergency-stop control

Approvals: Listed

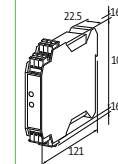
Circuit diagram

MIRO SAFE+ Switch H 48-230

with/without start button monitoring



Order Data		Art-No.
3 safety contacts		3000-33113-1020012
Switching capacity (EN 60947-5-1)		
Safety contacts (STOP 0)	max. 250 V AC/6 A; min. 10 V AC/10 mA (ohm./ind.), at suitable suppression	
AC-15	6 A (230 V AC) STOPO	
DC-13	6 A (24 V DC) STOPO	
Technical Data		
Achievable safety category to:	4/PL e (EN ISO 13849-1)	
Contact material	AgSnO, self cleaning, positively driven	
Input		
Input voltage	48...240 V AC	
Input current	max. 2.8 VA	
Output		
Switching voltage	max. 250 V AC/DC	
Switching current per output	max. 6 A	
Number of auxiliary contacts	1 - (41-42)	
Number of alarm outputs	0	
Number of safety contacts	3 - (13-14); (23-24); (33-34)	
General data		
Mech./ elect. life	10.000.000 switching cycles/load dependent	
Temperature range	-25...+45 °C (storage temperature -40...+85 °C)	
Connection	Spring clamp plug-in terminals	
Mounting method	DIN-rail mountable (EN 60715)	
Dimension drawing		



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Notes

1.10.20

RELAYS / SAFETY RELAYS



Safety relay

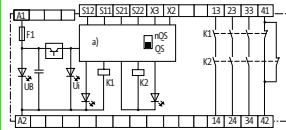
- Protection-door and emergency-stop control
- Light curtain control
- Safety magnetic switch control

Approvals: US Listed

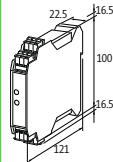
MIRO SAFE+ Switch H L 24
with/without start button monitoring



Circuit diagram



Order Data	Art-No.
3 safety contacts	3000-33113-3020012
Switching capacity (EN 60947-5-1)	
Safety contacts (STOP 0)	max. 250 V AC/8 A; min. 10 V AC/10 mA (ohm./ind.), at suitable suppression
AC-15	6 A (230 V AC) STOP 0
DC-13	6 A (24 V DC) STOP 0
Technical Data	
Achievable safety category to:	4/PL e (EN ISO 13849-1)
Contact material	AgSnO, self cleaning, positively driven
Input	
Input voltage	24 V DC (-15/+20 %), 24 V AC (-15/+10 %)
Input current	max. 4.9 VA/2.0 W
Output	
Switching voltage	max. 250 V AC/DC
Switching current per output	max. 8 A
Total current	24 A (45 °C); 18 A (55 °C); 12 A (60 °C)
Number of auxiliary contacts	1 - (41-42)
Number of alarm outputs	0
Number of safety contacts	3 - (13-14); (23-24); (33-34)
General data	
Mech./ elect. life	10.000.000 switching cycles/load dependent
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)
Mounting method	DIN-rail mountable (EN 60715)
Dimension drawing	



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Notes

Relays / Safety Relays

1.10.21

RELAYS / SAFETY RELAYS

Safety relay

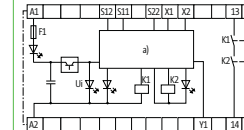
- Protection-door and emergency-stop control
- Light curtain control
- Safety magnetic switch control

Approvals: US Listed

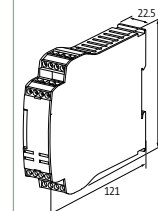
MIRO SAFE+ Switch ECOA 24
without start button monitoring



Circuit diagram



Order Data	Art-No.
2 safety contacts	3000-33113-3020005
Switching capacity (EN 60947-5-1)	
Safety contacts (STOP 0)	max. 250 V AC/6 A; min. 5 V AC/1 mA (ohm./ind.), at suitable suppression
AC-15	2 A (230 V AC) STOP 0
DC-13	1 A (24 V DC) STOP 0
Alarm outputs	100 mA (24 V DC)
Technical Data	
Achievable safety category to:	4/PL e (EN ISO 13849-1)
Contact material	AgSnO, self cleaning, positively driven
Input	
Input voltage	24 V DC (-15/+20 %), 24 V AC (-15/+10 %)
Input current	max. 5.2 VA/2.0 W
Output	
Switching voltage	max. 250 V AC/DC
Switching current per output	max. 4 A
Number of auxiliary contacts	0
Number of alarm outputs	1 - (V1)
Number of safety contacts	2 - (13-14; 23-24)
General data	
Mech./ elect. life	10.000.000 switching cycles/load dependent
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)
Connection	Screw terminals
Mounting method	DIN-rail mountable (EN 60715)
Dimension drawing	



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Notes

Relays / Safety Relays

1.10.22

RELAYS / SAFETY RELAYS



Safety relay

- Protection-door and emergency-stop control
- Light curtain control
- Safety magnetic switch control

Approvals: Listed

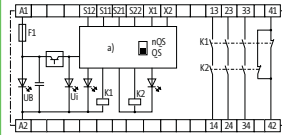
MIRO SAFE+ Switch BA L 24
without start button monitoring



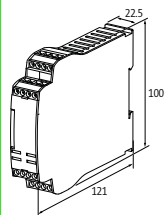
MIRO SAFE+ Switch BCS L 24
with start button monitoring



Circuit diagram



Order Data	Art-No.	Art-No.
3 safety contacts	3000-33113-3020025	3000-33113-3020020
Switching capacity (EN 60947-5-1)		
Safety contacts (STOP 0)	max. 250 V AC/8 A; min. 10 V AC/10 mA (ohm./ind.), at suitable suppression	
AC15	6 A (230 V AC) STOP 0	
DC13	6 A (24 V DC) STOP 0	
Technical Data		
Achievable safety category to:	4/PL e (EN ISO 13849-1)	
Contact material	AgSnO, self cleaning, positively driven	
Input		
Input voltage	24 V DC (-15/+20 %), 24 V AC (-15/+10 %)	
Input current	max. 4.9 VA/2.0 W	
Output		
Switching voltage	max. 250 V AC/DC	
Switching current per output	max. 8 A	
Total current	24 A (45 °C); 18 A (55 °C); 12 A (60 °C)	
Number of auxiliary contacts	1 - (41-42)	
Number of alarm outputs	0	
Number of safety contacts	3 - (13-14); (23-24); (33-34)	
General data		
Mech./ elect. life	10.000.000 switching cycles/load dependent	
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)	
Connection	Screw terminals	
Mounting method	DIN-rail mountable (EN 60715)	



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Notes

Relays / Safety Relays

1.10.23

RELAYS / SAFETY RELAYS

Safety relay

- Protection-door and emergency-stop control
- Light curtain control
- Safety magnetic switch control

Approvals: Listed

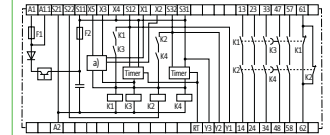
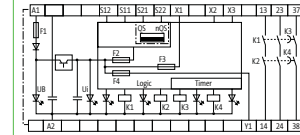
MIRO SAFE+ T 1 24
with/without start button monitoring



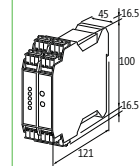
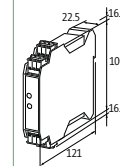
MIRO SAFE+ T 2 24
with/without start button monitoring



Circuit diagram



Order Data	Art-No.	Art-No.
3 safety contacts	3000-33113-3020065	
5 safety contacts		3000-33113-3020060
Switching capacity (EN 60947-5-1)		
Safety contacts (STOP 0)	max. 250 V AC/8 A; min. 5 V AC/5 mA (ohm./ind.), at suitable suppression	
Safety contacts (STOP 1)	max. 250 V AC/6 A; min. 10 V AC/10 mA (ohm./ind.), at suitable suppression	
AC15	6 A (230 V AC) STOP 0; 3 A (230 V AC) STOP 1	
DC13	5 A (24 V DC) STOP 0; 2 A (24 V DC) STOP 1	
6 A (24 V DC) STOP 0; 2 A (24 V DC) STOP 1		
Technical Data		
Achievable safety category to:	4/PL e (STOP 0); 3/PL d (STOP 1) - (EN ISO 13849-1)	
Contact material	AgSnO, self cleaning, positively driven	
Input		
Input voltage	24 V DC (-15/+20 %), 24 V AC (-15/+10 %)	
Input current	5.9 VA/2.4 W (with monitoring output)	
Output		
Switching voltage	max. 250 V AC/DC	
Switching current per output	max. 8 A (STOP 0); max. 6 A (STOP 1)	
Total current (STOP 0)	-	
Number of auxiliary contacts	0	
Total current (STOP 1)	-	
Number of alarm outputs	1 - (Y1)	
Number of safety contacts	2 - (13-14), (23-24), STOP 0; 1 - (37-38), STOP 1	
3 - (13-14), (23-24), (33-34), STOP 0; 2 - (47-48), (57-58), STOP 1		
General data		
Mech./ elect. life	10.000.000 switching cycles/load dependent	
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)	
Connection	Spring clamp plug-in terminals	
Mounting method	DIN-rail mountable (EN 60715)	



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Notes

1.10.24

RELAYS / SAFETY RELAYS



Safety relay

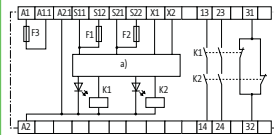
– Two hand control

MIRO SAFE+ HAND 24
without start button monitoring

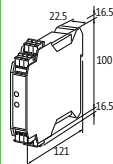


Approvals: US Listed

Circuit diagram



Order Data	Art-No.
2 safety contacts	3000-33113-3020030
Switching capacity (EN 60947-5-1)	
Safety contacts (STOP 0)	max. 250 V AC/6 A; min. 10 V AC/10 mA (ohm./ind.), at suitable suppression
AC-15	6 A (230 V AC) STOP 0
DC-13	6 A (24 V DC) STOP 0
Technical Data	
Achievable safety category to:	4/PL e (EN ISO 13849-1)
Contact material	AgSnO, self cleaning, positively driven
Input	
Input voltage	24 V DC ±10 %
Input current	max. 1.2 W
Output	
Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Number of auxiliary contacts	1 - (31-32)
Number of alarm outputs	0
Number of safety contacts	2 - (13-14); (23-24)
General data	
Mech./ elect. life	10.000.000 switching cycles/load dependent
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)
Connection	Spring clamp plug-in terminals
Mounting method	DIN-rail mountable (EN 60715)
Dimension drawing	



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Notes

1.10.25

Relays / Safety Relays

RELAYS / SAFETY RELAYS

Safety relay

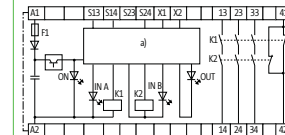
– Protection-door control
– Pressure-sensitive mat. control

MIRO SAFE+ STEP 24
without start button monitoring

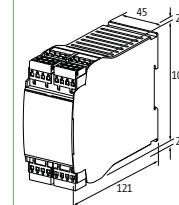


Approvals: US Listed

Circuit diagram



Order Data	Art-No.
3 safety contacts	3000-33113-3020050
Switching capacity (EN 60947-5-1)	
Safety contacts (STOP 0)	max. 250 V AC/8 A; min. 10 V AC/10 mA (ohm./ind.), at suitable suppression
AC-15	6 A (230 V AC) STOP 0
DC-13	6 A (24 V DC) STOP 0
Technical Data	
Achievable safety category to:	4/PL e (EN ISO 13849-1)
Contact material	AgSnO, self cleaning, positively driven
Input	
Input voltage	24 V DC (-15/+20 %), 24 V AC (-15/+10 %)
Input current	max. 3.7 VA/1.6 W (24 V DC)
Output	
Switching voltage	max. 250 V AC/DC
Switching current per output	max. 8 A
Number of auxiliary contacts	1 - (41-42)
Number of alarm outputs	0
Number of safety contacts	3 - (13-14); (23-24); (33-34)
General data	
Mech./ elect. life	10.000.000 switching cycles/load dependent
Temperature range	-25...+60 °C (storage temperature -40...+85 °C)
Connection	Spring clamp plug-in terminals
Mounting method	DIN-rail mountable (EN 60715)
Dimension drawing	



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Notes

1.10.26

Relays / Safety Relays

RELAYS / SAFETY RELAYS



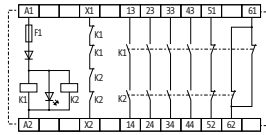
Expansion modules

MIRO SAFE+ E 24
Expansion module

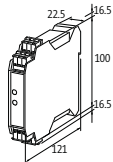


Approvals: US Listed

Circuit diagram



Order Data	Art-No.
4 NO	3000-33113-3020075
Switching capacity (EN 60947-5-1)	
Safety contacts (STOP 0)	max. 250 V AC/6 A; min. 10 V AC/10 mA (ohm./ind.), at suitable suppression
AC-15	6 A (230 V AC)
DC-13	6 A (24 V DC)
Technical Data	
Achievable safety category to:	4/PL e (EN ISO 13849-1) depending on basic module
Contact material	AgSnO, self cleaning, positively driven
Input	
Input voltage	24 V DC (-15/+20 %), 24 V AC (-15/+10 %)
Input current	max. 1.0 VA
Output	
Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Number of auxiliary contacts	2 - (51-52); (61-62)
Number of alarm outputs	0
Number of contacts	4 - (13-14); (23-24); (33-34); (43-44)
General data	
Mech./ elect. life	10.000.000 switching cycles/load dependent
Temperature range	-25...+45 °C (storage temperature -40...+85 °C)
Connection	Spring clamp plug-in terminals
Mounting method	DIN-rail mountable (EN 60715)
Dimension drawing	



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Notes

1.10.27

RELAYS / SAFETY RELAYS

Labeling accessories			Art-No.
	ACS label plate KM 5 for self marking (9 x 20 mm) 5 x 10 mm		7000-99001-0000000 90931
	ACS label plate KM 6/18 for self marking with ADEMARK markers		7000-99003-0000000
	Label plate KWI 5/15 (88 pieces per plate)		90901
Wiring accessories			Art-No.
	Potential plug link max. 48 V/2 A	RMM..., RMMD...	90960
	Potential plug link max. 50 V/2 A	MIRO	90961
	Potential rail blue 10-pole, spacing 6.2 mm 40-pole, spacing 12 mm	MIRO 6.2 (screw terminals) RMM..., RMMD...	90975 90970
	Potential rail red 10-pole, spacing 6.2 mm 40-pole, spacing 12 mm	MIRO 6.2 (screw terminals) RMM..., RMMD...	90976 90971
	End caps for potential rail blue red	MIRO 6.2 RMM..., RMMD...	90980 90982
	Wire chain 16-pole Connection cable left and right approx. 50 cm; bk; 1 mm ²	MIRO (spring clamp terminals)	90977

Relays / Safety Relays


Relays / Safety Relays

1.10.28

RELAYS / SAFETY RELAYS



Wiring accessories			Art-No.
	Double spring clamp terminal		
	pluggable	MIRO SAFE	3000-33010-000000



OPTOCOUPLEDERS / SEMICONDUCTORS SWITCHING WITHOUT WEAR

- Shortest possible switching times
- High switching frequencies
- Resistant to EMC interference

MILLIONS OF SWITCHING CYCLES – EVEN WITH HIGH FREQUENCIES

Optocouplers and semiconductors are used to combine different signal levels or to isolate one signal from another. They are similar to a relay interface because they provide an optoelectronic signal transfer between input and output.

Optocouplers and semiconductors have a long life span because they don't have any mechanical components that could wear out. They are suitable for applications with high switching frequencies, even over a long time.

Some benefits of optocouplers and semiconductors:

- Silent operation
- No contact bounce
- Galvanic separation between input and output
- High resistance to shock and vibration
- High switching currents
- Low input power

Relays / Safety Relays

Optocouplers / Semiconductors

Optocouplers / Semiconductors

 <p>Optocouplers • DC applications</p> <p style="text-align: right;"><i>Page 1.11.1</i></p>	 <p>Semiconductors • AC applications</p> <p style="text-align: right;"><i>Page 1.11.17</i></p>
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OPTOCOUPERS / SEMICONDUCTORS



Terminal optocoupler
– with bridge system

MIRO 6.2
Transistor 1 A
Screw terminals



MIRO 6.2
Transistor 1 A
Spring clamp terminals



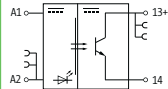
MIRO 6.2
Transistor 2 A
Screw terminals



MIRO 6.2
Transistor 2 A
Spring clamp terminals

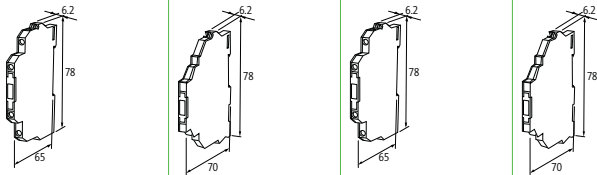


Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC/6 mA	52515	cURus	6652515	
5 V DC/6 mA				
Input				
Voltage range ON	11...30 V DC		4...5.5 V DC	
Voltage range OFF	0...5 V DC		0...2 V DC	
Control current	6 mA			
LED display	LED (yellow)			
Output				
Switching voltage	3...48 V DC		5...48 V DC	
Switching current per output	500 µA...1 A		1 mA...2 A	
Saturation voltage (across output)	max. 0.12 V DC		max. 0.3 V DC	
Leakage current (when output is open)	max. 25 µA		max. 10 µA	
Switching time ON/OFF	1.5/1 ms (100 mA load)		1/5 ms	
Switching frequency	max. 40/4 Hz (resist./ind.)		max. 10/1 Hz (resist./ind.)	
General data				
Test isolation voltage	500 V		2.5 kV	
Temperature range	-20...+60 °C			
Mounting method	DIN-rail mountable (EN 60715)			
Housing	Black plastic, flame retardant			

Dimension drawing



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Notes

OPTOCOUPERS / SEMICONDUCTORS

Terminal optocoupler
– with bridge system

MIRO 6.2
Transistor 2 A
Screw terminals



MIRO 6.2
Transistor 2 A
Spring clamp terminals



MIRO 6.2
Transistor 2 A
Screw terminals

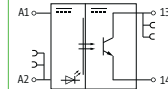


MIRO 6.2
Transistor 2 A
Spring clamp terminals



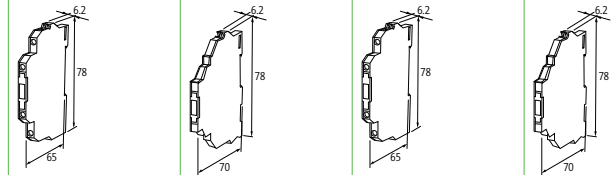
Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC/6 mA	52501		6652501	
48 V DC/6 mA				52505
6 mA				6652505
Input				
Voltage range ON	10...48 V DC		18...56 V DC	
Voltage range OFF	0...5 V DC		0...12 V DC	
Control current	6 mA			
LED display	LED (yellow)			
Output				
Switching voltage	5...48 V DC			
Switching current per output	1 mA...2 A			
Saturation voltage (across output)	max. 0.3 V DC			
Leakage current (when output is open)	max. 10 µA			
Switching time ON/OFF	1/5 ms			
Switching frequency	max. 10/1 Hz (resist./ind.)			
General data				
Test isolation voltage	2.5 kV			
Temperature range	-20...+60 °C			
Mounting method	DIN-rail mountable (EN 60715)			
Housing	Black plastic, flame retardant			

Dimension drawing



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Notes

OPTOCOUPLEDERS / SEMICONDUCTORS



Terminal optocoupler
– with bridge system

MIRO 6.2
Transistor 6 A
Screw terminals



MIRO 6.2
Transistor 6 A
Spring clamp terminals



MIRO 6.2
Transistor 10 A
Screw terminals

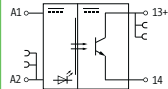


MIRO 6.2
Transistor 10 A
Spring clamp terminals



Approvals:

Circuit diagram

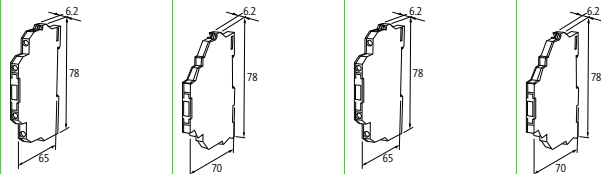


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC/6 mA	52519	6652519		
24 V DC/10 mA			52520	6652520

Input				
Voltage range ON	10...53 V DC			
Voltage range OFF	0...5 V DC			
Control current	approx. 10 mA		10 mA	
LED display	LED (yellow)			
Output				
Switching voltage	5...48 V DC			
Switching current per output	1 mA...6 A (without derating)		1 mA...10 A	
Saturation voltage (across output)	max. 0.1 V DC			
Leakage current (when output is open)	max. 25 µA			
Switching time ON/OFF	2/5 ms		2/5 ms (10 A load)	
Switching frequency	max. 1/0.1 Hz (resist./ind.)			

General data				
Test isolation voltage	2.75 kV			
Temperature range	-20...+60 °C			
Mounting method	DIN-rail mountable (EN 60715)			
Housing	Black plastic, flame retardant			

Dimension drawing



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Notes

1.11.3

OPTOCOUPLEDERS / SEMICONDUCTORS

Terminal optocoupler
– with bridge system

MIRO 6.2
Transistor 10 A
Screw terminals



MIRO 6.2
Transistor 10 A
Spring clamp terminals



MIRO 6.2
Transistor 0.5 A
Screw terminals

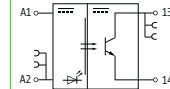


MIRO 6.2
Transistor 0.5 A
Spring clamp terminals



Approvals:

Circuit diagram

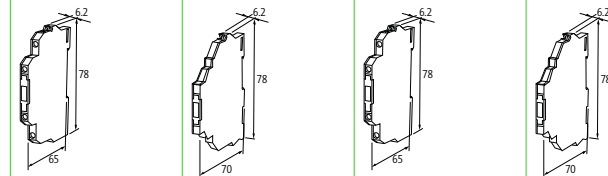


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC/10 mA (pulse control operation)	52521	6652521		
24 V DC/6 mA			52500	6652500

Input				
Voltage range ON	10...53 V DC			
Voltage range OFF	0...5 V DC			
Control current	10 mA		6 mA	
LED display	LED (yellow)			
Output				
Switching voltage	5...48 V DC			
Switching current per output	1 mA...10 A, overload and short circuit protection switched positive		0.1 mA...0.5 A	
Saturation voltage (across output)	max. 0.12 V DC		max. 1.2 V DC	
Leakage current (when output is open)	max. 25 µA		max. 0.3 mA	
Switching time ON/OFF	2/5 ms (10 A load)		100/700 µs	
Switching frequency	max. 1 Hz		max. 500/30 Hz (resist./ind.)	

General data				
Test isolation voltage	2.75 kV		3.75 kV	
Temperature range	-20...+60 °C			
Mounting method	DIN-rail mountable (EN 60715)			
Housing	Black plastic, flame retardant			

Dimension drawing



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Notes

1.11.4

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPLEDERS / SEMICONDUCTORS



Terminal optocoupler
– with bridge system

MIRO 6.2
Transistor 0.5 A
Screw terminals



MIRO 6.2
Transistor 0.5 A
Spring clamp terminals



MIRO 6.2
Transistor 0.5 A
Screw terminals

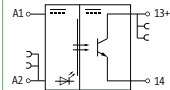


MIRO 6.2
Transistor 0.5 A
Spring clamp terminals



Approvals:

Circuit diagram

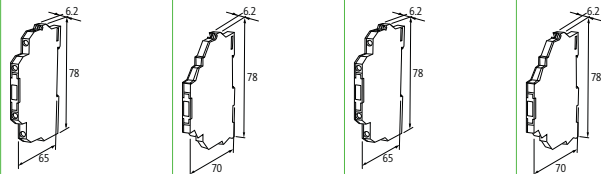


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
110 V AC/DC/6 mA	52506	6652506		
230 V AC/6 mA			52507	6652507

Input		
Voltage range ON	70...130 V AC/DC	90...250 V AC
Voltage range OFF	0...30 V AC/DC	0...40 V AC
Control current	6 mA	7 mA
LED display	LED (yellow)	
Output		
Switching voltage	5...48 V DC	
Switching current per output	0.1 mA...0.5 A	
Saturation voltage (across output)	max. 1.2 V DC	
Leakage current (when output is open)	max. 0.3 mA	
Switching time ON/OFF	100/700 µs	
Switching frequency	max. 500/30 Hz (resist./ind.)	

General data	
Test isolation voltage	3.75 kV
Temperature range	-20...+60 °C
Mounting method	DIN-rail mountable (EN 60715)
Housing	Black plastic, flame retardant

Dimension drawing



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Notes

1.11.5

OPTOCOUPLEDERS / SEMICONDUCTORS

Terminal optocoupler
– with bridge system

MIRO 6.2
Transistor 2 A
Screw terminals

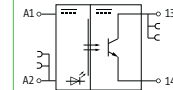


MIRO 6.2
Transistor 2 A
Spring clamp terminals



Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.
230 V AC/6 mA	52508	6652508

Input	
Voltage range ON	90...250 V AC
Voltage range OFF	0...30 V AC
Control current	15 mA
LED display	LED (yellow)
Output	
Switching voltage	5...48 V DC
Switching current per output	1 mA...2 A (without derating)
Saturation voltage (across output)	max. 0.3 V DC
Leakage current (when output is open)	max. 0.3 mA
Switching frequency	max. 10/1 Hz (resist./ind.)
Switching time ON/OFF	3/10 ms

General data	
Test isolation voltage	2.5 kV
Temperature range	-20...+60 °C
Mounting method	DIN-rail mountable (EN 60715)
Housing	Black plastic, flame retardant

Dimension drawing



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Notes

1.11.6

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPERS / SEMICONDUCTORS



Terminal optocoupler
– with bridge system

MIRO 6.2
Transistor 2 A
Inrush current limiting
Screw terminals



MIRO 6.2
Transistor 2 A
Inrush current limiting
Spring clamp terminals



MIRO 6.2
Transistor 0.5 A
electr. NO/NC contact
Screw terminals

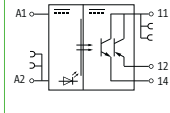
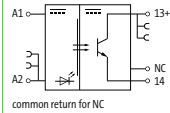


MIRO 6.2
Transistor 0.5 A
electr. NO/NC contact
Spring clamp terminals



Approvals:

Circuit diagram

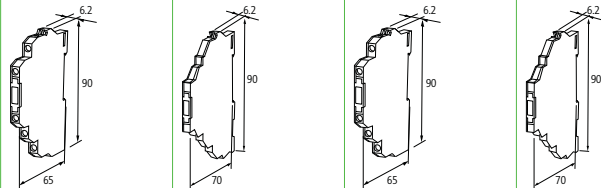


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC/6 mA	52512	6652512	52510	6652510

Input	
Voltage range ON	10...53 V DC
Voltage range OFF	0...5 V DC
Control current	6 mA
LED display	LED (yellow)
Output	
Switching voltage	5...48 V DC
Switching current per output	1 mA...2 A overload protection
Saturation voltage (across output)	max. 0.35 V DC
Leakage current (when output is open)	max. 0.1 mA
Switching time ON/OFF	5/10 ms
Switching frequency	max. 10 Hz

General data	
Test isolation voltage	2.5 kV
Temperature range	-20...+60 °C
Mounting method	DIN-rail mountable (EN 60715)
Housing	Black plastic, flame retardant

Dimension drawing



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Notes

111.7

OPTOCOUPERS / SEMICONDUCTORS

Terminal optocoupler
– with bridge system

MIRO 6.2
Transistor 0.5 A
Control current 0.1 mA (5 V DC)
Screw terminals



MIRO 6.2
Transistor 0.5 A
Control current 0.1 mA (5 V DC)
Spring clamp terminals



MIRO 6.2
Transistor 2 A
short-circuit protected
Screw terminals

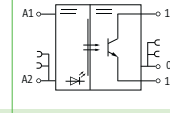
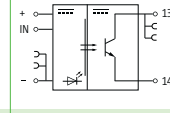


MIRO 6.2
Transistor 2 A
short-circuit protected
Spring clamp terminals



Approvals:

Circuit diagram

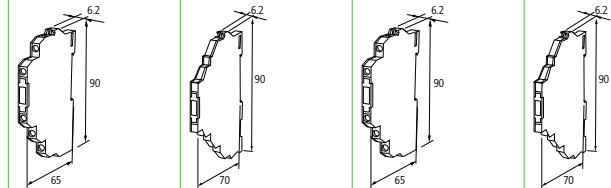


Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC/0.1 mA (5 V DC)	cCSAus	52511	6652511	
24 V DC/6 mA				52503
				6652503

Input	
Voltage range ON	4.2...30 V DC
Voltage range OFF	0...2 V DC
Control current	0.1 mA (5 V)
LED display	LED (yellow)
Output	
Switching voltage	5...48 V DC
Switching current per output	0.1 mA...0.5 A
Saturation voltage (across output)	max. 1.2 V DC
Leakage current (when output is open)	max. 0.1 mA
Switching time ON/OFF	12/12 μs
Switching frequency	max. 20 kHz

General data	
Test isolation voltage	3.75 kV
Temperature range	-20...+60 °C
Mounting method	DIN-rail mountable (EN 60715)
Housing	Black plastic, flame retardant

Dimension drawing



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Notes

111.8

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPLEDERS / SEMICONDUCTORS



Terminal optocoupler
– with bridge system

MIRO 6.2

Transistor 1 A
Multi voltage output
Screw terminals



MIRO 6.2

Transistor 1 A
Multi voltage output
Spring clamp terminals



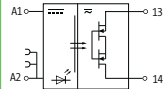
MIRO 6.2

Transistor 2 A
Spring clamp terminals

MIRO 6.2

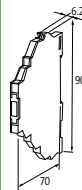
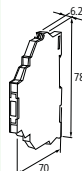
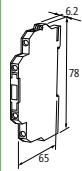
Transistor 0.1 A
Spring clamp terminals

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
24 V DC/10 mA	52572	6652572	526071	526100
Input				
Voltage range ON	10...53 V DC		10...35 V DC	10...30 V DC
Voltage range OFF	0...5 V DC			0...7 V DC
Control current	10 mA	6 mA		5.5 mA
LED display	LED (yellow)	LED (green)		LED (yellow)
Output				
Switching time ON/OFF	3/6 ms	7/6 µs		0.4/0.1 µs
Switching voltage	5...250 V AC/5...350 V DC	10...30 V DC		5...48 V DC
Switching current per output	1 mA...1 A	1 mA...2 A		0...0.1 A
Saturation voltage (across output)	max. 0.7 V AC/DC	max. 0.3 V AC/DC		max. 1.2 V AC/DC
Leakage current (when output is open)	max. 25 µA			max. 250 µA
Switching frequency	max. 10 Hz	max. 30 kHz/400 Hz (resist./ind.)		500 kHz (ohmic)
General data				
Test isolation voltage	2.75 kV	2.5 kV		2.75 kV
Temperature range	-20...+60 °C			
Mounting method	DIN-rail mountable (EN 60715)			
Housing	Black plastic, flame retardant			

Dimension drawing



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Notes

1.11.9

OPTOCOUPLEDERS / SEMICONDUCTORS

Terminal optocoupler

– Isolation function in output circuit

MIRO 6.2

Transistor 2 A
Screw terminals



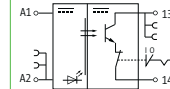
MIRO 6.2

Transistor 2 A
Spring clamp terminals



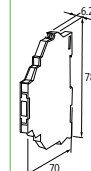
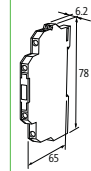
Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/7 mA	52513	6652513
Input		
Voltage range ON	10...48 V DC	
Voltage range OFF	0...5 V DC	
Control current	7 mA	
LED display	LED (yellow)	
Output		
Switching time ON/OFF	1/5 ms	
Switching current per output	1 mA...2 A	
Switching voltage	5...48 V DC	
Saturation voltage (across output)	max. 0.3 V DC	
Leakage current (when output is open)	max. 0.3 mA	
Switching frequency	max. 10/1 Hz (resist./ind.)	
General data		
Temperature range	-20...+60 °C	
Housing	Black plastic, flame retardant	
Test isolation voltage	2.5 kV	
Mounting method	DIN-rail mountable (EN 60715)	

Dimension drawing



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Notes

1.11.10

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPLEDERS / SEMICONDUCTORS



Optocouplers

- Inrush current limiting

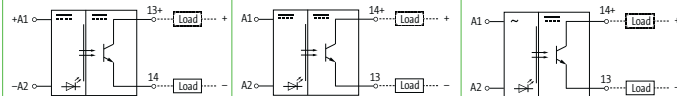
- Screw terminals

AMMS
Transistor 1.2 A

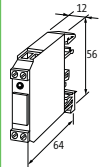


EMMS
Transistor 1.2 A

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
3.5...5.5 V DC/6 mA	50041		
24 V DC/6 mA		50040	
110/230 V AC/2.7 mA			50105
Input			
Voltage range ON	3.5...5.5 V DC	10...53 V DC	100...253 V AC
Voltage range OFF	0...0.8 V DC	0...3 V DC	0...40 V AC
Input current	6 mA		2.7 mA
LED display	LED (red)		
Output			
Leakage current (when output is open)	max. 0.3 mA		
Switching current per output	1 mA...1.2 A		
Switching voltage	4.5...53 V DC		
Saturation voltage (across output)	max. 1.2 V DC		
Switching time ON/OFF	100/700 µs		20/50 ms
Switching frequency	max. 500 Hz (resist.) at max. 0.2 A/max. 30 Hz (ind.)		max. 5 Hz
General data			
Test isolation voltage	3.75 kV		
Temperature range	-20...+60 °C		
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)		
Housing	Black plastic, flame retardant		
Dimension drawing			



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Notes

1.11.12

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPLEDERS / SEMICONDUCTORS

Optocouplers

- Inrush current limiting

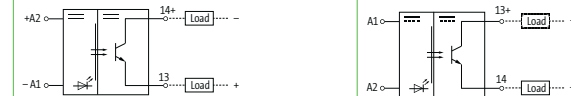
- Screw terminals

AMMS
Transistor 1.2 A

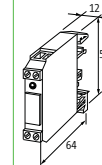


AMMS
Transistor 2 A

Circuit diagram



Order Data	Art-No.	Art-No.
4...30 V DC/10 mA	50010	
24 V DC/6 mA		50070
Input		
Voltage range ON	4...30 V DC	10...53 V DC
Voltage range OFF	0...2 V DC	0...3 V DC
Input current	max. 10 mA	6 mA
LED display	LED (red)	
Output		
Switching voltage	4.5...44 V DC	4.5...40 V DC
Switching current per output	1 mA...1.2 A	10 mA...2 A
Saturation voltage (across output)	max. 1.2 V DC	max. 0.1 V DC
Leakage current (when output is open)	max. 0.3 mA	max. 0.1 mA
Switching time ON/OFF	65/65 µs	2/8 ms
Switching frequency	max. 7 kHz (resist.) at max. 0.3 A/max. 10 Hz (ind.)	max. 2.5 Hz
General data		
Test isolation voltage	3.75 kV	2.5 kV
Temperature range	-20...+60 °C	
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)	
Housing	Black plastic, flame retardant	
Dimension drawing		



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Notes

1.11.12

OPTOCOUPERS / SEMICONDUCTORS



Optocouplers

– Double terminals on the output side

– Screw terminals

AMMDS

Transistor 0.1 A
with minus plug link



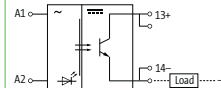
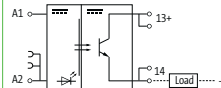
AMMDS

Transistor 2 A
with minus plug link

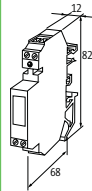
AMMDS

Transistor 0.1 A

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
24 V DC/6 mA	50081	50080	
230 V AC/10 mA			50110
Input			
LED display	LED (red)		
Input current	6 mA		
Plug link (supplied)	Art-Nr. 90960		
Voltage range ON	10...53 V DC		
Voltage range OFF	0...3 V DC		
Output			
Switching voltage	4...40 V DC	4...35 V DC	4...40 V DC
Switching current per output	1 mA...0.1 A	10 mA...2 A (short-circuit protected)	1 mA...0.1 A
Saturation voltage (across output)	max. 1.2 V DC	max. 0.5 V DC	max. 1.2 V DC
Leakage current (when output is open)	max. 0.3 mA		
Switching time ON/OFF	1.5/2 ms	5/15 ms	50/120 ms
Switching frequency	max. 300/40 Hz (resist./ind.)	max. 10/1 Hz (resist./ind.)	
General data			
Temperature range	-20...+60 °C		
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)		
Housing	Black plastic, flame retardant		
Test isolation voltage	3.75 kV	2.5 kV	3.75 kV
Dimension drawing			



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Notes

1.11.13

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPERS / SEMICONDUCTORS

Optocouplers

– with minus plug link

– Screw terminals

AMMDS

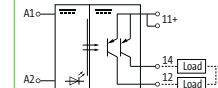
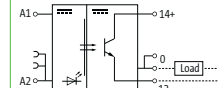
Transistor 2 A
Double terminals on the output side
for rapid switching



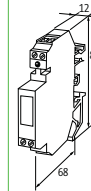
AMMDS

Transistor 1 A

Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/15 mA	50082	
24 V AC/DC/10 mA		50085
Input		
Voltage range ON	10...35 V DC	10...53 V DC
Voltage range OFF	0...5 V DC	0...6 V DC
Input current	10 mA	
LED display	LED (red)	
Plug link (supplied)	Art-Nr. 90960	
Output		
Switching voltage	5...35 V DC	4.5...53 V DC
Switching current per output	1 mA...2 A	1 mA...1 A
Saturation voltage (across output)	max. 0.5 V DC	
Leakage current (when output is open)	max. 0.3 mA	
Switching time ON/OFF	7/6 µs	25/75 µs
Switching frequency	max. 30 kHz/200 Hz (resist./ind.)	max. 1 kHz/10 Hz (resist./ind.)
General data		
Test isolation voltage	2.5 kV	
Temperature range	-20...+60 °C	
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)	
Housing	Black plastic, flame retardant	
Dimension drawing		



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Notes

1.11.14

OPTOCOUPLED / SEMICONDUCTORS



Power opto-coupler modules
– Screw terminals

AMS

Transistor 4 A



AMS

Transistor 2 A (3-way)
3 NO contacts

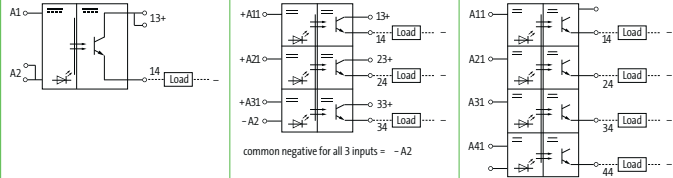


AMS

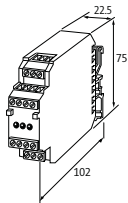
Transistor 2 A (4-way)
4 NO



Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
24 V DC/10 mA	50044	50043	50015
24 V DC/3 mA			cCSAus
Input			
Voltage range ON	10...53 V DC	20...30 V DC	
Voltage range OFF	0...3 V DC	0...6 V DC	
Input current	14.5 mA	10 mA	
LED display	LED (red)	LED (yellow)	
Output			
Switching voltage	4.5...53 V DC	4.5...35 V DC	5...30 V DC
Switching current per output	100 mA...4 A	10 mA...2 A (short-circuit protected)	1 mA...2 A
Saturation voltage (across output)	max. 1.5 V AC	max. 0.5 V DC	max. 0.05 V DC
Leakage current (when output is open)	max. 10 mA	max. 0.3 mA	max. 0.01 mA
Switching time ON/OFF	4/7 µs	2/15 ms	1/5 ms
Switching frequency	max. 2 kHz/4 Hz (resist./ind.)	max. 10/1 Hz (resist./ind.)	
General data			
Test isolation voltage	3.75 kV	2.5 kV	
Temperature range	-20...+60 °C		-25...+50 °C
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)		
Housing	Black plastic, flame retardant		
Dimension drawing			



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Notes

Optocouplers / Semiconductors

1.11.15

OPTOCOUPLED / SEMICONDUCTORS

Optocouplers

– DC Motor control
– Over current / temperature monitoring

MIRO 12.4

Transistor 3 A
Screw terminals

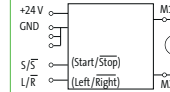


MIRO 12.4

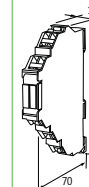
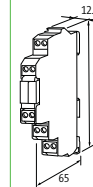
Transistor 3 A
Spring clamp terminals



Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/10 mA	50140	6650140
Input		
Voltage range ON	15...30 V DC	
Voltage range OFF	0...5 V DC	
Input current	10 mA	
LED display	LED (yellow): right running; LED (green): left running	
Output		
Switching voltage	19.2...30 V DC	
Switching current per output	max. 3 A	
Highest current	approx. 6 A for 100 ms	
Saturation voltage (across output)	max. 1.4 V DC	
Leakage current (when output is open)	max. 10 mA	
Switching time ON/OFF	12/10 ms	
Switching frequency	max. 1 Hz (motor dependant)	
Changing time	max. 50 ms	
LED display	LED (red): error (over current/over heated)	
General data		
Test isolation voltage	no galvanic separation	
Temperature range	0...+50 °C	
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)	
Housing	Black plastic, flame retardant	
Dimension drawing		



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Notes

Optocouplers / Semiconductors

1.11.16

OPTOCOUPLEDERS / SEMICONDUCTORS



Terminal triac
– Zero potential switch

MIRO 6.2
Triac 0.5 A
Screw terminals



MIRO 6.2
Triac 0.5 A
Spring clamp terminals



MIRO 6.2
Triac 0.5 A
Screw terminals

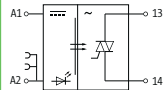


MIRO 6.2
Triac 0.5 A
Spring clamp terminals



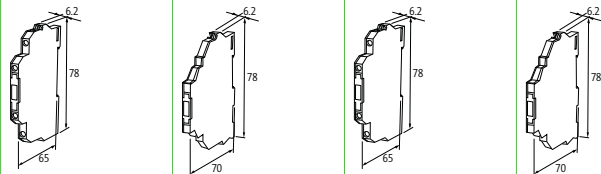
Approvals:

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
5 V DC/6 mA	52551	6652551		
24 V DC/6 mA			52550	6652550
Input				
Voltage range ON	4...5.5 V DC		10...53 V DC	
Voltage range OFF	0...2 V DC		0...5 V DC	
Control current	6 mA			
LED display	LED (yellow)			
Output				
Switching voltage	24...250 V AC			
Switching current per output	2 mA...0.5 A		1.5 mA...0.5 A	
Saturation voltage (across output)	max. 1.5 V AC			
Leakage current (when output is open)	max. 0.3 mA			
Switching time ON/OFF	10/10 ms			
Switching frequency	max. 20 Hz, depending on suppression			
General data				
Test isolation voltage	2.5 kV			
Temperature range	-20...+60 °C			
Mounting method	DIN-rail mountable (EN 60715)			
Housing	Black plastic, flame retardant			

Dimension drawing



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Notes

1.11.17

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPLEDERS / SEMICONDUCTORS

Terminal triac
– Zero potential switch

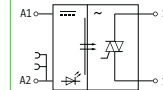
MIRO 6.2
Triac 1 A
Screw terminals



MIRO 6.2
Triac 1 A
Spring clamp terminals



Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/9 mA	52571	6652571
Input		
Voltage range ON	12...53 V DC	
Voltage range OFF	0...3 V DC	
Control current	12 mA (24 V DC)	
LED display	LED (yellow)	
Output		
Switching voltage	12...250 V AC	
Switching current per output	10 mA...1 A	
Saturation voltage (across output)	max. 1.5 V AC	
Leakage current (when output is open)	max. 1 mA	
Switching time ON/OFF	10/10 ms	
Switching frequency	max. 2 Hz, depending on suppression	
General data		
Test isolation voltage	2.5 kV	
Temperature range	0...+60 °C	
Mounting method	DIN-rail mountable (EN 60715)	
Housing	Black plastic, flame retardant	
Dimension drawing		



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Notes

1.11.18

OPTOCOUPERS / SEMICONDUCTORS



Terminal triac
– Zero potential switch

MIRO 6.2
Triac 0.5 A
Screw terminals



MIRO 6.2
Triac 0.5 A
Spring clamp terminals



MIRO 6.2
Triac 0.5 A
Screw terminals

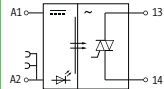


MIRO 6.2
Triac 0.5 A
Spring clamp terminals



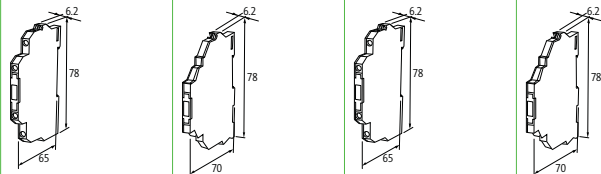
Approvals: CE

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
110 V AC/DC (95...121VAC/DC - 4 mA) 230 V AC/7 mA	52556	6652556	52557	6652557
Input				
Voltage range ON	70...130 V AC/DC	140...250 V AC		
Voltage range OFF	0...35 V AC/DC	0...80 V AC		
Control current	4 mA	7 mA		
LED display	LED (yellow)			
Output				
Switching voltage	12...250 V AC			
Switching current per output	2 mA...0.5 A			
Saturation voltage (across output)	max. 1.5 V AC			
Leakage current (when output is open)	max. 0.3 A	max. 0.3 mA		
Switching time ON/OFF	10/10 ms			
Switching frequency	max. 20 Hz, depending on suppression			
General data				
Test isolation voltage	2.5 kV			
Temperature range	-20...+60 °C			
Mounting method	DIN-rail mountable (EN 60715)			
Housing	Black plastic, flame retardant			

Dimension drawing



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Notes

1.11.19

OPTOCOUPERS / SEMICONDUCTORS

Terminal triac
– Zero potential switch

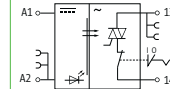
MIRO 6.2
Triac 0.5 A
Screw terminals



MIRO 6.2
Triac 0.5 A
Spring clamp terminals



Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/7 mA	52561	6652561
Input		
Voltage range ON	10...53 V DC	
Voltage range OFF	0...5 V DC	
Control current	7 mA	
LED display	LED (yellow)	
Output		
Switching voltage	24...250 V AC	
Switching current per output	2 mA...0.5 A	
Saturation voltage (across output)	max. 1.5 V AC	
Leakage current (when output is open)	max. 0.3 mA	
Switching time ON/OFF	10/10 ms	
Switching frequency	max. 20/1 Hz (resist./ind.)	
General data		
Test isolation voltage	2.5 kV	
Temperature range	-20...+60 °C	
Mounting method	DIN-rail mountable (EN 60715)	
Housing	Black plastic, flame retardant	
Dimension drawing		



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Notes

1.11.20

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPERS / SEMICONDUCTORS



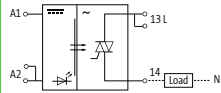
Triac modules MIRO

- Zero potential switch
- Screw plug-in terminals

MIRO Triac
Triac 5 A

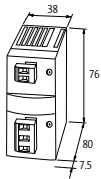


Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
24 V DC/7.8 mA	3000-36001-2000020		
115 V AC/9 mA		3000-36001-2000022	
230 V AC/DC - 10 mA			3000-36001-3000023
Input			
Voltage range ON	10...53 V DC	70...150 V AC	140...253 V AC
Voltage range OFF	0...3 V DC	0...25 V AC	0...50 V AC
Control current	approx. 7.8 mA	approx. 9 mA	approx. 10 mA
Control voltage	24 V DC	115 V AC	230 V AC
LED display	LED (green)		
Output			
Switching voltage	12...400 V AC		
Switching current per output	10 mA...5 A (no derating)		
Saturation voltage (across output)	max. 0.15 V AC		
Leakage current (when output is open)	max. 1 mA		
Switching time ON/OFF	10/10 ms		
Switching frequency	max. 20/1 Hz (resist./ind.)		
Surge current	70 A		
General data			
Temperature range	-20...+60 °C		
Housing	Black plastic, flame retardant		
Mounting method	DIN-rail mountable (EN 60715)		

Dimension drawing



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Notes

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPERS / SEMICONDUCTORS

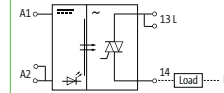
Triac modules MIRO

- Zero potential switch
- Screw plug-in terminals

MIRO Triac
Triac 10 A

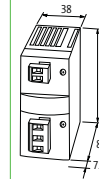


Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
24 V DC/7.8 mA	3000-36001-2000025		
115 V AC/9 mA		3000-36001-2000027	
230 V AC/DC - 10 mA			3000-36001-3000028
Input			
Voltage range ON	10...53 V DC	70...150 V AC	140...253 V AC
Voltage range OFF	0...3 V DC	0...25 V AC	0...50 V AC
Control current	approx. 7.8 mA	approx. 9 mA	approx. 10 mA
Control voltage	24 V DC	115 V AC	230 V AC
LED display	LED (green)		
Output			
Switching voltage	12...400 V AC		
Switching current per output	100 mA/10 A (no derating)		
Saturation voltage (across output)	max. 0.15 V AC		
Leakage current (when output is open)	max. 1 mA		
Switching time ON/OFF	10/10 ms		
Switching frequency	max. 20/1 Hz (resist./ind.)		
Surge current	70 A		
General data			
Temperature range	-20...+60 °C		
Housing	Black plastic, flame retardant		
Mounting method	DIN-rail mountable (EN 60715)		

Dimension drawing



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Notes

OPTOCOUPERS / SEMICONDUCTORS



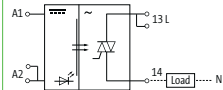
Triac modules

- Zero potential switch
- Screw terminals

AMS
Triac 4 A

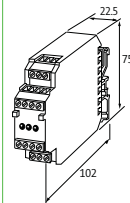


Circuit diagram



Order Data	Art-No.	
24 V DC/10 mA	50034	
Input		
Voltage range ON	10...53 V DC	
Voltage range OFF	0...3 V DC	
Input current	10 mA	
LED display	LED (red)	
Output		
Switching voltage	24...250 V AC	
Switching current per output	10 mA...4 A	
Saturation voltage (across output)	max. 1.4 V AC	
Leakage current (when output is open)	max. 10 mA	
Switching time ON/OFF	10/10 ms	
Switching frequency	max. 30/5 Hz (resist./ind.)	
General data		
Test isolation voltage	6 kV	
Temperature range	-20...+60 °C	
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)	
Housing	Black plastic, flame retardant	

Dimension drawing



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Notes

1.11.23

Optocouplers / Semiconductors

Optocouplers / Semiconductors

OPTOCOUPERS / SEMICONDUCTORS

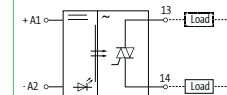
Triac modules

- Zero potential switch
- Screw terminals

AMMS
Triac 1 A

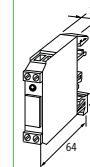


Circuit diagram

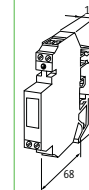
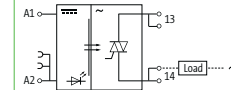


Order Data	Art-No.	
24 V DC/6 mA	50030	
Input		
Voltage range ON	10...53 V DC	10...35 V DC
Voltage range OFF	0...3 V DC	
Input current	6.6 mA	6 mA
LED display	LED (red)	
Plug link (supplied)	-	Art-Nr. 90960
Output		
Switching voltage	24...253 V AC	24...280 V AC
Switching current per output	50 mA...1 A	50 mA...2 A
Saturation voltage (across output)	max. 1.3 V AC	max. 1 V AC
Leakage current (when output is open)	max. 5 mA	max. 2 mA
Switching time ON/OFF	10/10 ms	
Switching frequency	max. 20 Hz	max. 20/5 Hz (resist./ind.)
General data		
Test isolation voltage	2.5 kV	
Temperature range	-20...+60 °C	
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)	
Housing	Black plastic, flame retardant	

Dimension drawing



AMMDS
Triac 2 A
with minus plug link




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Notes

1.11.24

OPTOCOUPERS / SEMICONDUCTORS



Labeling accessories			Art-No.
	ACS label plate KM 5 for self marking (9 × 20 mm)		7000-99001-000000
	Label plate KM 4 5 × 10 mm		90931
	ACS label plate KM 6/18 for self marking with ADEMARK markers		7000-99003-000000
	Label plate KWI 5/15 (88 pieces per plate)		90901
Wiring accessories			Art-No.
	Potential plug link max. 50 V/2 A	MIRO	90961
	Potential plug link max. 48 V/2 A	RMM..., RMMD...	90960
	Potential rail blue 40-pole, spacing 12 mm	RMM..., RMMD...	90970
	10-pole, spacing 6.2 mm	MIRO 6.2 (screw terminals)	90975
	Potential rail red 40-pole, spacing 12 mm	RMM..., RMMD...	90971
	10-pole, spacing 6.2 mm	MIRO 6.2 (screw terminals)	90976
End caps for potential rail			
blue		MIRO 6.2	90980
red		RMM..., RMMD...	90982

1.11.25

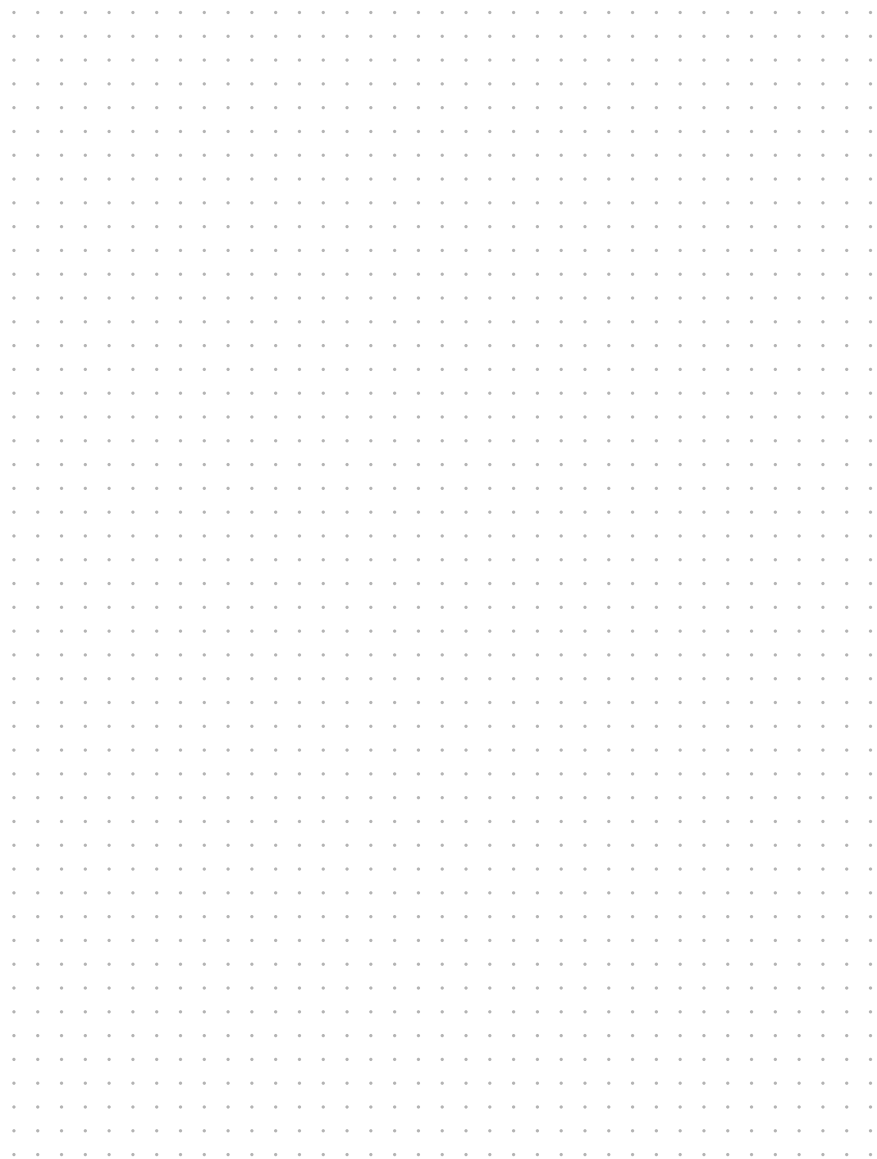
Optocouplers / Semiconductors

OPTOCOUPERS / SEMICONDUCTORS

Wiring accessories			Art-No.
	Wire chain 16-pole Connection cable left and right approx. 50 cm; bk; 1 mm ²	MIRO (spring clamp terminals)	90977

1.11.26

NOTES



Active Interface Technology



ACTIVE INTERFACE TECHNOLOGY ANALOG AND DIGITAL

- Solid state or relay outputs are short circuit protected
- LED display
- DIN rail mounting

CONVERT MEASURED VALUES INTO SIGNALS

While measuring, positioning or checking systems, the status of the machine or installation should be monitored. The measured values have to be converted into digital or standard signals (0...20 mA, 4...20 mA or 0...10 V) so that PLCs and computers can process them.

Murrelektronik offers a wide range of intelligent interface modules that enable signal conversion or signal acquisition with galvanic separation.

Active Interface Technology

 <p>Converters AD/DA converters, Analog converters, Frequency converters, U/I converters</p> <p style="text-align: right;"><i>Page 1.12.1</i></p>	 <p>Timer MIRO 6.2 Timer</p> <p style="text-align: right;"><i>Page 1.12.9</i></p>
 <p>Comparator modules MAK</p> <p style="text-align: right;"><i>Page 1.12.14</i></p>	 <p>Temperature converter MTW</p> <p style="text-align: right;"><i>Page 1.12.15</i></p>
 <p>Switches Tree</p> <p style="text-align: right;"><i>Page 1.12.16</i></p>	 <p>Further Brake rectifiers, Demagnetizer, MIRO GSM</p> <p style="text-align: right;"><i>Page 1.12.18</i></p>

ACTIVE INTERFACE TECHNOLOGY



AD/DA converters

– Input and output galvanically separated

– Screw terminals

MAW

A/D converter

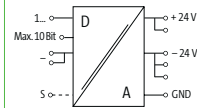
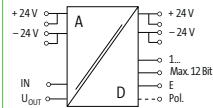


MDW

D/A converter



Circuit diagram



Order Data	Art-No.	Art-No.
4...20 mA/8 Bit	44091	44073
0...10 V DC/8 Bit	44062	44067
0...10 V DC/10 Bit	44063	44068

Technical Data	
Operating voltage	2 × 21...30 V DC, smoothed (with LED)
Operating current	60 mA (idle load) plus max. 100 mA per digital output
Tolerance	±1 LSB
Conversion time	80 ms, (6 Bit adjustable 2.5...150 ms)
Release input E	log 1 ≥ 16 V, log 0 ≤ 6 V

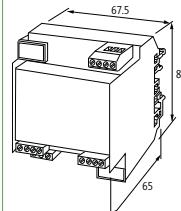
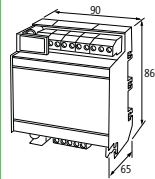
Input	
Input current	type dependent
Input signal	type dependent

Output	
Output current	100 mA/Bit, with LED

General data	
Test isolation voltage	2.5 kV
Temperature range	0...+85 °C
Mounting method	DIN-rail mountable (EN 60715)

Description	
Functional description	On modules with voltage inputs, it is possible to set the maximum input signal using a trimmer. The output "POL" indicates the polarity. A voltage output U _{OUT} 15 V/20 mA (minimal ripple) can be used as a power supply for the analog output device. The hold input E will sample and hold the analog value. When E is set to HIGH the outputs will show the last measured value. When E is set to LOW the converter will run again.

Dimension drawing



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Notes

ACTIVE INTERFACE TECHNOLOGY

Voltage converter

– Input and output galvanically separated

MU..W 6.2 Voltage (U)

INPUT: 0...10 V DC
 with bridge system
 Screw terminals

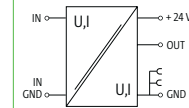


MU..W 6.2 Voltage (U)

INPUT: 0...10 V DC
 with bridge system
 Spring clamp terminals



Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.	Art-No.	Art-No.
OUTPUT: 0...10 V DC/20 mA	44205			6644205		
OUTPUT: 0...20 mA		44232			6644232	
OUTPUT: 4...20 mA			44233			6644233

Technical Data	
Operating voltage	24 V DC ±20 %, smoothed
Operating current	50...70 mA
Tolerance	max. 0.5 %
Frequency	max. 500 Hz

Voltage inputs	
Input resistor	approx. 200 kOhm

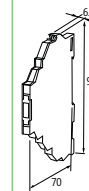
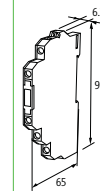
Voltage output signals	
Load	max. 25 mA

Current outputs	
Load	max. 500 Ohm

General data	
Test isolation voltage	1.5 kV
Temperature range	0...+60 °C
Mounting method	DIN-rail mountable (EN 60715)

Description	
Functional description	The Murrelektronik analog converters convert standard signal formats (0...10 V, 0...20 mA, 4...20 mA) galvanically separated into one of these signal formats. Due to an integrated current limiter the output is short-circuit and overload protected. Module MIIV – 0/4...20 mA to 0/4...20 mA – without auxiliary supply

Dimension drawing



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Notes

ACTIVE INTERFACE TECHNOLOGY



Voltage converter

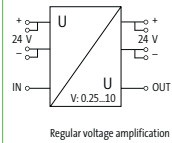
– Input and output galvanically separated

MPUUV

INPUT: 0...10 V DC
Screw terminals



Circuit diagram



Order Data

OUTPUT: 0...10 V DC/300 mA

Art-No.

44201

Technical Data

Operating voltage 24 V DC $\pm 20\%$, smoothed
Operating current max. 300 mA
Tolerance max. 0.5 %
Frequency max. 1 kHz

Voltage inputs

Input resistor approx. 10 kOhm

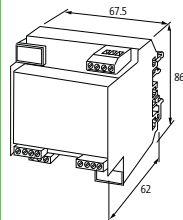
Voltage output signals

Load max. 300 mA

General data

Temperature range 0...+50 °C
Mounting method DIN-rail mountable (EN 60715)

Dimension drawing



Active interface technology

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Notes

1.12.3

ACTIVE INTERFACE TECHNOLOGY

Current converter

– Input and output galvanically separated

MI..W 6.2 current (I)

INPUT: 0...20 mA
Screw terminals

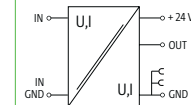


MI..W 6.2 current (I)

INPUT: 0...20 mA
Spring clamp terminals



Circuit diagram



Order Data

OUTPUT: 0...10 V DC/20 mA

Art-No.

44212

Art-No.

44226

Art-No.

44228

Art-No.

6644212

Art-No.

6644226

Art-No.

6644228

Technical Data

Operating voltage 24 V DC $\pm 20\%$, smoothed
Operating current 50...70 mA
Tolerance max. 0.5 %
Frequency max. 500 Hz

Current input signals

Load approx. 250 Ohm

Voltage output signals

Load max. 25 mA

Current outputs

Load max. 500 Ohm

General data

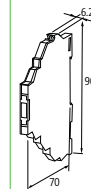
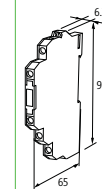
Test isolation voltage 1.5 kV
Temperature range 0...+60 °C
Mounting method DIN-rail mountable (EN 60715)

Description

Functional description

The Murrelektronik analog converters convert standard signal formats (0...10 V, 0...20 mA, 4...20 mA) galvanically separated into one of these signal formats. Due to an integrated current limiter the output is short-circuit and overload protected. Module MIW – 0/4...20 mA to 0/4...20 mA – without auxiliary supply

Dimension drawing



Active interface technology

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Notes

1.12.4

ACTIVE INTERFACE TECHNOLOGY



Current converter

– Input and output galvanically separated

MI..W 6.2 current (I)

INPUT: 4...20 mA
Screw terminals

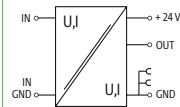


MI..W 6.2 current (I)

INPUT: 4...20 mA
Spring clamp terminals

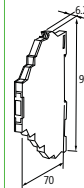
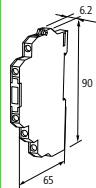


Circuit diagram



Order Data		Art-No.	Art-No.
OUTPUT: 0...10 V DC/20 mA		44213	6644213
Technical Data			
Operating voltage	24 V DC \pm 20 %, smoothed		
Operating current	50...70 mA		
Tolerance	max. 0.5 %		
Frequency	max. 500 Hz		
Current input signals			
Load	approx. 250 Ohm		
Voltage output signals			
Load	max. 25 mA		
General data			
Test isolation voltage	1.5 kV		
Temperature range	0...+60 °C		
Mounting method	DIN-rail mountable (EN 60715)		
Description			
Functional description	The Murrelektronik analog converters convert standard signal formats (0...10 V, 0...20 mA, 4...20 mA) galvanically separated into one of these signal formats. Due to an integrated current limiter the output is short-circuit and overload protected. Module MIW – 0/4...20 mA to 0/4...20 mA – without auxiliary supply		

Dimension drawing



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Notes

1.12.5

ACTIVE INTERFACE TECHNOLOGY

Analog converter

– Input, output, and supply voltage galvanically separated

MULTI Converter 12.4

INPUT: 0...5 V DC, 0...10 V DC, \pm 10 V DC
INPUT: 0...20 mA, 4...20 mA
Screw terminals

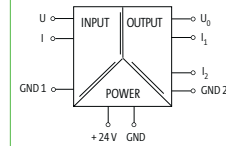


MULTI Converter 12.4

INPUT: 0...5 V DC, 0...10 V DC, \pm 10 V DC
INPUT: 0...20 mA, 4...20 mA
Spring clamp terminals

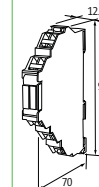
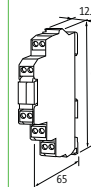


Circuit diagram



Order Data		Art-No.	Art-No.
OUTPUT: 0...10 V DC/20 mA		44207	6644207
OUTPUT: 0...20 mA		44207	6644207
OUTPUT: 4...20 mA		44207	6644207
Technical Data			
Operating voltage	24 V DC \pm 15 %		
Operating current	approx. 50 mA		
Tolerance	max. 0.5 %		
Frequency	max. 25 Hz		
Voltage inputs			
Input voltage	0...5, 0...10, \pm 10 V DC		
Input resistor	approx. 100 kOhm		
Current input signals			
Input current	0...20 mA, 4...20 mA		
Load	approx. 75 Ohm		
Current outputs			
Load	max. 400 Ohm		
General data			
Test isolation voltage	0.75 kV		
Temperature range	-25...+50 °C		
Mounting method	DIN-rail mountable (EN 60715)		
Description			
Functional description	Due to an integrated current limiter on the output, the output is short circuit and overload protected. A special characteristic of the MULTI Converter Art.-No. 6644207 includes: Analog voltage signals 0...5 V/0...10 V and \pm 10 V and current signals 0...20 mA and 4...20 mA, these compact modules can be galvanically isolated in the three standard signals, which means all combinations are covered with one model. The selection of the input is done by means of a 5-pole rotary switch, accessible under the identification tag. The voltage supply is galvanically isolated from the input and output circuits (3-way isolation).		

Dimension drawing



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Notes

1.12.6

Active interface technology

Active interface technology

ACTIVE INTERFACE TECHNOLOGY



Analog converter

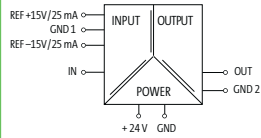
– Input, output, and supply voltage galvanically separated

MUUW

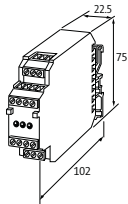
INPUT: $\pm 0...10$ V DC
OUTPUT: $\pm 0...10$ V
Screw terminals



Circuit diagram



Order Data		Art-No.
OUTPUT: $\pm 0...10$ V DC		44203
Technical Data		
Operating voltage	24 V DC (+15/-10 %)	
Operating current	max. 200 mA	
Tolerance	± 1 %	
Frequency	5 kHz, sine wave	
Current outputs		
Load	max. 400 Ohm	
General data		
Test isolation voltage	1.5 kV	
Temperature range	0...+50 °C	
Mounting method	DIN-rail mountable (EN 60715)	
Dimension drawing		



Active interface technology

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Notes

1.12.7

ACTIVE INTERFACE TECHNOLOGY

Frequency converter

– Input and output galvanically separated

M..FW 12.4

INPUT: 0...10 V DC, 0...20 mA, 4...20 mA
Screw terminals



M..W 12.4

INPUT: 0...10 V DC, 0...20 mA, 4...20 mA
Spring clamp terminals



MF...W 12.4

INPUT: 0...1 kHz, 0...10 kHz, 0...100 kHz
Screw terminals

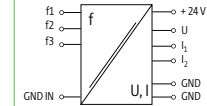
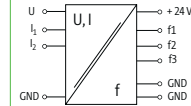


MF...W 12.4

INPUT: 0...1 kHz, 0...10 kHz, 0...100 kHz
Spring clamp terminals



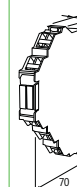
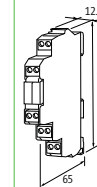
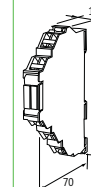
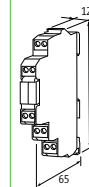
Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
0...1 kHz, 0...10 kHz, 0...100 kHz	44245	6644245		
0...10 V DC, 0...20 mA, 4...20 mA			44275	6644275
Technical Data				
Operating voltage	24 V DC ± 20 %			
Operating current	max. 60 mA		max. 80 mA	
Tolerance	0.5 % from end value			
Response time	–		max. 350 ms	
Voltage inputs				
Input voltage	0...10 V DC		10...30 V DC	
Input resistor	approx. 100 kOhm		–	
Current input signals				
Input current	0...20 mA, 4...20 mA		6...25 mA	
Input resistor	approx. 75 Ohm		approx. 1.2 kOhm	
Voltage output signals				
Output signal	0...1 kHz, 0...10 kHz, 0...100 kHz		0...10 V DC, 0...20 mA, 4...20 mA	
Output voltage	0.5 V (short-circuit protected)		–	
General data				
Test isolation voltage	1.5 kV		2.5 kV	
Temperature range	-25...+50 °C			
Mounting method	DIN-rail mountable (EN 60715)			

Active interface technology

Dimension drawing



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Notes

1.12.8

ACTIVE INTERFACE TECHNOLOGY



Timer

- Relay output
- with bridge system

Approvals:

MIRO 6.2 Timer
Switch-on delay
Screw terminals



MIRO 6.2 Timer
Switch-on delay
Spring clamp terminals



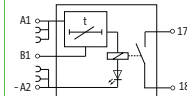
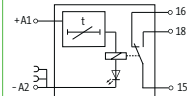
MIRO 6.2 Timer
Switch-off delay
Screw terminals



MIRO 6.2 Timer
Switch-off delay
Spring clamp terminals



Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
0.1...10 s	52300	6652300	52310	6652310
3...300 s	52301	6652301	52311	6652311

Switching capacity (EN 60947-5-1)

AC12	6 A (24 V AC; 110 V AC; 230 V AC)
AC15	3 A (24 V AC; 110 V AC; 230 V AC)
DC13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)

Input

Input voltage	24 V DC (+10...15 %) input A
Input current	20 mA (input A)
Control voltage	24 V DC (+10...15 %) input B
Control current	5 mA (input B)

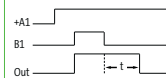
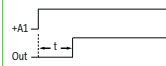
Output

Output voltage	max. 250 V AC/DC
Output current	max. 6 A
Min. load current	10 mA (12 V DC)
Output rating	max. 1500 VA/120 W
Switching frequency	max. 10 Hz
Contact material	Ag Sn O2
Energize/release/contact bounce time	10/15/1.5 ms

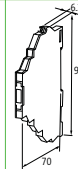
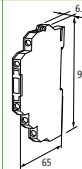
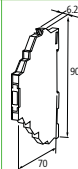
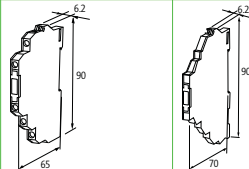
General data

Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (EN 60947-1)
Temperature range	0...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Functional diagram



Dimension drawing



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Notes

Active interface technology

1.12.10

ACTIVE INTERFACE TECHNOLOGY

Timer

- Transistor output
- with bridge system

Approvals:

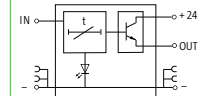
MIRO 6.2 Timer
Impulse expansion
Screw terminals



MIRO 6.2 Timer
Impulse expansion
Spring clamp terminals



Circuit diagram



Order Data	Art-No.	Art-No.
0.1...10 s	52320	6652320

Input

Input voltage	19...29 V DC
Control voltage	16...32 V DC
Time range	0.1...10 s
Impulse length	min. 0.5 ms

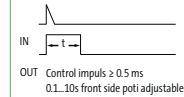
Output

Switching voltage	Operating voltage - 1.5 V
Switching current per output	max. 100 mA

General data

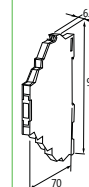
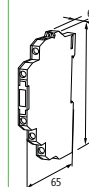
Test isolation voltage	no galvanic separation
Temperature range	0...+60 °C
Mounting method	DIN-rail mountable (EN 60715)

Functional diagram



OUT Control impuls ≥ 0.5 ms
0.1...10s front side poti adjustable

Dimension drawing



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Notes

1.12.10

Active interface technology

ACTIVE INTERFACE TECHNOLOGY



- Timer**
- Switch-on delay
 - Switch-off delay

MIRO 6.2 Timer
multifunctional
Screw terminals

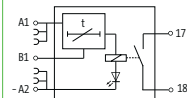


Approvals:

MIRO 6.2 Timer
multifunctional
Spring clamp terminals



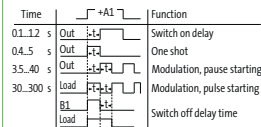
Circuit diagram



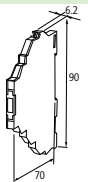
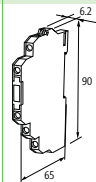
Order Data	Art-No.	Art-No.
0.1...300 s	52350	6652350
Input		
Input voltage	24 V DC (+10 -15 %) input A	
Input current	20 mA (input A)	
Control voltage	24 V DC (+10 -15 %) input B	
Control current	5 mA (input B)	
Output		
Output voltage	max. 250 V AC/DC	
Output current	max. 6 A	
Min. load current	10 mA (12 V DC)	
Output rating	max. 1500 VA/120 W	
Switching frequency	max. 10 Hz	
Contact material	Ag Sn O2	
Energize/release/contact bounce time	10/15/1.5 ms	

General data	
Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV, safe separation (EN 60947-1)
Temperature range	0...+55 °C
Mounting method	DIN-rail mountable (EN 60715)

Functional diagram



Dimension drawing



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Notes

ACTIVE INTERFACE TECHNOLOGY

- Timer**
- Switch-on delay
 - Switch-off delay
 - Changeover contact
 - Memory function

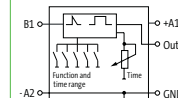
MIRO 6.2 Timer
Transistor output
Screw terminals



MIRO 6.2 Timer
Transistor output
Spring clamp terminals



Circuit diagram

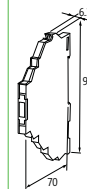
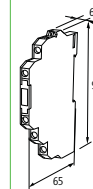


Order Data	Art-No.	Art-No.
10 ms...0.1 s	3000-18502-0200010	3000-18512-0200010
10 ms...1 s	3000-18502-0200010	3000-18512-0200010
10 ms...10 s	3000-18502-0200010	3000-18512-0200010
10 ms...100 s	3000-18502-0200010	3000-18512-0200010

Input	
Input voltage	18...30 V DC
Control voltage	18...30 V DC
Output	
Switching voltage	Operating voltage - 0.2 V
Switching current per output	max. 100 mA
Min. load current	1 mA (short-circuit protected)
Switching frequency	max. 50 Hz

General data	
Test isolation voltage	no galvanic separation
Temperature range	-20...+60 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



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Notes

ACTIVE INTERFACE TECHNOLOGY



Timer

- Switch-on delay
- Switch-off delay
- Changeover contact
- Memory function

MIRO 6.2 Timer

Relay output
Screw terminals

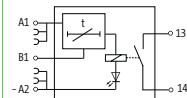


MIRO 6.2 Timer

Relay output
Spring clamp terminals



Circuit diagram



Order Data	Art-No.	Art-No.
100 ms...1 s	3000-18503-0200012	3000-18513-0200013
100 ms...10 s	3000-18503-0200012	3000-18513-0200013
100 ms...100 s	3000-18503-0200012	3000-18513-0200013
100 ms...1000 s	3000-18503-0200012	3000-18513-0200013

Switching capacity (EN 60947-5-1)

AC-12	6 A (24 V AC; 110 V AC; 230 V AC)
AC-15	3 A (24 V AC; 110 V AC; 230 V AC)
DC-13	1 A (24 V DC); 0.2 A (110 V DC); 0.1 A (230 V DC)

Input

Input voltage	18...30 V DC
Control voltage	18...30 V DC

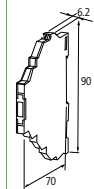
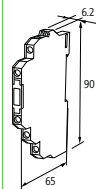
Output

Switching voltage	max. 250 V AC/DC
Switching current per output	max. 6 A
Min. load current	10 mA
Switching frequency	max. 5 Hz
Contact material	Ag Sn O2
Energize/release/contact bounce time	19/15/1.5 ms

General data

Mech./ elect. life	20.000.000 switching cycles/load dependent
Test isolation voltage	4 kV; safe separation (VDE 0106/ VDE 0160)
Temperature range	-20...+60 °C
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



Active interface technology

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Notes

1.12.13

ACTIVE INTERFACE TECHNOLOGY

Comparator modules

- with bridge system

MAK 12.4

Input signal, voltage DC
selectable via DIP switch
Screw terminals

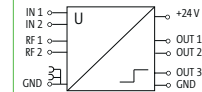


MAK 12.4

Input signal, voltage DC
selectable via DIP switch
Spring clamp terminals



Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/0.7 A	44110	6644110

Technical Data

Operating voltage	20...30 V DC, smoothed
Operating current	30 mA (idle load), max. 0.8 A (full load)
Time constant	approx. 10 ms
Input hysteresis	max. 0.5 % from end value, max. 150 mV

Input

Input voltage	2 x 0...30 V DC (IN 1, IN 2)
Input resistor	100 kOhm

Output

Number	3 transistor outputs
Output current	max. 0.7 A per channel, switched positive, short-circuit protected

General data

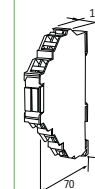
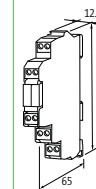
Temperature range	0...+50 °C
Mounting method	DIN-rail mountable (EN 60715)

Description

Functional description

The DC or AC voltage comparator serves for evaluating analog voltages, generated by pressure, temperature or other sensors. The analog input values are compared to internal or external reference voltages to over or underflow. Outputs will be switched, dependent on defined limits. Features: - 2 separate measuring channels (no galvanic separation), (only by comparator service) - 2 operating modes (comparator/window discriminator) - adjustable reference voltage (internal/external) per channel - adjustable output (inverted/not inverted) per channel, (only by comparator service) - compact design (12.4 mm) - higher switched current at output - output state display through LED - Easy configuration of the module via DIP switch

Dimension drawing



Active interface technology

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Notes

1.12.14

ACTIVE INTERFACE TECHNOLOGY



Temperature converter
– for PT 100 sensors

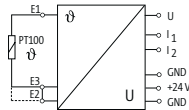
MTW 12.4
2; 3-wire technology
Screw terminals



MTW 12.4
2; 3-wire technology
Spring clamp terminals



Circuit diagram



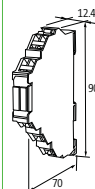
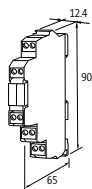
Order Data	Art-No.	Art-No.
INPUT: -50...+50 °C	44330	6644330
INPUT: -50...+150 °C	44331	6644331
INPUT: 0...100 °C	44332	6644332
INPUT: 0...200 °C	44334	6644334
INPUT: 0...600 °C	44336	6644336

Technical Data	
Operating voltage	24 V DC (18...30 V DC), smoothed
Operating current	max. 80 mA
Cable resistance (without PT100)	max. 100 Ohm (3-wire technology)
Output signals at 0...10 V DC	max. 25 mA, overload protected
Output signals at 4...20 V mA	max. 500 Ohm RL
Output signals at 0...20 mA	max. 500 Ohm RL
Tolerance	±1 % from end value
Temperature range	0...+60 °C

General data	
Mounting method	DIN-rail mountable (EN 60715)

Description	
Functional description	The Murrelektronik temperature converter module works in conjunction with a temperature sensor PT100 (IEC 751/EN 60751) and converts the temperature into a standard signal format of (0...10 V, 4...20 mA, 0...20 mA). The MTW modules supply a constant current to the PT100 resistor, which develops a variable voltage. This will be measured, linearized and converted to the output signal at the OUT terminals. All three signals can be used at the same time. The 2-wire technology allows short distances between the PT100 sensor and MTW module (< 5 m) to be covered. For longer distances the 3-wire technology has to be applied for compensating the cable resistance. This requires a 3rd cable (same length and type as the two measuring cables). The bridge between E2 and E3 has to be removed.

Dimension drawing



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Notes

1.12.15

ACTIVE INTERFACE TECHNOLOGY

Switches
– unmanaged
– RJ45

Approvals: Listed

Tree 6TX Eco
6 ports



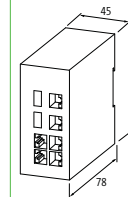
Tree 8TX Metal
8 ports



Tree 6TX Metal
6 ports



Order Data	Art-No.	Art-No.	Art-No.
6 ports	58170		58172
8 ports		58171	
Connections			
Fieldbus	6 × RJ45	8 × RJ45	6 × RJ45
Supply System			
Supply System	Screw plug-in terminal: 0.2...1.5 mm ²		
Technical Data			
Operating voltage	2 × 9...30 V DC, redundancy	2 × 9...48 V DC, redundancy	2 × 9...30 V DC, redundancy
Transfer rate	10/100 MBit/s full duplex		
Operating modes	Autocrossing Autonegotiation		
Diagnostic			
Communication status	via LED		
Monitoring - no voltage	yes		
General data			
Protection	IP20	IP50	
Housing	Black plastic	Metal black	
Temperature range	0...+60 °C (storage temperature -10...+70 °C)	-10...+70 °C (storage temperature -40...+85 °C)	
Mounting method			
Mounting method	DIN-rail mountable TH35 (EN 60715)		
Dimension drawing			



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Notes

1.12.16

Active interface technology

Active interface technology

ACTIVE INTERFACE TECHNOLOGY



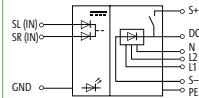
Brake rectifiers

Active controlled rectifier
Spring clamp terminals

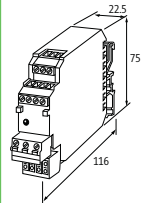


Approvals: **UL**

Circuit diagram



Order Data	Art-No.
24 V DC/0.8 A	50001
Input	
Input voltage	L1-N (230 V AC); L1-L2 (400 V AC); L1-L2 (480 V AC)
Input current	max. 0.8 A
Control voltage	24 V DC
LED display	LED (green)
Protection against reverse polarization	yes
Output	
Output voltage	205 V DC (230 V AC); 180 V DC (400 V AC); 215 V DC (480 V AC)
Output current	max. 0.75 A
Switching frequency	max. 2.5 Hz
General data	
Temperature range	0...+55 °C (storage temperature -20...+60 °C), no condensation
Protection	IP20
Mounting method	DIN-rail mountable (EN 60715)
Connection	Spring clamp terminals
Dimension drawing	



Active interface technology

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Notes

1.12.17

ACTIVE INTERFACE TECHNOLOGY

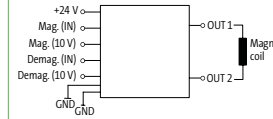
Demagnetizer

– with alarm contact

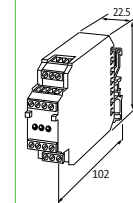
Demagnetizer
Screw terminals



Circuit diagram



Order Data	Art-No.	Art-No.
24 V DC/40 mA	446140	446142
Technical Data		
Operating voltage	24 V DC (18...30 V DC)	
Operating current	approx. 40 mA	
LED display	LED (green)	
Protection against reverse polarization	yes	
Group alarm output	–	potential free alarm output 30 V AC/DC, 100 mA
Input		
Input resistor	approx. 10 kOhm	
Magnetization (digital)	safe OFF: max. 1V; safe ON: min. 5 V (LED yellow)	safe OFF: max. 1V; safe ON: min. 5 V (LED green)
Magnetization (analog)	0...8.8 V (0...100 %)	
Demagnetization (digital)	safe OFF: max. 1V; safe ON: min. 5 V (LED yellow)	
Demagnetization (analog)	0...10 V (44...55 %)	
Output		
Output voltage	24 V DC	
Output current	max. 1.5 A (short-circuit protected)	
PWM frequency	approx. 800 Hz	
General data		
Temperature range	-25...+50 °C (storage temperature -40...+80 °C)	
Protection	IP20	
Mounting method	DIN-rail mountable (EN 60715)	
Connection	Screw terminals	
Dimension drawing		



Active interface technology

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Notes

1.12.18

ACTIVE INTERFACE TECHNOLOGY



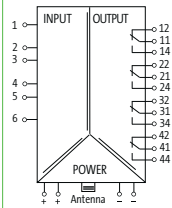
Remote and Signalling Systems

MIRO GSM



Approvals: Listed

Circuit diagram



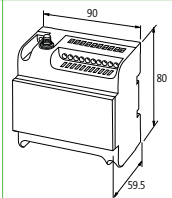
Order Data	Art-No.	Art-No.	Art-No.
DI6 DO4R - (Relay) 24 V DC	52530		
ADI6 DO4R (Relay) 24 V DC		52531	
DI6 DO4R - (Relay) 230 V AC			52532
Accessories			Art-No.
Stub antenna			52533
MIRO GSM Service Kit			52535

Input		
Connection voltage - current	12...48 V DC - 15 mA	110...240 V AC - 10 mA
Resolution (analog)	-	12 Bit
Input range (analog)	-	0...10 V DC
Input resistor (analog)	-	142 kOhm
Conversion time (analog)	-	max. 1 s

Output		
Switching voltage	max. 250 V AC/DC	
Switching current per output	max. 10 A	
Total current	max. 20 A	
Contact material	Ag Ni 90/10	

General data		
Mech./ elect. life	30.000.000 switching cycles/load dependent	
Protection	IP20	
Temperature range	-25...+55 °C (storage temperature -40...+85 °C)	
Connection	Screw terminals: max. 2.5 mm² (AWG 14)	
Mounting method	DIN-rail mountable (EN 60715) or screw fixing	

Dimension drawing



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Notes

For inductive loads we recommend EMC suppressors connected parallel to the coil

Active Interface Technology

1.12.19

ACTIVE INTERFACE TECHNOLOGY



Labeling accessories			Art-No.
ACS label plate KM 5 for self marking (9 x 20 mm)			7000-99001-000000
Label plate KM 4 5 x 10 mm			90931
ACS label plate KM 6/18 for self marking with ADEMARK markers			7000-99003-000000
Label plate KWI 5/15 (88 pieces per plate)			90901
Wiring accessories			Art-No.
Potential plug link max. 50 V/2 A	MIRO		90961
Potential rail blue 10-pole, spacing 6.2 mm	MIRO 6.2 (screw terminals)		90975
Potential rail red 40-pole, spacing 12 mm 10-pole, spacing 6.2 mm	RMM..., RMMID...		90971
	MIRO 6.2 (screw terminals)		90976
End caps for potential rail blue red	MIRO 6.2 RMM..., RMMID...		90980 90982
Wire chain 16-pole Connection cable left and right approx. 50 cm; bk; 1 mm²	MIRO (spring clamp terminals)		90977
MIRO GSM Stub antenna			52533


Active Interface Technology

1.12.20

ACTIVE INTERFACE TECHNOLOGY



Wiring accessories			Art-No.
	MIRO GSM External antenna Connection cable 5m		52534
	MIRO GSM Service Kit Configuration CD USB/RS-232 converter Connection cable SUB-D9 (female/male)		52535



PASSIVE INTERFACE TECHNOLOGY INTERFACE MODULES

- Screw or spring clamp terminals
- LED displays
- DIN rail mounting

FOR ANY APPLICATION

Murrelektronik's interface modules make the connections between the controls and the field. They take over 3 major functions in the system:

- Signal transfer from the machine to the control
- Signal transfer inside the machine or control system
- Easy wiring in control systems

Murrelektronik has been an innovative partner in coming up with interface solutions for years. Their interface modules are fitted with different kinds of robust plugs like SUB-D connectors or ribbon cable connectors for strong signal or power transfers.

They are extremely compact. Individual terminal labels and status displays are integrated into the standard modules.

Interface Modules	
 <p>With ribbon cable connection UFL</p> <p>Page 1.13.1</p>	 <p>With SUB-D connector UG SUB, SV</p> <p>Page 1.13.2</p>
 <p>With pluggable terminals LUGS, PKB</p> <p>Page 1.13.5</p>	

Active Interface Technology

Passive Interface Technology

PASSIVE INTERFACE TECHNOLOGY



Transfer modules
– Ribbon cable connection

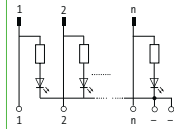
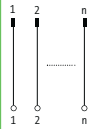
UFL
Ribbon cable connector



UFL
Ribbon cable connector + LED



Circuit diagram



Order Data	HxWxD	Art-No.	HxWxD	Art-No.
10-pole	63x50x48 mm	54200	63x50x48 mm	54011
16-pole	63x50x48 mm	54201		
20-pole	63x50x48 mm	54202	63x75x48 mm	54013
26-pole	63x75x48 mm	54203	63x75x48 mm	54014
34-pole	63x95x48 mm	54204	63x95x48 mm	54015
40-pole	63x120x48 mm	54205	63x120x48 mm	54016
50-pole	63x140x48 mm	54206	63x140x48 mm	54017
64-pole	63x185x48 mm	54208	63x185x48 mm	54019
Technical Data	Operating voltage		max. 125 V AC/150 V DC	
Operating current per bit		max. 1 A		24 V AC
Air and creepage distances (EN 60664-1) over voltage, category II				
LED display		–		
LED display		LED (red) Ø 3 mm per pole, acc. to potential -		
Temperature range		-20...+70 °C		
Plug connector for plugs with or without strain relief (DIN 41651); for plugs with strain relief, it may be necessary to remove the bottom hook				
General data	Temperature range -20...+70 °C			
Mounting method DIN-rail mountable (EN 60715)				
Dimension drawing				

Passive Interface Technology

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Notes

113.1

PASSIVE INTERFACE TECHNOLOGY

Transfer modules
– Plug connector SUB-D

UG-SUB
Male connector
Screw terminals



UG-SUB
Male connector
Spring clamp terminals



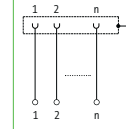
UG-SUB
Female connector
Screw terminals



UG-SUB
Female connector
Spring clamp terminals



Circuit diagram



Order Data	HxWxD	Art-No.	HxWxD	Art-No.	HxWxD	Art-No.	HxWxD	Art-No.
9-pole	63x50x48 mm	54030	63x50x48 mm	6654030	63x50x48 mm	54040	63x50x48 mm	6654040
15-pole	63x75x48 mm	54031	63x75x48 mm	6654031	63x75x48 mm	54041	63x75x48 mm	6654041
25-pole	63x95x48 mm	54032	63x95x48 mm	6654032	63x95x48 mm	54042	63x95x48 mm	6654042
37-pole	63x75x58 mm	54033	63x75x58 mm	6654033	63x75x58 mm	54043	63x75x58 mm	6654043
50-pole	63x95x58 mm	54034			63x95x58 mm	54044		
Technical Data	Operating voltage max. 125 V AC/150 V DC							
Operating current per bit		max. 2 A						
Air and creepage distances		(EN 60664-1) over voltage, category II						
Plug connector		Standard UNC 4-40 screw thread bolt (EN 60807)						
General data	Temperature range -20...+70 °C							
Mounting method DIN-rail mountable (EN 60715)								
Dimension drawing								

Passive Interface Technology

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Notes

113.2

PASSIVE INTERFACE TECHNOLOGY



Transfer modules

– Plug connector SUB-D

UG-SUB

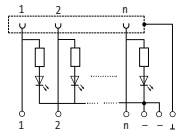
Male connector + LED
Screw terminals



UG-SUB

Female connector + LED
Screw terminals

Circuit diagram

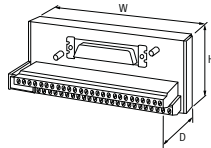


Order Data	HxWxD	Art-No.	HxWxD	Art-No.
9-pole	75x45x66 mm	54050	75x45x66 mm	54060
15-pole	75x70x66 mm	54051	75x70x66 mm	54061
25-pole	75x90x66 mm	54052	75x90x66 mm	54062
37-pole	75x135x66 mm	54053	75x135x66 mm	54063
50-pole	75x135x66 mm	54055	75x135x66 mm	54065

Technical Data	
Operating voltage	24 V DC ±15 %
Operating current per bit	max. 2 A
LED display	LED (red) Ø 3 mm per pole, acc. to potential -
Air and creepage distances	(EN 60664-1) over voltage, category II
Temperature range	-20...+70 °C
Plug connector	Standard UNC 4-40 screw thread bolt (EN 60807)

General data	
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



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Notes

1.13.3

PASSIVE INTERFACE TECHNOLOGY

Transfer modules

– Signal transfer / 3-wire connection

– Plug connector SUB-D

SV-2 x SUB-D

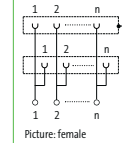
2 ports
Female connector



SV-2 x SUB-D

2 ports
Male connector

Circuit diagram



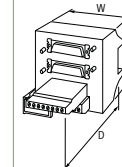
Picture: female

Order Data	HxWxD	Art-No.	HxWxD	Art-No.
15-pole	75x70x66 mm	54165		
25-pole	75x90x66 mm	54163	75x90x66 mm	54164
37-pole	86x90x78 mm	54161	86x90x78 mm	54162
50-pole			86x112.5x78 mm	54160

Technical Data	
Operating voltage	max. 125 V AC/150 V DC
Operating current per bit	max. 2 A
Air and creepage distances	(EN 60664-1) over voltage, category I
Temperature range	-20...+70 °C
Plug connector	Standard UNC 4-40 screw thread bolt (EN 60807)

General data	
Mounting method	DIN-rail mountable (EN 60715)

Dimension drawing



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Notes

1.13.4

Passive Interface Technology

Passive Interface Technology

PASSIVE INTERFACE TECHNOLOGY



Transfer modules

– Screw plug-in terminals

LUGS

Screw plug-in terminals

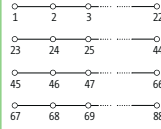
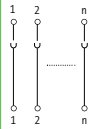


PKB

Potential terminal block

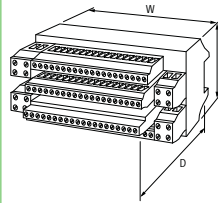
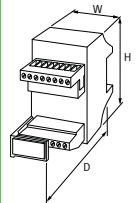


Circuit diagram



Order Data	HxWxD	Art.No.	HxWxD	Art.No.	HxWxD	Art.No.
2x8-pole	75x45x66 mm	54100				
4x8-pole	75x70x66 mm	54101				
4x12-pole	75x70x66 mm	54102				
4x16-pole	75x90x66 mm	54103				
4x22-pole			63x140x48 mm	54250	75x135x66 mm	54251
Technical Data						
Operating voltage	max. 250 V AC					
Operating current per bit	max. 10 A		15 A per potential rail		25 A per potential rail	
Air and creepage distances	max. 10 A		(EN 60664-1) over voltage, category II			
Total current	–					max. 100 A
Temperature range	-20...+60 °C					
General data						
Connection	Screw plug-in terminal: max. 4 mm ² , single wire			Screw plug-in terminal: max. 4 mm ² , input terminal: max. 4 mm ² (single wire)		
Mounting method	DIN-rail mountable (EN 60715)					

Dimension drawing



Passive Interface Technology



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Notes

PASSIVE INTERFACE TECHNOLOGY

Transfer modules

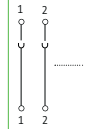
– Spring clamp terminals

LUGS

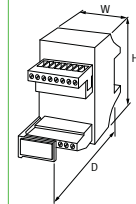
pluggable Push-in spring clamp terminals



Circuit diagram



Order Data	HxWxD	Art.No.
4x8-pole	75x45x75 mm	6654101
4x12-pole	75x70x75 mm	6654102
Technical Data		
Operating voltage	max. 250 V AC	
Operating current per bit	max. 8 A	
Air and creepage distances	(EN 50178) over voltage, category I	
Temperature range	-20...+60 °C	
General data		
Connection	Spring clamp plug-in terminals: max. 2.5 mm ² (AWG 14)	
Mounting method	DIN-rail mountable (EN 60715)	
Dimension drawing		



Passive Interface Technology


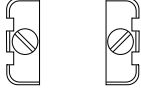


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Notes

PASSIVE INTERFACE TECHNOLOGY



Accessories		Art-No.
	ACS label plate KM 5 for self marking (9 × 20 mm)	7000-99001-000000
	ACS label plate KM 6/18 for self marking with ADEMARK markers	7000-99003-000000
	Standard UNC 4-40 screw thread bolt (EN 60807)	54079
	SUB-D snap-in connector 9...37-pole	54077



EUROCARD HOLDERS / CONTROL MODULES

- Flexible applications
- Compact modules
- Connections with up to 96-poles

THE IDEAL CONTROL TECHNOLOGY FOR THE CABINET

Various electronic circuits are fitted onto 100 x 160 mm Eurocards and then placed in 19" system housings. Murrelektronik's Eurocard holders are designed to mount Eurocards on DIN rails in the cabinet.

In control systems, units are used which require analog control signals (i.e. 0...10 V DC). With these well designed MPOT potentiometer modules, it is simple, cheap and easy to solve your set-point problems. The diode modules of the MKS series are designed for decoupling and interference applications. The LED indicators are available with diameters of 3, 5, and 10 mm. With their compact design, they are suitable for installation in front panels or process flow diagrams.

Eurocard Holders



SKT

Page 1.14.1



SKP

Page 1.14.3

Control Modules



Potentiometer modules
MPOT

Page 1.14.9



Diode modules
MKS-D, MKS-LDP, MKS-BCD

Page 1.14.10



Assembly modules
MKS-M, ML 14, MP

Page 1.14.12

EUROCARD HOLDERS / CONTROL MODULES



Eurocard holders

– For Eurocards 100 × 160 mm

SKT

32-pole F (EN 60603)
Screw terminals



SKT

32-pole C (EN 60603)
Screw terminals

Circuit diagram



Order Data

	Art-No.	Art-No.
Configuration (Row b, z)	63510	
Configuration (Row d, z)	63518	
Configuration (Row a, c)		63516

Technical Data

Operating voltage	250 V AC	
Operating current	max. 4 A	max. 2 A
Configuration	32-pole F (EN 60603)	32-pole C (EN 60603)
Air and creepage distances	(EN 60664-1) over voltage, category I	
Material	Plastic, flame retardant	

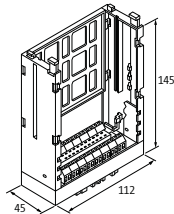
General data

Connection	4 mm ² single core	
Mounting method	DIN-rail mountable (EN 60715) in vertical or horizontal position or screw fixing	

Description

Functional description	To insert the card first press down the 2 yellow buttons. Then slide the Eurocard into the guide slots pushing until fully engaged. The card is now locked into position. It can be removed by pressing down on the 2 yellow buttons.	
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Dimension drawing



Eurocard Holders / Control Modules

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Notes

1.14.1

EUROCARD HOLDERS / CONTROL MODULES

Eurocard holders

– For Eurocards 100 × 160 mm

SKT

32-pole D (EN 60603)
Screw terminals



SKT

31-pole (DIN 41617)
Screw terminals

Circuit diagram



Order Data

	Art-No.	Art-No.
Configuration (Row a, c)	63512	
Configuration (all)		63501

Technical Data

Operating voltage	250 V AC	
Operating current	max. 4 A	max. 5 A
Configuration	32-pole D (EN 60603)	31-pole (DIN 41617)
Air and creepage distances	(EN 60664-1) over voltage, category I	
Material	Plastic, flame retardant	

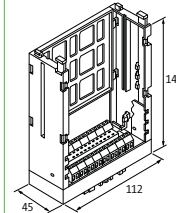
General data

Connection	4 mm ² single core	
Mounting method	DIN-rail mountable (EN 60715) in vertical or horizontal position or screw fixing	

Description

Functional description	To insert the card first press down the 2 yellow buttons. Then slide the Eurocard into the guide slots pushing until fully engaged. The card is now locked into position. It can be removed by pressing down on the 2 yellow buttons.	
------------------------	---	--

Dimension drawing



Eurocard Holders / Control Modules

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Notes

1.14.2

EUROCARD HOLDERS / CONTROL MODULES



Eurocard holders
– For Eurocards 100 × 160 mm

SKP
48-pole F (EN 60603)
Screw terminals



SKP
32-pole F (EN 60603)
Spring clamp terminals

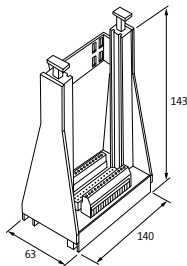


Circuit diagram



Order Data	Art-No.	Art-No.
Configuration (Row z, b, d)	63020	4000-63011-4304800
Configuration (Row b, z)		4000-63011-4253200
Accessories	Art-No.	
Adapter	63900	
Technical Data		
Operating voltage	250 V AC	
Operating current	max. 4 A	
Configuration	48-pole F (EN 60603)	32-pole F (EN 60603)
Air and creepage distances	(EN 60664-1) over voltage, category I	
Material	Plastic, flame retardant	
General data		
Connection	4 mm ² single core	
Mounting method	DIN-rail mountable (EN 60715) or screw fixing	
Description		
Functional description	To insert the card first press down the 2 yellow buttons. Then slide the Eurocard into the guide slots pushing until fully engaged. The card is now locked into position. It can be removed by pressing down on the 2 yellow buttons.	

Dimension drawing



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Notes

EUROCARD HOLDERS / CONTROL MODULES

Eurocard holders
– For Eurocards 100 × 160 mm

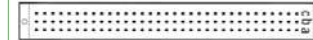
SKP
32-pole C (EN 60603)
Screw terminals



SKP
64-pole C (EN 60603)
Screw terminals

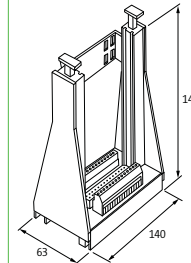
SKP
64-pole C (EN 60603)
Spring clamp terminals

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
Configuration (Row a, c)	631776	63043	4000-63011-1236400
Accessories			Art-No.
Adapter			63900
Technical Data			
Operating voltage	250 V AC		
Operating current	max. 2 A		
Configuration	32-pole C (EN 60603)	64-pole C (EN 60603)	
Air and creepage distances	(EN 60664-1) over voltage, category I		
Material	Plastic, flame retardant		
General data			
Mounting method	DIN-rail mountable (EN 60715) or screw fixing		
Connection	4 mm ² single core		
Description			
Functional description	To insert the card first press down the 2 yellow buttons. Then slide the Eurocard into the guide slots pushing until fully engaged. The card is now locked into position. It can be removed by pressing down on the 2 yellow buttons.		

Dimension drawing



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Notes

EUROCARD HOLDERS / CONTROL MODULES



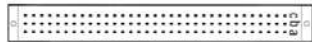
Eurocard holders
– For Eurocards 100 × 160 mm

SKP
64-pole C (EN 60603)
Screw terminals
with LED



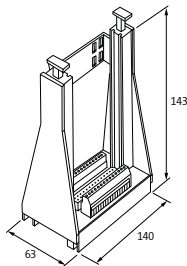
SKP
96-pole C (EN 60603)
Screw terminals

Circuit diagram



Order Data	Art-No.	Art-No.
Configuration (Row a, c)	631615	
Configuration (Row a, b, c)		636013
Accessories	Art-No.	Art-No.
Adapter		63900
Technical Data		
Operating voltage	24 V DC	125 V AC
Operating current	max. 2 A	max. 1 A
Configuration	64-pole C (EN 60603)	96-pole C (EN 60603)
Air and creepage distances	(EN 60664-1) over voltage, category II	(EN 60664-1) over voltage, category I
Material	Plastic, flame retardant	
General data		
Connection	4 mm ² single core	
Mounting method	DIN-rail mountable (EN 60715) or screw fixing	
Description		
Functional description	To insert the card first press down the 2 yellow buttons. Then slide the Eurocard into the guide slots pushing until fully engaged. The card is now locked into position. It can be removed by pressing down on the 2 yellow buttons.	

Dimension drawing



Eurocard Holders / Control Modules

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Notes

1.14.5

EUROCARD HOLDERS / CONTROL MODULES

Eurocard holders
– For Eurocards 100 × 160 mm

SKP
64-pole B (EN 60603)
Screw terminals



SKP
32-pole D (EN 60603)
Screw terminals

SKP
32-pole D (EN 60603)
Spring clamp terminals

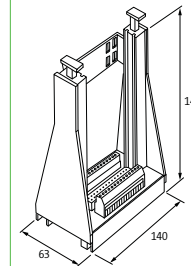


Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
Configuration (Row a, b)	63042		
Configuration (Row a, c)		630732	4000-63011-2203200
Accessories	Art-No.	Art-No.	Art-No.
Adapter			63900
Technical Data			
Operating voltage	250 V AC		
Operating current	max. 2 A	max. 4 A	
Configuration	64-pole B (EN 60603)	32-pole D (EN 60603)	
Air and creepage distances	(EN 60664-1) over voltage, category I	(EN 60664-1) over voltage, category II	
Material	Plastic, flame retardant		
General data			
Connection	4 mm ² single core		
Mounting method	DIN-rail mountable (EN 60715) or screw fixing		
Description			
Functional description	To insert the card first press down the 2 yellow buttons. Then slide the Eurocard into the guide slots pushing until fully engaged. The card is now locked into position. It can be removed by pressing down on the 2 yellow buttons.		

Dimension drawing



Eurocard Holders / Control Modules

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Notes

1.14.6

EUROCARD HOLDERS / CONTROL MODULES



Eurocard holders

– For Eurocards 100 × 160 mm

SKP

64-pole G (EN 60603)
Screw terminals



SKP

64-pole G (EN 60603)
Spring clamp terminals

SKP

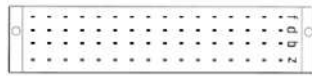
24-, 7-pole M (EN 60603)
Screw terminals

SKP

24-, 7-pole M (EN 60603)
Spring clamp terminals



Circuit diagram



Order Data

Configuration (Row z, b, d, f)	Art-No.	Art-No.	Art-No.	Art-No.
Configuration (Row z, b, d)	63040	4000-63011-5406400	63048	4000-63011-6302470

Accessories

Adapter	Art-No.
Adapter	63900

Technical Data

Operating voltage	250 V AC	250 V AC (24-pole) / 500 V AC (7-pole)
Operating current	max. 3 A	max. 4 A (24-pole) / 15 A (7-pole)
Configuration	64-pole G (EN 60603)	24-, 7-pole M (EN 60603)

Air and creepage distances (EN 60664-1) over voltage, category I

Material Plastic, flame retardant

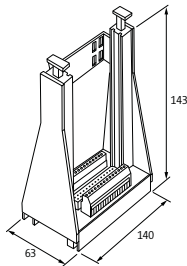
General data

Connection	4 mm ² single core
Mounting method	DIN-rail mountable (EN 60715) or screw fixing

Description

Functional description To insert the card first press down the 2 yellow buttons. Then slide the Eurocard into the guide slots pushing until fully engaged. The card is now locked into position. It can be removed by pressing down on the 2 yellow buttons.

Dimension drawing



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Notes

Eurocard Holders / Control Modules

1.14.7

EUROCARD HOLDERS / CONTROL MODULES

Eurocard holders

– For Eurocards 100 × 160 mm

SKP 31 / I

31-pole (DIN 41617)
Screw terminals



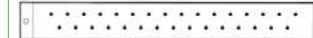
SKP 31 / II

31-pole (DIN 41617)
Screw terminals

SKP 31 / II

31-pole (DIN 41617)
Spring clamp terminals

Circuit diagram



Order Data

Configuration (all)	Art-No.	Art-No.	Art-No.
Configuration (all)	63001	63007	4000-63011-9203100

Accessories

Adapter	Art-No.
Adapter	63900

Technical Data

Operating voltage	250 V AC
Operating current	max. 5 A
Configuration	31-pole (DIN 41617)
Air and creepage distances	(EN 60664-1) over voltage, category I
Material	Plastic, flame retardant

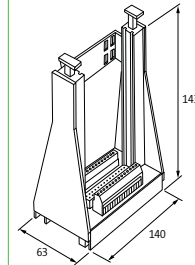
General data

Connection	4 mm ² single core
Mounting method	DIN-rail mountable (EN 60715) or screw fixing

Description

Functional description To insert the card first press down the 2 yellow buttons. Then slide the Eurocard into the guide slots pushing until fully engaged. The card is now locked into position. It can be removed by pressing down on the 2 yellow buttons.

Dimension drawing



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Notes

Eurocard Holders / Control Modules

1.14.8

EUROCARD HOLDERS / CONTROL MODULES



Potentiometer modules

MPOT

270° potentiometer with relay contact



MPOT

10-turn potentiometer with relay contact



MPOT

270° potentiometer

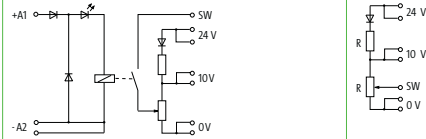


MPOT

10-turn potentiometer

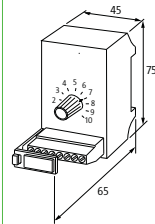
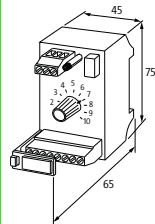


Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.	Art-No.
1 kOhm	67551	67561	67501	67511
5 kOhm	67555	67565	67505	67515
10 kOhm	67552	67562	67502	67512
100 kOhm	67553		67503	67513
Technical Data				
Resistance tolerance	±20 %	±5 %	±20 %	±5 %
Linearity	±3 %	±0.25 %	±3 %	±0.25 %
Power: potentiometer	1 W	1.4 W (2 W at 40 °C)	1 W	1.4 W (2 W at 40 °C)
Power: resistor	0.25 W			
Input				
Input voltage	24 V DC			
Input current	20 mA			
LED display	LED (green)			
Output				
Switching voltage	10 V DC or 24 V DC			
Switching current per output	1 mA/1 A			
Contact material	PdNi-Au Rh			
General data				
Temperature range	0...+60 °C			
Mounting method	DIN-rail mountable (EN 60715)			

Dimension drawing



Eurocard Holders / Control Modules

Eurocard Holders / Control Modules

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Notes

1.14.9

EUROCARD HOLDERS / CONTROL MODULES

Diode modules

MKS-D

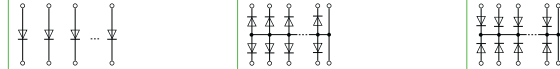
separation contact via pluggable jumpers



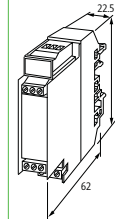
MKS-D

Diodes with common potential

Circuit diagram



Order Data	Art-No.	Art-No.	Art-No.
Single potential (6 diodes)	67063		
Com. potential anode (10 diodes)		67040	
Com. potential cathode (10 diodes)			67045
Technical Data			
Operating voltage	max. 48 V AC/DC		
General data			
Temperature range	-20...+60 °C		
Connection	Screw terminals: max. 4 mm ²		
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)		
Description			
Functional description	Diode modules are suitable for the suppression of inductive loads (valve, contactor, etc.)		
Dimension drawing			



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Notes

1.14.10

EUROCARD HOLDERS / CONTROL MODULES



Diode modules

MKS-D

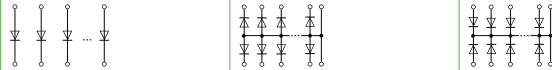
separation contact via pluggable jumpers



MKS-D

Diodes with common potential

Circuit diagram



Order Data

	Art-No.	Art-No.	Art-No.
Single potential (10 diodes)	67066		
Com. potential anode (20 diodes)		67052	
Com. potential cathode (20 diodes)			67057

Technical Data

Operating voltage	max. 48 V AC/DC
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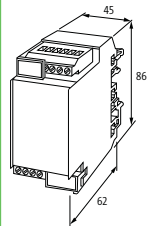
General data

Temperature range	-20...+60 °C
Connection	Screw terminals: max. 4 mm ²
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)

Description

Functional description Diode modules are suitable for the suppression of inductive loads (valve, contactor, etc.)

Dimension drawing



Eurocard Holders / Control Modules

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Notes

1.14.11

EUROCARD HOLDERS / CONTROL MODULES

Assembly modules

MKS-M

screw terminals connected to solder pin pairs



MKS-M

screw terminals connected to solder pin pairs



ML 14

with breadboard

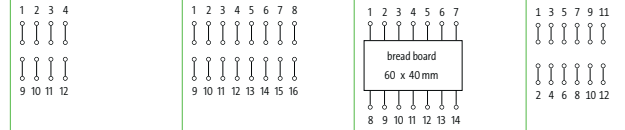


MP

screw terminals connected to solder pin pairs



Circuit diagram



Order Data

	HxWxD	Art-No.	HxWxD	Art-No.	HxWxD	Art-No.	HxWxD	Art-No.
Pairs of solder pins 4/30 mm		67081						
Pairs of solder pins 8/40 mm				67083				
Pairs of solder pins 14					92200			
Pairs of solder pins 6/24 mm						63x45x36 mm		62001
Pairs of solder pins 6/50 mm						90x63x36 mm		62030
Pairs of solder pins 12/24 mm						63x70x36 mm		62010
Pairs of solder pins 16/24 mm						63x90x36 mm		62020

Technical Data

Operating voltage	max. 250 V AC/DC	
Operating current	max. 2.5 A	max. 5 A

General data

Temperature range	-20...+60 °C	
Mounting method	DIN-rail mountable TH35 or G32 (EN 60715)	DIN-rail mountable TH35 or G32 (EN 60715) or screwable

Connection

Screw terminals: max. 4 mm²; pairs of solder pins (spacing 5 mm)

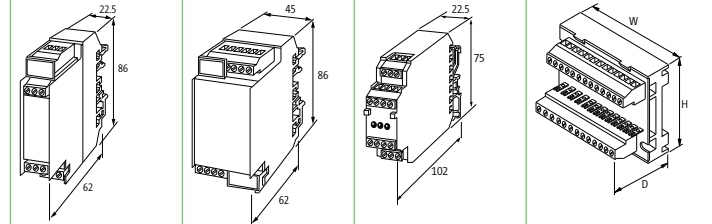
Housing

Plastic, flame retardant. Cover removable

Plastic, flame retardant. Housing closed, side part removable.

Plastic, flame retardant. Open design.

Dimension drawing



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Notes

1.14.12

EUROCARD HOLDERS / CONTROL MODULES



stay connected

Accessories			Art-No.
	ACS label plate KM 5		7000-99001-000000
	for self marking (9 × 20 mm) for self marking with ADEMARK markers		7000-99003-000000

Eurocard Holders / Control Modules