

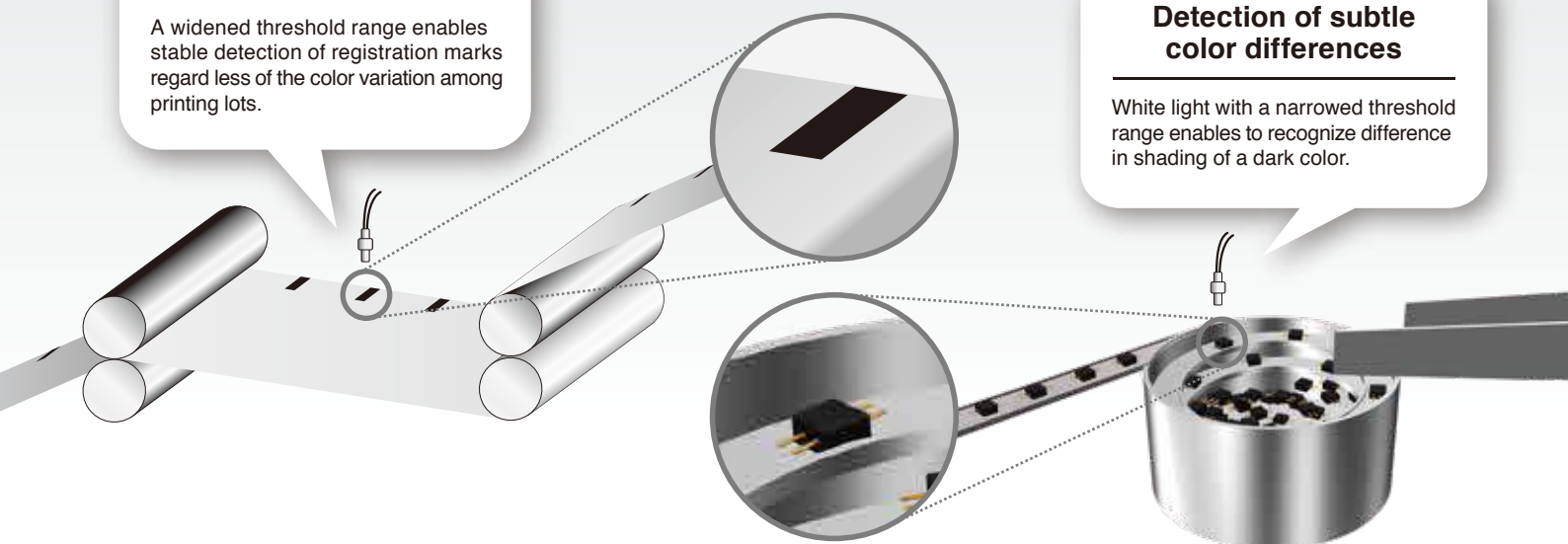
White light source for easy detection of subtle color differences

Stable detection of registration marks

A widened threshold range enables stable detection of registration marks regard less of the color variation among printing lots.

Detection of subtle color differences

White light with a narrowed threshold range enables to recognize difference in shading of a dark color.



D3WF-TMCN4

- **3 teaching modes** to support various detection requirements
- **Fastest*** response time in the world: **16 μ s**
* Stand-alone use or master/slave connection with cross-talk prevention off
- **Easy-to-read 3 display modes** of value, percentage and bar graph
- **Dual Sensitivity Correction** for stable operation

Model Line-up

Unit connection	Light source	Control output	Cable connection	Model	
				NPN	PNP
Stand-alone	White LED	1 ch	2m cable	D3WF-TN	D3WF-TP
Inter-connection master			M8 4-pin connector	D3WF-TMCN4	D3WF-TMCP4
Inter-connection slave				D3WF-TSCN4	D3WF-TSCP4

Recommended Fiber Units

Optical System	Shape	Description	Sensing Distance (mm)* ¹	Ambient Temperature* ²	Bending Radius (mm)	Model No.
Diffuse Reflective		M4 Thread, SUS, 2m free cut	16 μ s: 33 200 μ s: 62	-40~70°C	R25	NF-DM01
		M6 Thread, SUS, 2m free cut				NF-DK06

*¹ On 500 × 500 mm white paper.

*² Ambient humidity between 35 and 85%. At 85% RH, the ambient temperature is between 0 and 40°C.

Specifications

Unit connection		Stand-alone	Master connection	Slave connection
Model	NPN	D3WF-TN	D3WF-TMCN4	D3WF-TSCN4
	PNP	D3WF-TP	D3WF-TMCP4	D3WF-TSCP4
Light source		White LED		
Response time		High: 16μs*, Standard: 200 μs		
Sensitivity adjustment		Teaching and manual adjustments		
Indicators		Output indicator (orange)		
Digital display		7-segment, 8-digit display (red: 4-digit, green: 4-digit)		
Control output		1 ch, NPN/PNP open collector max. 100 mA*2/ 30 VDC, residual voltage: 1.8 V or less		
External input		Teaching input,*3 all teaching input, output mode selection, control output OFF, input OFF		
Cross talk prevention		—	ON/OFF switchable, up to 3 units	
Timer function		ON delay, OFF delay, one-shot, ON+OFF delay, ON+one-shot settable to 0.1 to 9999 ms		
Output mode		Light ON/Dark ON, set automatically during teaching, switched with external input and the settings		
No. of connectable units		—	Max. 16 (including master unit)	
Connection cable		2m cable	M8 4-pin connector	
Insulation resistance		20 MΩ or more (with 500 VDC)		
Rating	Supply voltage	12 to 24 VDC ±10%,including10%ripple(p-p)		
	Power consumption (normally)	864mW (36 mA or less at 24 V)		
	Power consumption (Eco mode)	720 mW (30 mA or less at 24 V)		
Warm-up time		300ms		
Applicable regulations	EMC	EMC directive (2014/30/EU)		
	Environment	RoHS directive (2011/65/EU), China RoHS (MIIT Order No. 32)		
Applicable standards		EN 60947-5-2		
Company standards		Noise resistance: Feilen Level 3 cleared		
Photobiological safety		Risk group 2 (IEC 62471/JIS C 7550)		
Environmental resistance	Ambient temperature / humidity	-25 to +55°C*/35 to 85%RH (no freezing or condensation)		
	Ambient illuminance	Sunlight: 10000 lx or less, Incandescent light: 3000 lx or less		
	Vibration resistance	10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions		
	Shock resistance	Approx. 50 G (500 m/s²) 3 times in each of the X, Y, and Z directions		
	Protection circuit	Reverse connection protection, overcurrent protection		
	Degree of protection	IP50		
Material		Housing, cover: PC		
Weight		Approx. 71 g (Including cable)	Approx. 25 g	
Included accessories		Mounting bracket		

*1: The response time is 32 μs when master/slave connection units are linked with the cross talk prevention function on.

*2: When used as a stand-alone unit or when the number of inter-connected units including the master unit is 2 or 3. Use a load current of 50 mA or less for 4 to 8 units and 20 mA or less for 9 to 16 units.

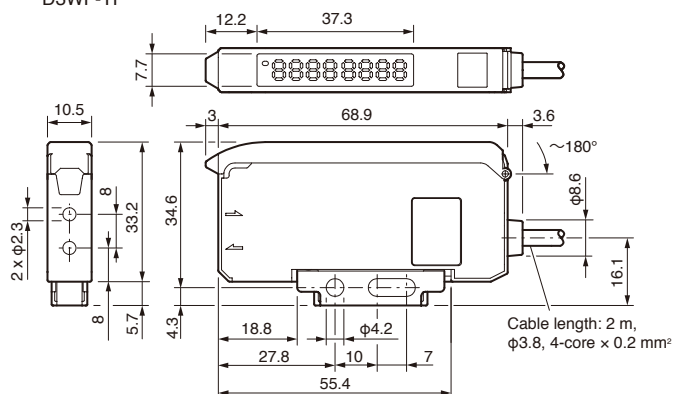
*3: Teaching mode from external input is a mode executed in advance by the main unit (default: dynamic teaching).

*4: When used as a stand-alone unit or when the number of inter-connected units including the master unit is 2 or 3. Keep at -25 to +50°C for 4 to 8 units and -25 to +45°C for 9 to 16 units.

Dimensions Unit (mm)

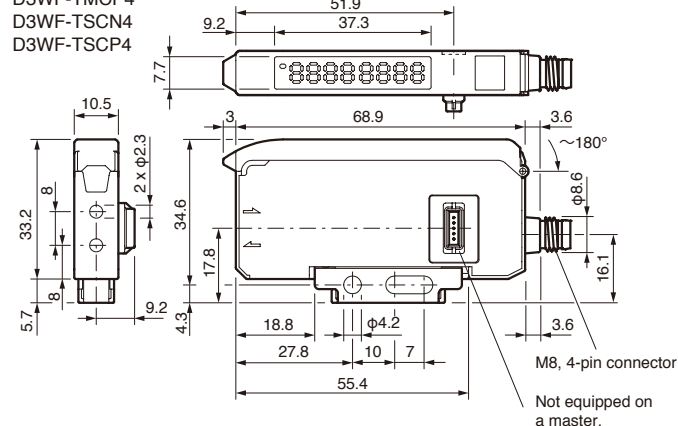
Stand-alone

D3WF-TN
D3WF-TP



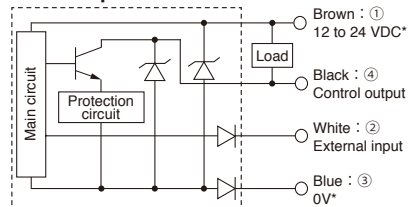
Master / Slave

D3WF-TMCN4
D3WF-TMCP4
D3WF-TSCN4
D3WF-TSCP4

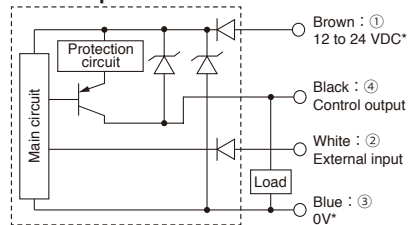


I/O Circuit Diagram

NPN output



PNP output



* Power is supplied to slave units from the master unit, so the power supply terminals (brown: 12 to 24 VDC and blue: 0V) are not connected.

M8 connector pin layout

② External input ④ Control output



* As the power is supplied to slave units from the master unit, no connection with 12 to 24VDC and 0V pins are required.

Accessories

Connector cable

Type	Model	Cable length
Straight	M84CN-2S	2m
	M84CN-5S	5m
	M84CN-10S	10m
L-shaped	M84CN-2L	2m
	M84CN-5L	5m
	M84CN-10L	10m



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