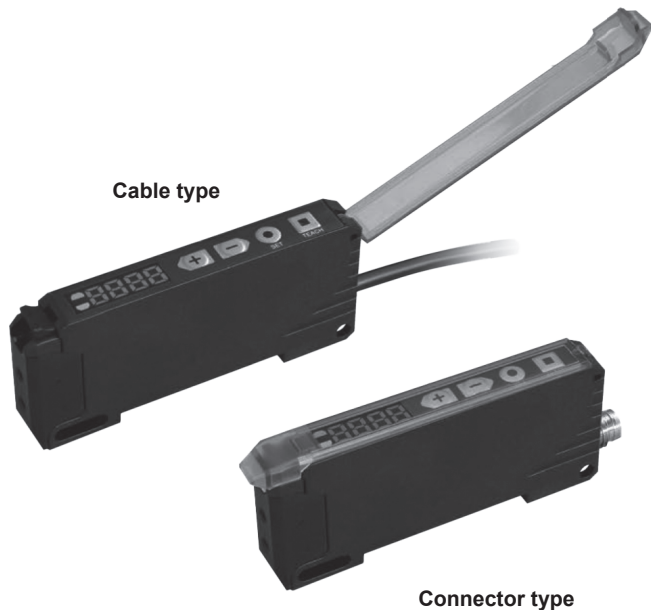


Teach-In + Display Type**D1RF-Series****คุณสมบัติ****Response time switching is possible**

It is possible to switch the response time between the standard 250 μ s and the high-speed response of 50 μ s. This is effective in detecting small workpieces travelling at high speeds.

Emitted light power reducing function

Switching between three levels of emitted light power is possible. Because saturation of received light can be prevented by reducing emitted light power, it is useful when detecting at short distances or when detecting transparent objects or small objects.

NPN/PNP switchable

The control output can be used by switching between either NPN or PNP. Thanks to this, stock can be reduced and order errors eliminated.

Timer function

Equipped with timer function in which ON delay, OFF delay and One-shot can be selected. The delay time can also be set in 1 ms increments within a range of 1 to 9999 ms.

FASTUS**Easy-to-Read, Easy-to-Use
Fiber Sensor Amplifier****D4RF-Series****คุณสมบัติ****● IO-Link network supported**

Various data, such as listed below, can be exchanged with control systems, via IO-Link and field networks.

Cyclic data exchange: Received light amount, Counter value, and output status

On-request data: Setting parameters, Errors, Warnings, and Maintenance data

● Easy-to-read OLED display

In addition to clear and detailed detection status and values displayed on the OLED display, the setting menu can be displayed in English, Japanese, Korean, Simplified Chinese or Spanish.

● Teach modes to suit your application requirements

Six teach modes are available: 1 point, 2 points, Auto, Through, 1-point Zone, and 2-point Zone.

● Fast response time

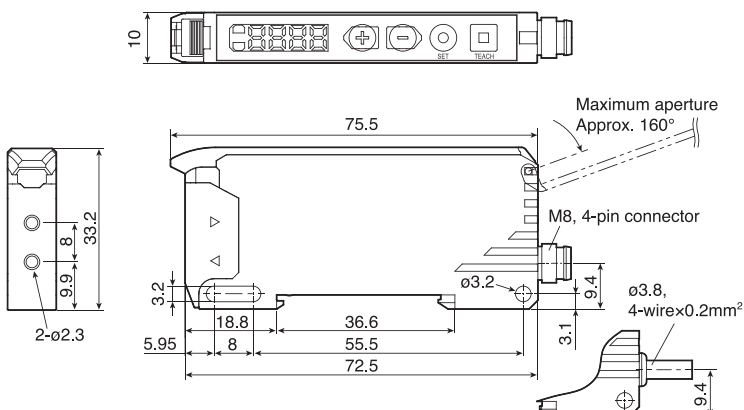
Response time can be selected from 6 speed modes, as fast as 16 μ s.

ข้อมูลทางเทคนิค

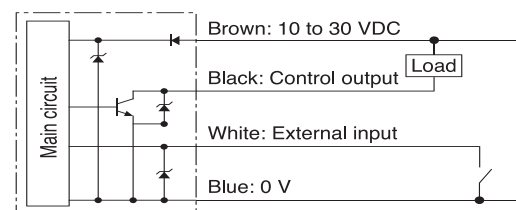
Model		Teach-in with digital display model
	Cable type	D1RF-T
	Connector type	D1RF-TC
Light source		Red LED
Response time		250 μ s / 50 μ s
Sensitivity adjustment		Teaching, fine tuning with +/- buttons
Indicators		Output indicator: Orange, Power indicator: Green
Digital display		7-segment, 4-digit display: Receiving light level / Threshold / Set value
Control output*		NPN/PNP switched by setting, Open collector, 30 V/100 mA, Residual voltage 1.8 V max.
External input		External teaching
Timer function		OFF / ON Delay / OFF Delay / One-shot, 1 to 9999 ms
Output mode		Light ON / Dark ON selectable by setting
Protection circuit		Reverse connection protection, Overcurrent protection, 30 V max.
Connection type		Cable type: 4-wire 2 m cable, Connector type: M8, 4-pin
Rating	Supply voltage*	10 to 30 VDC (including 10% ripple)
	Current consumption	40mA max.
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
Environmental resistance	Ambient temp./Humidity*	-25 to +55°C / 35 to 85% (no freezing or condensation)
	Storage temp./Humidity	-40 to +70°C / 35 to 95% (no freezing or condensation)
	Ambient illuminance	Sunlight: 10,000 lx or less, Incandescent light: 3,000 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	50 G (500 m/s ²), 3 times in each of the X, Y, and Z directions
	Degree of protection	IP66
Material		Housing, Cover: PC
Weight		Cable type: Approx. 66g Connector type: Approx. 22g
Included accessories		Instruction manual

*Depends upon the number of closely mounted amplifiers.

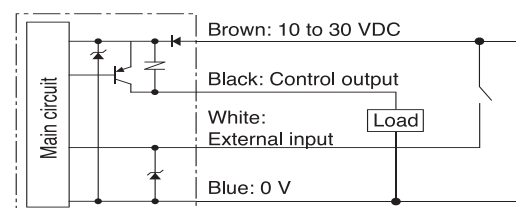
- 1 to 2 units: -25 to +55°C, Supply voltage: 30V, Output current: 100mA
- 3 to 10 units: -25 to +50°C, Supply voltage: 24V, Output current: 100mA
- 11 to 16 units: -25 to +50°C, Supply voltage: 24V, Output current: 20mA

ขนาดและมิติ
Teach-In + Display Type
D1RF-T/-TC

การต่อใช้งาน
I / O circuit diagram

With the NPN setting



With the PNP setting



ข้อมูลทางเทคนิค

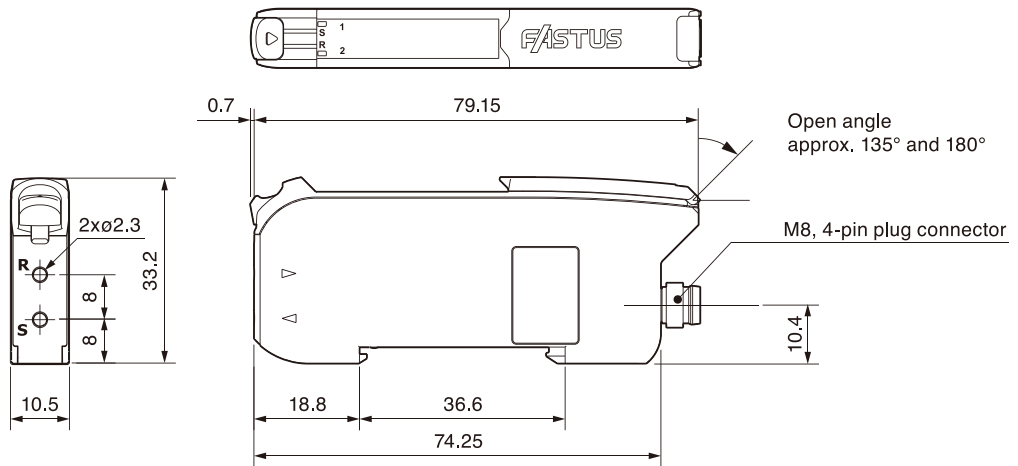
Type			Stand-alone unit (IO-Link device)
Model	1 output and 1 switchable output/input	Cable type	D4RF-T
		Connector type	D4RF-TC4
	2 outputs and 1 input	Cable type	D4RF-TD
Light source			4-element Red LED (Wavelength: 660nm)
Response time			16 μs, 70 μs, 250 μs, 500 μs, 1 ms, 2 ms, 8 ms
Teach Mode			1 point, 2 points, Auto, Through, 1-point Zone, 2-point Zone, Manual
Display	Display		OLED display 128 x 22 pixels, Menu languages : English, Japanese, Korean, Simplified Chinese, Spanish
	Indicators		2 x Output indicator (orange) Power indicator (green): Lights up when power is on (Blinks during IO-Link communication on stand-alone unit)
Interface	Control output		NPN/PNP open collector or Push-pull, selectable by setting 1 output : Max. 100mA, 2 outputs : Max. 50mA each /30 VDC residual voltage1.8V or less
	External input		Teach, Counter-reset, Emitter off or Preset loading ¹
	IO-Link		Control output 1 is switchable to IO-Link
IO-Link	Revision		1.1
	Baud rate		COM 3 (230.4kbps)
	Number of process input data bytes		4 bytes
	Minimum cycle time		0.5 ms
Timer function			On delay, Off delay, On/off delay, Pulse output, On delay pulse, Adjustable 1 to 30,000 ms
Output mode			Light ON/Dark ON, selectable by setting
Connection type			Cable type: 2m, 5 wires with 2-output and 1-input models, 4 wires with 1-output and 1-switchable-output/input models Minimum bending radius: 4 x Cable diameter Connector type: M8 4-pin plug connector
Insulation resistance			20 Megohm or more (with 500 VDC)
Rating	Supply voltage	SIO mode	12 to 30 VDC ± 10 %, including 10 % ripple (p-p)
		IO-Link mode	18 to 30 VDC ± 10 %, including 10 % ripple (p-p)
	Current consumption	Eco mode: Off	870 mW max. (29 mA or less at 30 VDC, 33 mA or less at 24 VDC, 52 mA or less at 12 VDC)
		Eco mode: On	780 mW max. (26 mA or less at 30 VDC, 29 mA or less at 24 VDC, 43 mA or less at 12 VDC)
Warm-up time			300 ms
Applicable regulations		EMC	EU EMC directive (2014/30/EU) , UK directive EMC (The Electromagnetic Compatibility Regulations 2016)
		Environment	EU RoHS directive (2011/65/EU) UK RoHS (The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012) China RoHS (MIIT Order No.32)
Applicable standards			EN 60947-5-2
NRTL certification			UL Listed, Proximity Switch Certified for US and Canada
Company standards			Noise resistance Feilen Level 4
Protection circuit			Reverse connection protection, Overcurrent protection
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: 3000lx 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
	Degree of protection		IP54
Material			Housing, cover: PC
Weight			Cable model: approx. 71 g (including cable), Connector model: approx. 25 g
Included items			Mounting bracket, Instruction manual

*1: Preset loading selectable only on 2-output and 1-output model

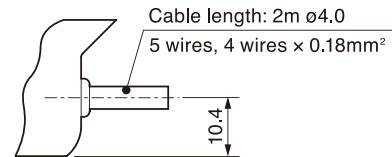
ขนาดและมิติ

Amplifier

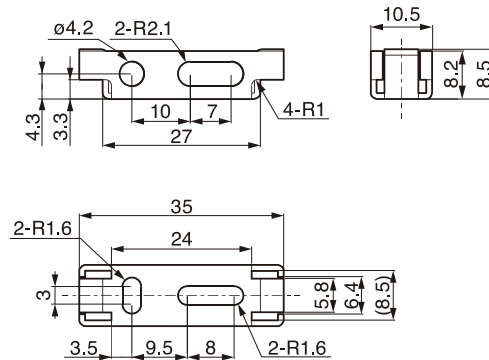
Connector models



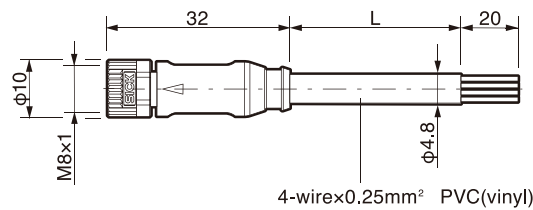
Cable models



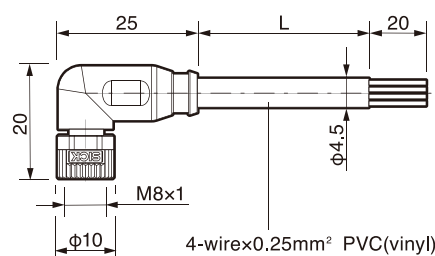
Mounting bracket



M84CN-2S, M84CN-5S, M84CN-10S



M84CN-2L, M84CN-5L, M84CN-10L

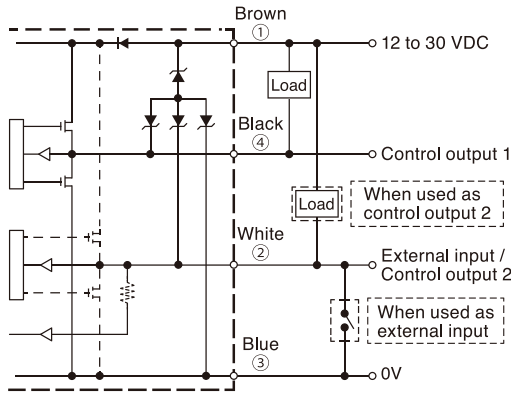


การต่อใช้งาน

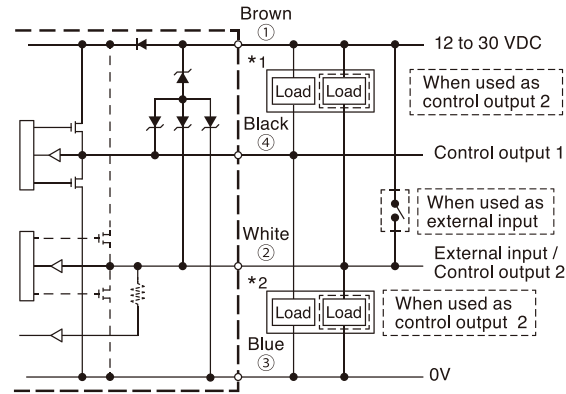
I / O circuit diagram

[1-output and 1-switchable-output/input models]

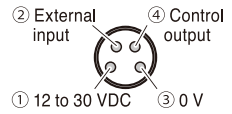
SIO mode (standard I/O mode) with NPN setting



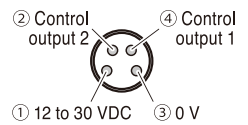
SIO mode (standard I/O mode) with PNP setting or Push-pull



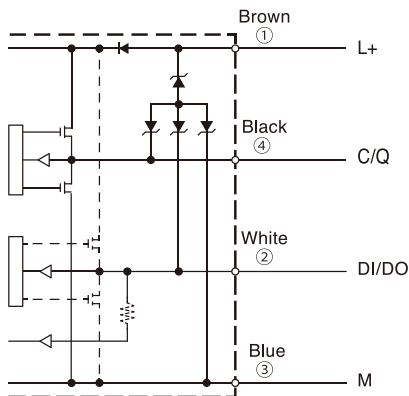
M8 connector pin layout 1-output+1-input setting



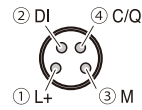
2-output setting



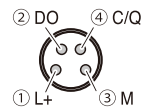
1-output and 1-switchable-output/input models



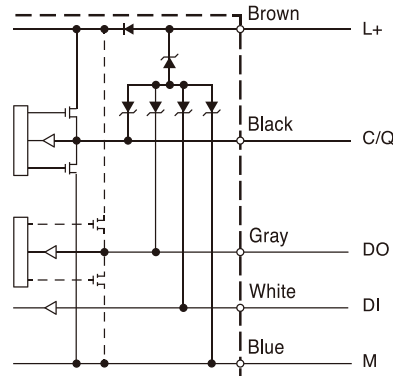
M8 connector pin layout 1-output+1-input setting



2-output setting

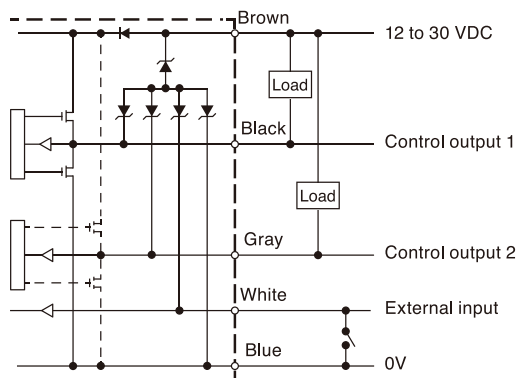


2-output and 1-input model

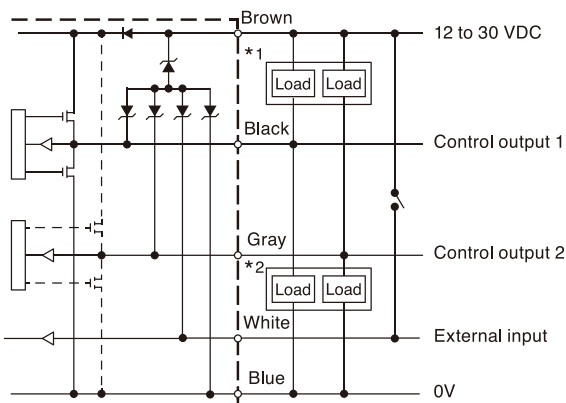


[2-outputs and 1-input model]

SIO mode (standard I/O mode) with NPN setting



SIO mode (standard I/O mode) with PNP setting or Push-pull



*1 When I/O polarity is set to Push-pull and the sensor is connected with plus common circuits.

*2 When I/O polarity is set to Push-pull or PNP and the sensor is connected with minus common circuits.