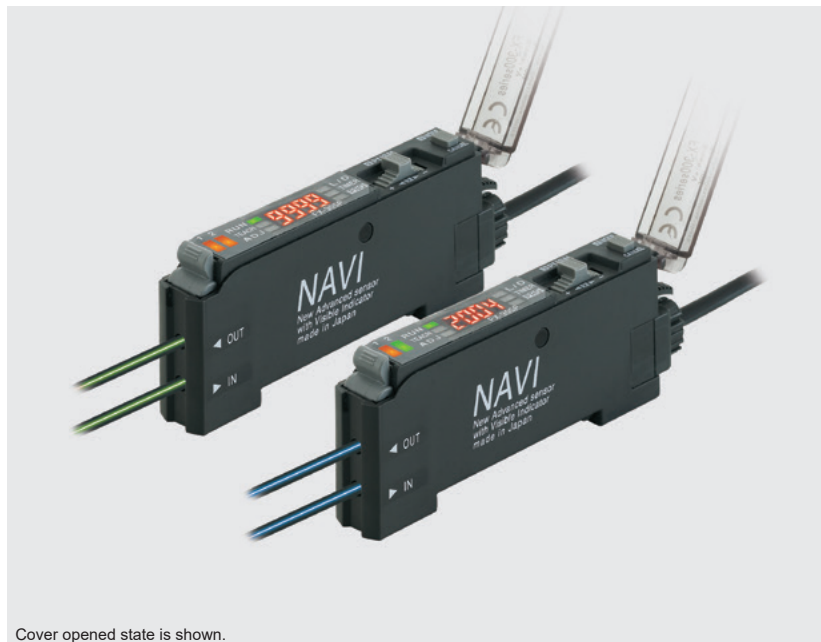
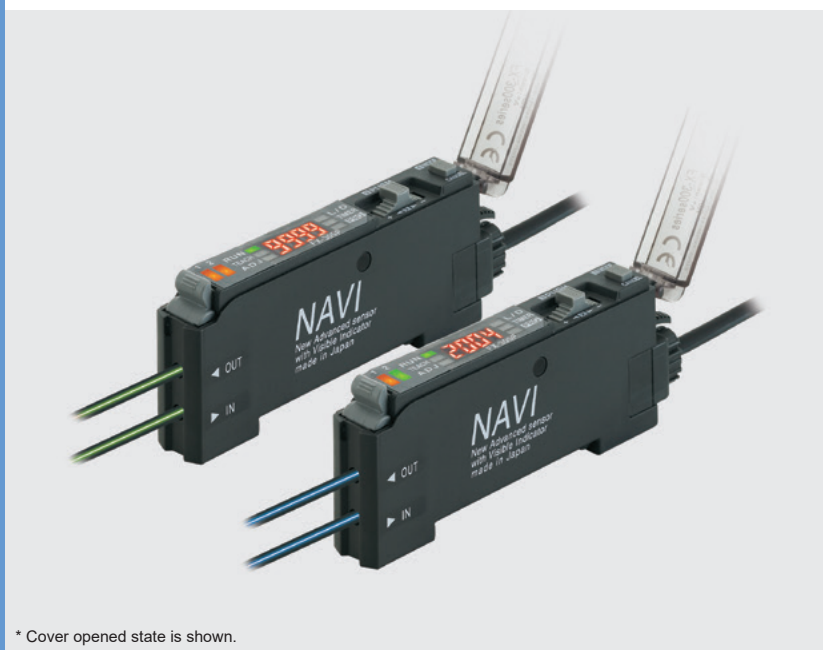


Digital Fiber Sensor

FX-301B/G/H SERIES



FX-301B/G/H SERIES



* Cover opened state is shown.



(Excluding cable type)



PNP output type available



Timer



Interference prevention



Automatic sensitivity setting

Constant advances achieving significant improvement of sensing performance

Even greater sensing range

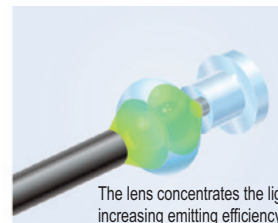
Adoption of a “**double coupling lens**” that increases emission efficiency to its maximum limits and greatly increases sensing range. Sensing ranges with small diameter fibers and ultra-small diameter fibers, which have become very popular due to the miniaturization of chip components, have been increased by 50 % over previous values achieved with other amplifiers.

• Conventional fiber sensors (Without lens)



Disperses the light reduces emitting efficiency.

• Double coupling lens



The lens concentrates the light, greatly increasing emitting efficiency.

All models

Even beginners can quickly learn how to use the MODE NAVI

All models

MODE NAVI uses six indicators to display the amplifier's basic operations. The current operating mode can be confirmed at a glance, so even a first time user can easily operate the amplifier without becoming confused.

RUN	TEACH	ADJ	RUN →
			This is the sensing mode. Incident light level is displayed in the digital display.
RUN	TEACH	ADJ	TEACH →
			This mode is for setting the threshold value.
RUN	TEACH	ADJ	ADJ →
			In this mode, the threshold value, once set, may be fine-tuned.



L/D	TIMER	PRO	L/D ON →
			This mode allows the selection of output operation as either Light-ON or Dark-ON.
L/D	TIMER	PRO	TIMER →
			This mode permits the choice of using or not using the timer.
L/D	TIMER	PRO	PRO →
			This mode allows the selection of further advanced functions, such as the copying of individual settings and the memory functions.

The use of only two switches makes for very simple operations

All models

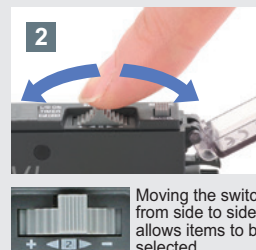
Only two switches, the large jog switch and the large MODE key, are required for operation. You can operate it simply by the 3 steps shown on the right.

• Large MODE key



Pressing the switch selects or cancels the operating mode

• Large jog switch




Moving the switch from side to side allows items to be selected



Pressing the switch then confirms the selected setting

ORDER GUIDE

Amplifiers Quick-connection cable is not supplied with the amplifier. Please order it separately.

Type	Appearance	Model No.	Emitting element	Output
Standard type		FX-301B	Blue LED	NPN open-collector transistor
		FX-301BP		PNP open-collector transistor
		FX-301G	Green LED	NPN open-collector transistor
		FX-301GP		PNP open-collector transistor
		FX-301H	Infrared LED	NPN open-collector transistor
		FX-301HP		PNP open-collector transistor

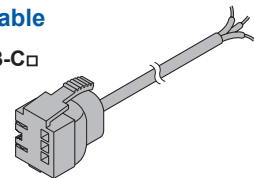
Quick-connection cables

For FX-301 Quick-connection cable is not supplied with the amplifier. Please order it separately.

Type	Model No.	Description	
Main cable (3-core)	CN-73-C1	Length: 1 m 3.281 ft	0.2 mm ² 3-core cabtyre cable, with connector on one end Cable outer diameter: ø3.3 mm ø0.130 in
	CN-73-C2	Length: 2 m 6.562 ft	
	CN-73-C5	Length: 5 m 16.404 ft	
Sub cable (1-core)	CN-71-C1	Length: 1 m 3.281 ft	0.2 mm ² 1-core cabtyre cable, with connector on one end Cable outer diameter: ø3.3 mm ø0.130 in
	CN-71-C2	Length: 2 m 6.562 ft	
	CN-71-C5	Length: 5 m 16.404 ft	

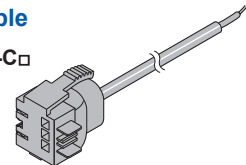
Main cable

• **CN-73-C**

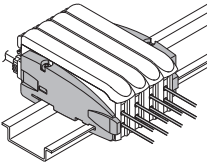


Sub cable

• **CN-71-C**



End plates End plates are not supplied with the amplifier. Please order them separately when the amplifiers are mounted in cascade.

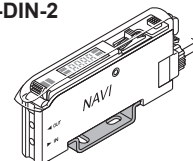
Appearance	Model No.	Description
	MS-DIN-E	When amplifiers are mounted in cascade, or when an amplifier moves depending on the way it is installed on a DIN rail, these end plates clamp amplifiers into place on both sides. Make sure to use end plates when cascading multiple amplifiers together. 2 pcs. per set

OPTIONS

Designation	Model No.	Description
Amplifier mounting bracket	MS-DIN-2	Mounting bracket for amplifier

Amplifier mounting bracket

• **MS-DIN-2**



LIST OF FIBERS

Refer to our website for details and sensing range of each fiber.

SPECIFICATIONS

		Type	Standard type		
			Blue LED	Green LED	Infrared LED
Item	Model No.	NPN output	FX-301B	FX-301G	FX-301H
		PNP output	FX-301BP	FX-301GP	FX-301HP
Supply voltage		12 to 24 V DC ±10 % Ripple P-P 10 % or less			
Power consumption		<div><Blue LED / Green LED type> Normal operation: 720 mW or less (Current consumption 30 mA or less at 24 V supply voltage) ECO mode: 430 mW or less (Current consumption 18 mA or less at 24 V supply voltage)</div> <div><Infrared LED type> Normal operation: 960 mW or less (Current consumption 40 mA or less at 24 V supply voltage) ECO mode: 600 mW or less (Current consumption 25 mA or less at 24 V supply voltage)</div>			
Output		<div><NPN output type> NPN open-collector transistor<ul style="list-style-type: none">Maximum sink current:100 mA (50 mA, if five, or more, amplifiers are connected in cascade.)Applied voltage: 30 V DC or less (between output and 0 V)Residual voltage: 1.5 V or less [at 100 mA (at 50 mA, if five, or more, amplifiers are connected in cascade) sink current.]</div> <div><PNP output type> PNP open-collector transistor<ul style="list-style-type: none">Maximum source current: 100 mA (50 mA, if five, or more, amplifiers are connected in cascade.)Applied voltage: 30 V DC or less (between output and +V)Residual voltage: 1.5 V or less [at 100 mA (at 50 mA, if five, or more, amplifiers are connected in cascade) source current.]</div>			
		Output operation			
		Short-circuit protection			
Response time		Selectable either Light-ON or Dark-ON, with jog switch			
Sensitivity setting		Incorporated			
Operation indicator		150 μs or less (FAST), 2 ms or less (LONG), selectable with jog switch			
Stability indicator		2-point teaching / Limit teaching / Manual adjustment / Full-auto teaching / Max. sensitivity teaching			
MODE indicator		Orange LED (lights up when the output is ON)			
Digital display		Green LED (lights up under stable light received condition or stable dark condition)			
Fine sensitivity adjustment function		RUN: Green LED, TEACH • ADJ • L/D ON • TIMER • PRO: Yellow LED			
Timer function		4 digit red LED display			
Automatic interference prevention function		Incorporated			
Ambient temperature		Incorporated with variable ON-delay / OFF-delay / ONE SHOT timer,switchable either effective or ineffective. Timer period: (approx. 0.5 to 500 ms)			
Ambient humidity		Incorporated			
Ambient illuminance		(Up to four sets of fiber heads can be mounted close together. However, 2 fiber heads in H-SP mode.) (Note 2)			
Voltage withstandability		–10 to +55 °C +14 to +131 °F (If 4 to 7 units are connected in cascade: –10 to +50 °C +14 to +122 °F , if 8 to 16 units are connected in cascade: –10 to +45 °C +14 to +113 °F) (No dew condensation or icing allowed), Storage: –20 to +70 °C –4 to +158 °F			
Insulation resistance		35 to 85 % RH, Storage: 35 to 85 % RH			
Vibration resistance		Incandescent light: 3,000 lx at the light-receiving face			
Shock resistance		1,000 V AC for one min. between all supply terminals connected together and enclosure (Note 3)			
Emitting element (modulated)		20 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure (Note 3)			
Peak emission wavelength		10 to 150 Hz frequency, 0.75 mm 0.030 in amplitude in X, Y and Z directions for two hours each			
Material		98 m/s ² acceleration (10 G approx.) in X, Y and Z directions for five times each			
Connecting method		Blue LED			
Cable length		Green LED			
Weight		Infrared LED			
		470 nm 0.019 mil			
		525 nm 0.021 mil			
		940 nm 0.037 mil			
		Enclosure: Heat-resistant ABS, Case cover: Polycarbonate, MODE key: Acrylic, Jog switch: Acrylic			
		Connector (Note 4)			
		Total length up to 100 m 328.084 ft (50 m 164.042 ft for 5 to 8 units, 20 m 65.617 ft for 9 to 16 units) is possible with 0.3 mm ² , or more, cable.			
		Net weight: 20 g approx., Gross weight: 25 g approx.			

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C **+73.4 °F**.

2) When the power supply is switched on, the light emission timing is automatically set for interference prevention.

3) The voltage withstandability and the insulation resistance values given in the above table are for the amplifier only.

4) The cable for amplifier connection is not supplied as an accessory. Make sure to use the optional quick-connection cables given below.

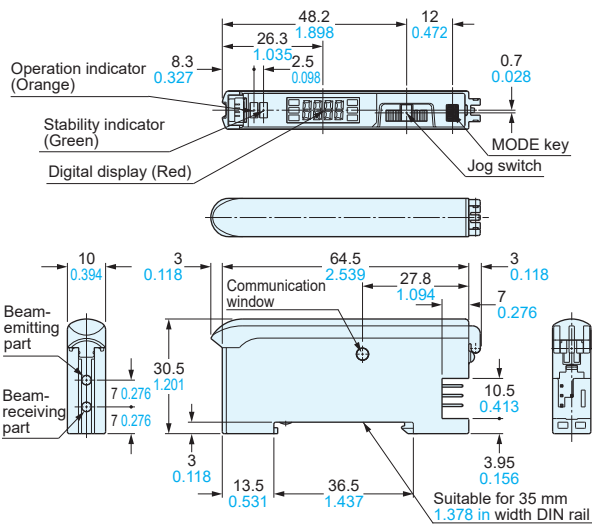
Main cable (3-core) for **FX-301**□: **CN-73-C1** (Cable length 1 m **3.281 ft**), **CN-73-C2** (Cable length 2 m **6.562 ft**), **CN-73-C5** (Cable length 5 m **16.404 ft**)

Sub cable (1-core) for **FX-301**□: **CN-71-C1** (Cable length 1 m **3.281 ft**), **CN-71-C2** (Cable length 2 m **6.562 ft**), **CN-71-C5** (Cable length 5 m **16.404 ft**)

The CAD data can be downloaded from our website.

FX-301□

Amplifier

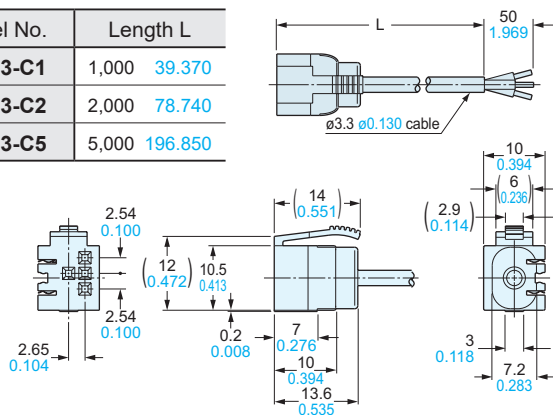


CN-73-C□

Main cable (Optional)

- Length L

Model No.	Length L
CN-73-C1	1,000 39.370
CN-73-C2	2,000 78.740
CN-73-C5	5,000 196.850

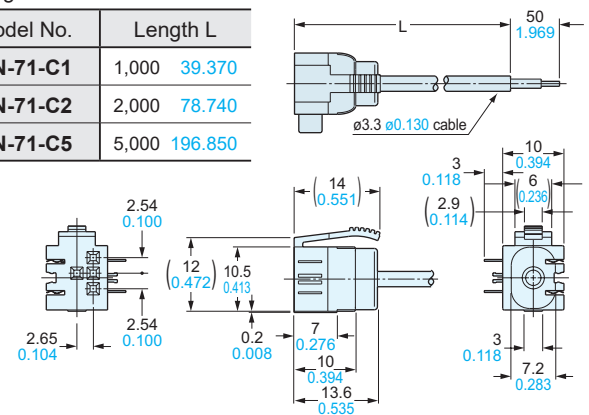


CN-71-C□

Sub cable (Optional)

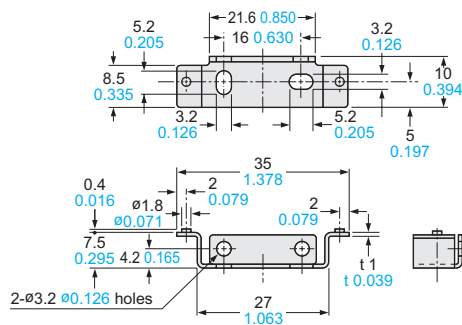
- Length L

Model No.	Length L
CN-71-C1	1,000 39.370
CN-71-C2	2,000 78.740
CN-71-C5	5,000 196.850



MS-DIN-2

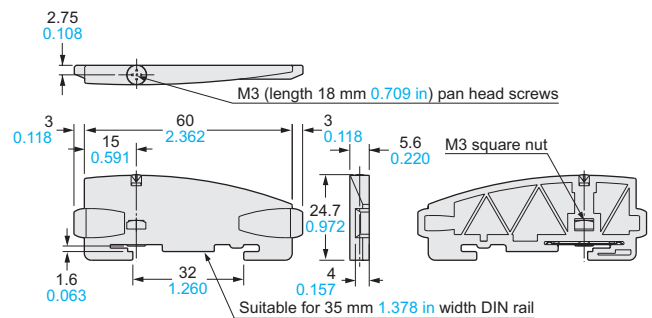
Amplifier mounting bracket (Optional)



Material: Cold rolled carbon steel (SPCC)
(Uni-chrome plated)

MS-DIN-E

End plate (Optional)



Material: Polycarbonate

Disclaimer

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