

Information of Discontinued Models

High-functional digital fiber sensor FX-302 series

Stopping taking order date: 30, Sep, 2005
Date of production discontinuance: 31, Dec, 2005

Discontinued models

High-functional digital fiber sensor FX-302



※Confirm that table in

Main points of difference between recommended replacements and discontinued models for details on model numbers for each type.

Recommended replacements

Digital fiber sensor FX-305



Refer to 'Digital fiber sensor FX-300 series catalog' for details.

Advantages of switching to recommended replacements

Stable sensing

The recommended replacement utilizes a four-chemical emitting element to maintain a stable light emitting amount over long periods. In addition, an APC (Auto Power Control) circuit has been provided to ensure light emitting amounts are stable over short periods, so that stable sensing can be obtained.

Light emitting amount selection

This series is equipped with the variable light emission amount function. If the light receiving level becomes saturated during closerange sensing or when sensing transparent or minute objects, you can adjust the light emitting amount of the sensor to stabilize sensing without needing to change the response time.

High-speed response 65 μ s

The high-speed response of 65 μ s is approximately 4.6 times faster than previous models.

Largest display 9999

The digital display can show values up to a maximum of '9999', and threshold values can be set with greater precision.

Highly interchangeable

The dimensions and installation are fully interchangeable for the discontinued models and the recommended replacements.

Notes on using recommended replacements

Recommended replacements	Sensing performance	Specifications	Output circuit	Mounting dimensions	Dimensions	Enclosure color
FX-305	○	○	○	○	○	○

○: Highly interchangeable

○: Almost no difference

※: Large differences

—: No corresponding item or model

- High degree of interchangeability in specifications, mounting dimensions and operability, so that replacement of the **FX-302** with the **FX-305** can be carried out smoothly.
- The quick-connection cable must be changed to the **CN-74-C** (4-core) / **CN-72-C** (2-core) that is used with the **FX-305**.

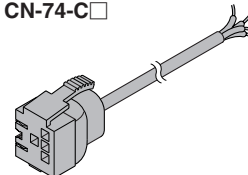
Main points of difference between recommended replacements and discontinued models

Discontinued models		Recommended replacements		Main points of difference from discontinued models
Model No.	Light source	Model No.	Light source	
FX-302	Red LED	FX-305	Red LED	• The quick-connection cable is a 4-core or 2-core cable.
FX-302P	Red LED	FX-305P	Red LED	

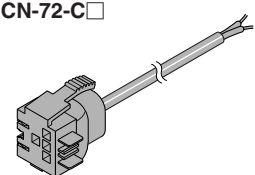
※ The **CN-74-C** quick-connection cable must be used. Quick-connection cable is not supplied with the amplifier. Please order it separately.

※ When installing side by side, you can reduce the amount of wiring used by using the **CN-72-C** quick-connection cable.

Main cable
CN-74-C



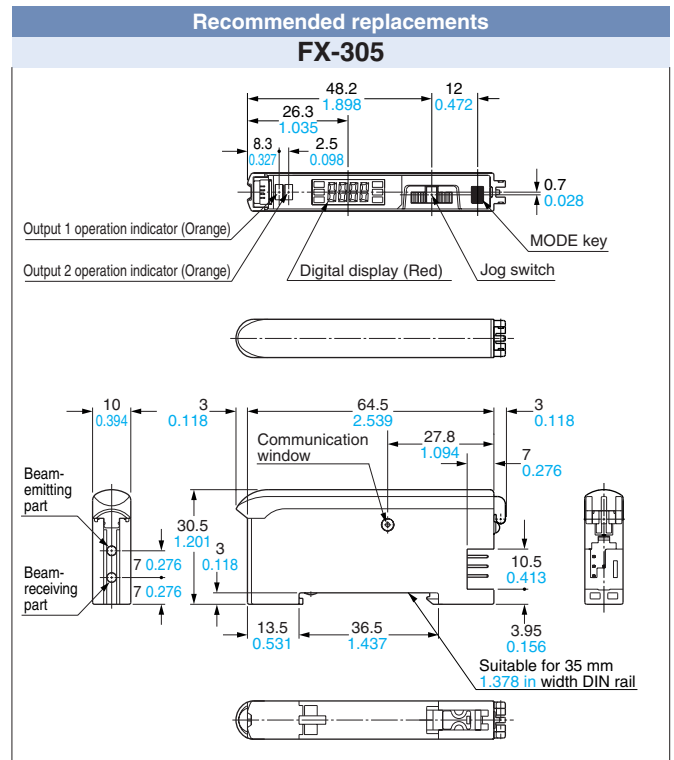
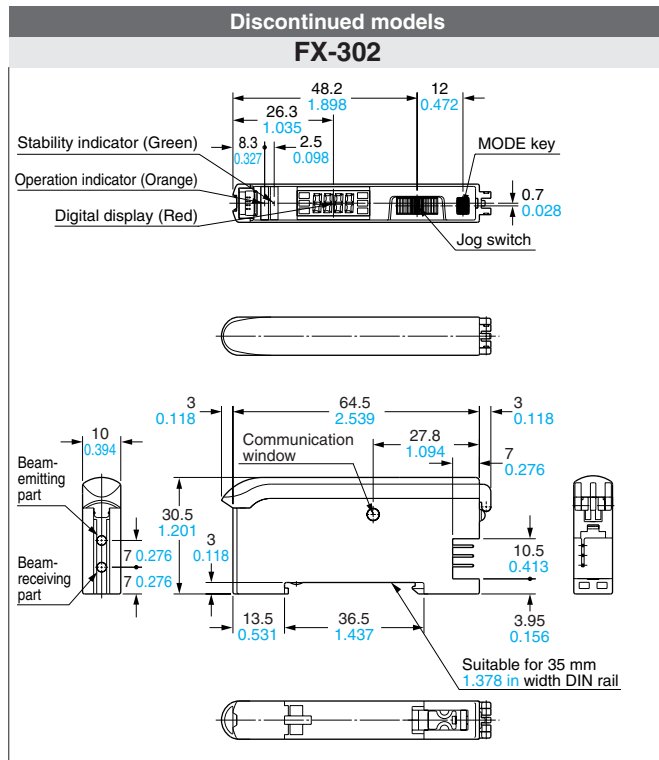
Sub cable
CN-72-C



Information of Discontinued Models

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Dimensions (Unit : mm in)



Sensing performance

Discontinued models
FX-302

Fiber	Sensing range (mm in)		Min. sensing object
	LONG (4 ms)	STD (500 μs)	
Thru-beam type FT-FM2	780 30.709	400 15.748	φ0.03 mm φ0.0011 in opaque object
Reflective type FD-FM2	310 12.205	140 5.512	φ0.02 mm φ0.0008 in gold wire

Recommended replacements
FX-305

Fiber	Sensing range (mm in)			Min. sensing object
	U-LG (4.5 ms)	LONG (2.5 ms)	ST (250 μs)	
Thru-beam type FT-FM2	1,000 39.37	780 30.709	400 15.748	φ0.03 mm φ0.0011 in opaque object
Reflective type FD-FM2	410 16.142	310 12.205	140 5.512	φ0.02 mm φ0.0008 in gold wire

High-functional digital fiber sensor FX-302

Main rated specifications

Item	Type Model No.	Discontinued models		Recommended replacements	
		NPN output FX-302	PNP output FX-302P	NPN output FX-305	PNP output FX-305P
Emitting element		Red LED			
Supply voltage		12 to 24 V DC $\pm 10\%$ Ripple P-P 10% or less			
Power consumption		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)			
Sensing output		NPN open-collector transistor • 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) (50 mA, if five, or more, amplifiers are connected in cascade sink current)	PNP open-collector transistor • 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) (50 mA, if five, or more, amplifiers are connected in cascade source current)	NPN open-collector transistor 2 outputs • Maximum sink current: 50 mA each (25 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 50 mA (at 25 mA, if five, or more, amplifiers are connected in cascade) sink current.)	PNP open-collector transistor 2 outputs • Maximum source current: 50 mA (25 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 50 mA (at 25 mA, if five, or more, amplifiers are connected in cascade) source current)
	Output operation	Selectable either Light-ON or Dark-ON, with jog switch			
Response time		300 μ s or less (FAST), 500 μ s or less (STD / S-D), 4 ms or less (LONG), selectable with jog switch		65 μ s or less (H-SP), 150 μ s or less (FAST), 250 μ s or less (STD), 700 μ s or less (STDF), 2.5 ms or less (LONG), 4.5 ms or less (U-LG), selectable with jog switch	
Sensitivity setting		Normal mode: 2-level teaching / Limit teaching / Manual adjustment Window comparator mode: Teaching (1-level / 2-level / 3-level) / Manual adjustment		Normal mode: 2-level teaching / Limit teaching / Full-auto teaching / Max. sensitivity teaching / Manual adjustment Window comparator mode: Teaching (1-level / 2-level / 3-level) / Manual adjustment	
Timer function		Incorporated with variable ON-delay / OFF-delay / ONE SHOT / ON-delay · OFF-delay / ON-delay · ONE SHOT timer, switchable either effective or ineffective (Timer period: 0.5 ms to 5 sec. approx.)		Incorporated with variable ON-delay / OFF-delay / ONE SHOT / ON-delay · OFF-delay / ON-delay · ONE SHOT timer, switchable either effective or ineffective. (Timer period: Output 1; 0.5 ms, 1 ms to 9999 ms, Output 2; 0.5 ms, 1 ms to 500 ms)	
Automatic interference prevention function		Incorporated [Up to 8 sets of fiber heads (Not 1) can be mounted close together] (Note 2)		Incorporated (Up to four sets of fiber heads can be mounted close together.) (However, U-LG mode is 8 fiber heads, H-SP mode is 2 fiber heads.) (Note 3)	
Ambient temperature		- 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			
Material		Enclosure: Heat-resistant ABS Case cover: Polycarbonate, Switch: Acrylic		Enclosure: Heat-resistant ABS Case cover: Polycarbonate, MODE key: Acrylic Jog switch: Heat-resistant ABS	
Connecting method		Connector (The quick-connection cable is a 3-core or single-core cable.)		Connector (The quick-connection cable is a 4-core or 2-core cable.)	
Weight		20 g approx.			

Notes: 1) When connecting the **FX-301** series digital fiber sensors and the **FX-311** series manually set fiber sensors, a maximum of 4 units can be installed without mutual interference.

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

3) When the interference prevention function 'IP-2' is set, the number of mountable fiber heads becomes double. Furthermore, take care that the response time also becomes double.

Refer to 'Digital fiber sensor **FX-300** series catalog' for details.