Digital Fiber Sensor
FX-300 SERIES

CE

Recognition (Excluding cable type)

Certified (NPN output type of connector type only)

PNP output type available

Timer

Interference prevention

Light intensity monitor

Automatic sensitivity setting
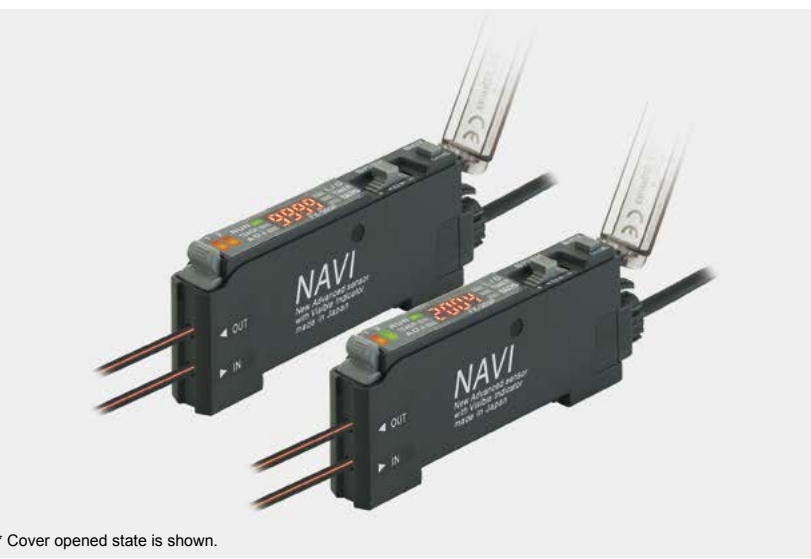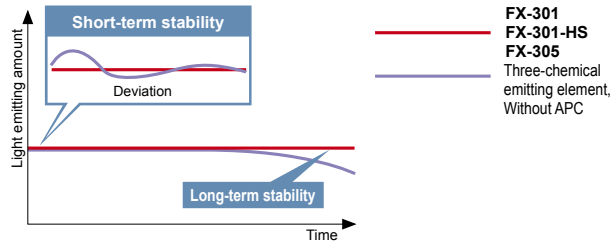
* Cover opened state is shown.
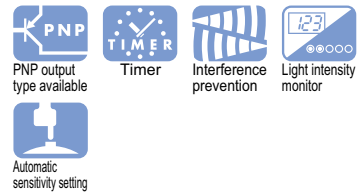
Constant advances achieving significant improvement of sensing performance

Stable sensing over long and short periods
FX-301 FX-301-HS FX-305

In addition to a "four-chemical emitting element" which suppresses changes in the light emitting element over time so that a stable level of light emission can be maintained over long periods, a "APC (Auto Power Control) circuit" has also been adopted afresh. The light emitting amount can be controlled in minute degrees so that even changes occurring over very short periods can be handled, allowing stable sensing performance by suppressing deviations in light emitting amounts caused by changes in the ambient environment that could not previously be suppressed.

■Stable sensing comparison

FX-301
FX-301-HS
FX-305

Three-chemical emitting element, Without APC

Short-term stability

Deviation

Long-term stability

Light emitting amount

Time

Light-emitting amount selection
FX-301 FX-301-HS FX-305

If the light receiving level becomes saturated during close-range 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. Sensing that previously required the response time or fibers to be changed can now be set much more easily using this function.

[Light receiving level saturated]

Actual digit difference: C
Upper display limit
A
4000
B
Saturated digit difference: D

Light emitting amount changed

[Stable sensing]

Actual digit difference: C'
A'
B'

Ultra high-speed 35 μs response
FX-301-HS

Ultra high-speed 35 μs response. Even small objects moving at high speeds can be sensed. In addition, at 65 μs the **FX-301** standard type and **FX-305** high-function type is also twice as fast as previous models.

4 times as fast as before
35 μs
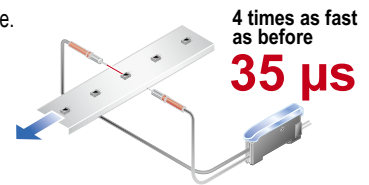
Large display 9999
FX-305

Large display with 4 digits (9999). With a greater difference in digit value than previous models, threshold values can be set in units of 1 digit up to maximum 9999. Threshold setting can now be done more easily and accurately.
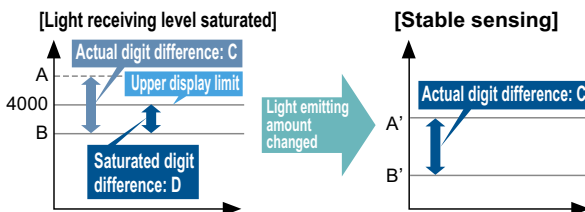
RUN TEACH ADJ 9999 L/D TIMER PRO
FX-305

(During STDF, LONG and U-LG modes)

2.5 times previous 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.

Easy confirming of threshold value settings
FX-301 FX-301-HS FX-305

The threshold value can be confirmed by turning the jog switch even during RUN mode.
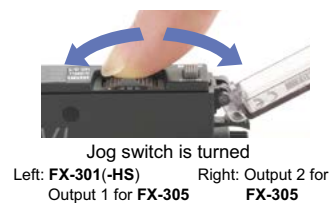
Jog switch is turned
Left: **FX-301**(-**HS**)   Right: Output 2 for
Output 1 for **FX-305**   **FX-305**

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-301	Red LED	NPN open-collector transistor
		FX-301P		PNP open-collector transistor
		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
High-speed type		FX-301-HS	Red LED	NPN open-collector transistor
		FX-301P-HS		PNP open-collector transistor
High-function type		FX-305	Red LED	NPN open-collector transistor
		FX-305P		PNP open-collector transistor

■ ORDER GUIDE

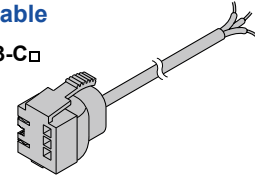## Quick-connection cables

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

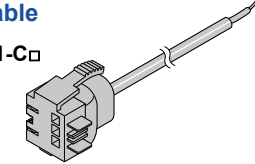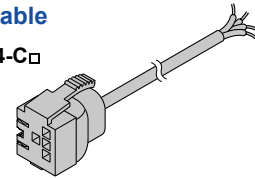| Type	Model No.	Description	
Main cable (3-core)	**CN-73-C1**	Length: 1 m 3.281 ft	0.2 mm² 3-core cabtyre cable, with connector on one end. Cable outer diameter: ø3.3 mm ø0.130 in
	CN-73-C2	Length: 2 m 6.562 ft	
	CN-73-C5	Length: 5 m 16.404 ft	
Sub cable (1-core)	**CN-71-C1**	Length: 1 m 3.281 ft	0.2 mm² 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□

For FX-305(P) | Quick-connection cable is not supplied with the amplifier. Please order it separately.

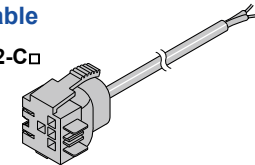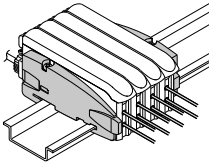| Type	Model No.	Description	
Main cable (4-core)	**CN-74-C1**	Length: 1 m 3.281 ft	0.2 mm² 4-core cabtyre cable, with connector on one end. Cable outer diameter: ø3.3 mm ø0.130 in
	CN-74-C2	Length: 2 m 6.562 ft	
	CN-74-C5	Length: 5 m 16.404 ft	
Sub cable (2-core)	**CN-72-C1**	Length: 1 m 3.281 ft	0.2 mm² 2-core cabtyre cable, with connector on one end. Cable outer diameter: ø3.3 mm ø0.130 in
	CN-72-C2	Length: 2 m 6.562 ft	
	CN-72-C5	Length: 5 m 16.404 ft	

Main cable
• CN-74-C□

Sub cable
• CN-72-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
Fiber amplifier protection seal (Note)	**FX-MB1**	10 sets of 2 communication window seals and 1 connector seal. Communication window seal: It prevents malfunction due to transmission signal from another amplifier, as well as, prevents effect on another amplifier. Connector seal: It prevents contact of any metal, etc., with the pins of the quick-connection cable.

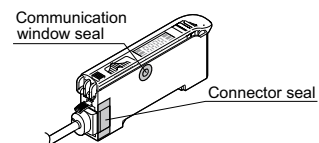Note: Fiber amplifier protection seals are supplied with the **FX-301**(**P**) and **FX-305**(**P**).

Amplifier mounting bracket
• MS-DIN-2

Fiber amplifier protection seal
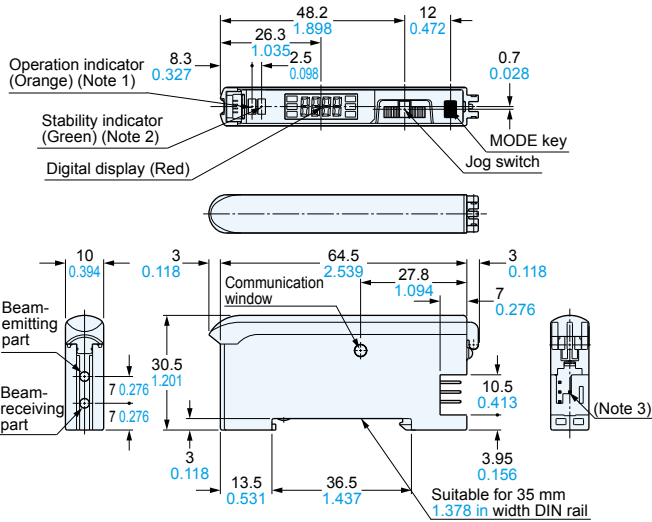• FX-MB1

Communication window seal
Connector seal
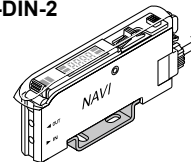
■ LIST OF FIBERS

Refer to "Fiber Selection p.5 ~" for details of each fiber. Refer to our website for sensing range.

DIMENSIONS (Unit: mm in)

FX-301□　FX-305(P)　　　　Amplifier

Operation indicator (Orange) (Note 1)
Stability indicator (Green) (Note 2)
Digital display (Red)
MODE key
Jog switch

48.2 1.898
12 0.472
26.3 1.035
8.3 0.327
2.5 0.098
0.7 0.028

10 0.394
3 0.118
64.5 2.539
27.8 1.094
3 0.118
7 0.276
30.5 1.201
10.5 0.413
7 0.276
7 0.276
3 0.118
13.5 0.531
36.5 1.437
3.95 0.156
(Note 3)

Beam-emitting part
Beam-receiving part
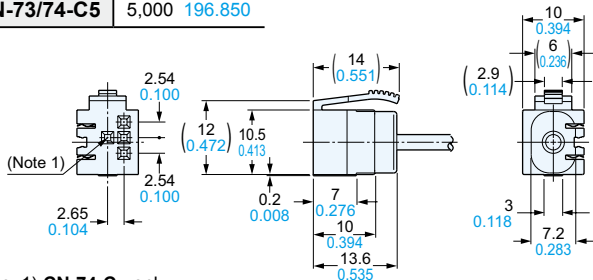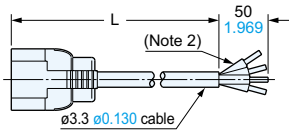Communication window
Suitable for 35 mm 1.378 in width DIN rail

Notes: 1) **FX-305□**: Output 1 operation indicator (Orange)
2) **FX-305□**: Output 2 operation indicator (Orange)
3) **FX-301□**: 3-pin, **FX-305□**: 4-pin

CN-73-C□　CN-74-C□　　　Main cable (Optional)

• Length L

Model No.	Length L	
CN-73/74-C1	1,000	39.370
CN-73/74-C2	2,000	78.740
CN-73/74-C5	5,000	196.850

L
50 1.969
(Note 2)
ø3.3 ø0.130 cable
14 0.551
10 0.394
6 0.236
2.9 0.114
2.54 0.100
12 0.472
10.5 0.413
(Note 1)
2.54 0.100
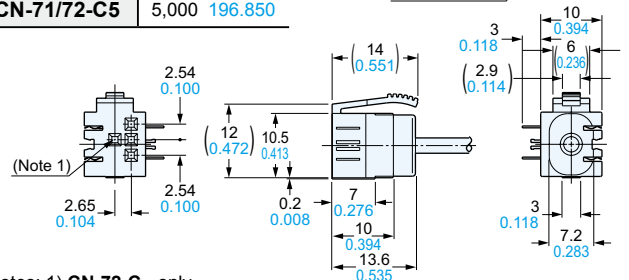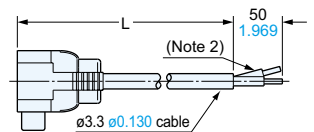2.65 0.104
0.2 0.008
7 0.276
10 0.394
13.6 0.535
3 0.118
7.2 0.283

Notes: 1) **CN-74-C□** only
2) **CN-73-C□**: 3-core

CN-71-C□　CN-72-C□　　　Sub cable (Optional)

• Length L

Model No.	Length L	
CN-71/72-C1	1,000	39.370
CN-71/72-C2	2,000	78.740
CN-71/72-C5	5,000	196.850

L
50 1.969
(Note 2)
ø3.3 ø0.130 cable
14 0.551
3 0.118
10 0.394
6 0.236
2.9 0.114
2.54 0.100
12 0.472
10.5 0.413
(Note 1)
2.54 0.100
2.65 0.104
0.2 0.008
7 0.276
10 0.394
13.6 0.535
3 0.118
7.2 0.283

Notes: 1) **CN-72-C□** only
2) **CN-71-C□**: 1-core

MS-DIN-2　　　Amplifier mounting bracket (Optional)

5.2 0.205
21.6 0.850
16 0.630
3.2 0.126
8.5 0.335
10 0.394
3.2 0.126
5.2 0.205
5 0.197
35 1.378
0.4 0.016
2 0.079
2 0.079
ø1.8 ø0.071
7.5 0.295
4.2 0.165
t 1 t 0.039
27 1.063
2-ø3.2 ø0.126 holes
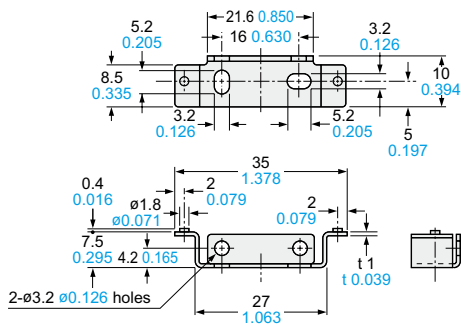
Material: Cold rolled carbon steel (SPCC)
(Uni-chrome plated)

MS-DIN-E　　　End plate (Optional)

2.75 0.108
M3 (length 18 mm 0.709 in) pan head screws
3 0.118
15 0.591
60 2.362
3 0.118
5.6 0.220
M3 square nut
24.7 0.972
1.6 0.063
32 1.260
4 0.157
Suitable for 35 mm 1.378 in width DIN rail
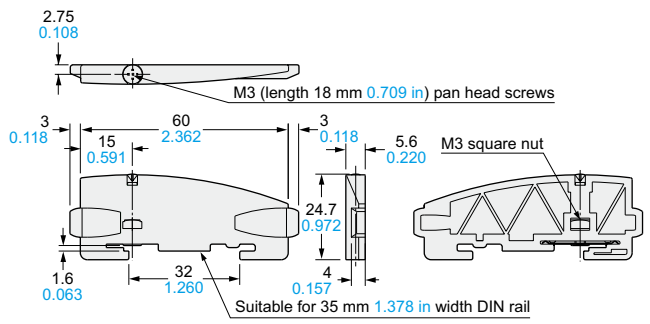
Material: Polycarbonate