

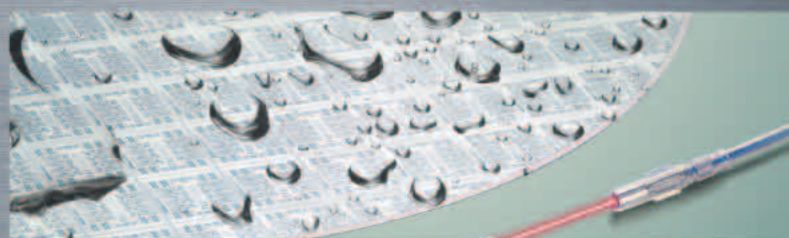
SENSOR CATALOG for HARSH ENVIRONMENTS



NEW
Water Resistant
Digital Fiberoptic Sensor
FS-N15CN/N15CP



Heavy-duty Photoelectric Sensors
PX Series



Fluorocarbon polymer
encased sensor heads



OPTIMIZED FOR HARSH ENVIRONMENTS

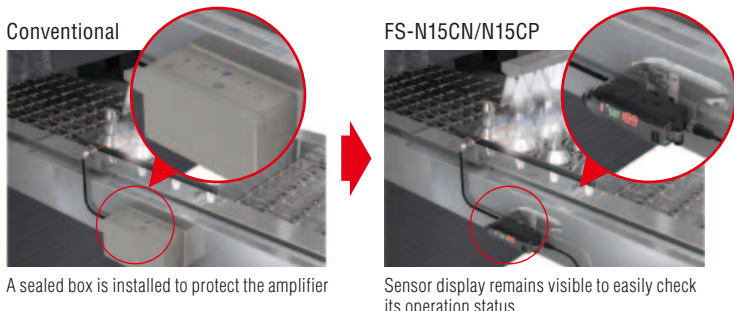
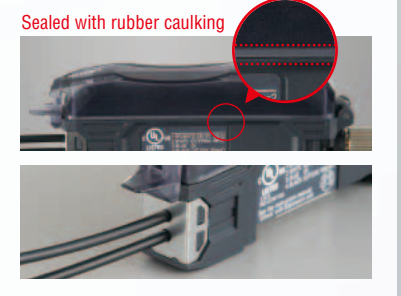


Just Released!
Water resistant fiberoptic sensor amplifiers

NEW
Digital Fiberoptic Sensor
FS-NEO Series



LIQUID TIGHT SEAL
Potential water entry points, such as the fiber unit attachment opening and display interface area, are sealed with rubber caulking. The main amplifier body is glass-reinforced resin.



Conventional
A sealed box is installed to protect the amplifier

FS-N15CN/N15CP
Sensor display remains visible to easily check its operation status

The NEO Series features are maintained:

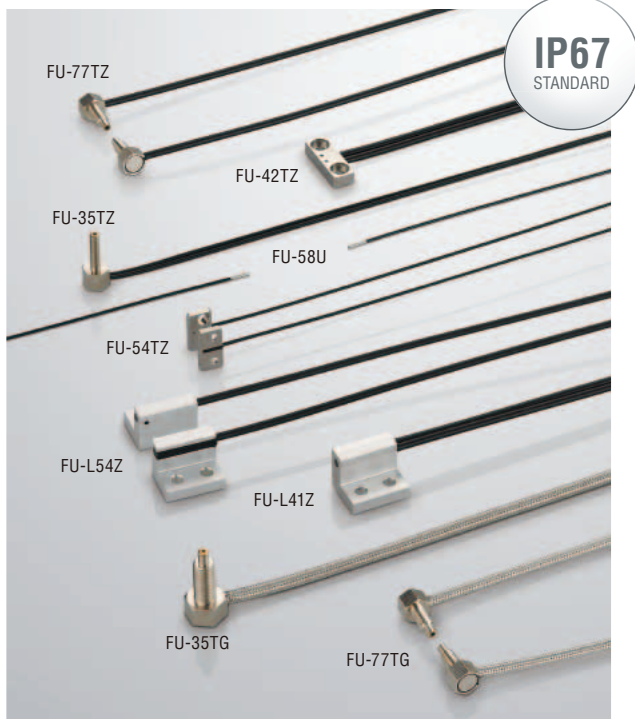
- Complete setting in just one click
- Preset Display: Easily detect changes in received light intensity.
- World's most powerful beam

NEO MEGA
250 TIMES greater than conventional models

Guideline for received light intensity

The emitted light intensity is about 4 times stronger than conventional models. *1. FS-V30 Series in FINE mode

More than 70 types of fiber units for use in wet environments



IP67
STANDARD

The fiber units do not comply with the IP 67 standard when used with a lens. Contact KEYENCE for the water resistance properties of fiber units not listed here.

EXAMPLES		Minimum bend radius (mm inch)	Model
Thrubeam type	Type	Detecting distance (mm inch)*1	
		3100 122.08"	R2 R0.08" ToughFlex FU-77TZ
		1800 70.87"	R10 R0.39" Stainless Steel FU-77TG
		810 31.89"	R2 R0.08" ToughFlex FU-51TZ
		2900 114.17"	R2 R0.08" ToughFlex FU-54TZ
		590 23.23"	R2 R0.08" ToughFlex/High-flex FU-58U
Reflective type		1900 74.80"	R2 R0.08" ToughFlex FU-L54Z
		400 15.75"	R2 R0.08" ToughFlex FU-35TZ
		400 15.75"	R10 R0.39" Stainless Steel FU-35TG
		500 19.69"	R2 R0.08" ToughFlex FU-42TZ
		160 6.30"	R2 R0.08" ToughFlex FU-47TZ
		140 5.51"	R2 R0.08" ToughFlex/High-flex FU-49U
	760 29.92"	R2 R0.08" ToughFlex FU-L41Z	

*Detecting distance when using MEGA mode.

**OIL
RESISTANT**

Rugged photoelectric sensors for use in even harsher environments

Heavy-duty
Photoelectric Sensors
PX Series

RUGGED PHOTOELECTRIC SENSORS

Outstanding resistance to harsh environments as a result of the vacuum backfilled structure. The PX Series complies with IP68g [NEMA Type 4X/6P/13], which prevents penetration of oil droplets from any direction.

IP68g
STANDARD

PX-H71G



PX-10

Oil Resistant



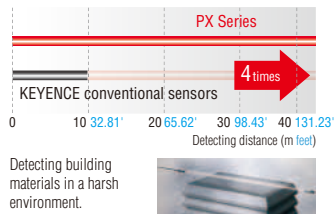
IP68g [NEMA Type 4X/6P/13] is oil resistant and waterproof

Rugged, Stainless Steel Housing



Stainless steel case is approx.1.9 mm 0.07" thick

Blasts through dirt and dust



40 m 131.23' detecting distance (M12 model)

Rinsable

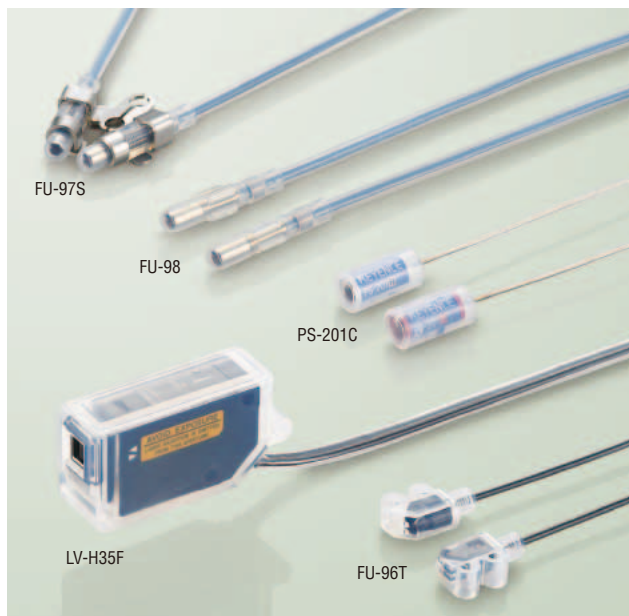


The IP67 amplifier provides added protection [NEMA Type 4X] against water

**CHEMICAL
RESISTANT**

Fluorocarbon polymer-encased sensor heads

FS Series
PS Series
LV Series



APPLICATION



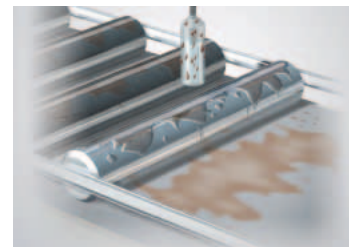
Detect drill breakage in a coolant environment



Monitor the passage of workpieces on a cleaning line



Detect presence/absence of cleaned wafers



Detect presence/absence of workpieces on a processing line

Contact KEYENCE for the amplifier model part numbers.

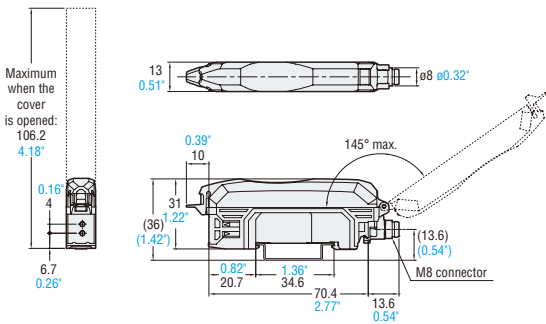
SPECIFICATIONS

Type		NEW IP66 Fiberoptic Amplifier, 1 output type
Cable/M8 connector		M8 connector *1
Main unit/expansion unit		Main unit
Model	NPN	FS-N15CN
	PNP	FS-N15CP
Control output		1 output
Monitor output (1-5V)		—
External input		1 input
Light source LED		Red 4-element LED (wavelength 630 nm)
Response time		50 μs (HIGH SPEED)/250 μs(FINE)/500 μs(TURBO) 1 ms (SUPER) 4 ms (ULTRA)/16 ms (MEGA)
Output toggle		Light-ON/Dark-ON toggle
Timer function		Timer OFF/OFF delay/ON delay/One-shot
Control output	NPN output	NPN open collector 24 V or less; maximum 100 mA or less, residual voltage 1 V or less
Output	PNP output	PNP open collector 24 V or less; maximum 100 mA or less, residual voltage 1 V or less
External input		Input time 2 ms (ON)/20 ms (OFF) or more, when selecting External calibration 25 ms (ON/OFF) or more
Expansion units		0 units (expansion not possible)
Protection circuit		Protection against reverse power connection, Output overcurrent, and Output surge
Number of interference prevention units		0 units (connection not possible)
Rating	Power voltage	12 to 24 V DC ± 10% ripple (P-P) 10% or less
	NPN	Normal: 900 mW or less (36 mA max. at 24 V, 48 mA max. at 12 V) *2 Econ on (ALL): 800 mW or less (32 mA max. at 24 V, 39 mA max. at 12 V) *2 Eco full: 470 mW or less (19 mA max. at 24 V, 23 mA max. at 12 V)
	PNP	Normal: 950 mW or less (39 mA max. at 24 V, 52 mA max. at 12 V) *2 Eco on (ALL): 850 mW or less (35 mA max. at 24 V, 44 mA max. at 12 V) *2 Eco full: 520 mW or less (21 mA max. at 24 V, 26 mA max. at 12 V)
Environmental resistance	Operating ambient luminance	Incandescent lamp: 20,000 lux or less, sunlight: 30,000 lux or less
	Operating ambient temperature	-20°C to +55°C -4°F to 131°F (no freezing)
	Operating ambient humidity	35 to 85%RH (no condensation)
	Vibration resistance	10 to 55 Hz compound amplitude 1.5 mm 0.06; 2 hours for each of X, Y, Z axis
	Shock resistance	500 m/s ² , 3 times for each of X, Y, Z axis
Enclosure rating		IP66 *3+4
Material	Case	Main unit: glass-reinforced PBT; Cover: Sulfonic resin
	Adapter	Glass-reinforced PBT
Case Dimensions		H 31.0 mm × W 13.0 mm × L 94.0 mm H 1.22" × W 0.51" × L 3.70"
Weight		App. 30g

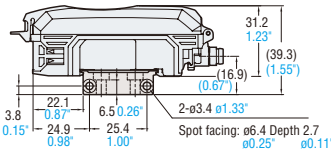
- *1 Use a cable of 30 m 98.43' or less.
- *2 When the Power Mode is set to HIGH SPEED, 100 mW (4.0 mA) will be added.
- *3 About the enclosure rating when a small-diameter fiber unit (the diameter of the cable is ø1.3 or ø1.0) is used. IP66/IP65 cannot be satisfied when the type whose diameter is ø1.3 and terminal can be separated (FUJ-4F/66/91/93/43/63/63T etc.) is used. When any small-diameter fiber units except for the above are used, IP65 is applied.
- *4 In any of the following cases, the enclosure rating IP66/IP65 cannot be satisfied.
 - When the Fiber Unit and KEYENCE's M8 connector cable are not connected (Recommended conditions to tighten up the M8 connector: Tighten it by hand first. Then retighten it as much as 1/16-1/8 of a rotation with pliers.)
 - When the Fiber Unit and KEYENCE's M8 connector cable are not connected
 - When the dust cover of the Sensor Amplifier is open
 - When there is debris in the dust cover
 - When the waterproof adapter A/B are not used at the time of installation of a small-diameter fiber unit.

DIMENSIONS

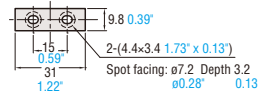
FS-N15CN/N15CP



When the mounting bracket is attached
(OP-73880 sold separately)

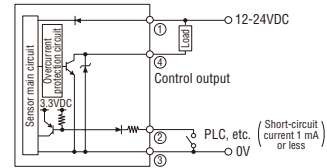


Reverse side of mounting bracket



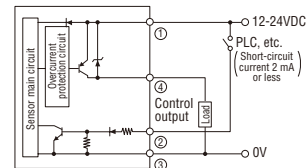
Input and Output Circuit Diagrams

FS-N15CN



M8 connector pin layout

FS-N15CP



M8 connector pin layout

M8 Connector Cable (sold separately)

OP-73864 (Cable length: 2 m 6.56')

OP-73865 (Cable length: 10 m 32.81')

Pin - wire color

Connected pin number	①	②	③	④
Core wire color	Brown	White	Blue	Black

M8 Connector junction cable

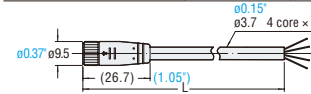
(OP-85498 sold separately)



M8 Connector Cable

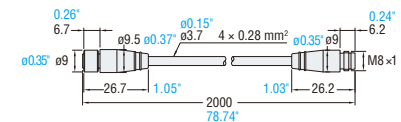
(OP-73864/73865 sold separately)

Model	OP-73864	OP-73865
Cable length L(m/feet)	2 6.56'	10 32.81'



M8 connector junction cable

(OP-85498 sold separately)



Unit: mm inch



CALL TOLL FREE TO CONTACT YOUR LOCAL OFFICE
1-888-KEYENCE
1 - 8 8 8 - 5 3 9 - 3 6 2 3

www.keyence.com



SAFETY INFORMATION

Please read the instruction manual carefully in order to safely operate any KEYENCE product.

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KA1-1091