

Fiber Unit Glossaries

The fiber sensor-related terms and words are collected here for the referential purpose.

A~C	Ambient Light	External light that affects behavior of the sensor. For the Photoelectric Sensors, direct high-frequency fluorescent or sunlight may cause receptors to malfunction. In this case, adjust the sensor angle or install a light shield to prevent disturbing lights.
	Bending Radius	Least radius with which the fiber unit can be bent. Note that the value is not for diameter. If the fiber unit is bent with a value less than the bending radius, the core is broken and results in shortened detection distance or unavailability of detection.
	Coaxial	This is one type of coaxial reflection fiber unit, and has several light-receiving cores aligned around the light emitting core. This is useful when highly accurate detection of positions is required for measurement. On some models, furthermore, the minute object detection-supported lens can be mounted.
	Core	The light-transparent material for fiber is called "Core." For the Retroreflective Type fiber unit, one Ø0.5 core is provided for light transmittance, and nine Ø0.25 cores are provided for light receiving.
D~K	Dark ON	This is an output mode where the control output is turned ON, when a certain volume of light is not received by the receptor. For the Through Beam Type / Retroreflective Type sensor, the mode is switched to ON, if a detected object is not found along the optical axis; and for the Retroreflective Type sensor, it is switched to ON, if the detected object is found along the optical axis.
	Detection Distance	This means the distance between the light Emitter and Receptor for the Through Beam Type, and means the distance between the sensor body unit and a detected object for the Retroreflective Type.
	Flex Resistant	Fiber unit suitable to be mounted on moving parts where banding load is applied repeatedly. (Bending Radius: R4mm)
	Free-cut	This fiber unit can be cut using the included fiber cutter for use. If the default length is too long and makes it difficult to wire the fiber wire, extra part can be cut.
	Interference Area	Property of how far away from each other the multiple same type sensors, if aligned side by side, must be separated to avoid interference. If it is made necessary to align them at such a distance that interference occurs, follow any of the instructions below. ① Use the different frequency type or link type Fiber optic Sensor. ② For the Through Beam Type, mount the slits / polarizing filters. ③ Through Beam Type or Mirror Retroreflective Type should be installed alternately. (* Be careful not to allow the light from a sensor to be received by the receptor of the adjacent sensor through the detected object.)
L	Lens	Lens mount on the tip of the fiber unit. Through Beam Type Lenses are useful when long distance detection or limited space is required. Retroreflective Type Lenses are useful for detection of minute object on small spot. On some Through Beam Type fiber unit, the lens is mounted before shipment.
	Light Emission Stop	Function intended to turn off the light-emitting LED, when the corresponding input signal is applied, and thus, to form the electric light blocked state. Behavior of this function can be checked without having to run the photoelectric sensor for any detected object.
	Light ON	This is an output mode where the control output is turned ON, when a certain volume of light is received by the Receptor. For the Through Beam Type / Retroreflective Type sensor, the mode is switched to ON, if a detected object is not found along the optical axis; and for the Retroreflective Type sensor, it is switched to ON, if the detected object is found along the optical axis.
	Light Receiving Element	Electronic Parts intended to receive the light from the light transmitter, retroreflector or detected object and to convert it into electric signal. Photodiode or phototransistor is mainly used for this.
	Light Source	This is required to detect / identify the detected object through light. The long life LED (Light Emitting Diode) is mainly used here. For purpose of distance measurement / gauging, however, the laser beam (mainly Semiconductor Diode) is used instead.

M~Q	Narrow Vision	Fiber unit has the lens built in on the tip, and has the opening angle narrowed to 2~5°. This enables long distance detection and, furthermore, is the most suitable for wafer mapping, because this cannot malfunction due to light leakage, even if a high reflectance object is placed near the optical axis.
	NPN Output	Output format intended to induce the current to the Sensor side when the output transistor operates. This is also called "Current Sink Type." Popular output format in Japan.
	OFF Delay Timer	Timer function intended defer the output OFF time. This function is useful for input to equipments slow in retrieval.
	Opening Angle	Emitting / Receiving angle of light illuminated from the tip of fiber. While the standard fiber units have the wide opening angle of 60°, the Narrow Vision type has the narrow one (2~5°).
R~Z	Protection Structure	Dust / Water-Resistant structure stipulated by IEC (International Electrotechnical Commission) and JIS (Japanese Industrial Standards). This is useful for sensors as the guideline of Environmental Protection. On the number symbol, the tenths place digit represents dust resistance, and the ones place digit represents water resistance. The larger is the value of the number symbol, the higher protection level is represented.
	PNP Output	Output format intended to supply the current to the Controller side when the output transistor operates. This is also called "Current Source Type." Popular output format in Europe.
	Response Speed	Time which, after the detected object falls into coverage of sensor operation, elapses until the object is outputted (if it is shorter than the Response Time, no output is made.)
	Retroreflective Type	Use a combination of this Sensor and Retroreflector. ON/OFF action is controlled by blocking beam between the Sensor and Retroreflector. Reduced wiring procedural steps to half compared with Through Beam Type.
	Retroreflective Type	This is one type of fiber unit having the light-receiving fiber and the light-emitting fiber bundled together, and is intended to run detection by receiving the light reflected from workpieces. This fiber unit is allowed only for short detection distance, but enables saving of installation labor / space, because mounting of the fiber unit requires only one portion.
	Side ON Side View	Fiber units having the optical system installed on their side surface and thereby, running detection in lateral direction. For this type, the fiber with square tip is called "Side ON," and the one with barrel tip is called "Side View."
	Spot Dia.	Represents the dia. of beam transmitted from the sensor.
	Super Fine Fiber	Fiber with the core dia. of 0.5mm or less is called "Super Fine Fiber." If the core is fine, the optical axis is thin. Thus, this type of fiber reduces the detection distance, while facilitating detection of minute object.
	Teaching	Function intended to adjust the sensitivity through the external input signal, rather than through operations on the sensor main body.
	Through Beam Type	Sensor using combination of the Receptor and the Emitter as a set (for the Ultrasonic Sensor, combination of the transmitter and the receptor is used). ON/OFF action is controlled by blocking the beam between light emitter and receptor. The detection distance can be made longer than by the other detection methods.
	Type L	Fiber unit having the tip shaped with "L." This is easier to mount than the standard type, and furthermore, saves trouble of wiring because this is Side View-intended.