PFB

Bar display fiber optic sensor

Suffix code

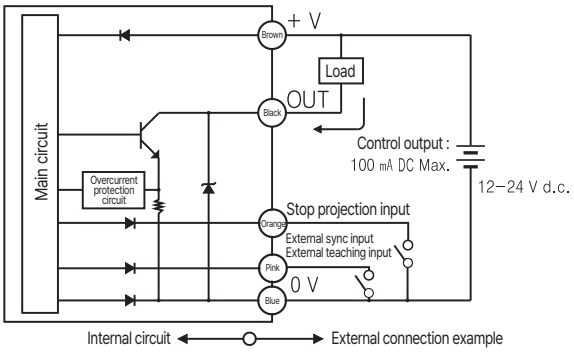
Category	Code		Description
PFB-	▢	▢	10 bit A/D built-in bar display type
Light source	R		Red LED
External output		N	NPN open collector
		P	PNP open collector

Specifications

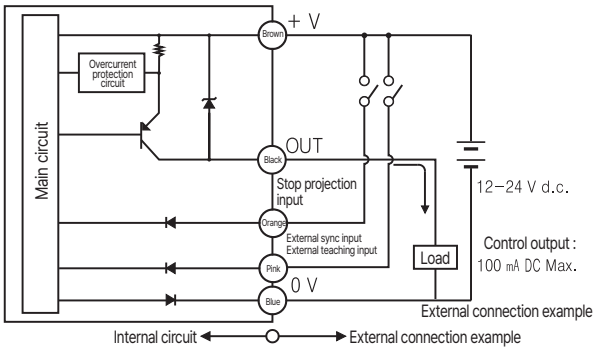
Model	PFB-RN	PFB-RP
Sensing method	Through-beam, reflective type (via the fiber cable)	
Sensing distance	Via the fiber cable	
Power voltage	12 - 24 V d.c. ±10% (Ripple: 10% or lower)	
Current consumption	20 mA or lower	
Control output	NPN open collector output, 100 mA (30 V d.c.) or lower	PNP open collector output, 100 mA (30 V d.c.) or lower
Output action	Switch between light receiving (Light ON) and light shielding (Dark ON) modes using a switch	
Timer	NORMAL, ON Delay, OFF Delay (Delay time fixed at 40 ms)	
Response time	1 ms or less	
Hysteresis	Reflective: 10% of the sensing distance or less	
Light source (wavelength)	Red light LED (660 nm)	
Indication	Indication with the bar LED	
Sensitivity adjustment	Auto-teaching/Manual setting using the setup button	
Protection circuit	Mutual interference prevention, reverse power and output short circuit protection	
Ambient illuminance	Solar: 11,000 lx or less, Incandescent: 3,000 lx or less	
Ambient temperature	-10 to 55 °C (when stored: -25 to 70 °C)	
Ambient humidity	35 to 85% RH (However, there should be no condensation)	
Protective structure	IP 40 (IEC)	
Insulation resistance	20 MΩ or higher (500 V d.c. Between the cord and the case, between the switch and the case)	
Dielectric strength	1,000 V a.c., 1 minute at 50/60 Hz	
Vibration resistance	10 - 55 Hz, double amplitude: 1.5 mm, 2 hours in each direction X, Y, Z	
Shock resistance	500 m/s², 3 times in each direction X, Y, Z	
Connection method	Cord-draw, cord length: 2 m, number of cords: 5 P, thickness: Ø4 mm, DIN rail installation structure	
Material	Case: Heat resistant ABS	
Weight	Approximately 150 g (packaged, with fixing brackets)	

Connection diagram

■ NPN

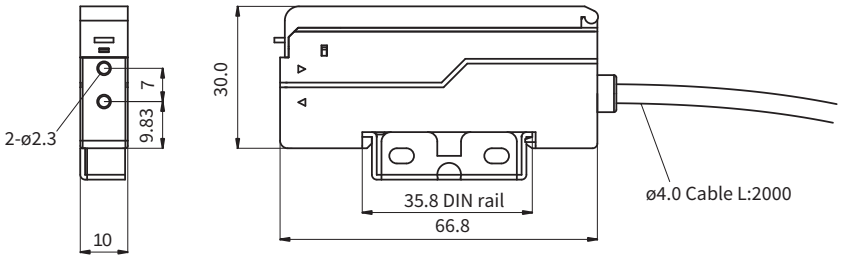


■ PNP



External dimensions

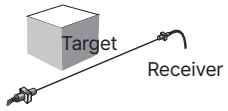
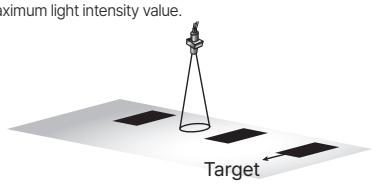
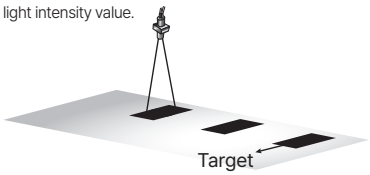
[Unit: mm]



Setting the operation level

There are two ways to set the operation level: 2-point teaching and auto-teaching. The commonly used method of setting the operation level by teaching two points, one with the target present and one without, is referred to as the "2-point teaching method."

■ 2-point teaching method

Sequence	Description
①	・Install the fiber within the sensing range. ・Set the [Slide Switch 1] in either the L.ON(Light-on) position or the D.ON(Dark-on) position. ・Press and hold the ◁(M.T/E) button for more than 3 seconds to enter the "operation level setting mode." When you enter this mode, the BAR-LED and STB-LED will start blinking.
②	・Briefly press the ◁(M.T/E) button without the target in place (at maximum light intensity) to save the maximum light intensity value. ■ Through-beam  ■ Reflective 
③	・Briefly press the ◁(M.T/E) button with the target in place (at minimum light intensity) to save the minimum light intensity value. ■ Through-beam  ■ Reflective 
④	・Press and hold either button for more than 3 seconds to return to operating mode. When you return to operating mode, the BAR-LED and STB-LED will stop blinking.

■ During Light ON

・Auto-teaching is used when you wish to set the operation level while the target is moving without stopping the line.

Sequence	Description
①	・Install the fiber within the sensing range. ・Press and hold the ▷(AT/C) button for more than 3 seconds to enter the "automatic operation level" setting mode. When you enter this mode, the BAR-LED and STB-LED will start blinking.
②	・Auto-teaching will be run for approximately 10 seconds before operating mode is resumed. When operating mode resumes, the BAR-LED and STB-LED will stop blinking. (Only applicable to situations where the target moves more than twice in 10 seconds)