



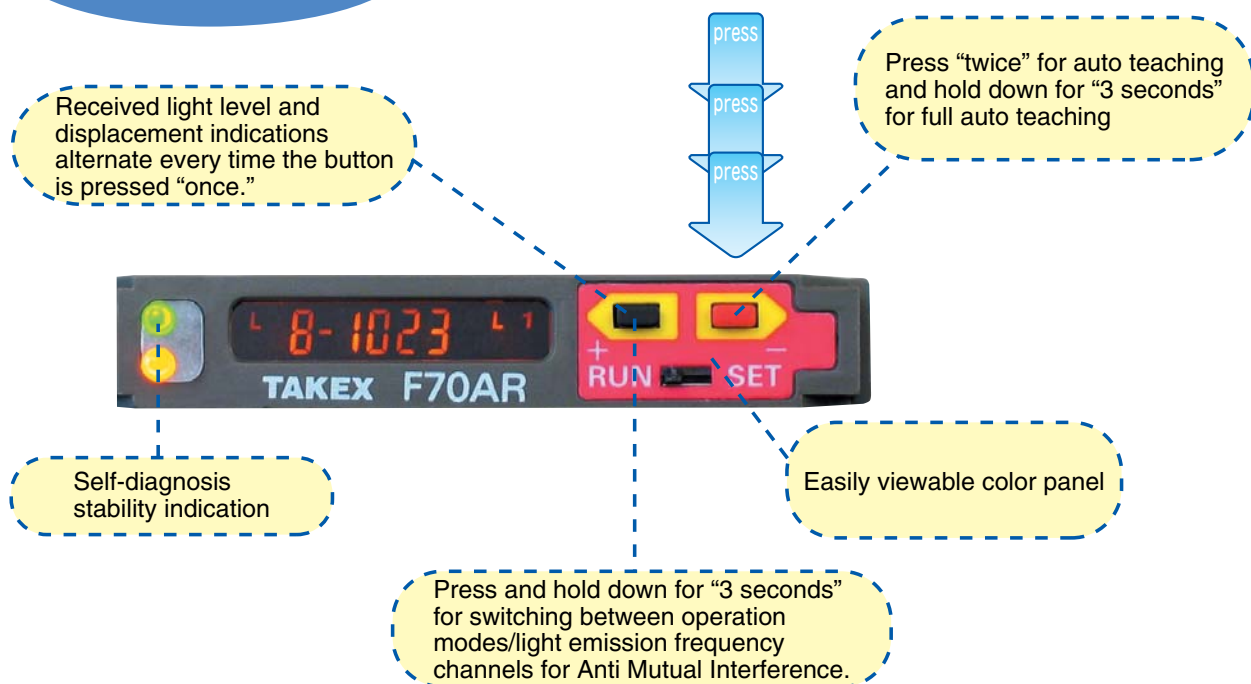
- Digital indication of sensing information
- Simple operation for setting functions
- Direct reading of stability level is available along with received light level and displacement indications
- LCD with backlight for ease of reading
- Various convenient functions provided
  - Full auto/auto teaching
  - Anti Mutual Interference
  - Manual sensitivity setting
  - Off-delay timer

## Variation

Type	Model		Light source	Output mode
	NPN output	PNP output		
Digital display general- purpose type	<b>F70AR</b>	<b>F70ARPN</b>	Red LED	Open collector (NPN/PNP)
	<b>F70AG</b>	<b>F70AGPN</b>	Green LED	
	<b>F70AB</b>	<b>F70ABPN</b>	Blue LED	
	<b>F70AW</b>	<b>F70AWPN</b>	White LED	

## Simple operation

### Simple operation featured



## 2 types of received light level indication

### Level indication mode



The level of received light is indicated in 4-digit number.  
Min. = 0 / Max. = 1023

Position on the electronic volume: 8

The sensitivity position on the electronic volume and the current received light level are displayed.

There may be an error of  $\pm 1-2$  between the value on the LCD and the actual value.

### Displacement indication mode



The example above shows that the current receive light level is -123 with reference to the activation level.

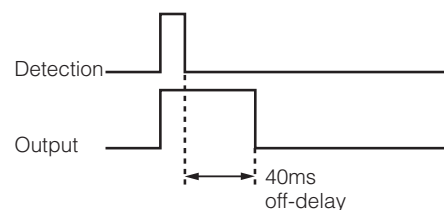
The level of received light is indicated in positive or negative value with reference to the activation level.

The activation level is taken as the reference ( $\pm 0$ ) and the level of received light with work used is indicated as a deviation from the reference in a positive or negative value.

## Enhanced teaching features (sensitivity setting)

- Full auto teaching**  
 Simply pressing the button allows easy teaching; even for an object moving at a high speed.
- Auto teaching**  
 2-point teaching "with" and "without" the work allows the detection of slight level difference such as the thickness of a piece of work and the presence of a film.
- Position teaching**  
 This feature is ideal for high-accuracy positioning that requires accurate determination of a detecting point.
- Maximum sensitivity setting**  
 For applications requiring maximum sensitivity setting such as the detection of work with a through-beam type fiber optic cable, the extra-powerful light allows for use in an adverse environment.
- Manual setting**  
 Arbitrary manual increase and decrease of a "set-point" allows level setting while checking the operation.

## Secure detection of an instantaneous signal is ensured with the off-delay timer



A small object moving at a high speed can be securely detected, thus allowing for a wider range of input conditions for the connected devices.

# F70A • F70series

## Rating/Performance/Specification

Model	NPN type	F70AR	F70AG	F70AB	F70AW	F70R	F70G	F70B	F70W	
	PNP type	F70ARPN	F70AGPN	F70ABPN	F70AWPN	F70RPN	F70GPN	F70BPN	F70WPN	
Rating/performance	Power supply	12-24V DC ±10% / Ripple 10% max.								
	Current consumption	NPN type	39 mA max.							
		PNP type	50 mA max.							
	Output mode	Control output (*)	NPN type	Open collector output / Rating: sink current 100 mA (30 VDC max.) / Residual voltage: 1 V or less						
			PNP type	Open collector output / Rating: source current 100 mA (30 VDC max.) / Residual voltage: 2 V or less						
	Stability output (*)	NPN type					Open collector output / Rating: sink current 50 mA (30 VDC max.) / Residual voltage: 1 V or less			
		PNP type					Open collector output / Rating: source current 50 mA (30 VDC max.) / Residual voltage: 2 V or less			
	Operation mode	Light-ON/Dark-ON selectable								
	Timer	Off delay/disabled selectable				On delay/off delay/on-off delay/disabled selectable				
		Delay time: 40 ms fixed				Delay time: selectable between 10, 20, 40, 60, 80, 100 and 120 ms / Default: 40 ms				
Response time	Light emission frequency channel 1: 600 μs max. Light emission frequency channel 2: 700 μs max.				Light emission frequency channel 1: 500 μs max. Light emission frequency channel 2: 600 μs max.					
Specification	Light source (wavelength)	Red LED (660nm)	Green LED (525nm)	Blue LED (470nm)	White LED	Red LED (660nm)	Green LED (525nm)	Blue LED (470nm)	White LED	
	Indicator	Operation indicator: orange LED / Stability (STB) indicator: green LED								
	Display	LCD display with backlight								
	Switch	2 set buttons / Mode selector switch: RUN/SET				2 set buttons / Mode selector switch: RUN/SELECT/MODE				
	Sensitivity setting	Full auto teaching / Auto teaching								
	Sensitivity setting input	Set button input				Set button input/external input				
	Sensitivity adjustment function	Provided (manual sensitivity adjustment)								
	Functions	<ul style="list-style-type: none"> <li>• Anti Mutual Interference feature</li> <li>• Short circuit protection feature</li> </ul>				<ul style="list-style-type: none"> <li>• Sensor function: AUTO/TEACH/LOCK</li> <li>• Auxiliary function:                             <ul style="list-style-type: none"> <li>S for manual adjustment of sensitivity and activation level</li> <li>H for manual hysteresis setting</li> <li>V for displacement indication and absolute value indication modes</li> </ul> </li> <li>• Anti Mutual Interference feature</li> <li>• Self-diagnosis feature</li> <li>• Short circuit protection feature</li> </ul>				
	Material	Polycarbonate								
	Connection	Permanently attached cord (outer dimension: dia. 4.8) 0.2sq. 3 core 2 m length				Permanently attached cord (outer dimension: dia. 4.8) 0.2sq. 5 core 2 m length				
Mass	Approx. 80 g (including 2-m cord and mounting bracket)									
Accessory	Mounting bracket / Operation manual									

(\*) Avoid the transient condition (0.5 seconds) immediately after power-up for output.

## Environmental Specification

Environment	Ambient light	Incandescent lamp: 10,000 lx / Sunlight: 20,000 lx
	Ambient temperature	1-3 adjacent units in operation: -25 - +55 °C
		4-10 adjacent units in operation: -25 - +50 °C
		11-16 adjacent units in operation: -25 - +45 °C
		Storage: -40 - +70 °C (non-freezing)
	Ambient humidity	35-85%RH (non-condensing)
	Protective structure	IP40
Vibration	10-55 Hz / 1.5 mm amplitude / 2 hours each in 3 direction	
Shock	500 m/s <sup>2</sup> / 3 times each in 3 directions	