

# Installation Instructions

## 42JT VisiSight™ Photoelectric Clear Object Sensors with IO-Link

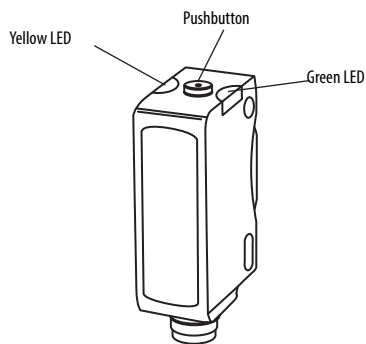
**IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.**

### Default Settings:

**Output Mode:** Dark Operate (Output ON when the light between sensor and reflector is blocked)

**Output Type:** Auto PNP/NPN or IO-Link. In Auto PNP/NPN mode, the sensor continuously monitors the load connection and automatically configures the output to PNP or NPN.

### Sensor User Interface



### LED Status

The table below provides LED status in the RUN mode. During operation, the sensor is always in RUN mode, except when being taught.

#### Auto PNP/NPN Operation

Green	OFF	Power is OFF
	ON	Power is ON
	Flashing (6 Hz)	Unstable light level ( $0.5 < \text{margin} < 2$ )
	Flashing (1.5 Hz)	Output short circuit protection active
Yellow	OFF	Output de-energized
	ON	Output energized

#### IO-Link Operation

Green	OFF	Power is OFF
	Flashing (1 Hz)	Power is ON
Yellow	OFF	Output de-energized
	ON	Output energized

### General Specifications

42JT-C2LAT1-①	
<b>Environmental</b>	
Certifications	cULus and CE Marked for all applicable directives
Operating Environment	IP67, IP69K, ECOLAB ②
Operating Temperature [C (F)]	-20...+60° (-4...+140°) ③
Storage Temperature [C (F)]	-20...+80° (-4...+179°)
<b>Optical</b>	
Light Source	Visible red 660 nm
Sensing Range	0...2 m (0...6.6 ft)
Adjustments	Push button
<b>Electrical</b>	
Voltage	10...30V DC ④
Current Consumption	30 mA max.
Sensor Protection	Reverse polarity, short circuit protection
<b>Outputs</b>	
Response Time	0.5 ms
Output Type	Auto NPN or PNP
Output Function	Selectable light operate or dark operate
Output Current	100 mA max.
Output Leakage Current	10 µA max.
<b>Mechanical</b>	
Housing Material	ABS
Lens Material	PMMA
Cover Material	PMMA
Optional Accessories	Mounting brackets, cordsets

① See Connection Types table.

② ECOLAB on P4 and A2 models only

③ UL: -20...+50°C (-4...122°F)

④ UL: Class 2 source

### Connection Types

Cat. No. Suffix	Description
-A2	2 m cable (PUR)
-P4	Integral 4-pin pico (M8) QD
-F4	4-pin DC micro (M12) QD on 150 mm (6 in.) pigtail
-Y4	4-pin pico (M8) QD on 150 mm (6 in.) pigtail



## Mounting the Sensor

Securely mount the sensor on a firm, stable surface or support. An application which is subject to excessive vibration or shifting may cause intermittent operation. For installation convenience, Rockwell Automation offers a wide range of mounting brackets (see the Accessories section for more details).

## Alignment Indication

For short range applications the visible light beam of the sensor suffices as alignment aid.

The alignment feature may be used for longer range applications. Alignment of the sensor is indicated by a change in intensity of the green LED in the Alignment Mode, as follows:

1. Press and release the push button twice within three seconds. After three seconds, the green LED turns OFF for 0.5 second, indicating that the sensor is in the alignment mode.
2. Align the sensor to the reflector. The intensity of green LED increases with better alignment. Secure it in the position that yields the highest intensity of the green LED. Press and release the button once to return to the RUN mode—or the sensor returns to the RUN mode automatically in two minutes.

## VisiSight™ Configuration

The 42JT VisiSight is configured using the push button, Remote Teach, or via IO-Link and the LED indicators on the sensor. The five following features can be configured:

- Static Teach: Standard or Precision Teach for sensitivity/sensing range
- Dynamic Teach (running process)
- Light operate (LO) or dark operate (DO) output
- Auto PNP/NPN, dedicated NPN or dedicated PNP
- Push button lock/unlock

The sensor output is disabled during Teach.

## Teach Sensitivity/Sensing Range

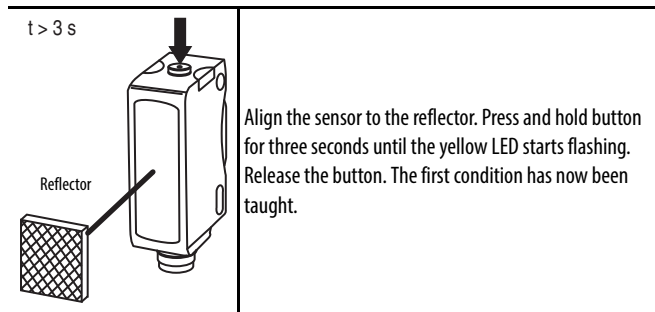
The default setting is the maximum range.

### Static Teach:

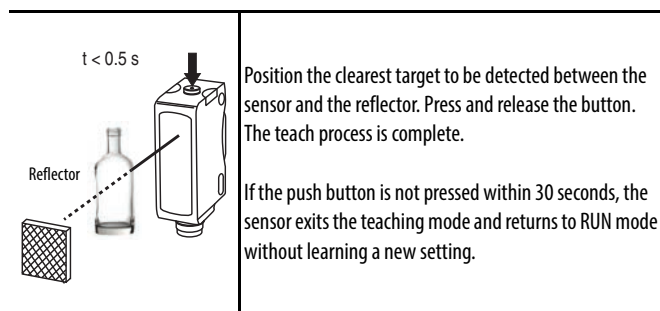
Teaching the sensitivity/sensing range is a two step process: teach the reflector (first condition) and teach “target” (second condition).

### Standard Teach:

1. Teach the reflector (first condition)



2. Teach target (second condition):



**The sensor can also be taught by teaching the target as the first condition and the reflector as the second condition.**

### Precision Teach:

A precision teach can be performed by teaching the reflector as both the first and second condition, i.e. clear target is not taught. This sets the sensor to its highest sensitivity to detect very clear targets. Under this setting, a small change in signal received will switch the output.

### Restore to factory default setting of maximum range:

Perform steps 1 and 2 with no reflector and no target in the sensor field of view.

### Dynamic Teach (Running Process):

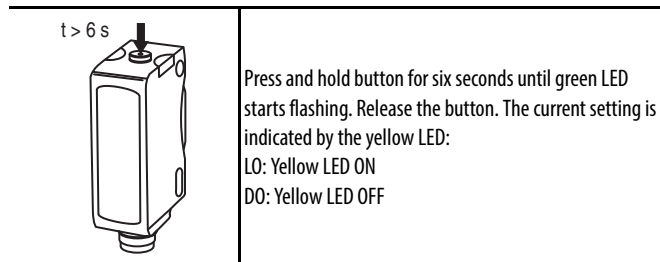
If the targets to be detected are moving with the sensor aimed at the running process, press and hold the button for three seconds until the yellow LED starts flashing. The sensitivity will automatically be taught in the next 30 seconds, provided the sensor sees two cycles of “target” and “no target.”

### Teach Light Operate (LO) or Dark Operate (DO)

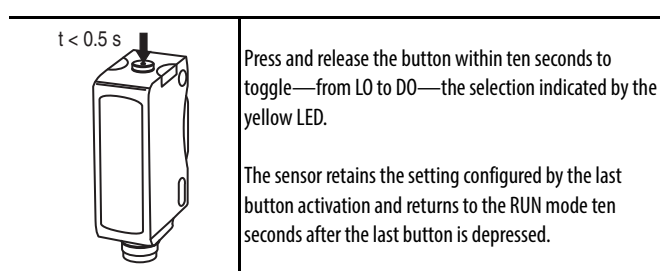
The default setting of the output is Dark Operate (DO).

DO setting means that the output turns ON when the target is detected. If the application requires the output to turn OFF when the target is detected, the setting may be changed to Light Operate (LO).

1. To access the teach output mode setting:



2. To change the sensor output mode setting:



## Output Type Selection:

### Auto PNP/NPN, Dedicated NPN, Dedicated PNP

The default setting is Auto PNP/NPN. This means the sensor monitors the load connection and automatically configures for the proper operation, namely PNP or NPN. If no load is connected, the sensor defaults to PNP.

The following applications are covered with dedicated PNP or dedicated NPN selection:

- Parallel wiring of multiple sensor outputs: select dedicated PNP or dedicated NPN setting, as needed.
- If the load is connected for NPN configuration but to a different power supply than the power to the sensor or via a load enabling contact (e.g., a relay contact in series with the load): select dedicated NPN.

Perform a selection as follows:

- To access output type:** Press and hold the push button for 12 seconds (until both LEDs start flashing synchronously). Upon button release, the current setting of output type is indicated by the slow flashing of the LED (or LEDs) as follows:
  - Auto PNP/NPN: both LEDs flashing
  - Dedicated NPN: green LED flashing
  - Dedicated PNP: yellow LED flashing
- To change output type:** Press and release the push button within ten seconds to select desired type. Each activation of the button will cycle to the next output setting. The type selected is indicated by the LEDs. The sensor retains the setting configured by the last button activation and returns to the RUN mode ten seconds after the last button is pressed.

## Push Button Lock/Unlock

The push button or remote teach (RT) can be used to prevent unauthorized users from changing teach settings.

**To lock the push button:** press and release the button three times within three seconds. Both LEDs flash synchronously for three seconds, indicating that the push button is now locked.

**To unlock the push button:** press and release the button three times within three seconds. Both LEDs flash asynchronously for three seconds, indicating that the push button is now unlocked.

**Permanent Lock:** The push button may be permanently locked by connecting the white wire (pin 2) to -V.

## Remote Teach (RT)

The sensor can be taught remotely via the white wire (pin 2). Connection to +V produces the same result as a button activation, while no connection is equivalent to not pressing the button. The sensor can be taught by following the same teach/timing sequence as used in the push button teach. For example, connect to the +V for more than three seconds to align and install the reflector, disconnect from the +V; while the reflector is in the sensor field of view and there is no target, connect to the +V for less than one second to complete the teach process. All push button functions can also be carried out via RT.

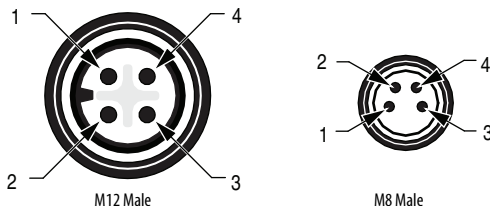
## IO-Link

See instructions for IO-Link on [www.ab.com/literature](http://www.ab.com/literature). Remote Teach (pin 2) is disabled in IO-Link operation. If output is selected as dedicated NPN, IO-Link communication is unavailable.

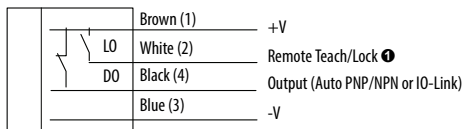
## Wiring Diagrams

The following diagrams show the quick-disconnect connector. The pin numbers correspond to male connectors on the sensor.

### Micro (M12) Male QD on Pigtail and Integral Pico (M8) Male QD

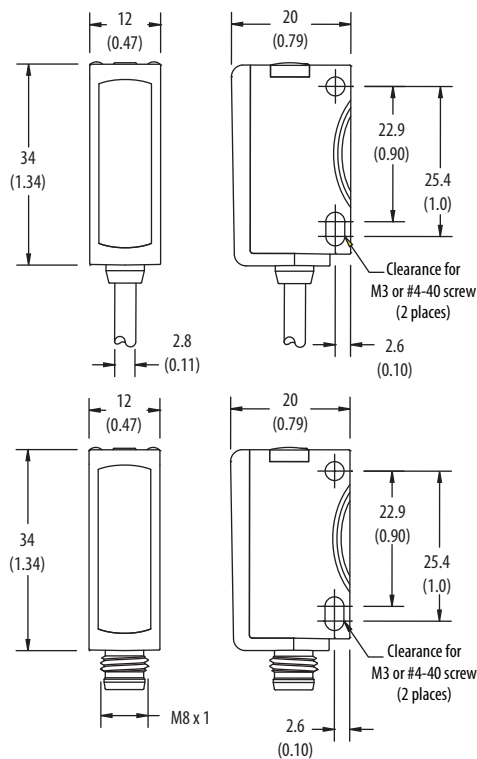


## Output Wiring

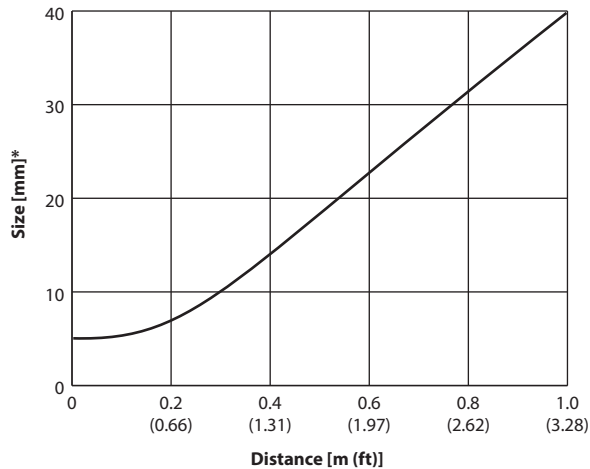


- Normal operation:** no connection (disabled in IO-Link operation).
- Remote Teach:** connect to +V. Refer to the Remote Teach section.
- Push Button Lock:** connect to -V. Refer to the Push Button Lock/Unlock section.

## Approximate Dimensions [mm (in.)]



## Spot Size

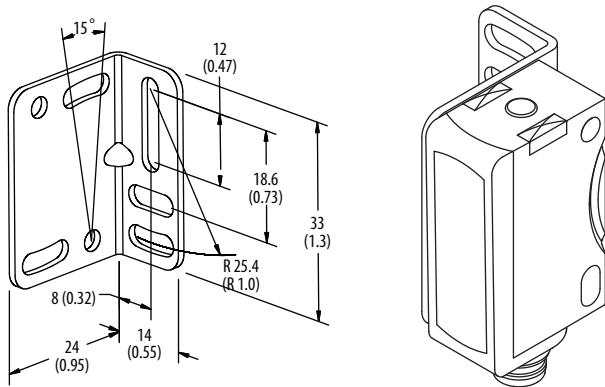


\* The spot size is square in shape with one side dimension per the graph. Linear increase in spot size to 2 meters.

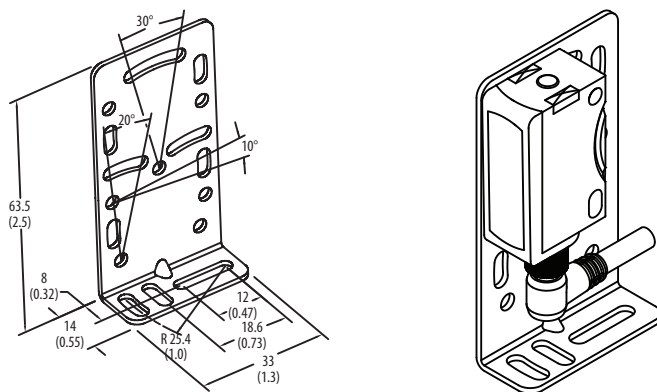
## Accessories

### Stainless Steel Mounting Brackets

#### 60-BJS-L1



#### 60-BJT-L2



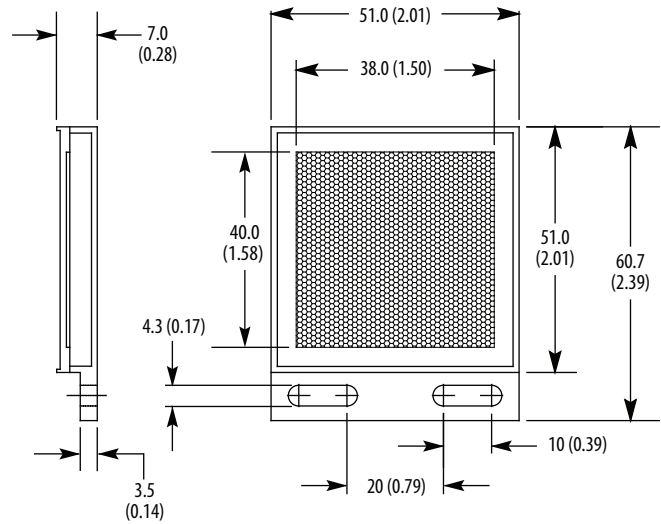
#### 60-2619 VisiSight-compatible swivel/tilt mounting bracket

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

[www.rockwellautomation.com](http://www.rockwellautomation.com)

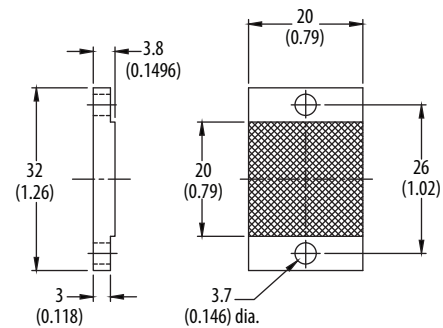
## Reflectors

### 92-118 Micro cube reflector



### 92-134 Micro cube reflector

This reflector can be used if a smaller size reflector is preferred and the reflector is mounted within 1 m (3.28 ft) of the sensor.



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