

Controls

OUTPUT LED - The yellow LED ON indicates that the N.O. output status is closed.

STABILITY LED - The green LED ON indicates that the received signal has a reserve greater than 30% compared to the output switching value.

POWER ON LED - The green LED indicates that the sensor is operating.

TRIMMER - The trimmer can be used to adjust sensitivity; the operating distance increases turning the trimmer clockwise.

WARNING: *The trimmer rotation is limited to 270° by a mechanical stop. Do not apply excessive torque when adjusting (max 40 Nmm).*

Installation

The sensor can be mounted by placing the M18x1 threaded body through a Ø 18mm hole, using the specific washer and the two CH.24 nuts enclosed (1.5 Nm maximum tightening torque).

Alternatively, the sensor can be mounted through the two housing's holes using two screws (M3x22 or longer) and washer. Amongst the various possible solutions, we suggest choosing the combination that offers the best visibility of the signaling LEDs and the easiest access to the trimmer.

Wide range of accessories available: 22mm nuts, h=8mm, (2Nm maximum tightening torque) guarantee an improved torque and various orientable fixing brackets ease the sensor positioning.

The operating distance is measured from the front surface of the sensor lens.

To improve the detection, the object must be moved closer or further away from the front surface of the sensor lens. In case of lateral translation, the object must move as indicated in the figure.



Setting

Setting of Retroreflective Models

Position the sensor and reflector on opposite sides.

Turn the sensitivity trimmer to the maximum position.

Moving the sensor both vertically and horizontally, determine the power on and off points of the yellow LED (OUT) and then mount the sensor in the middle of the points defined. Optimum operation is obtained when the green LED (is ON and the yellow LED is OFF). If necessary, reduce sensitivity in order to detect very small targets. To improve alignment, repeat the procedure detailed above while progressively reducing the sensitivity.

Setting of Diffuse Background Suppression

Turn the sensitivity trimmer to minimum: the green LED is ON, the yellow LED is OFF. Position the target to detect in front of the sensor. Turn the sensitivity trimmer clockwise until the yellow LED turns ON (Target detected state, pos A).

Remove the target, the yellow LED turns OFF. Turn the sensitivity trimmer clockwise until the yellow LED turns ON (background detected state). The trimmer reaches maximum if the background is not detected. Turn the trimmer to the intermediate position C, between the two positions A and B. The green LED must be ON.

Setting of Pushbutton with Teach Method

(Standard Detection)

Place the background or the object to be suppressed inside the operating range. Press the SET pushbutton until the READY LED turns OFF (1s). Release the SET pushbutton and wait for the READY LED to turn ON. The sensor is now ready to detect all objects in the set range distinguishing them from the suppressed background.

(Fine Detection)

Place the background or the object to be suppressed inside the operating range.

Press the SET pushbutton. The READY LED turns OFF. Keep the SET pushbutton pressed until the READY LED turns on (3s).

The sensor performs a fine adjustment and is ready to detect objects also very near the suppressed background. If the green LED flashes, the acquisition has failed.

Setting of Diffuse (non-adjustable)

The operating distance range of these sensors is factory preset, please consider this feature when positioning.

Setting of Diffuse Potentiometer (Trimmer)

Turn the sensitivity trimmer to maximum: moving the sensor both vertically and horizontally, determine the power on and off points of the yellow LED (OUT) and then mount the sensor in the middle of the points defined. Optimum operation is obtained when the green LED is ON and the yellow LED is OFF. If necessary, reduce sensitivity using the trimmer in order to detect very small targets. To improve alignment, repeat the procedure detailed above while progressively reducing the sensitivity.

Emitters

The TEST+ and TEST- inputs can be used to inhibit the emitter and verify that the system is correctly operating. The receiver output should switch when the test is activated while the beam is uninterrupted. The inputs activating voltage range is 10 to 30 VDC.

prosense F18 Series Installation Instructions



AutomationDirect.com
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Cumming, GA 30040
1-800-633-0405

F18 Series Technical Data

Operating Distance	See specification table
Power Supply	10-30 VDC (limit values)
Ripple	2 Vpp max.
Current Consumption (excluding output current)	35mA
Outputs	N.O. and N.C., PNP or NPN (Short-Circuit Protection)
Output Current	100mA max.
Output Saturation Voltage	2V max.
Response Time	0.5 ms, Emitters 2ms
Switching Frequency	1KHz (250Hz)
Indicators	Yellow output LED (all except emitters) Green stability LED (emitters POWER LED) Green/Red ready/error LED (Diffused with Background Suppression models only)
Setting	Sensitivity trimmer (Retroreflective and Diffuse Potentiometer)
Temperature Range	Operating: -25 to 55°C [-13 to 131°F] Storage: -25 to 70°C [-13 to 158°F]
Insulating Strength	500Vac 1 min., between electronics and housing
Insulating Resistance	> 20MΩ 500VDC, between electronics and housing
Emission Type	Red (660nm) Diffuse with background suppression & Polarized Retroreflective /infrared (880nm) Diffuse, Diffuse Potentiometer, Through-beam
Ambient Light Rejection	According to EN 60947-5-2
Vibrations	0.5 mm amplitude, 10 to 55 Hz frequency, for every axis (EN60068-2-6)
Shock	11ms (30G) 6 shock for every axis (EN60068-2-27)
Housing Material	Polybutylene terephthalate (PBT)
Lens Material	Polymethyl methacrylate (PMMA)
Mechanical Protection	IP67
Connections	2m cable, 4mm / M12 - 4-pole connector
Weight	Cable version: 75g max. Connector version: 25g max.

Connections

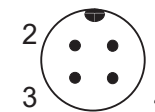
The connections are compliant to the EN-60947-5-2 standard.

Emitters

BROWN 1 + 10 ... 30 Vdc
WHITE 2 NC OUTPUT
BLACK 4 NO OUTPUT
BLUE 3 - 0 V

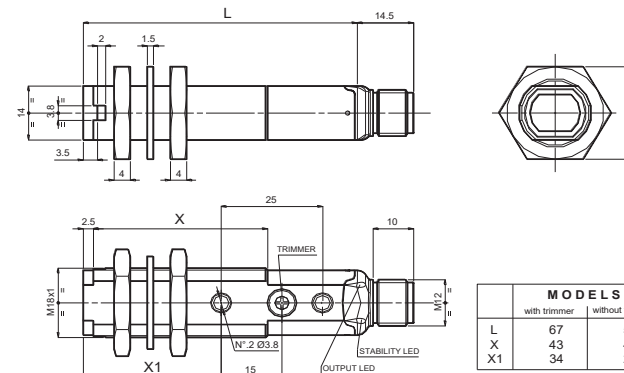
BROWN 1 + 10 ... 30 Vdc
WHITE 2 TEST +
BLACK 4 TEST -
BLUE 3 - 0 V

M12 Connector



Dimensions

Axial Version



Cable Version

