Honeywell

FSL100 Series Flame Detector Quick Start Guide

Standalone wiring

Terminal 1 has a blocking diode for reverse polarity protection and a multi-fuse for overcurrent protection

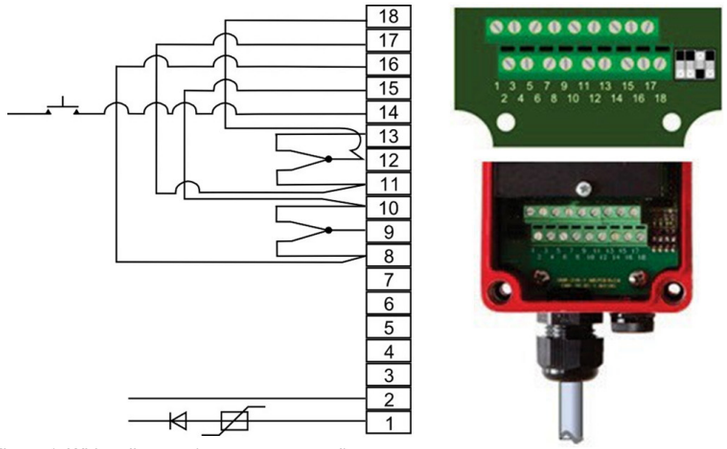


Figure 1. Wiring diagram (power on - normal)

Terminal	Input	Terminal	Input
1	+10 to +28 VDC Input	10	NC Alarm
2	–Ve Input	11	NC Fault
3	Not in use	12	MC Fault
4	Not in use	13	NO Fault
5	Not in use	14	+10 to +28 VDC Manual Self Test Input (>5 s)
6	Not in use	15	EOL Resistor
7	4–20 mA Sink Output	16	AL Resistor
8	NO Alarm	17	EOL Resistor
9	MC Alarm	18	AL Resistor

Standalone wiring with direct use of relays

- Use multi-core, shielded, twisted pair cable with earth (ground), depending on the panel and the type of connection. The isolation resistance to ground must be at least 500K ohm.
- Core size must be 0.5 to 1.5 mm^2 (20-16 AWG).
- Select the length and diameter of the wires so that the flame detector will have sufficient power under all conditions (normal and alarm) so that the operating voltage is never below 10 VDC, especially when in alarm mode.
- On the flame detector side of the cable, leave a 4 in. (10 cm) loop of spare cable to allow for alignment of the detector.
- Grounding on the flame detector side: ensure that the screen cannot make an electrical connection with ground or with the electronics in the detector housing. To avoid potential differences (ground loops), ensure that the electronics in the flame detector housing are isolated from local ground.
- Do not connect more than one detector per loop.

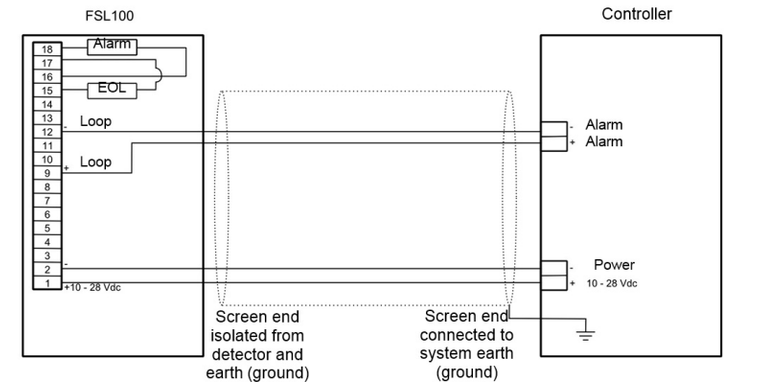
The flame detector has a cable gland fitted with an 8 mm insert. Use the cable gland with the insert for cables from 5.5 – 8 mm diameter. Remove the insert for cables of 8 – 13 mm diameter.

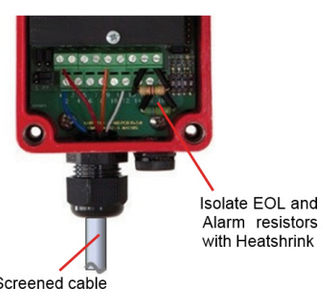
Figure 2. Cable gland with and without the cable entry insert

Wiring to a control panel

The flame detector can be connected to a fire control panel using the current increase principle. The flame detector is connected to the fire panel with three or four core cables, i.e., two cores for the power supply and one or two cores for the loop. An additional core for the manual self-test can be used.

The end of line resistor (EOL) is placed between the terminals 15 and 17. The alarm resistor (AL) is placed between terminals 16 and 18. The end of line and alarm resistors should be adapted to the fire control panel. They are approximately the same size resistors that are used when connecting a manual call point to a fire control panel.





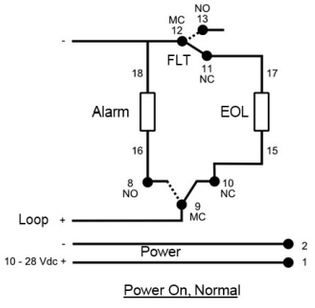


Figure 3. Control panel wiring

Wiring to a 4-20 mA current sourcing PLC

An FSL100 detector current sink can be wired to a 4-20 mA non-isolated (sourcing) output of a controller as shown in Figure 4.

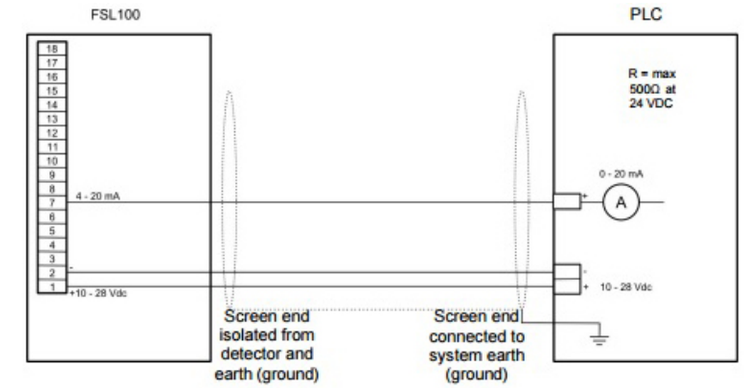


Figure 4. Wiring a current source PLC

The 4-20 mA sinking input has the following values:

- ≥4 mA = Normal operation
- ≥20 mA = Alarm
- 2 mA = Optical fault
- 0 mA = Fault

Wiring to a 0-20 mA controller with sinking input

An FLS 100 detector can be wired to a controller with 0-20 mA non-isolated (sinking) input by using the controller's alarm and fault relays, as shown in Figure 5.

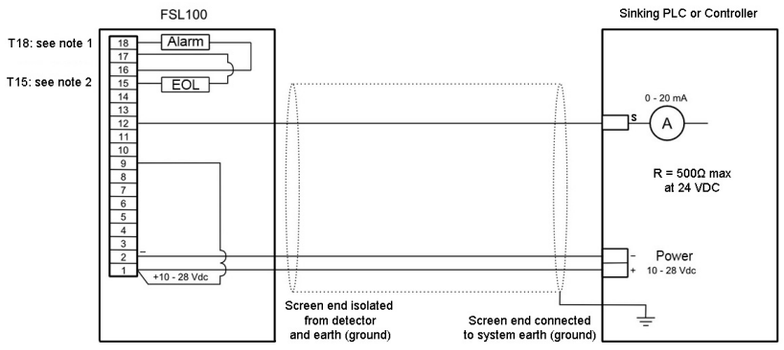


Figure 5. Wiring to a PLC or controller with a 4-20 mA sinking input

Values of the detector's 0-20 mA output:

- 4 mA = Normal operation
- 20 mA = Alarm
- 0 mA = Fault; the 0 mA current will change to 20 mA (alarm) if flames are detected while the source is in fault

Note that in this configuration two wires are connected to terminal #1. This is forbidden in some jurisdictions so verify that it is in compliance with local regulations.

- For a PLC the value of the ALARM resistor = Vnominal/20 mA, for controllers refer to the brand related resistor table.
- For a PLC the value of the EOL resistor = Vnominal/4 mA, for controllers refer to the brand related resistor table.

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