

PERTRONIC INDUSTRIES LTD

INSTALLATION / OPERATING INSTRUCTIONS



Loop Responder (For PCB versions 2.30 and greater)

Overview

The **Loop Responder** is used primarily to interface zones of conventional detectors into **Pertronic** analogue addressable fire alarm systems. Other uses include monitoring the interference switches of sprinkler valves, reading the fault and alarm status from Vesda systems, or receiving commands from a SCADA system.

Additionally, the **Loop Responder** has a set of clean change-over contacts that can be utilised by the panel and mapped as a loop relay.

The **Loop Responder** uses 9 module loop addresses—the first eight for input circuits 1 to 8, and the ninth for the relay.

A limited number of **Loop Responders** may be powered from the loop; when larger numbers are required, they may be powered from a supply or supplies that must be electrically isolated from the panel supply.

Addressing

Select the base address (01 to 91) using the two loop address switches labeled **ADDRESS** located at the bottom-right of the PCB. (Refer to the diagram overleaf.)

The **Loop Responder** uses 9 module loop addresses: the first or base address for Circuit 1; the second address (base address + 1) for Circuit 2; and so on to the eighth address for Circuit 8 (base address + 7). The ninth address (base address + 8) is assigned to the output relay.

Each loop can have a maximum of 100 modules (addresses 00 to 99), so the highest base address the **Loop Responder** can have is 91.

Smoke Detector or Switch Input Selection

Link **LK1**, located at the center-bottom of the **Loop Responder** PCB (refer to the diagram overleaf), is used to select the function of the inputs.

When **LK1** is removed, normal conventional circuit operation is used for all 8 circuits—for using smoke detectors, indicating heat detectors, and manual call points.

When **LK1** is inserted, *switch input* operation is used for all 8 circuits. This mode of operation allows the use of switch or contact opens and closures for the alarm states.

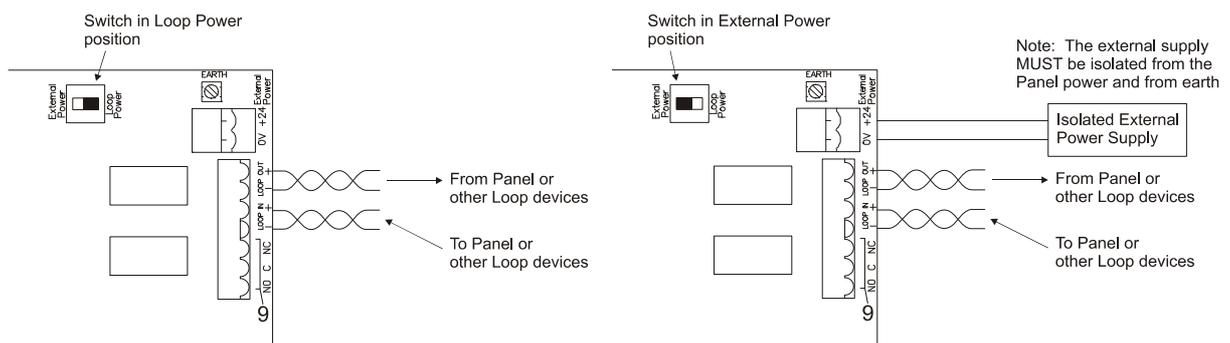
Loop and External Power Supply

Switch **S1**, located at the top RHS of the **Loop Responder** PCB, is used to select external or loop powering of the detector circuits. The micro-processor and loop interface components are always powered from the loop, but, by using **S1**, either the loop or an external supply can be selected to power the detector or switch circuits. The purpose of this is to conserve the power requirement from the loop when a number of Loop Responders are used together.

The maximum loop current allowed for all connected loop devices is 350mA per loop.

When the switch is pushed to the right—to the **Loop Power** position, the loop supplies the power to the circuits.

When the switch is pushed to the left—to the **External Power** position, the external supply provides the power to the circuits.



Loop Powered Connection

Externally Powered Connection

Loop Connection Limitations

1) Supplied from the analogue loop only:

Loop power for each Responder (no external supply):

24V, 30mA (no detectors, 10K EOL only).

For **Switch Input operation**:

add no extra current.

For **Smoke Detector operation**:

Add 2 mA for each group of 20 smoke detectors.

Add 20mA for activated smoke alarms for each circuit.

Short circuits add no extra current.

Loop Powered example 1 (10 Responders – Switch Input types):

10 Responders at 30mA each require 300mA

Loop Power Total 300mA

50mA is available for other loop devices.

Loop Powered example 2 (3 Responders – Smoke detector types):

3 Responders with 20 smoke detectors per circuit require 138mA

Allow for 5 activated smoke detectors 100mA

Loop Power Total 238mA

112mA is available for other loop devices.

2) With external supply:

Loop power for each Responder using an isolated external supply:

24V, 5mA. (The external supply powers the circuits).

Isolated external supply current for each Responder to power the circuits:

24V, 25mA (no detectors, 10K eol only).

Add 2 mA for each group of 20 detectors.

Add 20mA for activated smoke alarms for each circuit

Short circuits add no extra current.

Isolated External Supply example (8 Responders):

8 Responders require 40mA

Loop Power Total 40mA

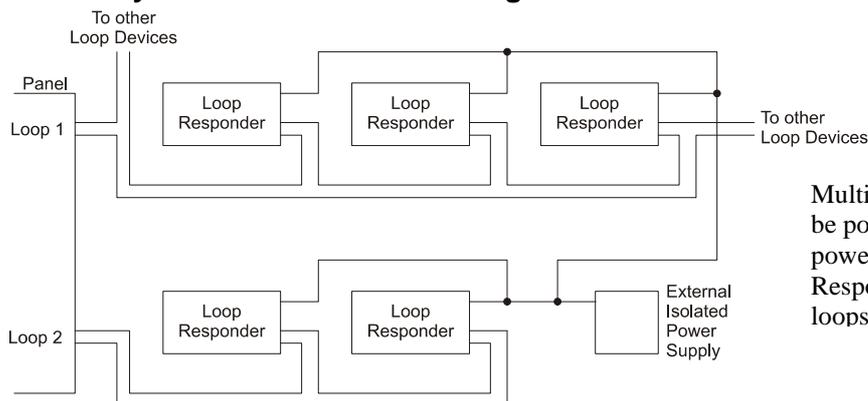
8 Responders with 20 smoke detectors per circuit require 328mA

Allow 10 activated smoke detectors 200mA

External Supply Total 528mA

310mA is available for other loop devices.

Externally Powered Connection Diagram



Multiple Loop Responders may be powered from one external power supply. The Loop Responders can be on different loops.

LK1 Location and Base Address Selection

