

PERTRONIC INDUSTRIES LTD

DATASHEET

Multi-Function Loop Responder

AALR-MFA



Analogue addressable module with eight inputs and one output

Inputs may be configured as conventional detection zones or switch inputs

Each input and output is independently addressable by the fire alarm control panel

Overview

The Pertronic Multi-Function Loop Responder (AALR-MFA) connects to a Pertronic analogue addressable (AA) signalling loop circuit. The loop responder interfaces with devices such as conventional detection zone circuits, sprinkler flow switches, aspirating detectors, or SCADA systems.

The loop responder has eight inputs and one output. The inputs may be configured as:

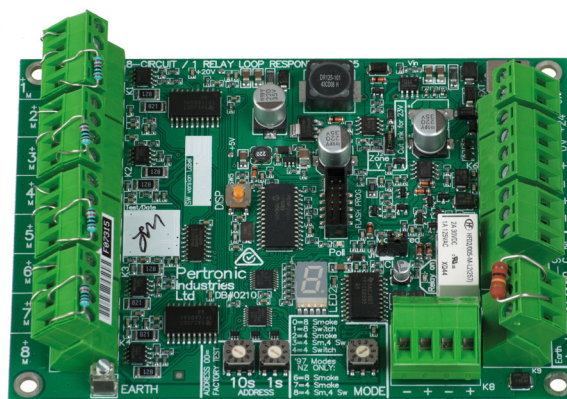
- » Smoke: To monitor conventional zone circuits containing smoke and/or heat detectors and manual call-points, using one input per zone, or
- » Switch: To monitor any device with voltage-free switch contacts, such as sprinkler flow switches, beam detectors, aspirating detector systems, SCADA systems, or similar devices. Switch inputs are supervised for wiring faults.

The following configurable input modes are available:

- » Eight detection zone inputs
- » Eight switch inputs
- » Four zones and four switch inputs
- » Four zones only
- » Four switch inputs only

In a typical application, for example, two inputs may be connected to the Alarm and Fault outputs of an aspirating smoke detector, while up to four other inputs may be connected to conventional detection zones.

The relay output may be connected as either a clean form C (change-over) contact, or as a supervised speaker



Pertronic Multi-Function Loop Responder (AALR-MFA)

connection to a 100 V line, or as a 12 Vdc to 24 Vdc bell circuit (notification appliance circuit).

A limited number of loop responders may be powered from an analogue addressable loop. Alternatively, an isolated external 24 Vdc power supply may be used.

The loop responder has a built-in isolator. If the loop responder detects a short-circuit in the signalling circuit (loop) cable, the isolator disconnects the shorted segment. This ensures that the loop responder continues to communicate with the fire alarm control panel over the undamaged side of the signalling circuit (loop).

A single short-circuit or open-circuit fault will not prevent correct operation of the loop responder.

Features

- » Analogue addressable (AA) module with eight inputs and one output
- » Connects to the signalling loop circuit on a Pertronic F220 fire system
- » Five optional input modes, selected by PCB-mounted rotary switch (see table on page 2)
- » Switch selectable power source: AA loop or external power supply
- » Provides a configurable form C (change-over) relay output which may be configured as:
 - » One voltage-free change-over relay output, or
 - » Supervised speaker switch connection to a 100 Volt line or a 12 Vdc to 24 Vdc bell (notification appliance) circuit
- » Rotary address switches
- » Built-in short-circuit isolator ensures normal operation, even with a single short-circuit or open-circuit fault in the signalling loop wiring
- » PCB-mounted seven-segment display provides status information for off-normal events
- » A cabinet is available from Pertronic, with space for one or two Multi-Function Loop Responders
- » Direct replacement for AA Loop Responder AALRES-A, F100LR-A
- » Also compatible with Pertronic F100A and F120A

Specification: Multi-Function Loop Responder

Inputs		4 or 8 smoke detection circuits and / or 4 or 8 switch inputs	
Maximum Loading		40 smoke detectors and unlimited call-points or switches per input circuit	
Detection Circuit Voltage		20 Vdc	
Relay Output		One changeover contact (NC-C-NO, Form C) rated 2.0 A @ 30 Vdc or switch a 100 V line audio circuit rated at 0.5A @ 125 Vac or a 12 Vdc to 24 Vdc bell circuit (up to 2.0 A)	
Supply Voltage	Loop-Powered	15 Vdc to 30 Vdc	
	Ext. PSU	16 Vdc to 28 Vdc	
Current:	Loop-Powered	30 mA @ 24 Vdc from signalling loop	10 kΩ end of line resistors on all eight inputs No detectors connected
	Ext. PSU	25 mA @ 24 Vdc from external PSU, plus 5 mA @ 24 Vdc from signalling loop	
		with inputs in Smoke Mode	Add 2 mA for each group of 20 conventional detectors Add 20 mA for each activated input
Addressing		Each Multi-Function Loop Responder uses 5 or 9 module addresses, depending on configuration settings Each loop provides a maximum of 99 module addresses (01 to 99)	
PCB Dimensions		138 x 98 mm	
Weight		142 g	
Operating Temperature		-10 °C to 50 °C	
Humidity		≤ 95 % RH non-condensing	

Specification: Analogue Addressable Loop Responder / Relay Case

Dimensions	310 W x 255 H x 90 D mm	Weight	1.6 kg
Material	0.8 mm mild steel powder-coated	Colour	Off-white (Dulux 915 58804)

Input Configuration Options

Rotary Switch Position	Inputs 1 - 4	Inputs 5 - 8	Relay Output Address
0	Conventional Zones	Conventional Zones	Base Address + 8
1	Switch Inputs	Switch Inputs	Base Address + 8
2	Conventional Zones	Inactive	Base Address + 4
3	Conventional Zones	Switch Inputs	Base Address + 8
4	Switch Inputs	Inactive	Base Address + 4

Ordering Information

Product Code	Description
AALR-MFA	AA Loop Responder 8 Input Multifunction with Relay Output
AALRESC	AA Loop Responder / Relay Case

The information in this document must not be treated as partial or complete instructions for the design, construction, installation, commissioning, or maintenance of fire detection, fire alarm, or building evacuation systems. Fire and evacuation systems must be designed and installed by properly qualified persons, in accordance with all regulatory requirements.

Unless explicitly stated otherwise, this document provides typical specifications and nominal dimensions. Actual product performance and dimensions may vary.

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