

XP95 SWITCH MONITOR

FUNCTION

The XP95 Switch Monitor is designed to monitor the state of one or more single pole, volt free contacts connected on a single pair of cables and to report the status to Apollo compatible analogue control equipment.

FEATURES

The Switch Monitor provides four input states to the control equipment: 'Normal', 'Fault', 'Pre-alarm' and 'Alarm'. These are derived from the switched resistive values shown in the table overleaf. The Switch Monitor has a red LED to indicate an alarm and a yellow LED to indicate a fault condition.

ELECTRICAL CONSIDERATIONS

The XP95 Switch Monitor is loop powered and operates at 17–28V DC. The Switch Monitor is designed to accept a maximum line resistance of 50Ω. The end-of-line resistor required is 20kΩ.

PROTOCOL COMPATIBILITY

The Switch Monitor operates only with control equipment using the Apollo XP95 or Discovery protocol.

PROTOCOL BIT USAGE

The control equipment transmits a 10-bit message to the Switch Monitor:

The **output (or forward command) bits** from the control panel have the following function:

When **output bit 2** is set to logic 1 on two or more consecutive cycles, the red LED is illuminated.



Part no 55000-810 (surface mount)

When **output bit 1** is set to logic 1 on two or more consecutive cycles, a self test is activated, resulting in an analogue value of 64 being transmitted to the control panel.

Output bit 0 is not used by the Switch Monitor.

The **seven bits** which are then transmitted by the control equipment correspond to the **address (as set on the DIL switch)** of the device to be polled.

A response message is then sent by the Switch Monitor to the control equipment:

The **interrupt bit** is always set to logic 0.

The analogue value bits are set to return a pre-set analogue value of 4 for open and short circuit faults, 16 during normal operation, 45–51 to indicate a pre-alarm and 64 to signal an alarm.

The **input bits** are used to confirm the operation of the corresponding output bits.

The Switch Monitor sends **seven bits** of data to confirm its **address** and then **one bit** to indicate that the device can use the XP95 protocol (**XP95 flag**).

The **alarm flag** is set if another device is in the alarm state and is not itself being interrogated. The Zone Monitor places an alarm flag every 32 polling cycles if its analogue value is 64.

The next **five bits** are the second block of analogue value data bits and are not used by the Switch Monitor.

The **parity bit** is set to '1' or '0' such that the device will always respond with an even number of data bits.

The final **seven bits** are used to transmit the **alarm/interrupt address** if the alarm flag has been set.

MECHANICAL CONSTRUCTION

The Switch Monitor is normally supplied with a back box for surface mounting. It is also available without the back box for flush mounting. Both versions are designed for indoor use only.

Two LEDs, one red and one yellow, are visible through the front cover of the enclosure.

The red LED is switched by the control panel and illuminates in the event of an alarm condition being detected.

The yellow LED illuminates in the event of a fault condition being detected.

The enclosure is moulded from the same white self-extinguishing polycarbonate as Apollo detectors.

Dimensions and weight of Switch Monitor (surface mount):

150 x 90 x 48mm

240g

Technical Data

Loop voltage	17–28V DC
Maximum current consumption, at 24V	
switch-on surge, max 65ms	2.5mA
quiescent, 20kΩ EOL fitted	730μA
input short circuit	3.5mA
LED off, switch input closed	1.3mA
LED on, switch input closed	3.4mA
LED on, switch input s/c	5.6mA
Switch input monitoring voltage	9–11V DC
Maximum cable resistance	50Ω
Operating temperature	–20°C to +70°C
Humidity (no condensation)	0–95%RH
Shock	} to EFSG/F/95/007
Vibration	
Impact	
IP rating	54
Radiated emissions	to BS EN50081–1 & 2
Radiated immunity	to BS EN50082–1

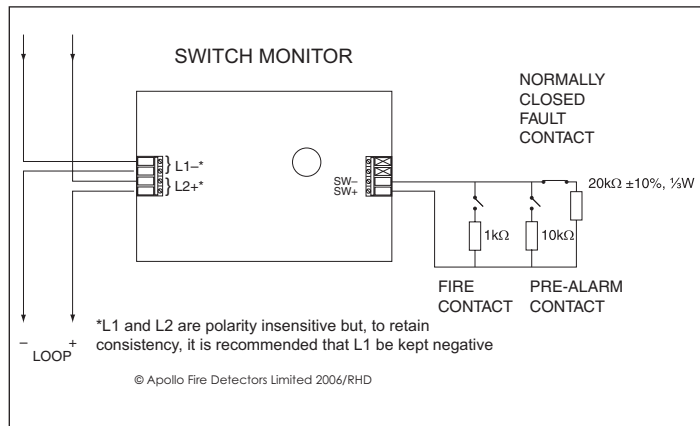
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Table of input resistances

Resistance across input	Status	Analogue Value
<100Ω	Short-circuit fault	4
100–200Ω	Indeterminate	4 or 64
200–2kΩ <i>1kΩ*</i>	Alarm	64
2–3kΩ	Indeterminate	64 or 45–51
3–11kΩ <i>10kΩ*</i>	Pre-alarm	45–51
11–15kΩ	Indeterminate	45–51 or 16
15–25kΩ <i>20kΩ*</i>	Normal	16
25–30kΩ	Indeterminate	16 or 4
>30kΩ	Open-circuit fault	4

*The values shown in italics are recommended values

Schematic Diagram and Wiring Connections



EMC DIRECTIVE 89/336/EEC

The XP95 Switch Monitor complies with the essential requirements of the EMC directive 89/336/EEC, provided that it is used as described in this PIN sheet.

A copy of the Declaration of Conformity is available from Apollo on request.

Conformity of the XP95 Switch Monitor with the EMC directive does not confer compliance with the directive on any apparatus or systems connected to it.