XP95 MINI SWITCH MONITOR

FUNCTION

The XP95 Mini 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 Mini Switch Monitor has been specially designed to fit into equipment with limited space. The unit 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 Mini Switch Monitor has an integral red LED and provision for the connection of a remote LED, which is switched automatically with the integral LED.

ELECTRICAL CONSIDERATIONS

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

PROTOCOL COMPATIBILITY

The Mini Switch Monitor operates only with control equipment using the Apollo Series 90, XP95 or Discovery protocol.

PROTOCOL BIT USAGE

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

Part no: *55000-833*

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 integral LED (and any remote LED fitted) is illuminated.

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.

When **output bit 0** is set to logic 1 on two or more consecutive cycles, a fault condition is simulated, resulting in an analogue value of 4 being transmitted to the control panel.

apollo FIRE DETECTORS LIMITED
INVESTOR IN PEOPLE
LPCB
Quality Systems Certificate No 010
Assessed to ISO 9001
A HALMA GROUP COMPANY
36 Brookside Road, Havant, Hants PO9 1JR, England
Tel: +44(0)23 9249 2412 Fax: +44 (0)23 92492754 Web Site: www.apollo-fire.co.uk Email: sales@apollo-fire.co.uk

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 Mini Switch Monitor to the control equipment:

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

The **analogue value bits** are set to return a preset analogue value of 4 for open or 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 **type bits** are used to identify the type of unit responding. The type code of the Mini Switch Monitor is set to100 01 (bits 2, 1, 0, 4, 3). Bits 2, 1 and 0 of the type code are sent immediately after the input bits. Bits 4 and 3 are sent in the XP95 protocol extension.

The Mini Switch Monitor sends **seven bits** of data to confirm its **address** before placing **one bit** of data to indicate that the device is using the XP95 protocol **(XP95 flag)**.

The **alarm flag** is set by the Mini Switch Monitor if the monitor is at analogue value 64 and the device has not been polled for 1 second.

The next two bits returned by the device are **bits 4 and 3** of the **type code**.

The next **five bits** are the **second block of analogue** value data bits and are not used by the Mini 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 address** if the alarm flag has been set.

MECHANICAL CONSTRUCTION

The Mini Switch Monitor is supplied as a PCB in a two-part polycarbonate moulding with connections being made by six 150mm flying leads. The address switch is accessible through an aperture in the moulding. When the address has been set the aperture must be sealed with the label provided, showing the setting of the address switch.

The Mini Switch Monitor is fitted with an LED which illuminates red in alarm. A remote LED connection is also provided. This is switched simultaneously with the integral LED.

Dimensions and weight of Mini Switch Monitor:
76 x 47 x 14mm 46g

Technical Data

Series 90/XP95 line voltage	17-28V DC
Maximum current consumption at 24V	
switch-on surge, max 60 ms	3mA
quiescent, 20kΩ EOL fitted	1mA
alarm LED off	1.45mA
alarm LED on	3.5mA
switch input short circuit	2mA
Switch input monitoring voltage	9-11V DC
Maximum cable resistance	50Ω
Operating temperature	–20°C to +70°C
Humidity (no condensation)	0–95%
Shock, Vibration, Impact	to EFSG/F/95/007
IP rating	54
Radiated emissions	to BS EN50081–1 & 2
Radiated immunity	to BS EN50082–1
CE marked	

Table of input resistances

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

*The values in *italics* are recommended values

Diagram to show pre-alarm, alarm and fault contacts