

XP95 Mini Switch Monitor (Interrupt)

FUNCTION

XP95 Mini Switch Monitor (Interrupt) monitors the state of one or more normally open switches connected to a single pair of cables, and reports contact status to Apollo-compatible analogue control equipment. The unit is used where a priority response is required, in particular for monitoring a zone of conventional manual call points.

FEATURES

The unit is designed to fit into equipment with limited space and provides "normal", "fault" and "alarm" states to the control equipment. The states are derived from the switched resistive values shown in Table 1. The device accepts a maximum line resistance of 50 Ω and requires a 20k Ω end-of-line resistor. The unit has an integral red LED and provision for a remote LED which is switched automatically with the integral LED.

ELECTRICAL CONSIDERATIONS

The XP95 Mini Switch Monitor (Interrupt) is loop powered and operates at 17-28V DC with protocol pulses of 5-9V.

PROTOCOL COMPATIBILITY

The unit 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 (Interrupt):



Part no: 55000-832

The **output (or forward command)** bits from the control equipment have the following functions:

When **output bit 2** is set to 1 (logic high) on two or more consecutive polling cycles, the integral LED (and any remote LED) is switched on.

When **output bit 1** is set to 1 (logic high) on two or more consecutive polling cycles, the remote test facility is initiated. Priority interrupts are sent to the control equipment and a pre-set value of 64 is generated.

Output bit 0 is not used

The **seven bits** which are then transmitted by the control panel 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 (Interrupt) to the control equipment:

The **interrupt bit** is set to 0 unless a fire contact is closed or a remote test is in progress. As soon as either event happens, the interrupt bit changes to 1 (logic high) and is transmitted for eight consecutive polling cycles. After eight cycles, during which all other data bits except the interrupt/ alarm address are set to 0, the bit reverts to 0.

The seven **analogue value bits** are set to return a value of 16 in normal state. A value of 64 is sent if an alarm or test state exists. If an open- or short-circuit fault occurs the unit returns a value of 4.

The **input bits** confirm execution of the commands given in the output bits as follows:

Input bit 2 is set to 1 (logic high) to confirm illumination of the integral LED (and remote LED, if fitted).

Input bit 1 is set to 1 (logic high) when the Mini Switch Monitor (Interrupt) is in quiescent state and 0 after a fire contact has closed and the **interrupt bit** has returned to 0.

Input bit 0 is set to 0 (logic low) when the Mini Switch Monitor (Interrupt) is in quiescent state and 1 (logic high) after a fire contact has closed and the **interrupt bit** has returned to 0.

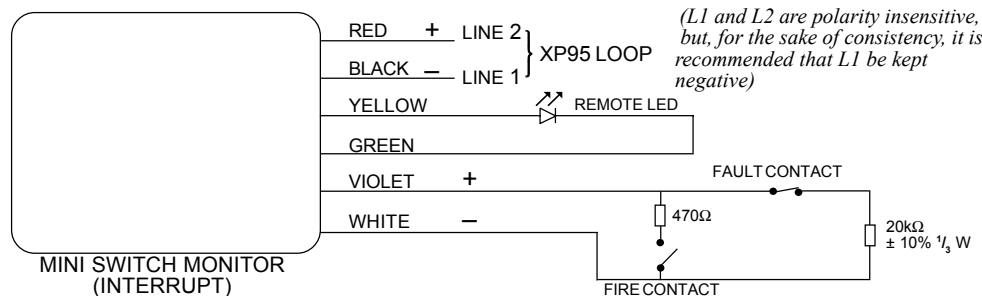
The **type bits** identify the type of unit making the response. The Mini Switch Monitor (Interrupt) type code is 111 11 (bits 2, 1, 0, 4, 3 respectively.) Bits 2, 1 and 0 are sent immediately after the input bits. Bits 4 and 3 are sent in the XP95 protocol extension.

The Mini Switch Monitor(Interrupt) 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**).

Both **extended type code bits** are set to 1

The **five bits** of the **second analogue block** are not used by the Mini Switch Monitor (Interrupt) and are set to 0.

Diagram to show alarm and fault contacts



The **parity bit** is set to 1 or 0 so that the XP95 Mini Switch Monitor (Interrupt) always responds with an even number of bits.

The final **seven bits** are used to transmit the alarm address while the interrupt bit is high.

MECHANICAL CONSTRUCTION

The Mini Switch Monitor (Interrupt) is supplied as a PCB in a two-part moulding with six 150mm flying leads for electrical connection. 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.

Dimensions and weight of Mini Switch Monitor

(Interrupt) 76 x 47 x 14 mm 46g

Technical Data

Series 90/XP95 line voltage	17-28V DC
Maximum current consumption at 24V	
switch-on surge, max 80ms	2.8mA
quiescent, 20kΩ EOL fitted	870mA
LED off, switch input closed	1.53mA
LED on	3.73mA
switch input short circuit	4mA
Switch input monitoring voltage	9-11V DC
Maximum cable resistance	50Ω
Operating temperature	-20°C to +70°C
Humidity (no condensation)	0-95%
Shock	} to EFG/F/95/007
Vibration	
Impact	
IP rating	54
Radiated emissions	to BS EN50081-1
Radiated immunity	to BS EN50130-4

Table 1 – switched resistance values

Resistance across input	Status	Analogue value
<100Ω	Short-circuit fault	4
100-200Ω	Indeterminate	4 or 64
200-11kΩ <i>470/680Ω</i>	Alarm	64
11-15kΩ	Indeterminate	64 or 16
15-25kΩ <i>20kΩ</i>	Normal	16
25-30kΩ	Indeterminate	16
>30kΩ	Open-circuit fault	4

Resistances in *italics* are recommended values.