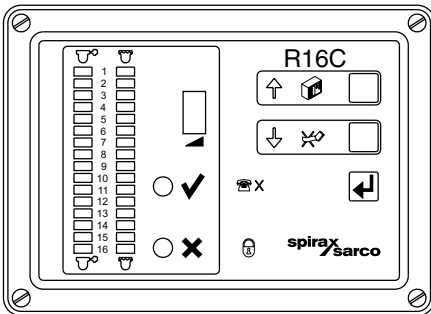


Spiratec R16C

Automatic Steam Trap Monitor

Operators Instructions

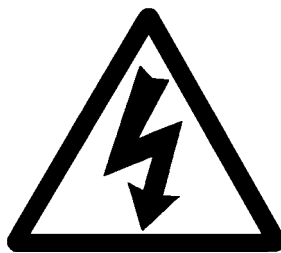


1. Introduction
2. Description
3. Description of keypad
4. Normal operation
5. Latching mode
6. Test unit mode
7. System failures

1. Introduction

The Spirax Sarco Spiratec R16C automatic steam trap monitor consists of two main parts, the sensor chamber with sensor assembly (or steam trap with integral sensor) and the R16C monitor.

The R16C can detect traps leaking steam and traps that have failed shut causing condensate to back up. To detect steam leaks, a standard SS1 sensor is installed in a sensor chamber or steam trap. To detect steam leaks and waterlogging, a WLS1 waterlogging sensor assembly is used. Passing or failed traps are shown clearly on the R16C front panel.



IMPORTANT NOTE

Refer to the Installation, Commissioning and Fault Finding manual for maintenance information.

Warning

Parts carrying this symbol protect against access to hazardous voltages and must only be removed or opened by suitably qualified personnel.

2. Description

The R16C automatic steam trap monitor constantly measures the conditions in the steam lines through the Spiratec sensors adjacent to steam traps.

If a steam trap is operating correctly, condensate will collect and submerge the sensor. In the case of steam leakage, (i.e. the trap has failed open) then the steam will blast through the line, clearing the condensate and exposing the sensor.

The R16C monitor detects the presence of condensate by measuring the resistance between the SS1 sensor and the chamber or steam trap and gives a correct operation or a fail signal accordingly.

The WLS1 steam leak and waterlogging sensor monitors steam leakage in the same way as above, but also has an inbuilt temperature sensor. In the case of the trap failing closed, the condensate which collects at the sensor will start to cool. The R16C monitor detects the lower temperature and gives a failed signal.

3. Description of keypad

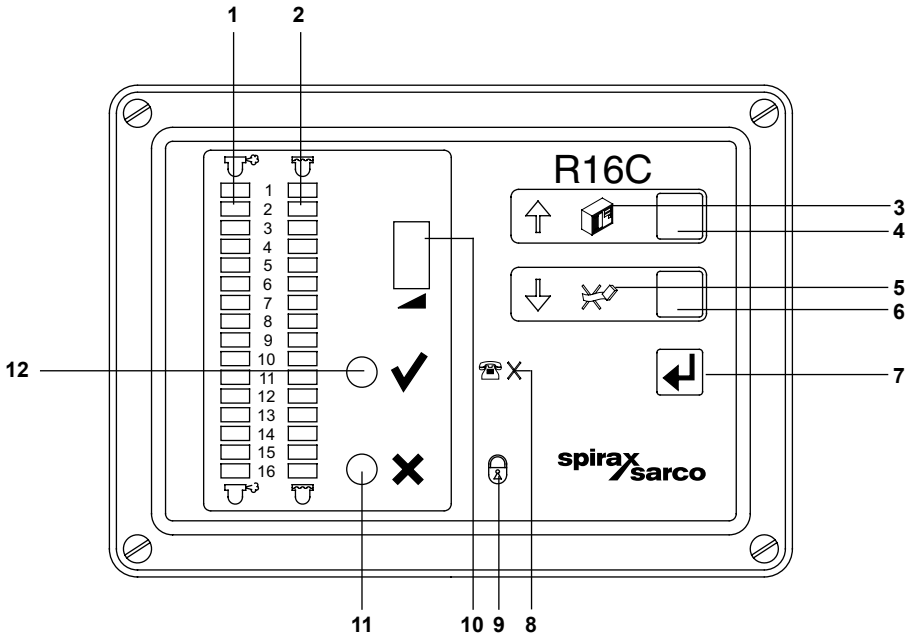


Fig. 1

1. **STEAM LEAK TRAP FAIL LED'S.** This row of TRAP FAIL LED'S indicates which trap is leaking steam.
2. **WATERLOG TRAP FAIL LED'S.** This row of TRAP FAIL LED'S indicates which trap is waterlogged.
3. **TEST UNIT LED.**
4. **TEST UNIT KEY.** Pressing and holding the TEST key will run a self test sequence (see section 6).
5. **LATCHING LED.** This illuminates when the unit is in the Latching Mode. (see section 5).
6. **ACKNOWLEDGE KEY.** Pressing the ACKNOWLEDGE key when the LATCHING LED is illuminated will acknowledge trap failures.
7. **ENTER KEY.** Not used during normal operation.
8. **COMMUNICATIONS LED.** Not currently used.
9. **SECURE MODE LED.** If an incorrect key sequence is pressed the SECURE MODE LED will flash for 5 seconds. If the unit is in Secure Mode (see the Installation, Commissioning and Fault Finding Instructions) and a protected key is pressed the SECURE MODE LED will illuminate and stay on for 5 seconds.
10. **STATUS INDICATOR.** The 7 segment LED decimal point will pulse slowly on and off during normal operation showing that the unit is functioning correctly.
11. **TRAP FAILED NOW LED.** When illuminated this LED indicates that one or more trap(s) is failing.
12. **PASS LED.** When illuminated this LED indicates that all traps are operating correctly.

4. Normal operation

During normal operation the R16C monitor will be displaying information as shown in the diagrams below.

The STATUS INDICATOR will be pulsing on and off slowly.

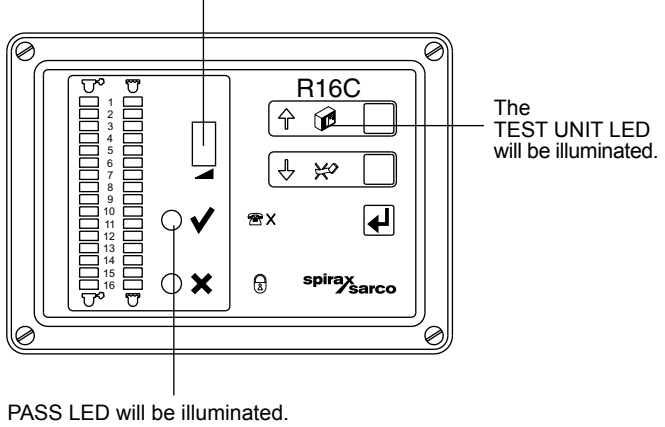


Fig. 2 R16C in normal operation with all traps operating correctly.

The STATUS INDICATOR will be pulsing on and off slowly.

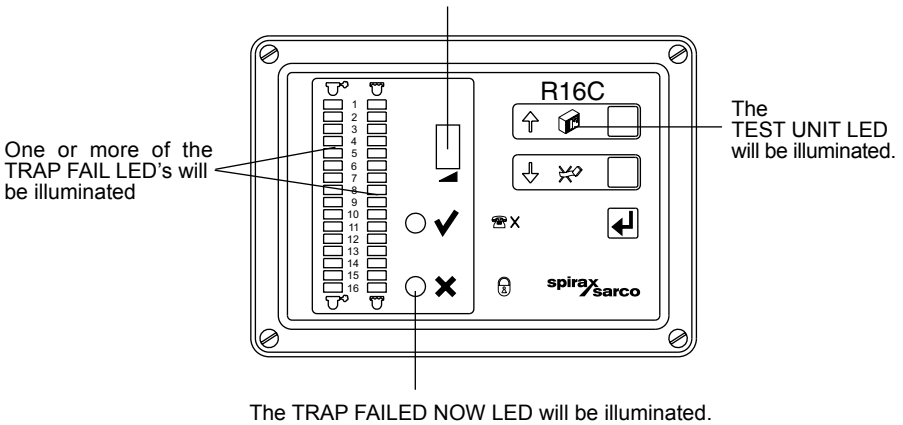


Fig. 3 R16C in normal operation with ONE OR MORE TRAPS FAILING.

Note: See sections 5 and 6 for details of Latching Mode and Test Unit Mode.

5. Latching mode

If the R16C monitor has been set up in Latching Mode (see the Installation, Commissioning and Fault Finding Manual) then the units normal operation will be as shown in the diagrams below.

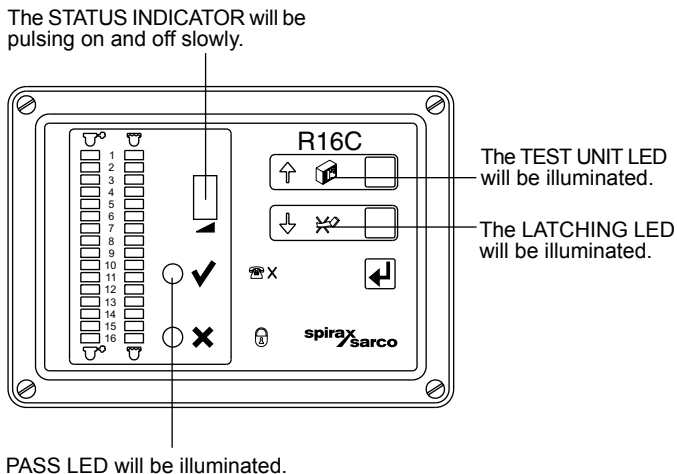


Fig. 4 R16C in Latching Mode with all traps operating correctly.

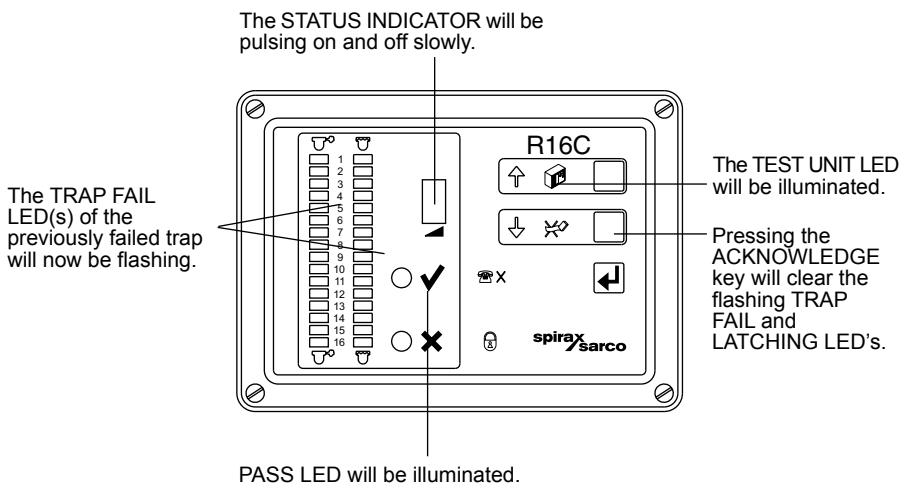
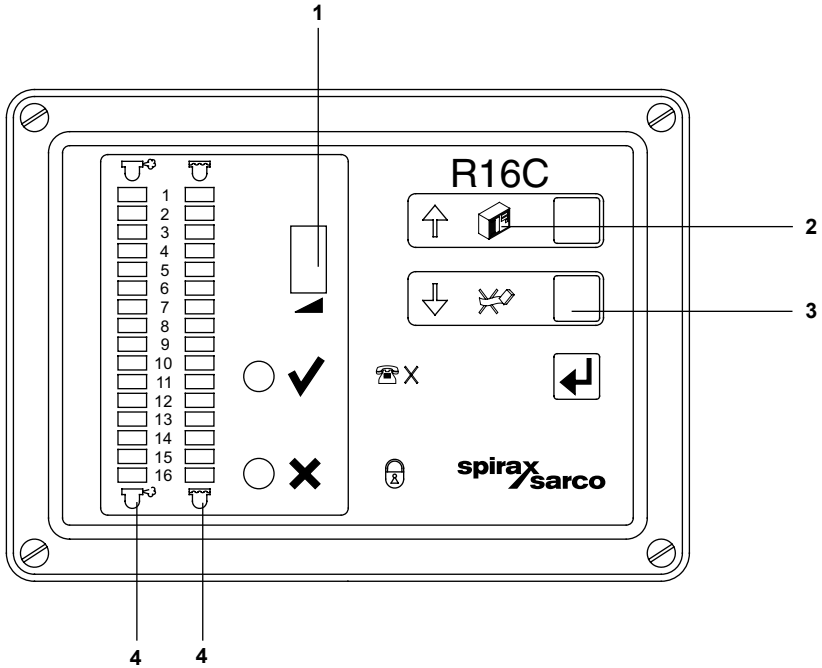


Fig. 5 R16C in Latching Mode with one or more traps having previously failed and then returned to correct operation.

Note: that the failure will be indicated as described in section 4, Fig. 3 but the LATCHING LED would also be illuminated.

6. Test unit mode

During normal operation the R16C monitor may be tested by depressing and holding down the TEST UNIT KEY.



1. Ensure the STATUS INDICATOR is slowly flashing. This indicates that the unit is running and has not locked up.
2. The TEST UNIT LED is illuminated showing that the unit may be tested.
3. Press and hold the TEST UNIT KEY.
4. The R16C monitor connects known test signals to the channel inputs and displays any fault with a flashing TRAP FAIL LED. Channels not selected will also flash. All other symbols will remain illuminated.
5. Testing will continue until the TEST UNIT KEY (3) is released. If a fault has been found refer to the Installation , Commissioning and Fault Finding Manual.

7. System failures

Refer to the Installation, Commissioning and Fault Finding Manual.

THE RETURN OF EQUIPMENT FOR REPAIR

Please provide the following information with any equipment being returned:-

1. Your name, company name, address and telephone number, order number and invoice and return delivery address.
2. Description and serial number of equipment being returned.
3. Description of the fault or repair required.
4. If the equipment is being returned under warranty, please indicate:
 - (i) Date of Purchase
 - (ii) Original Order Number

Return any items to your local Spirax Sarco branch.

Please ensure all items are suitably packed for transit (preferably in the original cartons).

