



Series CP4-R1 & R2

Capacitance sensor

USER MANUAL

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DECLARATION OF CONFORMITY

As manufacturer

**Ashridge Engineering Ltd
Unit 1a, 58 North Road Industrial Estate
Okehampton
Devon. UK
EX20 1BQ**

Hereby declares that the following products:

**Series CP4-R1 & CP4-R2
Capacitance probe**

Is in conformity with the following directives and standards:

EMC Directive 89/336/EEC and later amendments
**EN 61326
EN 50081-1, EN 50081-2
EN 50082-1, EN 50082-2**

The low voltage directive 73/23/EEC and later amendments
EN 61010-1

A handwritten signature in black ink, appearing to read 'Alan Orchard', written over a horizontal line.

Alan Orchard
For & on behalf of Ashridge Engineering Limited

CP4

Power supply

Universal power 24Vac/dc through to 265Vac/dc

Relay output(s) Maximum rating 2A at 265Vac, non inductive, de-rate accordingly for inductive loads.

Model CP4-R1 incorporates single relay with NO & NC contacts available.

Model CP4-R2 incorporates two relays with connected commons. The NO contacts are available from relay 2 and the NC contacts available from relay 1.

Mechanical Installation: Install the probe into position, ensuring that all joints are leak free

Electrical Install the unit, ensuring that all local and national safety regulations are adhered to. Ensure that the power supply is externally fused with a minimum of 2A, antisurge and that the power supply is within the specified range before energising.

Setting to work (Oil/water interface)

- 1 Ensure the sensitivity link is in the lower position (marked **Low**) and set the Timer links to OFF (marked **0**), refer to Fig 2 for positions of the links and pots.
- 2 With the probe in air (or oil) adjust the **Zero pot** until you reach the point where the Green LED is just switched ON.
- 3 With the probe in water adjust the **Span pot** until you reach the point where the Red LED is just switched ON.
- 4 Set the SETPOINT adjuster to approximate mid position (fine adjustments may be necessary for correct operation)
- 5 Set the Timer setting to the required delay (only a single link fitted).
- 6 Where it is not possible to set the Zero and Span pots in their working positions a 'water simulator' test unit may be purchased to simulate the correct working conditions for Oil/Water interface use.

CP4-R1 normal operation

With the timer set to 0 and the probe in water the Yellow Relay LED **R1** should be lit and the relay **R1** energised, pressing the 'TEST' button will cause the relay to de-energise, re-energising when the switch is released. When the probe is in the inactive position, i.e. covered with oil or air the 'TEST' button has no effect.

CP4-R2 normal operation

With the timer set to 0 and the probe in water the Yellow Relay LED **R1** should be lit and the relay **R1** energised, Relay LED **R2**, will be illuminated for approximately 20 seconds every 2.5 minutes while relay LED **R1** is also illuminated pressing the 'TEST' button will cause the relay R1 to de-energise, re-energising when the switch is released. When the probe is in the inactive position, i.e. covered with oil or air the 'TEST' button has no effect.

Troubleshooting (Oil/water interface)

- a) Ensure that the power supply is within the specified range before energising and that all local and national safety regulations are adhered to before commencing work or applying power.
- b) The power supply LED can be used to ensure the correct internal power supplies are operating normally, where the LED is not lit the following steps should be undertaken in the unlikely instance that the LED is not working.
- c) Attempt to follow steps 1 – 4 above, if none of the LED's light it must be assumed the circuit board is faulty, in this case purchase a replacement circuit board assembly, install and setup as above **as there are no user serviceable parts fitted.**
- d) **CP4-R1:** Where steps 1 – 4 can be correctly achieved and with the probe in water the Yellow Relay LED **R1** should be lit and the relay **R1** energised, pressing the 'TEST' button will cause the relay to de-energise, re-energising when the switch is released. When the probe is in the inactive position, i.e. covered with oil or air the 'TEST' button has no effect.
- e) **CP4-R2:** Where steps 1 – 4 can be correctly achieved and with the probe in water the Yellow Relay LED **R1** should be lit and the relay **R1** energised, Relay LED **R2**, will be illuminated for approximately 20 seconds every 2.5 minutes while relay LED **R1** is also illuminated. While the probe is in water pressing the 'TEST' button will cause the relay **R1** to de-energise, re-energising when the switch is released. When the probe is in the inactive position, i.e. covered with oil or air the 'TEST' button has no effect.
- f) Each of the timer delays can be checked by inserting the probe into water and timing the delay before the relay energises and the Yellow LED lights, where the timers are incorrect the circuit board must be assumed to be faulty, in this case purchase a replacement circuit board assembly, install and setup as above **as there are no user serviceable parts fitted.**

Dimensions

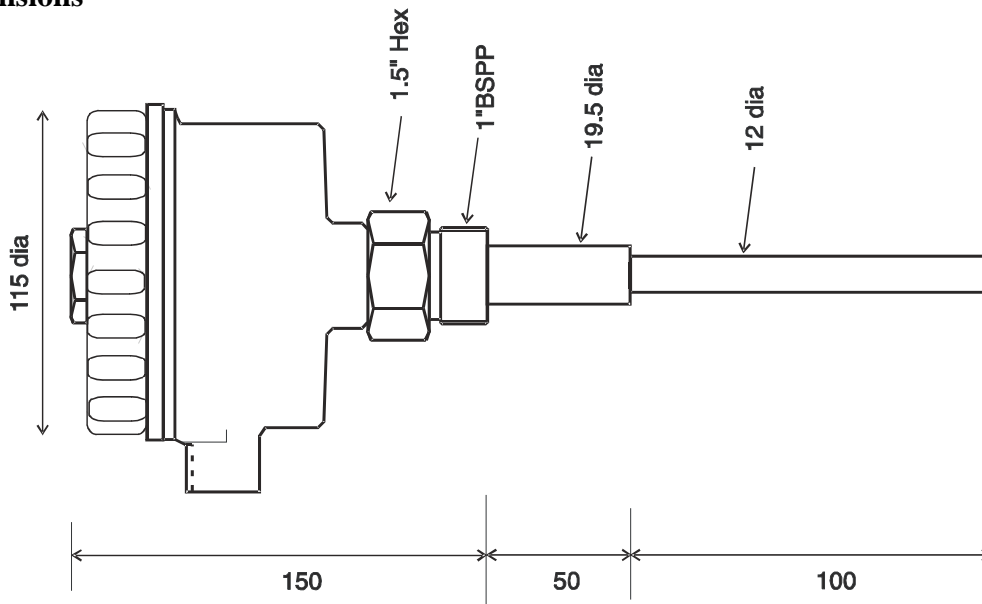
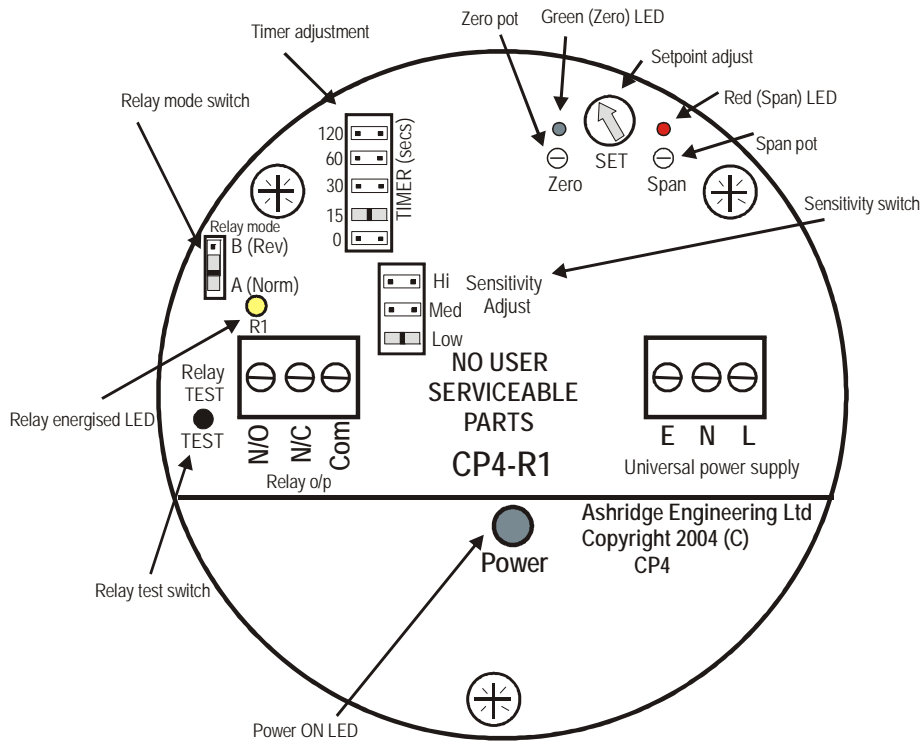


Fig 1

CP4-R1 Internal view



CP4-R2 Internal view

