

= IMPORTANT INSTRUCTIONS

[] = Topographic references

The equipment must be used only for the purposes in its scope of design.

1 INSTALLATION

N.B. The method of installation must avoid product stagnating at the fixture point. Rod probes positioned horizontally or inclined upwards (typically used as a minimum level indication for containers with conical bottoms, must have a suitably short fixing stub. A 2" Gas stub 20 mm long **fixed flush to the inside wall** of the container and the probe **firmly fixed to it** is ideal for the purpose.

- To fix cable-mounted electrodes use blocking fluid and torque tightly.
Connect the Control Unit and probe using cables which are not bundled with other connecting cables.

CAPACITIVE LEVEL CONTROL **SY2/SD1,/SD2,/SD3,/SJ1**

INSTRUCTION MANUAL INSTALLATION AND ADJUSTMENT

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SY2i_MI.doc 16-06-2004 TRIBOTECNA S.r.l. Cormano (MI) ITALY Tel./Fax+39 02-66304815

2 CONNECTIONS (terminals are plug in type to facilitate connections)

2.1 PROBE

- Connect terminals 1, 2, 3, 4 to the respective contacts on control unit terminal block **M3 [9]** using a cable with a minimum cross section of 0.33 mm².

Shielded cable is obligatory if the connections with the control unit are bundled with other electric cables. To avoid malfunctions check that the probe is fixed firmly to the container.



2.2 CONTROL UNIT POWER SUPPLY

- Make the connections using certified three-pole cable, 3 x 1 mm² H03VV-F (PVC).
When terminating the cable, the earth conductor must be longer than the power conductors.
- Block the cable and bundle the conductors close to the plug-in terminal block.
- Connect the level control to a power supply conforming to current regulations.

Apply the voltage indicated on the identification plate to contacts 1-3 on the "POWER" plug-in terminal block **M1 [4]** and connect the earth to the appropriate screw terminal **[3]**.

The power supply line must be provided with a circuit breaker with contacts spaced at least 3 mm. The circuit breaker must comply with IEC 947-1 and IEC 947-3 regulations, be easily accessible, labelled as a level control circuit breaker and located close to it.

For safety reasons, exposed control unit SY2 must be installed in a container provided with a locked door to which only technicians have access.



2.3 OUTPUT RELAY

- The output relay is provided with a SPDT contact on terminal block **M2 [5]** (**contacts are indicated with the relay de-energised**).
- Make connections using a multi-pole cable similar to the power supply cable and with a suitable cross-section to withstand the load. Fix the cable in position and bundle the conductors close to the plug-in terminal block.

3 INITIAL ADJUSTMENT

- 1) With the container empty, set switch **[6]** to the "FULL" position.
- 2) Set the relay de-energisation delay **[8]** to the minimum (turn trimmer anti-clockwise)
- 3) Set the "Fine Adjust" **[1]** knob to number 9
- 4) Set the multi-revolution "Coarse Adjust" trimmer **[10]** (about 25 revolutions) to the maximum clockwise position and then rotate anticlockwise until yellow LED **[7]** switches off.
- 5) Fill the container so that the material completely covers the electrode (yellow LED on)
- 6) Rotate the fine adjust knob **[1]** until the yellow LED switches off and record its position (eg. 2). (*If the yellow LED does not switch off even with the knob in position 1, set it to position 4 to complete the adjustment process*).
- 7) The optimum position for the knob is halfway between point 9 when the container is empty and the point when the electrode is covered, ie:
$$\frac{\text{empty position} + \text{full position}}{2} = \frac{9 + 2}{2} = \frac{11}{2} = 5.5$$

On completing the adjustment process set the Full/Empty switch according to system requirements, remembering that the relay is de-energised when there is no power supply.

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4 TYPICAL APPLICATIONS

4.1 MAXIMUM LEVEL

- Switch [6] in the up or "Full" position (container full)

When there is no material in contact with probe the relay is normally energised (LED [2] on).
When maximum level is reached, the relay is de-energised after the delay period set using the "DELAY" trimmer [8] (yellow LED [7] on during and after the delay; LED [2] off when it finishes).

4.2 MINIMUM LEVEL

- Switch [6] in the down or "Empty" position (container empty)

When the probe is in contact with material the relay is normally energised (LED [2] on).
When minimum level is reached, the relay is de-energised after the delay period set with the "DELAY" trimmer [8] (yellow LED [7] on during and after the delay; LED [2] off when it finishes).

N.B. The relay de-energisation delay can be adjusted in the range 0.5 to 20 seconds approx.
During the delay period yellow LED [7] and LED [2] are both on.

5 TECHNICAL CHARACTERISTICS

CONTROL UNIT:

- POWER SUPPLY VOLTAGE	the value is indicated on the identification plate (24V~/115V~/230V~ ± 10% 50-60 Hz)
- POWER ABSORBED	2 VA max
- RELAY	1 SPDT contact with max load of 5A 230V AC / 30 V DC, non-inductive de-energising delay [8] in range 0.5 to 20 sec.
- SENSITIVITY	0,1 pF (capacitance variation required to trigger relay)
- STABILITY	0,02 pF/°C
- ELECTROSTATIC PROTECTION	built in
- AMBIENT TEMPERATURE	-20 + 60 °C (-4°F +140°F)
- RELATIVE HUMIDITY	max 75%

PROBE:

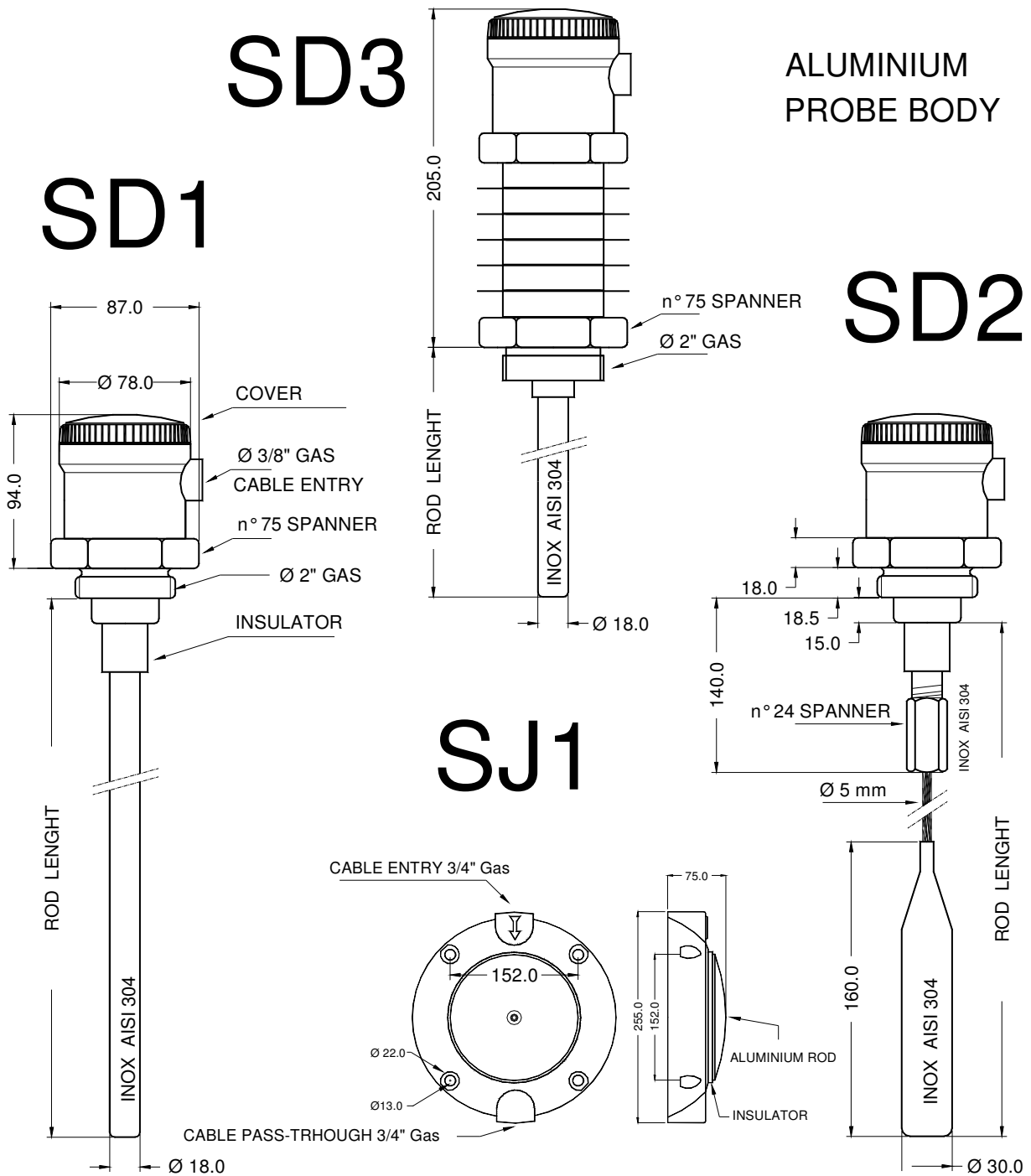
- CONTROL UNIT-PROBE DISTANCE	max 100 m (330 feet)
- PRESSURE	SD1, 2, 3 10 BAR (1 MPa) SJ 3 BAR (300 KPa)
- ELECTRODE TEMPERATURE	SJ : -20 + 60 °C (-4°F +140°F) SD1, 2 : -20 + 80 °C (-4°F +176°F) SD3 : -20 + 200 °C (-4°F +392°F)
- RELATIVE HUMIDITY	max 75%

CE CERTIFICATION

- SAFETY	:	EN61010-1
- EMC	:	EN 50081-2 EN 50082-2

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