



# T PROBES

## Capacitive Level Control CC Series

ELECTRONIC EQUIPMENT

ACOUSTIC

WEIGHING

ANTI-TILTING

VALVES

TEMPERATURE

DETECT A FIRE®

FLOW/RATE

DENSITY

INTERFACE

PRESSURE

LEVEL

TF 04

The capacitive level control CC series is extremely versatile and meets the demands for compactness, ease of installation, space-saving and cost-effectiveness. The CC is based on the capacitive principle and has been designed with the aim of making the set of elements required for measurement detection as compact as possible. The CC consists of the capacitive probe and an electronic board, on which other boards are mounted. The operating principle is to measure the electrical capacity inside tanks, silos, etc. The electrical capacitance is measured between the probe and the tank walls (in the case

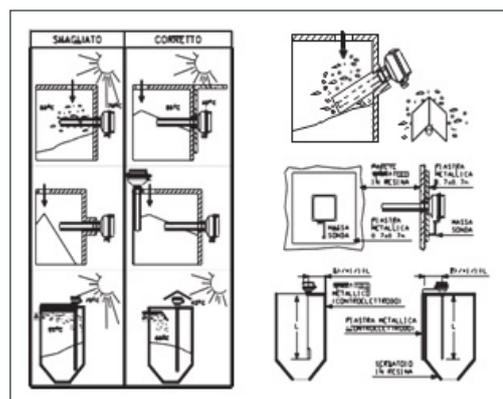
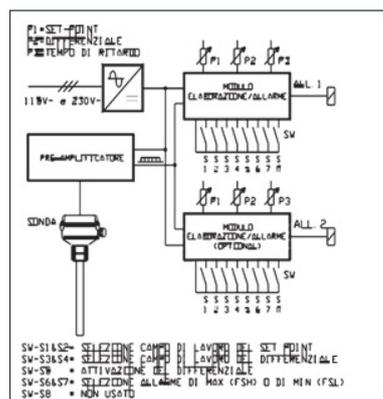
of tanks made of resin, cement or other electrically non-conductive material, a counter electrode must be installed). As the capacitance value varies with the fluids between the two reference points (probe - tank wall), there are consequently two distinctly different capacitance values between the phase in which the electrodes are immersed in air or gas and the phase in which liquids, powders, or granulates are between the probe and wall. This change in capacitance is processed by the electronics, which outputs one or two alarms, depending on the model.

### Principle of operation

The probe is excited by a radio frequency signal (approx. 2MHz). When the level in the process changes, the electrical capacitance inside the tank changes. This leads to a change in the output frequency of the preamplifier. This change is measured and compared with the calibrated values on the processing/alarm module. After proper amplification, the signal obtained is used to trigger one or two alarms with relay output.

### Installation

Installation depends on the size of the tank and the type of probe chosen. The arrangement of the probe, on the tank, must be designed so that the incoming product does not interfere with it. Avoid placing two probes with a minimum distance between them of less than 500 mm. Important: if the process tank is not of a metal type, i.e. PVC, GRP, plastic, concrete, etc., a counter electrode must be installed. This can be a metal rod installed parallel to the measuring probe or a metal strip attached to the outside of the vessel itself.



# Capacitive measurement and control probes

## Totally insulated probes

For continuous measurements on any type of liquid or solid product, electrically conductive or not. For on/off control with those products that form conductive bridges between probe and wall.

## Partially insulated probes

For continuous measurements on all non-conductive materials. For on/off control on insulating or non-insulating products that do not form conductive bridges between probe and wall.

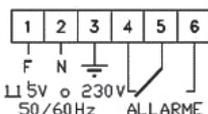
## The choice of probe type must take into account that:

During operation, the product must never damage the probe's insulation (abrasion of solids, chemical aggression), nor must it form large material deposits, nor exert such pressure as to mechanically decouple the probe connection.

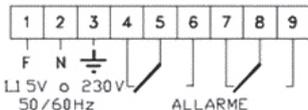
*N.B. If a flanged connection is required, please specify the type of material and flange to go with the chosen probe. The probe thus formed will be identified with a TSXXXX code. If a counter-electrode is required, specify the material and type of connection to be matched to the probe chosen.*

*The probe thus formed will be identified with an abbreviation TSXXXX.*

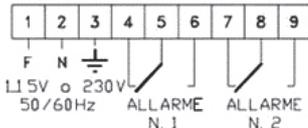
### CC-94-SPDT



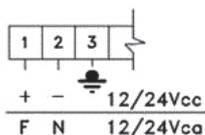
### CC-94-DPDT



### CC-94-2SPDT



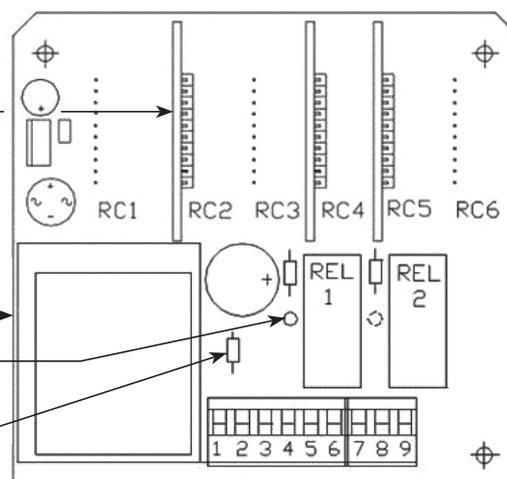
MODULO/I STABILIMENTE ANCORATO AL CIRCUITO STAMPATO MADRE



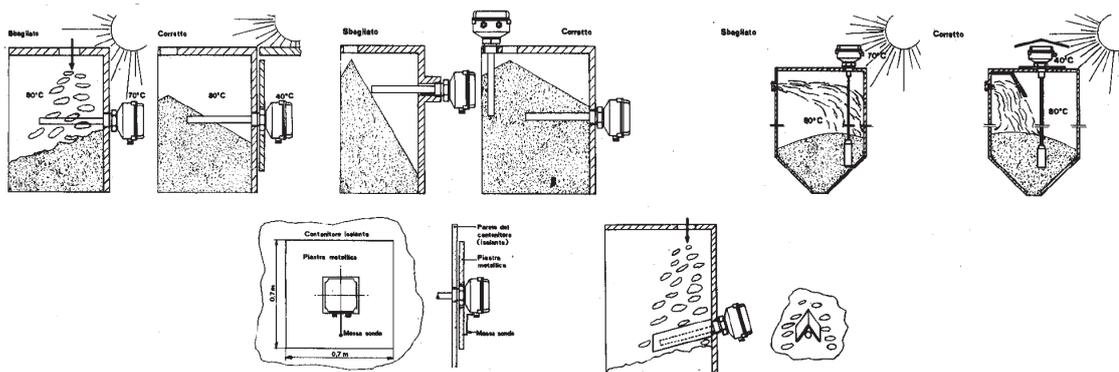
CIRCUITO STAMPATO MADRE

LED GIALLO

RESISTENZA RF

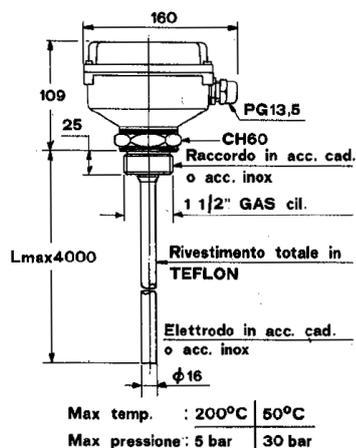


## Installation

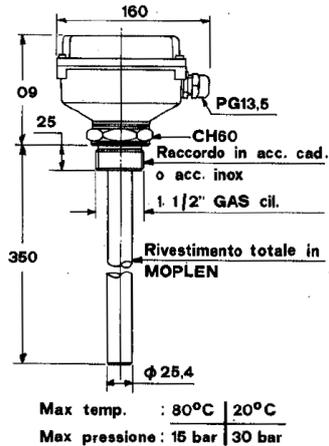


# Capacitive control probes

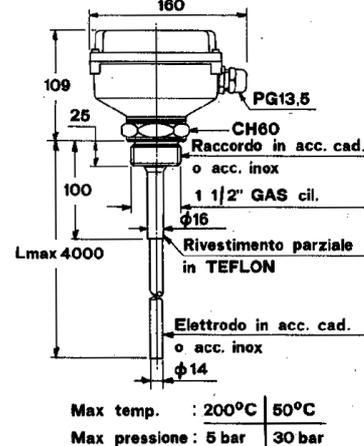
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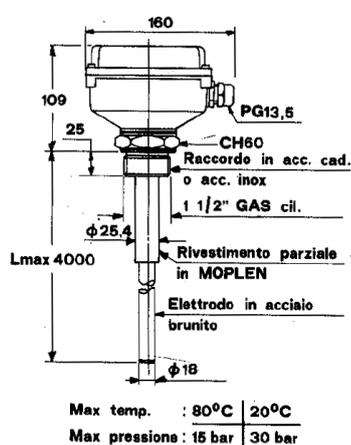
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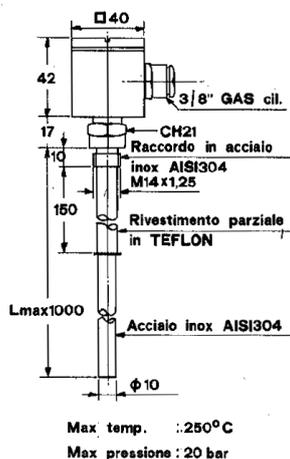
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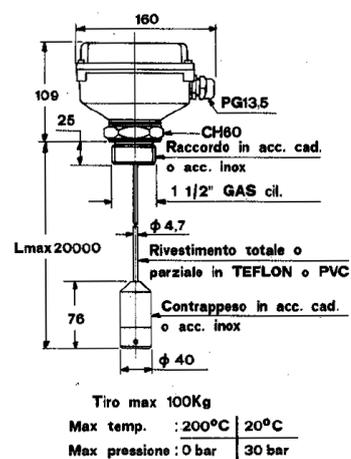
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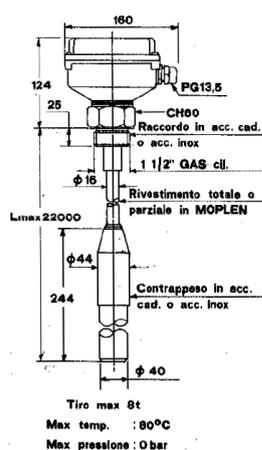
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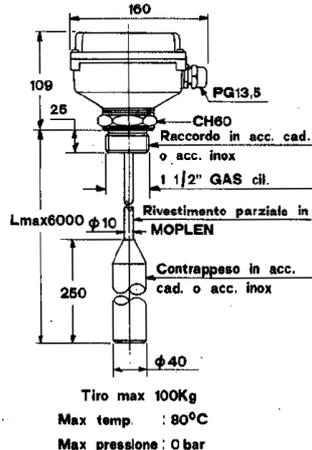
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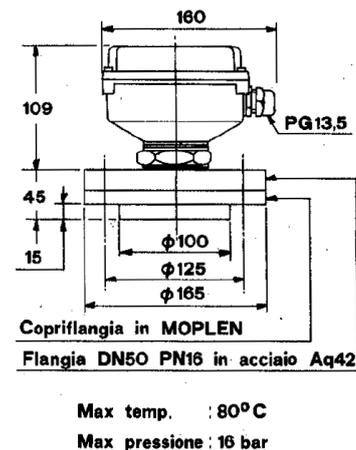
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# Technical Specifications

Power supply	Standard: 230V $\pm$ 10% 50/60Hz On request: 115V 50/60Hz, 24V 50/60Hz, 24Vdc
Absorption	CC SPDT & CC DPDT 2,5VA CC 2SPDT 5VA
Output	DC SPDT n. 1 alarm - 1 relay SPDT form C, 5A at 230Vac non-inductive DC DPDT n. 1 alarm - 1 relay DPDT form C, 5A at 230Vac non-inductive DC 2SPDT n. 2 independent alarms - 2 SPDT relays form C, 5A at 230Vac non-inductive
Delay time	Variable from 50ms to 10 seconds
Safety	Selectable via DIP - SWITCH
Min safety FSL	With the material below the intervention or set-point The red LED on the processing/alarm module is on Yellow LED on the motherboard is off and the relay is de-energised
Safety of max FSH	With the material above the switching point or set-point The red LED, on the processing/alarm module, is on The yellow LED, on the motherboard, is off and the relay is de-energised
Feature	Set-point and differential adjustments are completely independent
Differential	0.5pF minimum up to ~ 100,000pF 2mm water up to 60m (field adjustable)
Temperature range	- 40 $\div$ 60°C
Stability	0,1 %/°C
Sensitivity	1% calibration up to 1000pF
Certification	CE