



KOTRON® R.F. 2-WIRE Level Transmitter

The Kotron 2-Wire R.F. capacitance transmitter is one of the most cost effective level transmitters available today. Compact in size, it employs state of the art technology for a stable, accurate signal in a wide range of materials.

FEATURES

- * Uses state of the art technology to provide a stable, more accurate signal.
- * 4-20 mA isolated output signal.
- * Utilizes a 24 V DC current loop for power source and signal transmission.
- * Input voltage of 14 to 40 V DC at transmitter terminals.
- * Potted electronics are vibration resistant, protect electronics from the environment and allow easier wiring.
- * Has integral metering points to allow the local measurement of 4-20 mA loop current without breaking the two-wire circuit loop.
- * Power indicator LED varies in brightness with level changes.
- * Available with a full range of rigid and flexible sensing probes to 345 bar (5000 PSIG) and 540°C (1000°F).

APPLICATIONS

- Clean or Dirty Liquids
- Viscous Liquids
- Light Slurries
- Corrosive Liquids
- High Temperature Liquids
- Chemicals
- Hydrocarbons & Solvents
- Food & Beverage
- Powders & Granulars

Stable 4-20 mA analog signal



AGENCY APPROVALS

Agency	Approval
ATEX	II 1G EEx ia II C T6, intrinsically safe
FM/CSA ^①	Intrinsically safe: Class I, Div. 1, Groups A, B, C & D; Class II, Div. 1, Groups E, F & G; Class III CSA approval only valid with insulated probes.
CSA ^①	Explosion proof: Class I, Div. 1, Groups C & D; Class II, Div. 1, Groups E, F & G

^① Consult factory for proper selection data.

PRINCIPLE OF OPERATION

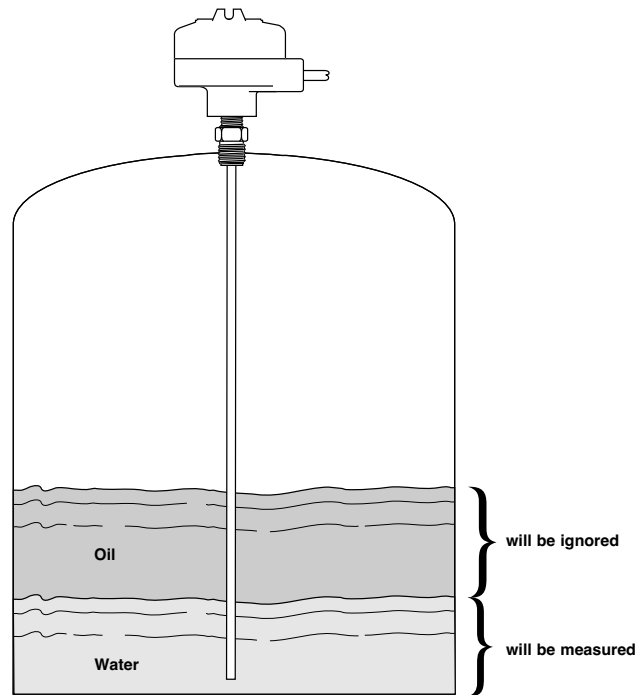
The amount of capacitance developed in any vessel, is determined by the size (surface area) of the probe, the distance from the probe to its ground reference (e.g. tank wall), and the dielectric of the medium it is measuring.

If the probe's mounting position is fixed, and the dielectric value of the medium is constant, then the amount of capacitance developed in any vessel becomes dependent upon the probe's total surface area. Both a probe's diameter and length determine its surface area.

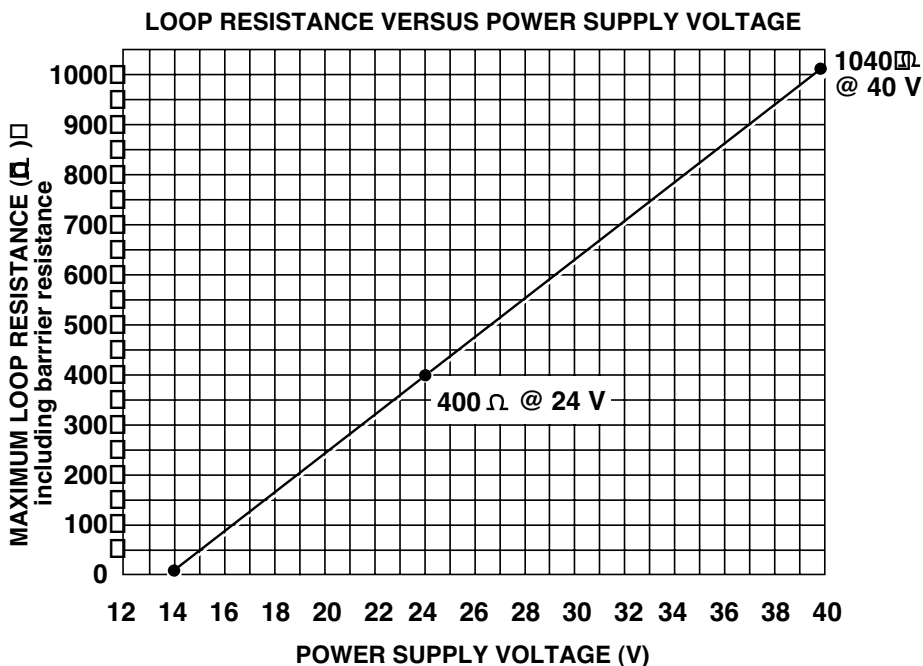
Adjusting the combination of the probe's diameter and length (and of course its proximity to ground) in any given application can generate the necessary capacitance required by the electronic circuitry.

As media rises and falls in the tank, the amount of capacitance developed between the sensing probe and the ground also rises and falls. This change in capacitance is converted into a pulse wave form, proportional to the change in level. The amplifier then converts the proportional pulse signal into a 4-20 mA output signal.

INTERFACE APPLICATION – EXAMPLE



ELECTRICAL DATA



EXPEDITE SHIP PLAN (ESP)

Magnetrol has implemented a quick delivery programme 'ESP', for the most popular units and options. The colour coded selections represent those that benefit from the shortest lead times.

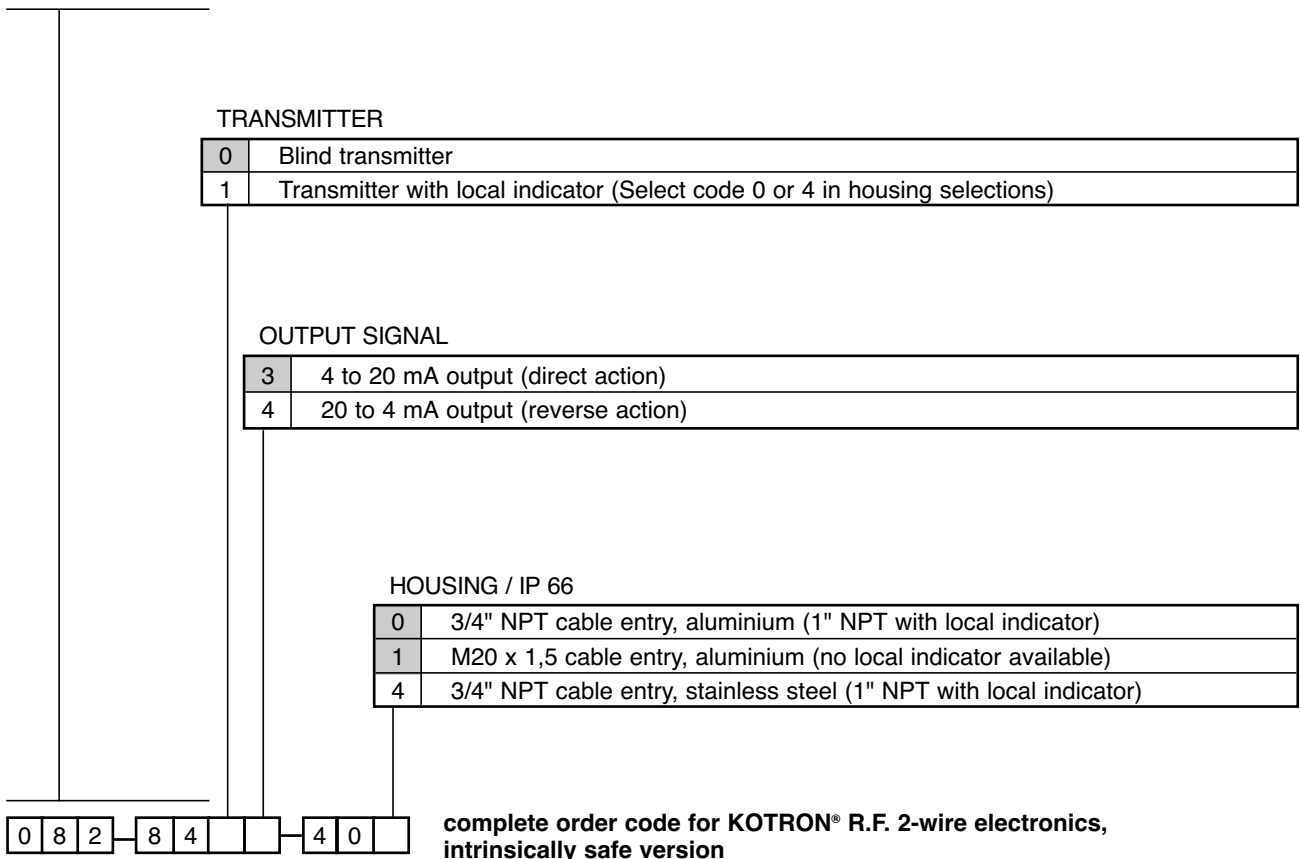
SELECTION DATA

A complete measuring system consists of:

1. Order code for KOTRON® electronics
2. Probe selection; a full range of rigid and flexible probes for conductive and non-conductive media is available (see bulletin BE 50-125)

Order code for KOTRON® electronics

0 8 2 - 8 4 24 V DC, 2-wire KOTRON® electronics, intrinsically safe version



ELECTRICAL SPECIFICATIONS

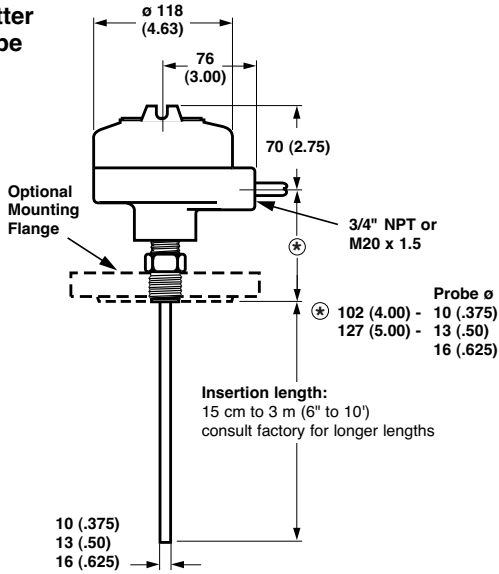
Description	Specification
Supply Voltage	14 to 40 V DC
Current	38 mA max.
Line Variation	Less than $\pm 0.10\%/V$, for voltages between 14 to 40 V DC
Ambient Temperature	-40°C to +70°C (-40°F to +160°F)
Zero Range	1000 pF (Max.) 0 pF (Min.)
Span Range	4000 pF (Max.) 40 pF (Min.)
Output Linearity	Less than 1% deviation from end point straight line
Response Time	Less than 0.1 s
Repeatability	Better than $\pm 1.0\%$
Temperature Coefficient of Output	4000 pF span: Less than 0.063%/°C (0.035%/°F)
-40°C to +70°C (-40°F to +160°F)	1000 pF span: Less than 0.045%/°C (0.025%/°F)
	50 pF span: Less than 0.135%/°C (0.075%/°F)

DIMENSIONS IN mm (inches)

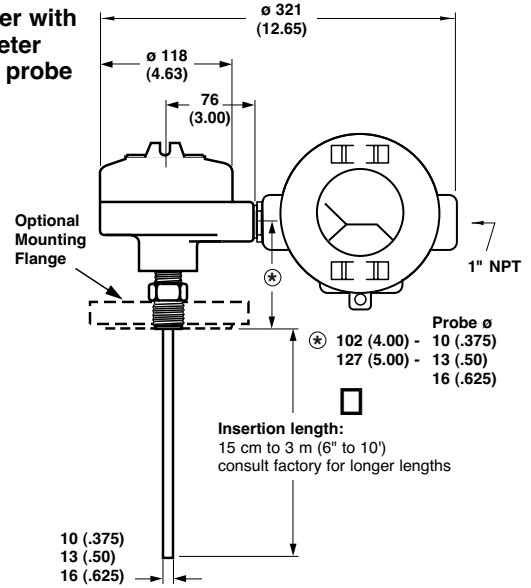
INTEGRAL MOUNT

NOTES: Allow 102 (4.00) overhead clearance for cover removal.

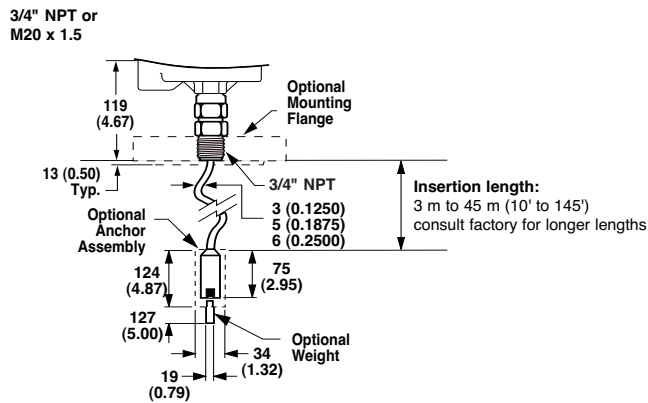
Blind transmitter with rigid probe



Transmitter with analog meter with rigid probe



Blind transmitter with flexible probe



QUALITY ASSURANCE - ISO 9001:2000



THE QUALITY ASSURANCE SYSTEM IN PLACE AT MAGNETROL GUARANTEES THE HIGHEST LEVEL OF QUALITY DURING THE DESIGN, THE CONSTRUCTION AND THE SERVICE OF CONTROLS. OUR QUALITY ASSURANCE SYSTEM IS APPROVED AND CERTIFIED TO ISO 9001:2000 AND OUR TOTAL COMPANY IS COMMITTED TO PROVIDING FULL CUSTOMER SATISFACTION BOTH IN QUALITY PRODUCTS AND QUALITY SERVICE.

PRODUCT WARRANTY

ALL MAGNETROL ELECTRONIC AND ULTRASONIC LEVEL CONTROLS ARE WARRANTED FREE OF DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE FULL YEAR FROM THE DATE OF ORIGINAL FACTORY SHIPMENT. IF RETURNED WITHIN THE WARRANTY PERIOD; AND, UPON FACTORY INSPECTION OF THE CONTROL, THE CAUSE OF THE CLAIM IS DETERMINED TO BE COVERED UNDER THE WARRANTY; THEN, MAGNETROL INTERNATIONAL WILL REPAIR OR REPLACE THE CONTROL AT NO COST TO THE PURCHASER (OR OWNER) OTHER THAN TRANSPORTATION. MAGNETROL SHALL NOT BE LIABLE FOR MISAPPLICATION, LABOR CLAIMS, DIRECT OR CONSEQUENTIAL DAMAGE OR EXPENSE ARISING FROM THE INSTALLATION OR USE OF THE EQUIPMENT. THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED, EXCEPT, SPECIAL WRITTEN WARRANTIES COVERING SOME MAGNETROL PRODUCTS.



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UNDER RESERVE OF MODIFICATIONS

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