



# Kotron<sup>®</sup> Tip Sensitive RF Level Sensor

## DESCRIPTION

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Kotron Tip Sensitive Level controls can be utilized in liquid or bulk material applications. There are no moving parts in contact with the medium. These units are integral systems with the sensing probe mounted with the electronics.

## FEATURES

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- Integral NEMA 4X/7/9 aluminum enclosures
- Probe length can be field modified from 14" (356 mm) standard length to a minimum of 4" (100 mm)
- 316 stainless steel probe
- Maximum pressure up to 3000 psig @ +100° F (205 Bar @ +40° C)
- Dielectric constant as low as 2.0
- 5 amp SPST relay
- Field selectable fail-safe jumper wire

## APPLICATION

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Economical solution for integral point sensor in:

- Liquids
- Slurries
- Dry bulk material



## TECHNOLOGY

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As material covers the probe, there is a change in the dielectric of the material surrounding the probe. This creates an increase in capacitance which is detected by the electronics and converted into a relay activation. When the probe is uncovered, the capacitance is reduced and the relay is reset.

## ELECTRICAL SPECIFICATIONS

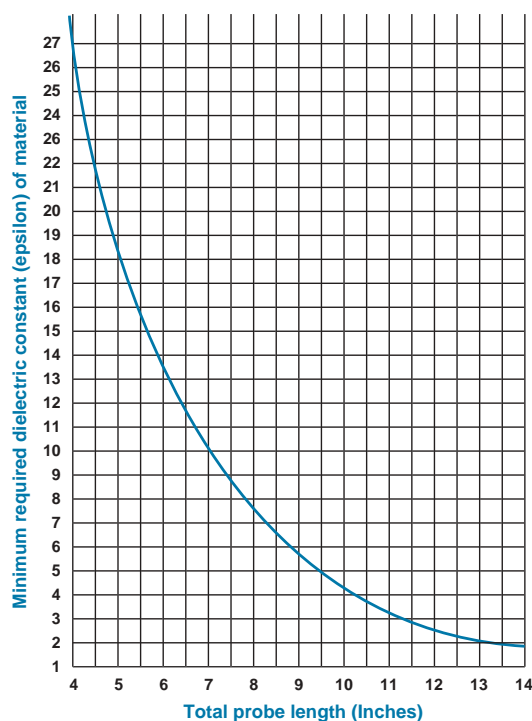
Supply voltage		120 VAC, +10%, -15%, 50–60 Hz
		240 VAC, +10%, -15%, 50–60 Hz
		24 VAC, $\pm 10\%$
Power consumption		120 VAC, less than 5 volt-amperes
		240 VAC, less than 5 volt-amperes
		24 VAC, 1 watt maximum
Zero range		0 pF (minimum) to 350 pF (maximum)
Fixed minimum differential		0.5 pF minimum
Output relays	AC	(1) Reversible SPST 120/250 VAC, 5 amp resistive
	DC	(1) Reversible SPST 30 VDC, 5 amp resistive
Response time		100 milliseconds
Repeatability		Better than 1.0%
Ambient temperature at electronics		-40° to 160° F (-40° to +70° C)
Operating pressure/temperature		3000 psig @ +100° F (205 Bar @ +40° C)
		2100 psig @ +160° F (145 Bar @ +70° C)
		450 psig @ +250° F (31 Bar @ +120° C) horizontal mount
		450 psig @ +200° F (31 Bar @ +93° C) vertical mount
Temperature coefficient		+0.05 pF per degree F (+0.09 pF per degree C)

## PROBE LENGTH vs. DIELECTRIC CONSTANT



At the 14" (356 mm) standard length, the probe will operate in any material with a dielectric constant above 2.

A minimum probe length of 4" (102 mm) is permissible in a conductive liquid (dielectric of 24 or greater). The full length should be maintained in a non-conductive liquid or bulk material.

If the geometry of your application requires a probe shorter than 14" (356 mm), refer to the chart at right.



# AGENCY APPROVALS

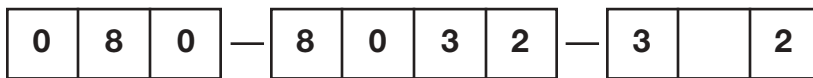
Agency	Model Approved	Protection Method	Area Classification
<b>FM</b>  APPROVED	080-8032-3X2	Explosion Proof	Class I, Div. 1, Groups A, B, C & D Class II, Div. 1, Groups E, F & G Class III, NEMA 4X
<b>CSA</b> 	080-8032-3X2	Explosion Proof	Class I, Div. 1, Groups C & D Class II, Div. 1, Groups E, F & G Class III, TYPE 4X

## MODEL NUMBER

### TIP SENSITIVE SWITCH

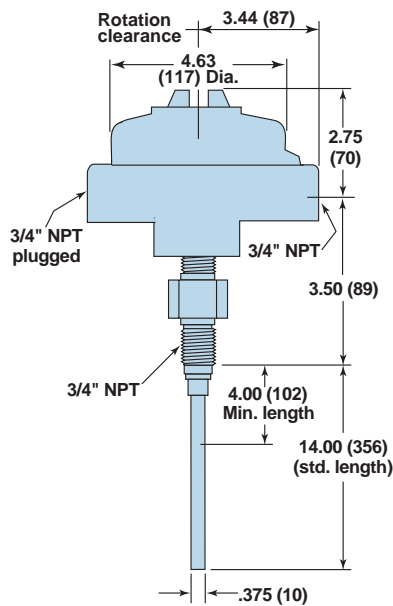
#### INPUT POWER

0	120 VAC; current less than .055 amp
1	240 VAC; current less than .035 amp
2	24 VDC; current less than .030 amp



## DIMENSIONAL SPECIFICATIONS

### INCHES (MM)



## QUALITY

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The quality assurance system in place at Magnetrol guarantees the highest level of quality throughout the company. Magnetrol is committed to providing full customer satisfaction both in quality products and quality service.

Magnetrol's quality assurance system is registered to ISO 9001 affirming its commitment to known international quality standards providing the strongest assurance of product/service quality available.

## ESP

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### Expedite Ship Plan

All Kotron Tip Sensitive RF Level Sensors are available for quick shipment, usually within one week after factory receipt of a purchase order, through the Expedite Ship Plan (ESP).

ESP service may not apply to orders of ten units or more. Contact your local representative for lead times on larger volume orders, as well as other products and options.

## WARRANTY

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All Magnetrol electronic level and flow controls are warranted free of defects in materials or workmanship for five full years 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 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 equipment. There are no other warranties expressed or implied, except special written warranties covering some Magnetrol products.

For additional information, see Instruction Manual 50-606.

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