



## Kotron® Model 810 RF Point Level Switch

### DESCRIPTION

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The Kotron Model 810 is a single point switch for alarm applications using RF Capacitance technology. A guarded probe and intrinsically safe probe circuit are provided. The alarm point is tip sensitive in conductive media and adjustable in non-conductive media. These units are integral systems with the sensing probe mounted with the electronics.

### FEATURES

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- Sensitive and stable electronics detect even the most non-conductive hydrocarbons
- Guard circuit and probe reject build-up of conductive media
- Equipped with a 316 SS/Ryton probe available in 18" (450 mm) and 36" (920 mm) lengths
- Probe is ideal for high pressure applications – rated to 3500 psig at +100° F (240 bar at +40° C), 1750 psig at +200° F (120 bar at +95° C)
- Intrinsically safe probe circuitry allows safe use in hazardous media
- 5A DPDT relay is usable in most standard alarm applications
- LED shows the status of the relay and aids in calibration and troubleshooting
- Zero to 45 second time delay feature eliminates relay "chatter" due to turbulence
- Field selectable high level/low level failsafe



### APPLICATIONS

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- Clean or dirty liquids
- Viscous liquids
- Light slurries
- High temperature/pressure liquids
- Foods and beverages
- Powders and granulars
- Hydrocarbons and solvents
- Acids and caustics

# TECHNOLOGY

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, and the dielectric of the medium being measured. Considering that the probe's mounting position is fixed, and that the dielectric value of the medium is constant, then the amount of capacitance developed in any vessel becomes dependent



upon the amount of the probe which is covered by the media.


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 measured in the electronics. When the capacitance measurement is the same as the setpoint, an alarm occurs.

# SPECIFICATIONS


Supply voltage	120 VAC, 50–60 Hz (+10%, -15%)
	240 VAC, 50–60 Hz (+10%, -15%)
	24 VDC (±10%)
	12 VDC (±10%)
Power consumption	120 or 240 VAC Less than 5 volt-amps
	12 or 24 VDC 1 watt maximum
Zero range	0 pF minimum to 500 pF maximum
Fixed differential	0.5 pF
Output relays ( reversible DPDT)	AC 5 amp @ 250 VAC resistive
	DC 5 amp @ 30 VDC, 0.5 amp @ 125 VDC resistive
Response time	100 milliseconds
Repeatability	Better than 1.0%
Ambient temperature	Electronics -40° to +160° F (-40° to +70° C)
Operating process pressure/temperature	3500 psig @ +100° F (240 bar @ +40° C)
	1750 psig @ +200° F (120 bar @ +95° C)
Temperature coefficient of set point	
	-40° to +160° F (-40° to +70° C) ±.01% per degree F of setpoint
	(±.018% per degree C of setpoint)

# AGENCY APPROVALS

Agency	Approved Model	Protection Method	Area Classification
	All models	Explosion Proof	Explosion proof with intrinsically safe probe circuit Class I, Div. 1, Groups C & D Class II, Div. 1, Groups E, F, & G General purpose NEMA 4X
	All models	Explosion Proof	Explosion proof with intrinsically safe probe circuit Class I, Div. 1, Groups C & D Class II, Div. 1, Groups E, F, & G General purpose TYPE 4X

 These units have been tested to EN 50081-2 and EN 50082-2 and are in compliance with the EMC Directive 89/336/EEC.

# MODEL NUMBER

 Models available for quick shipment, usually within one week after factory receipt of a complete purchase order, through the Expedite Ship Plan (ESP).

## BASIC MODEL

810 Kotron RF Capacitance Level Switch

### INPUT POWER

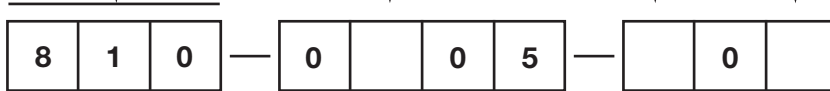
0	120 VAC
1	240 VAC
2	24 VDC
3	12 VDC

### HOUSING

D	NEMA 4X/7/9 Groups C & D, aluminum, 3/4" NPT conduit
Y	NEMA 4X/7/9 Groups C & D, 316 SS, 3/4" NPT conduit

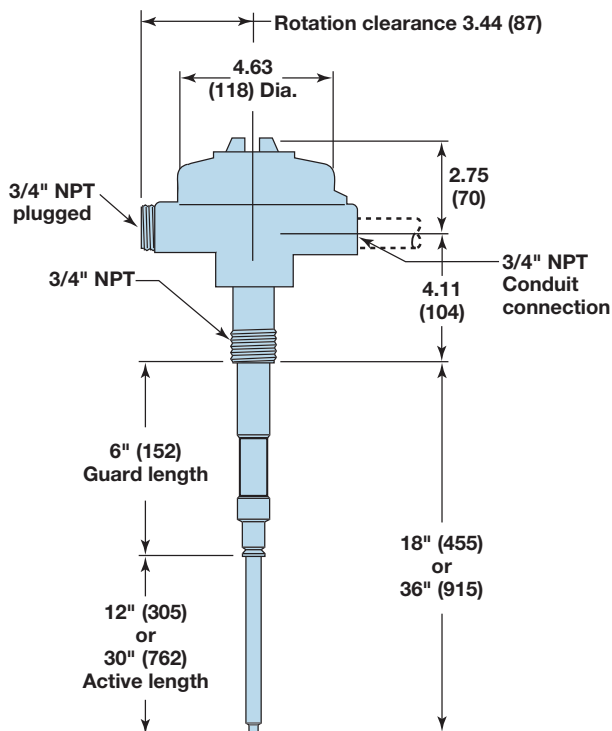
### PROBE

1	18" (455 mm) guarded probe
2	36" (915 mm) guarded probe



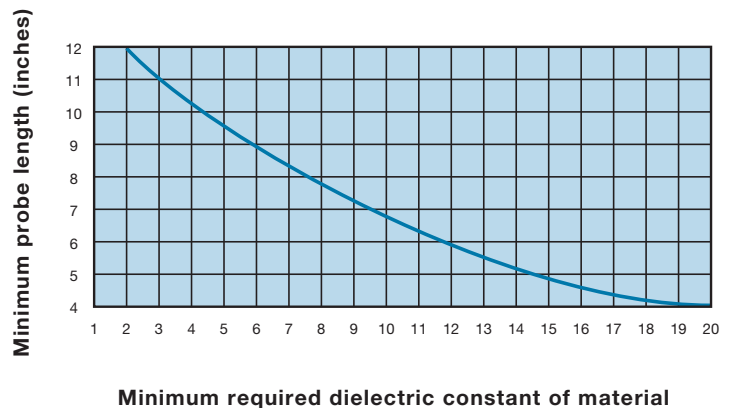
## DIMENSIONAL SPECIFICATIONS

INCHES (mm)



## PROBE LENGTH vs. DIELECTRIC CONSTANT

If the geometry of your application requires a probe shorter than 12" (305 mm) of active length, consult the chart below to determine the minimum dielectric constant in which it can be used.



## QUALITY

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MAGNETROL  
REGISTERED TO  
**ISO 9001**  
Your Assurance of  
Quality and Service

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.

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

## ESP

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**E**xpedite  
**S**hip  
**P**lan

Several Kotron Model 810 RF Point Switches are available for quick shipment, usually within one week after factory receipt of a complete purchase order, through the Expedite Ship Plan (ESP).

To take advantage of ESP, simply match the

color coded model number codes (standard dimensions apply).

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 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 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 50-607.

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