



# Kotron® Model 82 CE RF Level Transmitter

## DESCRIPTION

---

The Magnetrol® Kotron® Model 82 RF Capacitance transmitter is one of the most cost effective level transmitters available today. Compact in size, it employs state-of-the-art surface mount technology in an encapsulated (potted) module for a stable, accurate measurement in a wide range of materials.

## FEATURES

---

- 4–20 mA isolated output signal (reversed 20–4 mA output optional)
- Utilizes a 24 VDC current loop for power source and signal transmission
- 120/240 VAC option available for four-wire applications
- Minimum span 50 pF
- Maximum span 4000 pF
- 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
- $\pm 0.25\%$  repeatability
- FM and CSA listed intrinsically safe when used in conjunction with an approved barrier
- CSA explosion proof designs
- Available with a full range of rigid and flexible sensing probes to 5000 psig (345 bar) and +1000° F (+538° C)
- Input voltage of 14 to 40 VDC at transmitter terminals

## APPLICATIONS

---

- Continuous level monitoring
- Liquid-liquid interface level measurement
- Clean or dirty liquids
- Viscous liquids
- Light slurries
- High temperature liquids
- Hydrocarbons & solvents
- Acids & corrosive liquids
- Food & beverage



## TECHNOLOGY

---

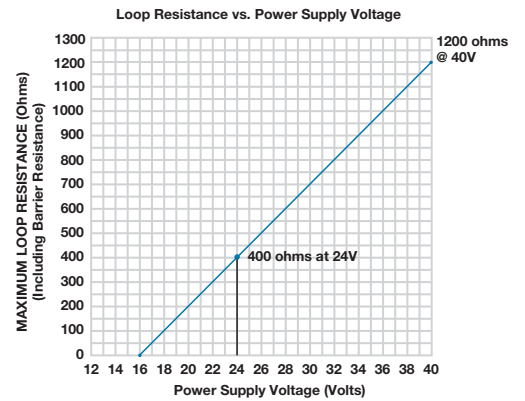
The amount of capacitance developed in any vessel is determined by the size (surface area) of the probe, the distance from the probe to its ground reference (e.g. tank wall), and the dielectric of the medium being measured.

If the probe's mounting position is fixed and the dielectric value of the medium is constant, then the amount of capacitance developed becomes dependent on the media in contact with the probe.

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 proportional 4–20 mA output signal.

# ELECTRICAL SPECIFICATIONS

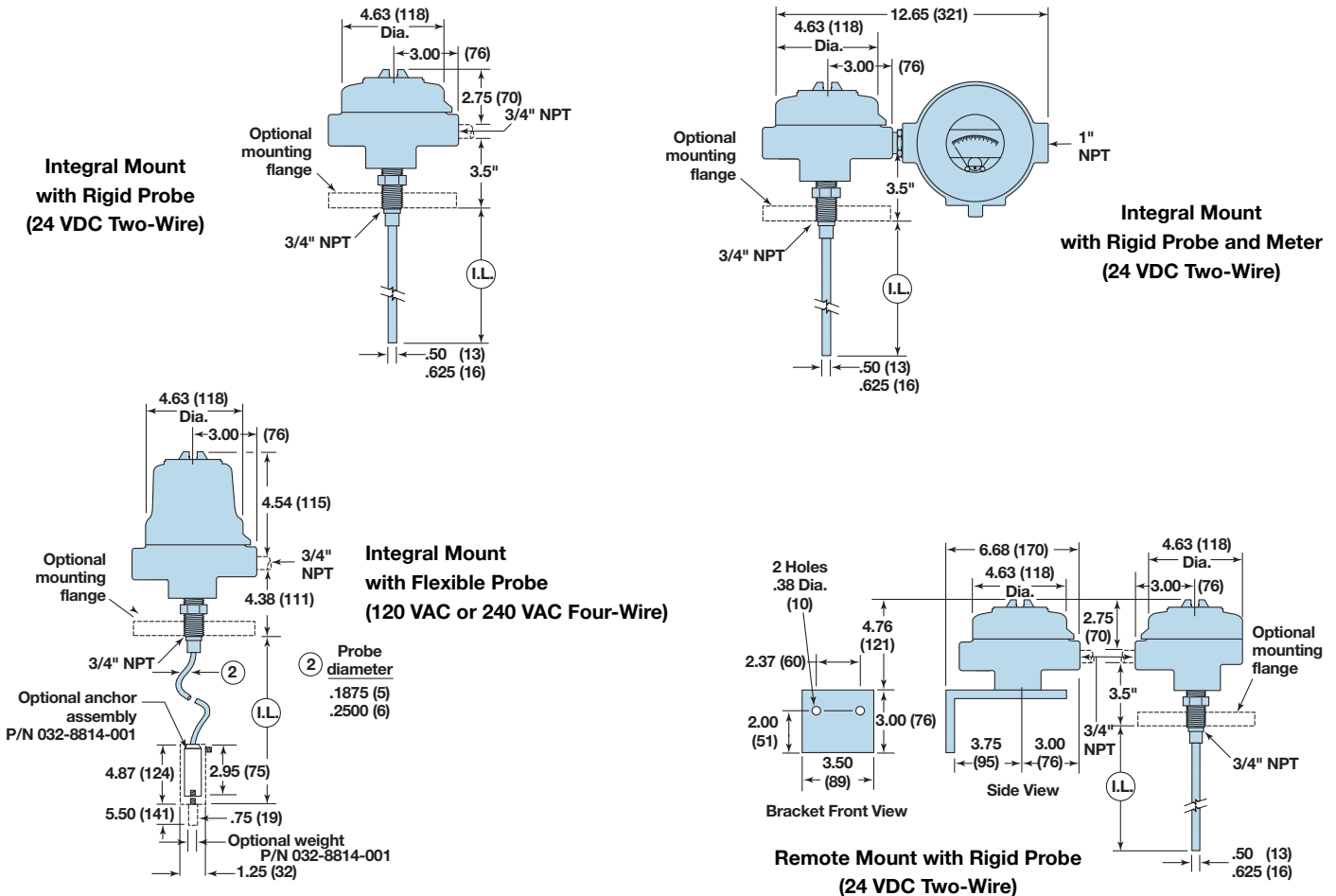
Supply Voltage	24 VDC, (14–40 VDC)
Current	120/240 VAC, 50–60 Hz, (+10/-15%)
Line Variation	38 mA maximum
Line Variation	Less than $\pm 10\%$ /volt, for voltages between 16–40 VDC
Ambient Temperature	$-40^{\circ}$ to $+160^{\circ}$ F ( $-40$ to $+70^{\circ}$ C) ①
Zero Range	1000 pF (max.), 0 pF (min.)
Span Range	4000 pF (max.), 50 pF (min.)
Output Linearity	50–500 pF $\pm 1\%$ of span 501–1500 pF $\pm 2\%$ of span 1501–4000 pF $\pm 1\%$ of span
Response Time	Less than 0.1 second
Repeatability	$\pm 0.25\%$
Temperature Coefficient of Output	4000 pF span: Less than $0.035\%/^{\circ}$ F ( $0.063\%/^{\circ}$ C)
$-40^{\circ}$ to $+160^{\circ}$ F ( $-40^{\circ}$ to $+70^{\circ}$ C)	1000 pF span: Less than $0.025\%/^{\circ}$ F ( $0.045\%/^{\circ}$ C)
	50 pF span: Less than $0.075\%/^{\circ}$ F ( $0.135\%/^{\circ}$ C)



Electrical data

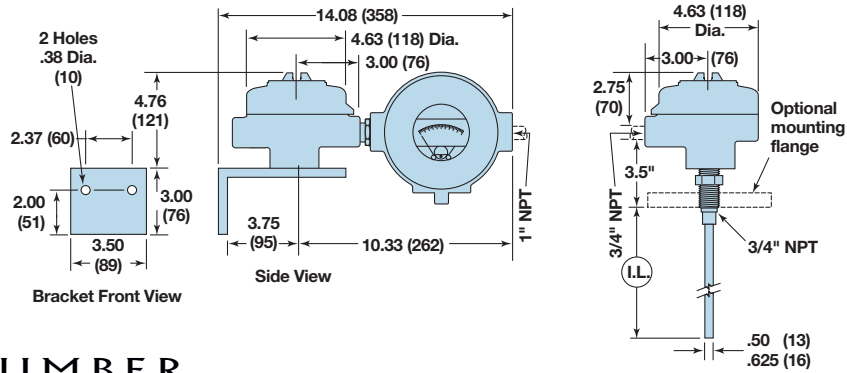
① Consult factory for higher temperatures on remote mounted transmitter

# DIMENSIONAL SPECIFICATIONS INCHES (mm)



# DIMENSIONAL SPECIFICATIONS INCHES (mm) (cont.)

**Remote Mount  
with Rigid Probe and  
Meter (24 VDC Two-Wire)**



## MODEL NUMBER

### STANDARD PRESSURE

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

#### BASIC

082	82 CE transmitter
-----	-------------------

#### HOUSING

8	3/4" NPT dual conduit
---	-----------------------

#### FUNCTION/INPUT POWER

0	Four-wire, 120 VAC ①
1	Four-wire, 240 VAC ①
3	Two-wire, 24 VDC Nominal (14 to 40 VDC), FM, CSA

#### METER

0	None
1	Analog meter (Not FM/CSA approved)

#### OUTPUT SIGNAL

3	Standard 4–20 mA
---	------------------

#### MOUNTING CONFIGURATION

00	Integral, aluminum housing
04	Integral, 316 stainless steel housing ② ⑤
10	Remote, aluminum housing ③ ④
14	Remote, 316 stainless steel housing ② ③ ④ ⑤



#### PROBE ASSEMBLIES ⑥

A full range of rigid and flexible probes for conductive and non-conductive process media is available. For further information on probe assemblies, please refer to bulletin 50-125.

- ① Not available with mounting codes 04 and 14.
- ② Not available with function/input power codes 0 and 1.
- ③ Remote units supplied with separate probe and transmitter housing, 20 feet (6 meters) of cable and transmitter housing bracket.
- ④ Remote units up to 40 feet (12 meters) with special cable, order cable part number 009-8222-001.
- ⑤ Not available with Meter option code 1.
- ⑥ Delivery is ESP only if Model 082 and probe selected are both ESP.



# AGENCY APPROVALS

AGENCY	APPROVED MODEL	PROTECTION METHOD	AREA CLASSIFICATION
<b>FM</b>  APPROVED	082-8303-400 082-8303-410	Intrinsically Safe	Class I, Div 1, Groups A, B, C & D; Class II, Div 1, Groups E, F & G; Class III, NEMA 4X
		Non-Incendive Suitable for:	Class I, Div 2, Groups A, B, C & D Class II, Div 2, Groups F & G; Class III
<b>CSA</b> 	082-8303-400 082-8303-410	Intrinsically Safe ①	Class I, Div 1, Groups A, B, C & D; Class II, Div 1, Groups E, F & G; Class III, TYPE 4X
		Suitable for:	Class I, Div 2, Groups A, B, C & D; Class II, Div 2, Groups F & G; Class III
	082-8303-400 082-8303-410	Explosion Proof ②	Class I, Div 1, Groups C & D; Class II, Div 1, Groups E, F & G Class III, TYPE 4X

- ① Not I.S. (CSA) for Groups E & F when used with a bare probe.
- ② Approval is valid only with the use of insulated rigid probes.

## QUALITY

MAGNETROL  
REGISTERED TO  
  
 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/service quality available.

## ESP

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

Several Model 82 CE transmitter models are available for quick shipment, usually within one week after factory receipt of a purchase order, through the Expedite Ship Plan (ESP).

To take advantage of ESP, match the color coded model number codes in the selection charts (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



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.



705 Enterprise Street • Aurora, Illinois 60504-8149 • 630-969-4000 • Fax 630-969-9489  
 info@magnetrol.com • www.magnetrol.com

Copyright © 2015 Magnetrol International, Incorporated. All rights reserved. Printed in the USA.  
 Performance specifications are effective with date of issue and are subject to change without notice.

**BULLETIN: 50-123.19**  
**EFFECTIVE: June 2015**  
**SUPERSEDES : January 2004**