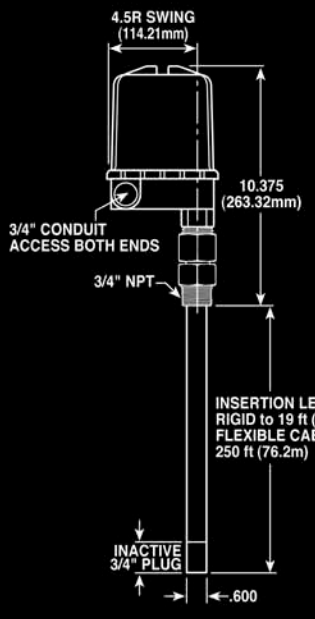
CAP ANALOG 410

DATA SHEET

R.F. Capacitance Integral Transmitter

Optional Indicators



PURPOSE

Delavan's **Cap Analog 410** is a completely adjustable Integral R.F. Capacitance Transmitter. The 410 system provides a continuous 4-20mA analog signal proportional to the level. This versatile transmitter can be used in liquids, slurries and most powder bulk solid applications.

PRINCIPLE OF OPERATION

Delavan's R.F. Capacitance **Cap Analog 410** system consists of an electronic amplifier mounted in a cast aluminum explosion proof housing. The housing is integrally mounted on the top of the probe.

The **Cap Analog 410**, along with its probe sensor, operates as a capacitance sensitive system that converts changes in level to changes in output signal. After calibration, any change in level is recognized and converted to an analog output signal (4-20mA or 0-10 Volts DC). The system will operate any standard 4-20mA DC or 0-10 Volts DC indicator. The Delavan **AFI-150** or **DFI-150** indicator is available mounted in a rugged NEMA 4X housing.

The **Cap Analog 410** is supplied with two 20 turn, (ZERO and SPAN) potentiometer adjustments. These controls are independent and non-interacting. In addition, DIP switches are provided to extend the range of ZERO and SPAN potentiometers.

FEATURES

- **Self-contained integral electronics**
- **Explosion proof design**
- **Isolated 4-20mA and 0-10 Volts DC output**
- **Simple two-step calibration**
- **Universal power supplies**
  Accepts 115, 230 Volts AC or 24 Volts DC
- **Immune to effects of product build-up**
  Built-in coating rejection of approximately 1000 micro mho's
- **Built-in static suppression**
- **Sensing probe lengths to 250 ft.**
- **Economical and cost effective**

SPECIFICATIONS

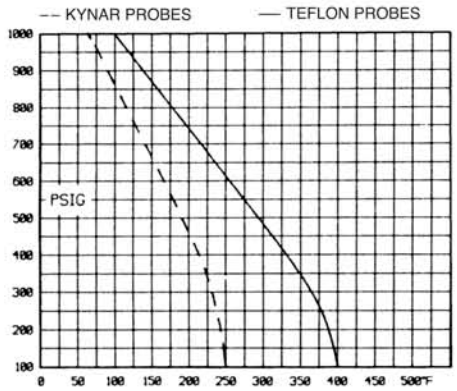
Supply Voltage	NOMINAL 115 Volts AC 230 Volts AC 24 Volts DC	ABSOLUTE LIMITS 90-135 Volts AC 180-279 Volts AC 15-28 Volts DC
Power	Less than 3 volt-amperes	
Frequency, AC Power	50-60 Hz	
Output	4-20mA DC 600 ohms maximum with 24 Volts DC power supply or 0-10 Volts DC	
Temperature Range Electronic	-40°F to +160°F (-40°C to +71°C)	
Zero (Terminal)	Min. 10 pfd Max. 500 pfd Min. 10 pfd Max. 2,000 pfd	
Stability	0.5 pf/30°F (at maximum sensitivity)	
Span	Low Range	High Range
Standard Pre-Amp	50 pfd 1,000 pfd	800 pfd 10,000 pfd
High-Gain Pre-Amp	10 pfd 200 pfd	— —
Build-up Tolerance	Up to 1,000 micro mho's	
Process Connection	3/4" N.P.T. (standard) or flange options	
Cast Aluminum Housing with Fuse Polyester Finish	Meets NEMA 4, 5, 7, 9, 12; NEC Class I — Groups C, D; NEC Class II — Groups E, F, G	

CUSTOMER CONNECTIONS

CAP ANALOG/410

GND.	NEUT	115 VAC	230 VAC	SPARE	− LOW VOLT INPUT	+	SIGNAL GROUND	4-20 IN	0-10V OUT	4-20 OUT	+12V OUT
1	2	3	4	5	6	7	8	9	10	11	12

TEMPERATURE AND PRESSURE RATINGS



ORDERING INFORMATION

CAP ANALOG

410- ____ - ____ - ____ - ____

Special Features
H = High Temperature 12" Lagging Ext. (>200°F)
00 = None

Process Mounting (Specify Size)
NPT = Nat'l Pipe Thread Process Connection
3A = Food-grade Tri-clover Fitting
T3A = Teflon Faced Food-grade Tri-clover Fitting
K3A = Kynar Faced Food-grade Tri-clover Fitting
FC = Flange C.S.
FSS = Flange 316 Stainless Steel

Sensing Probe Type (Specify Insertion Length)
THD = Teflon Insulated Heavy Duty 1/2"
KHD = Kynar Insulated Heavy Duty 1/2"
TCP = Teflon Probe with Concentric Pipe and Flange
TCT = Teflon Probe with Concentric Tube 3/4" N.P.T.
BF = Bare Flexible Cable
T = Teflon Insulate 1/4"
BHT = Bare Probe - High Temperature Packing
TF = Teflon Insulated, Flexible Stainless Steel Cable
KF = Kynar Insulated Flexible Stainless Steel Cable
DWW = Polypropylene Flex Probe, 1/8" Cable, 3/4" N.P.T.
THDD = Teflon Heavy Duty Dual Probe with 1/2" and 1/4" Teflon Insulated Probes with 3" Teflon Faced Flange
KHDD = Kynar Heavy Duty Dual Probe with 1/2" and 1/4" Kynar Insulated probes with 3" Kynar Faced Flange
BHS = Bare Probe - High Sensitivity

Note: For BF, TF & KF probes, anchoring assembly is required.

Pre-Amplifier
S = Standard Gain
H = High Gain (Low Dielectric Materials, Ke < 10)

Model 410 R.F. Capacitance Continuous Transmitter

Note 1: CSA Approved for Class I, Groups C, D; Class II, Groups E, F, G; Divisions 1 & 2 Pending Cenelec Approval for EEx d IIC T6 locations.

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