

PURPOSE

Delavan's Cap Analog 420 is a completely adjustable remote R.F. Capacitance Transmitter. The 420 system provides a continuous analog signal plus up to two independently adjustable relays. 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 420 system uses a compact pre-amplifier mounted on the rear of the probe assembly. The pre-amp is housed in a cast aluminum enclosure that is weather-tight and explosion proof. The electronics are located in a remote NEMA 4X enclosure.

The Cap Analog 420, 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 420 system is available without relays or with two relays along with the standard analog outputs. The relay or relays are calibrated independent of the analog circuit.

The Cap Analog 420 is supplied with two 20 turn, ZERO and SPAN adjust potentiometers. These controls are independent and non-interacting. In addition, DIP Switches are provided to extend the range of ZERO and SPAN potentiometers.

FEATURES

- · Easy access remote mounted electronics
- Universal power supplies Accepts 115, 230 Volts AC or 24 Volts DC
- Inverted output
 Allows the level of the lower dielectric constant to be monitored in liquid interfaces
- Versatile
 Analog output plus up to 2 relays
- Relay outputs
 Zero and Differential are non-interacting and
 independent adjustments
- Immune to effects of product build-up Built-in coating rejection of approximately 1000 micro mho's
- Built-in static suppression
- Up to 800 ft. of cable between probe and electronics





SPECIFICATIONS

Supply Voltage ABSOLUTE LIMITS NOMINAL 115 Volts AC 90-135 Volts AC

230 Volts AC 180-279 Volts AC 24 Volts DC 15-28 Volts DC

Less than 6 volt-amperes Power

50-60 Hz Frequency, AC Power

4-20mA DC 600 ohms maximum with Output

24 Volts DC Power Supply or 0-10 Volts DC

Output 420-2 2 Relays, 1 Form C SPDT Switches each,

in addition to analog output

Relay Ratings 5 amp @ 115 Volts AC Non-inductive

2.5 amp @ 230 Volts AC Non-inductive 3 amp @ 26 Volts DC Non-inductive

Fail-Safe

Switch Selectable High Level Fail-safe Position:

(1 set each relay) Relay is de-energized when liquid is present

Indicators

Two, light emitting diodes (LED) Status Lights

RED-Illuminated when probe capacitance is (1 set each relay)

greater than set point

YELLOW-Illuminated when relay is energized

Temperature (Elect.) -40°F to +160°F (-40°C to +71°C)

Zero (Terminal) Max. Min. Max.

2,000 pfd 10 pfd 500 pfd 100 pfd

0.5 pf / 30°F (at maximum sensitivity) Stability

Min Max Min Max Span Standard Pre-Amp 10,000 pfd 50 pfd 1,000 pfd 800 pfd

High-Gain Pre-Amp 10 pfd

200 pfd Interconnection Cable Up to 800 ft. in length

Up to 1,000 micro mho's **Build-up Tolerance**

Process Connection 3/4" N.P.T. (standard)

Pre-Amplifier

Cast Aluminum with

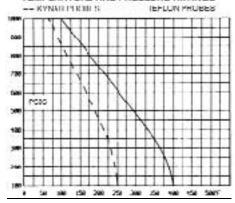
Fused Polyester Finish Meets NEMA 4, 5, 7, 9, 12;

NEC Class I — Groups C, D; NEC Class II - Groups E, F, G.

Remote Amplifier Glass-Reinforced Polyester Enclosure

Stainless Steel Trim NEMA 4X

TEMPERATURE AND PRESSURE RATINGS



ORDERING INFORMATION

CAP ANALOG

420-

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

Interconnection Cable P50 = Standard, PVC 50 ft., 160°F max. P100 = PVC 100 ft. 160° F max =PVC 2 Conductor Bulk Cable (Lengths>100 ft.) =None იი

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

= 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"

= Teflon Probe with Concentric **TCP**

Pipe and Flange

= Teflon Probe with Concentric Tube TCT 3/4" N.P.T.

= Bare Flexible Cable = Teflon Insulate 1/4"

= Bare Probe - High Temperature Packing = Teflon Insulated, Flexible SS Cable = Kynar Insulated Flexible SS Cable KF

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

Remote Pre-Amplifier S = Standard Gain

H = High Gain (Low Dielectric Materials, Ke<10)

Electric Control Options

0 = No Relays

2 = 2 Independently Adjustable Relays

Model 420 Remote Mount R.F. Capacitance Continuous Transmitter



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