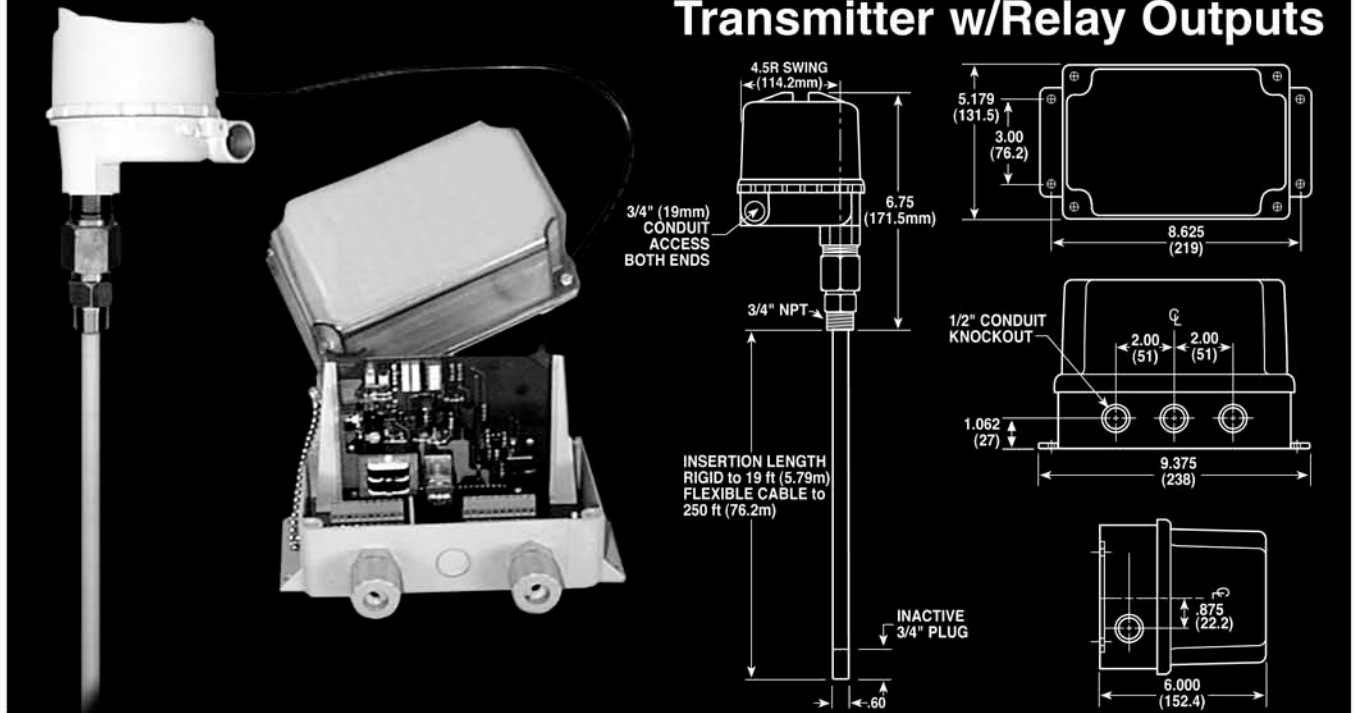


CAP ANALOG 420

DATA SHEET

R.F. Capacitance Remote Transmitter w/Relay Outputs



■ 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**



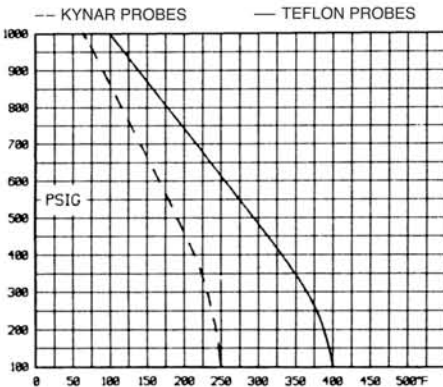
DELAVAN

Process Instrumentation

SPECIFICATIONS

Supply Voltage	NOMINAL	ABSOLUTE LIMITS		
	115 Volts AC	90-135 Volts AC		
	230 Volts AC	180-279 Volts AC		
	24 Volts DC	15-28 Volts DC		
Power	Less than 6 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			
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 (1 set each relay)	High Level Fail-safe Position: Relay is de-energized when liquid is present			
Indicators				
Status Lights (1 set each relay)	Two, light emitting diodes (LED) RED-Illuminated when probe capacitance is greater than set point YELLOW-Illuminated when relay is energized			
Temperature (Elect.)	-40°F to +160°F (-40°C to +71°C)			
Zero (Terminal)	Min.	Max.	Min.	Max.
	10 pfd	500 pfd	100 pfd	2,000 pfd
Stability	0.5 pf / 30°F (at maximum sensitivity)			
Span	Min.	Max.	Min.	Max.
Standard Pre-Amp	50 pfd	1,000 pfd	800 pfd	10,000 pfd
High-Gain Pre-Amp	10 pfd	200 pfd	-	-
Interconnection Cable	Up to 800 ft. in length			
Build-up Tolerance	Up to 1,000 micro mho's			
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

H = 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
B = PVC 2 Conductor Bulk
Cable (Lengths>100 ft.)
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 SS Cable
KF = Kynar Insulated Flexible SS 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

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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