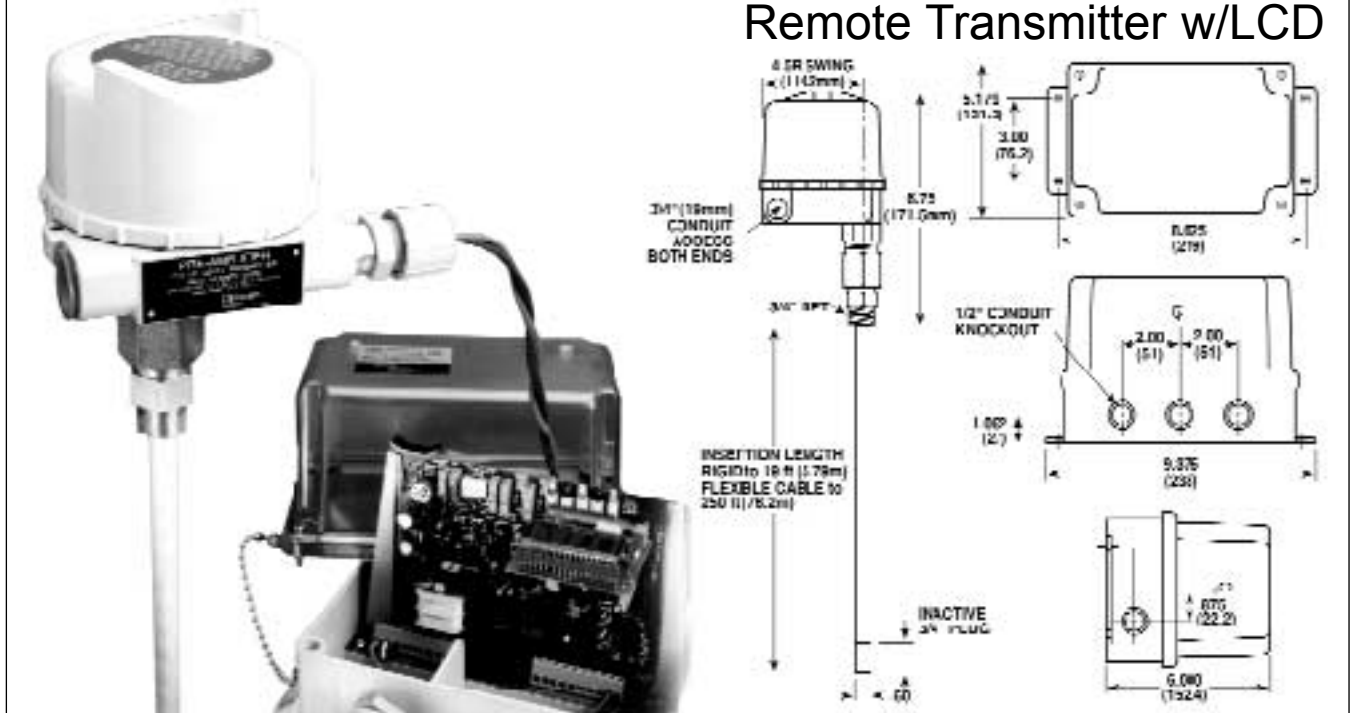


CAP ANALOG 421

DATA SHEET

R.F. Capacitance Remote Transmitter w/LCD



■ PURPOSE

Delavan's Cap Analog 421 series is a Continuous Level Transmitter for liquids, slurries and powder bulk solids. The 421 has the ability to display and transmit a continuous level measurement with optional hi or low level alarms on one sensing element.

■ PRINCIPLE OF OPERATION

Delavan's Capacitance Cap Analog 421 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.

All other electronic hardware is located in the remote NEMA 4X housing. All calibration adjustments are made at the remote location.

The Cap Analog 421, 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. A digital display that can be calibrated in engineering units is available. This display is visible through the transparent cover of the remote amplifier.

The Cap Analog 421 system is available without relays or with one or two relays along with the standard analog outputs. The relay or relays can be calibrated independent of the analog circuit.

The Cap Analog 421 is supplied with two 15 turn, ZERO and SPAN adjust potentiometers. The span control is independent and non-interacting. In addition, a rotary switch is provided to extend the range of the SPAN potentiometer.

■ FEATURES

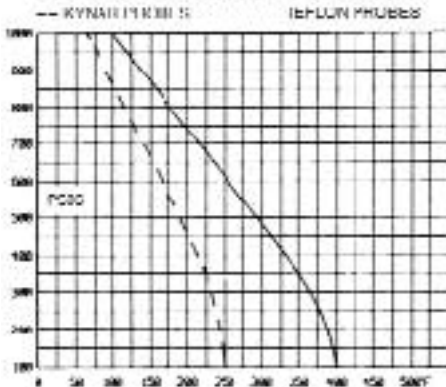
- On board 3.5 digit LCD Display
Scalable in engineering units
- Two-wire transmission
Between electronics and probe
- Built-in "coating tolerance"
Designed to eliminate false signals caused by process material build-up/coating
- Remote electronics for easy access
- Up to 2 non-interacting and independently adjustable relays
- Analog dampening for agitated vessels
- Green LED for fault indication
 - Sensing probe failure
 - Wiring error
- Up to one mile separation
Between probe and electronics
- Sensing probes lengths to 250 ft.
- Inverted output option



SPECIFICATIONS

Supply Voltage	NOMINAL	ABSOLUTE LIMITS	
	115 Volts AC	90-135 Volts AC	
	230 Volts AC	180-279 Volts AC	
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		
Analog Response	A unique circuit that provides output dampening for turbulent levels		
Output 420-2	2 Relays, 1 Form C SPDT switch each, in addition to analog output		
Relay Ratings	5 amp @ 115 Volts AC Non-inductive 3 amp @ 230 Volts AC Non-inductive 3 amp @ 2 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		
	Low Level fail-safe position: Relay is de-energized when liquid is not 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		
Digital Display	0.50 Inch liquid crystal 3-1/2 digit, units -499 to +1,999		
Temperature (Elect.)	-40°F to +160°F (-40°C to +71°C)		
Zero (Terminal)	Min.	Max.	Min. Max.
	10 pfd	250 pfd	10 pfd 1,200 pfd
Stability	0.5 pfd/ 30°F (at maximum sensitivity)		
Span Standard Pre-Amp	Ten steps; from 10 pfd to 30,000 pfd Overlapping		
Process Mounting Requirements	3/4" N.P.T. (standard)		
Pre-Amplifier Cast Aluminum with Fuse 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

421- - - - -

	Display Options DI = 3.5 Digit LCD Indicator 00 = None
	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 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 Temp. 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
	Remote Pre-Amplifier S = Standard Gain B = Extreme Build-up Immunity (extreme conductive build-ups)
	Electric Control Options 0 = No Relays 2 = 2 Independently Adjustable Relays

Model 421 Remote Mount R.F. Capacitance Continuous Transmitter

Note 1: Pending FM & CSA Approval for NEC Class I — Groups C, D; NEC Class II — Groups E, F, G; Divisions 1 & 2 Pending Genelec approval for EEx d IIC T6 locations.

DEHAVAN Process Instrumentation
an [REDACTED] Company

Hillside, IL 60162
Ph: (708) 236-6000
Fax: (708) 236-6006
Email: sales@ljtechnologies.com

