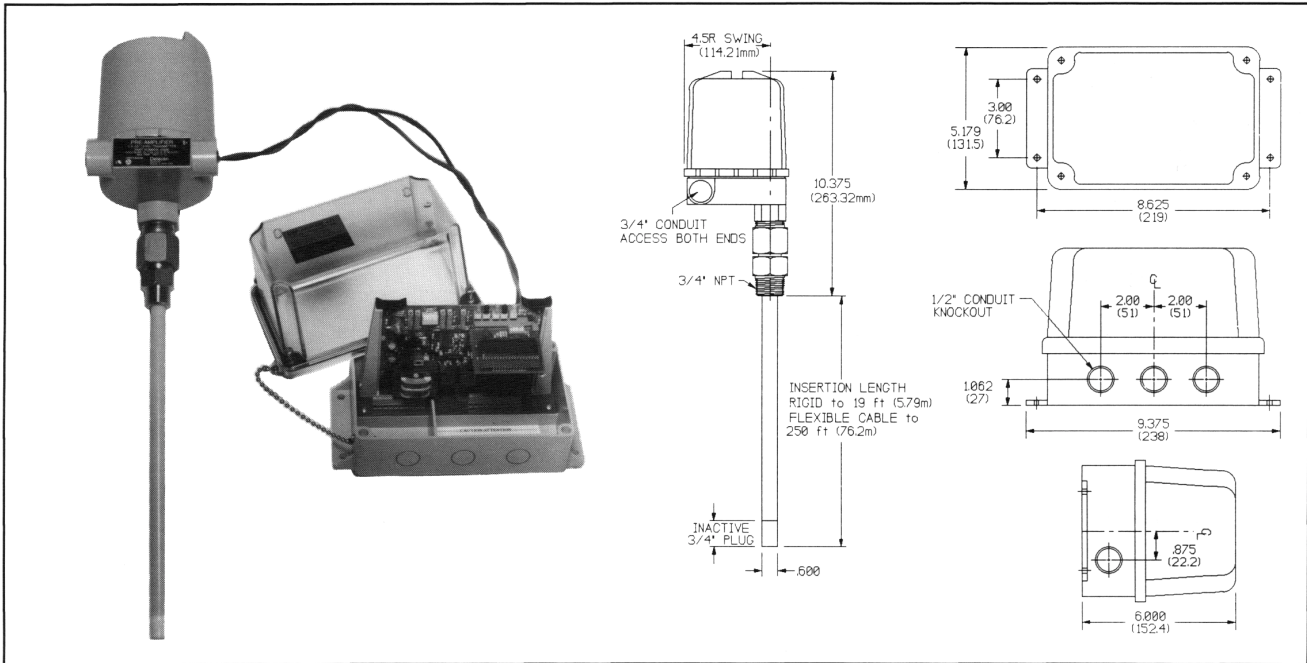




CAP ANALOG 421 R. F. Capacitance Remote Transmitter w/LCD

Engineering Specification Sheet



Product Features

- *On Board 3.5 digit LCD display scaleable 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 L. E. D. 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*
- **TWO-YEAR PRODUCT WARRANTY**

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.

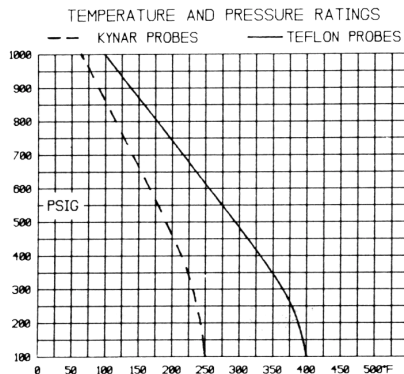
The Cap Analog 421 along with its probe sensor operates as a capacitance sensitive system that converts changes in level to changes in output signal. After calibration any change in level is recognized and converted to an analog output signal (4-20 mA or 0-10 VDC). The system will operate any standard 4-20 mA DC or 0-10 VDC 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.

Specifications:

Supply Voltage	Absolute Limits			
	115 VAC	90-135 VAC		
	230 VAC	180-279 VAC		
Power	Less than 6 volt-amperes			
Frequency, AC Power	50-60 Hz			
Output	4-20 mA DC 600 ohms maximum with 24 VDC Power Supply or 0-10 VDC			
Analog Response	A unique circuit that provides output dampening for turbulent levels.			
Output 420-1	1 Relay, 1 Form C SPDT Switch			
Output 420-2	2 Relays, 1 Form C SPDT Switch each, in addition to analog output			
Relay Ratings	5A @ 115 VAC Non-Inductive 3A @ 230 VAC Non-Inductive 3A @ 26 VDC Non-Inductive			
Failsafe Switch Selectable (1 set each relay)	High Level Failsafe Position: Relay is de-energized when liquid is present. Low Level Failsafe 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 3½ digit, units -499 to +1999			
Temperature (Elect.)	-40° to +160° F. (-40° 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	Ten steps; from 10 pfd to 30,000 pfd overlapping			
Standard Pre-Amp				
Process Mounting Requirements	3/4" N. P. T. or various flange options.			
Pre-Amplifier Cast Aluminum with Fuse Polyester Finish	Meets NEMA 4, 5, 7, 9 & 12 NEC Class I Groups C, D Class II Groups E, F & G			
Remote Amplifier Glass-Reinforced Polyester Enclosure, S.S. Trim	NEMA 4X			



Ordering Information

CAP-ANALOG

421- - - - -

Display Options

X = No display
DI = 3.5 digit LCD indicator

Special Features

X = No special features
H = High Temperature Lagging ext. (>200° F)

Process Mounting

NPT = Nat'l pipe thread process connection
3A = Food-grade Tri-Clover fitting
T3A = Teflon faced food-grade Tri-Clover fitting (specify size)
K3A = Kynar faced food-grade Tri-Clover fitting (specify size)
FC = Flange C.S. (specify size)
FSS = Flange 316 SS (specify size)

Sensing Probe Type (Specify Length)

THD	TF
KHD	KF
TCP	DWW
TCT	THDD
BF	KHDD
T	BHS
BHT	

Remote Pre-Amplifier

S = Standard Gain
B = Extreme Buildup Immunity (extreme conductive buildups)

Enclosure Type

G = General Purpose
H = Hazardous Locations (See Note 1 below)

Electronic Control Options

0 = No relays
1 = 1 independently adjustable relay
2 = 2 independently adjustable relays

Model 421 Remote Mount R.F. Capacitance Continuous Transmitter

NOTE 1: Pending FM and CSA approval for Class I, Groups C and D, Class II Groups E, F and G. Divisions 1 and 2 Pending Cenelec approval for EEx d IIC T6 locations.

TWO-YEAR PRODUCT WARRANTY

Delavan control products will be replaced, put in good operating condition, or the purchase price refunded, at the option of Delavan, free of charges except transportation, if defective in their manufacture, labeling, packaging, or shipping, and if notice of said defect is received by Delavan within two years from the date of shipment. The cost of such replacement, repair or refund or purchase price shall be the exclusive remedy for any breach of any warranty, and Delavan shall not be liable to any person for consequential damages for injury or commercial loss resulting from any breach of any warranty of fitness for a particular purpose, and makes no other warranty.



DEHAVAN
Process Instrumentation

an L & J TECHNOLOGIES Company

5911 Butterfield Rd.
Hillside, IL 60162
PH: (708) 236-6000
FAX: (708) 236-6006
E-MAIL: sales@ljtechnologies.com