

Pneumatic Level Instruments For Oil Industries



Automat

... the level & gas people

Interface L.C Pg-1 Flex Tube L.C Pg-1,2 Micro Value L.C Pg-2 Internal Ball Float L.C Pg-3 Shut off Relife Angle Valve Pg-4 Temperature Controller Pg-5 Thermometers P-6

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Interface Level Controller

(With Proportional Pneumatic Output) Model 400-4
(Similar to M/s. Invalco/Natco Model No. CTFM402/CTQ-402)

Introduction

The Interface Controller has amplifying relay, nozzle and flapper which operates with filtered air supply or gas. Automat liquid interface Controller consist of displacer mounted to the flex tube. This flex tube is attached to a standard flange. Mounted on the reverse side of the flange is the carrier assembly with adjusting screw, nozzle and relay with the orifice with cleaning device which has been provided to clean clogged orifice. The flex tube is tube which permits vertical motion only. The Automat flex tube shaft extension rod transmits the displacer motion from within the shaft to the nozzle. The displacer has been specially designed to sense liquid interface even for **specific gravity difference of 0.05**. The interface Controller can also be fitted in tanks & similar vessels for controlling the desired level of the liquid.

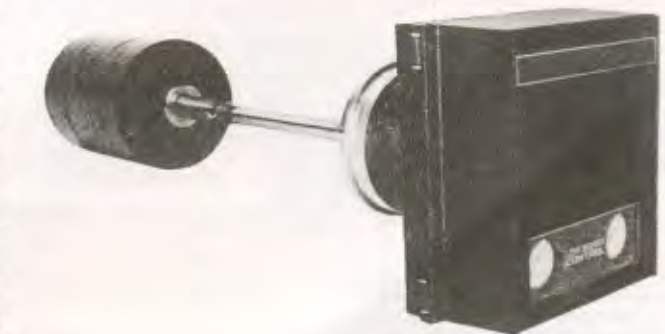
Principle of Operation

Liquid interface controller operates on the change in buoyant force on the displacer. This force is proportional to the volume of liquid that is displaced. Any change in the liquid level will produce the change in the position of flex tube end. This causes movement of the flex tube shaft to which flapper is connected.

A booster relay has been added to the control to speed the response time which helps to remove heavier liquid (water) at faster speed. The relay is enclosed in a pressure tight housing allowing for the remote release of vented gases and protecting the pilot and pressure gauges from the elements and hose spray cleaning operations.

Technical Specifications

Operating Mode	Pneumatic, On-off Direct or Reverse. (Reverse action obtained by rotating Nozzle assembly by 180°)
Process Connection	Carbon Steel ASA flange. Process flanges min. 4" std is recommended because of limitation of displacer diameter for interface applications.
Working Pressure	upto 60 kg / cm ²
Temperature Limits	a) 150° with S.S. Float b) 100° with Phenolic float



Enclosures	Weather proof IP65
Supply Pressure	1.4 kg/cm ²
Output	0.2 - 1 kg/cm ²
Supply Connection	1.4"NPT
Output Connection	1/4" NPT
Exhaust	Screened Vent Connection
Gas consumption	15 CFH (Minimum) 35 CFH Throttle (Average)
Displacers	A) HORIZONTAL (Stainless Steel) 76mmØ x 440mm long C) VERTICAL (Stainless Steel) 76mmØ x 356mm long D) VERTICAL (Phenolic) 90mmØ x 115mm long
Differential*	A) 7 ± 3mm for S.G. difference of 0.1 C) 25 ± 5mm for S.G. difference of 0.1 D) 20 ± 5mm for S.G. difference of 0.1
S.G. difference	0.05 (min.)

* Differential increases proportionally with decrease in S.G.

Level Controller Flex (Tube)

(With Proportional Pneumatic Output) Model 40 DP-2
(Similar to M/s. Invalco/Natco Model No. CTFM402)

Introduction

Liquid Level Controller consists of displacer mounted to the flex tube. The flex tube has been an industry standard for over a decade in fluid Level Control. Its simplicity, reliability, ease of maintenance and rugged construction have made it popular where down time for repairs could be critical to process or where minimum maintenance is required. The Level Controller with Pilot Value and carrier assembly is housed in weather proof housing IP65. All exhaust gas is vented inside the enclosure and then to the atmosphere through a screened vent connection.

Principle of Operation

Liquid level controller operates on the change in buoyant force on the displacer. This force is proportional to the Volume of

liquid that is displaced. Any change in the liquid level will produce the change in the position of flex tube end. This causes movement of the flex tube shaft to which carrier assembly is attached. The carrier assembly covers or uncovers the nozzle for giving Pneumatic output from the pilot valve.

Technical Specifications

Operating Mode	Pneumatic, On-off Direct or Reverse. (Reverse action obtained by rotating Nozzle assembly by 180°)
Process Connection	2" & 4" standard flange of 150ASA, 300 ASA & 600 ASA.
Process Connection Material	Carbon Steel / Stainless Steel
Working Pressure	upto 60 kg / cm ²
Temperature Limits	a) 150°C with S.S. Float b) 100°C with Phenolic float c) 75°C with Acrylic float
Enclosure	Weather proof IP65
Supply Pressure	1.4 kg/cm ²
Output	0-1 kg/cm ² (Proportional, Non Linear)
Supply Connection	1.4" NPT
Output Connection	1/4" NPT
Flex Tube	316SS / 410SS / 304SS
Displacers	A) HORIZONTAL (Stainless Steel) 76mm 9x152 mm long



	B) VERTICAL (Stainless Steel) 76mm - 356mm long C) VERTICAL (Stainless Steel) 42mm -200mm long D) VERTICAL (Phenolic) 90mm -115 mm long
Differential	a) 10mm-30mm depending upon displacer size & Specific Gravity (HORIZONTAL FLOAT) b) 20mm depending upon displacer size & Specific Gravity (VERTICAL FLOAT)

Micro Valve Level Controller

(With Pneumatic Output) Model 40 P-1 (Snap Acting Level Switch)
(Similar to M/s. Invalco/Natco, Model No. CTAF-402S/810-CMAO-403)

Description

This is a snap-action float operated level controls, equipped with 3 way MICRO VALVE unit, actuated by two adjustable york-type pusher arms. Adjustable pusher arms permit the control range to be adjusted easily and accurately to the range desired.

With the liquid level is below the float the 3 way Micro Valve will be in the low level position, and will remain there until the float rises to the pre-set high level. The Micro Valve then will reverse positions until the float drops to the pre-set low level position.

Model No.	Nominal Connection Size, Type, Max. Pressure	Material	
		Body	Float
40-P1	4" 150 ASA flange, 15 kg/cm ²	C.S.	316 SS
	4" Groova Grooved Coupling, 15 kg/cm ²	C.S.	316 SS

Installation

This model is equipped with Flange/Groova Grooved Coupling for mounting on to the vessel from side. The float is designed to pass through a 100mm tank nozzle.

Operations

This model is equipped with a three way Micro Valve with three 1/4" NPT ports. The Micro Valve has a standard working pressure of 2kg/cm². Connection to the ports depend on the control action desired.



Application of Micro Valve Level Controller

