

Smart Displacement Type Level Transmitter

Bulletin No. 165

Effective : Oct. 2013

Supersedes : Dec 2009



... the level & gas people

ISO-9001 : 2008 CERTIFIED COMPANY

PRODUCT SPECIFICATION AND MODEL SELECTION GUIDE

DESCRIPTION

Automat Displacement type Level Transmitter is designed to sense Liquid level, Interface and Specific Gravity. The output of the Instrument is proportional and is designed to measure and transmit electrical signal proportional to changes in Liquid level or Specific Gravity.

The V. Automat series 401E measures changes in Liquid Level, Specific Gravity or interface Level and transmits a current output signal proportional to the change in the process parameter. The change in the process parameter causes a change in the displacer position, which is transferred to the Torque Tube (Fig-1) producing a rotary motion. This rotary motion is transferred through bellow to lever assembly that is supported by flexure strips. Magnets attached to the lever assembly move past a Hall effect position sensor that converts the magnetic field signal to an electrical 4-20mA signal.

The Transmitter has been provided with magnet setting Pin which can be used to adjust setting of magnet in relation to hall effect sensor. Magnet setting Pin can also be used to check for fault finding between Mechanical system & electronic system. The magnet sensing Pin allows to find out problem without removing the transmitter or field wiring cover or the signal Conditioner Cover. The above adjustment does not require raising or lowering of the level. This facility is only available in Automat displacement type level transmitter.

INTRODUCTION

Automat Displacement level transmitter consist of certified electronic. This assembly along with hall effect sensor makes complete level transmitter. SMART displacement level transmitters are microprocessor based instruments that combine the analog signal advantages (4-20mA) together with the flexibility of digital communication using HART® protocol/Foundation Field Bus (FF). Displacement level Transmitter can be configured by using universal Hand Held HART communicator (HHC) or by Computer (PC) with dedicated software. The facility of Automat design is easy calibration by any of the three different methods i.e. HHC as well as by PC with Dedicated software and by push button.



Fig. 1

Smart Displacement Type Level Transmitter



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PRINCIPLE OF OPERATION

A Level density, or interface level change in the measured fluid causes a change in displacer position. This change is transferred to the Torque Tube assembly. As the measured fluid changes, the Torque Tube assembly rotates upto 3.7 degrees changing the transmitter output between 4 and 20mA.

The rotary motion is transferred to transmitter lever assembly (via a bellow) supported by flexure strips.

The rotary motion moves a magnet attached to the lever assembly, changing the magnetic field that is sensed by Hall effect position sensor. The sensor then converts the magnetic field signal to an electronic signal. The electronic signal is ambient, temperature compensated and amplified by the differential amplifier. The low pass filter dampen the effects of process turbulence and prevents saturation of the dc amplifier and the current driver.

The current driver circuit develops 4 to 20mA current output signal proportional to the dc amplifier voltage output. The voltage regulator provides the regulated voltage needed by the transmitter. Circuits within the transmitter provides Reverse polarity protection, Transient power surge protection, and Electromagnetic interference (EMI) protection.

Available Configuration:-

401E Digital Level Controller:

Mounts on caged and cage less i.e top mounted

Function: Transmitter

Communication protocol: HART/FF

Input Signal:-

Level, Interface or density: Rotary motion of torque tube shaft proportional to changes in liquid level, interface level or density that changes the buoyancy of displacer.

Output signal:-

Analog: 4 to 20 mA DC

(Direct action – Increasing level, Interface or density increase output)

(Reverse action- Increasing level, Interface or density decrease output)

High Saturation: 20.5 mA

Low Saturation: 3.8 mA

Operating Influence:-

Power supply Effect: Output changes $\pm 0.2\%$ of full scale when supply varies between minimum and maximum voltage specifications.

Transient Voltage protection: The loop terminals are protected by a transient voltage suppressor.

Ambient Temperature :- The combined temperature effect on zero and span is less than 0.03% of full scale per degree Kelvin over the operating range -40 to 80 deg. C (-40 to 176 deg. F)

Process Temperature: The torque rate is affected by the process temperature. The process density may also be affected by process temperature.

Process density:- The sensitivity to error in knowledge of process density is proportional to the differential density of the calibration. If the differential specific gravity is 0.2, an error of 0.02 specific gravity units in knowledge of process fluid density represents 10% of span.

Electromagnetic Compatibility:

Radiated Electromagnetic test as per IEC 61000-4-3

Radiated Emission limit test as per IEC 61000-6-4

Supply requirement:

12 to 30 volts DC; instruments has reverse polarity protection.

A minimum compliance voltage of 17.75 is required to guarantee HART Communication.

LCD meter Indication:

LCD meter indicates analog output on a percentage scale.

The meter also can be configured to display:

mA (milli ampere) , %(Percentage), mm(millimetre)

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Minimum Differential Specific Gravity:-

With a nominal 3.7 degree torque tube shaft rotation for a 0-100 percent change in liquid level (Specific gravity =1), the digital level controller can be adjusted to provide full output for an input range of 20% of nominal input span, this equates to minimum differential specific gravity of 0.05 with standard volume displacer.

Construction material:

Case and cover(Electronic Enclosure): Die cast Aluminium
(for other please contact factory)

Electrical Connection:

Two ½" NPT internal conduit connections, one on bottom and one on Top of terminal box.

Sr. No.	Performance Criteria	401E Digital level Transmitter
01	Independent Linearity	+/- 0.25% of output span
02	Hysteresis	< 0.2% of output span
03	Repeatability	+/- 0.25% of full scale output
04	Dead Band	< 0.05% of input span
Note: At full design span, reference conditions		

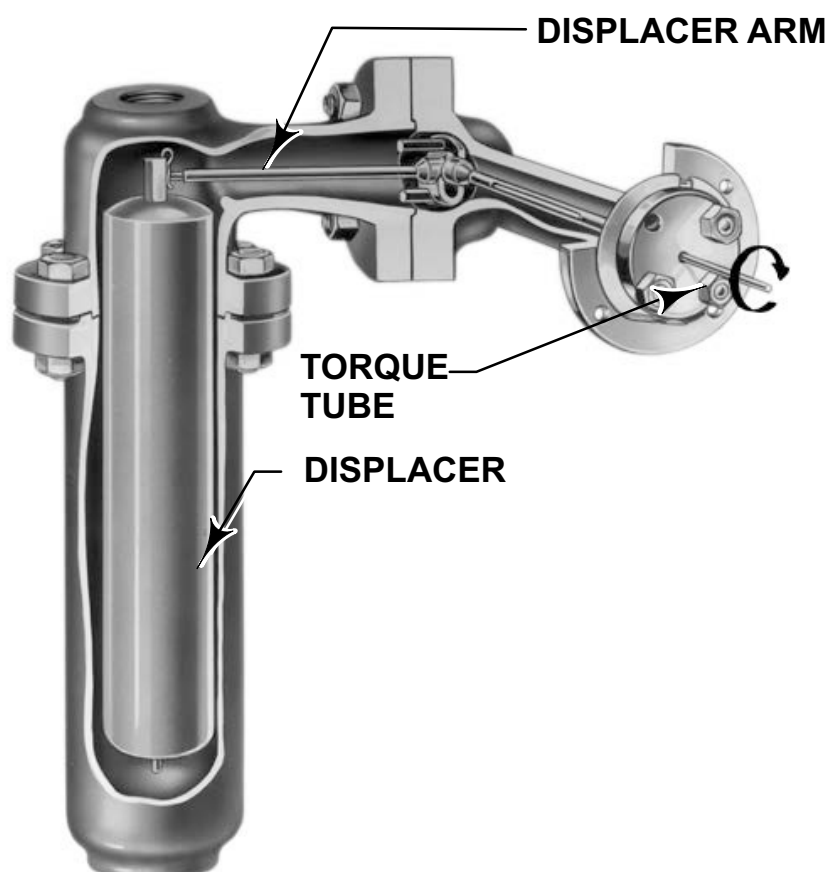


Fig. 2 (Internal View)

Smart Displacement Type Level Transmitter



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SPECIFICATIONS:

Displacer length..... Minimum 100 mm & Maximum 6 meter

Input Signal.....Liquid level or liquid to Interface Level: From 0 to 100% of Displacer length

Specific Gravity Range... 0.4 to 1.4 (with Standard Displacer) & 0.2 (For interface)

Output Signal..... Two Wire 4-20mA dc.

Output Action..... **Direct**- increasing Level increases output: or **Reverse**- increasing Level decreases output

Display..... LCD Display Meter 3 1/2 Digit

Measuring unit mA, %(Percentage), mm

Reference accuracy at (specific gravity 1.0)..... +/- 0.5% of full scale (better on request)

Damping..... 0-32sec.

Calibration facility..... By three methods i.e. Hand Held Communicator (HHC), push button & PC

Power Supply..... a) 35 V dc For explosion proof
b)30 V dc For intrinsically safe

Power Supply effect..... Negligible between 13 and 35 Vdc

Load Resistance..... 600 ohm at 24 V dc

Span Adjustability..... ± 20% of Displacer length for level

Zero Adjustability..... Continuously Adjustable

Diagnostic of Mechanical & Electronic.... Provided

Cage Style..... Cages can be furnished in a variety of end connection style to facilitate mounting on vessels. (Pls Refer Page 7)

Amb.Temp..... -40 to 70°C

Elect. Connection..... 1/2" NPT(F)x2

Housing Die cast Alluminum

Elect. Classification..... 1. Weather proof IP 66
2. Explosion proof for group IIA & IIB cum Weather proof
3. Intrinsically safe,
4. CCOE, DGMS & Others on request.

MOC..... **External:** Carbon Steel , 304SS , 316SS , 304L & 316L & other
Internal: 316SS. & other

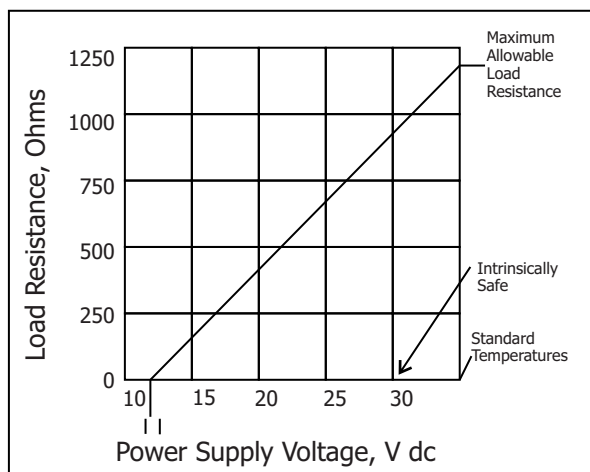
Torque Tube..... 316SS, 316L, Inconel, K Monel & Hastelloy.

Process Connections..... S.W or Flanged.

Max. Working Pressure... 0-100kg/cm²

Process Medium Temp.... (-)50°C to (+)400°C (Cooling fins are provided for Process Temperatures above 150°)

Static Pressure..... 150% of working Pressure



Power Supply Requirement & Load Resistance

Fig.: -3

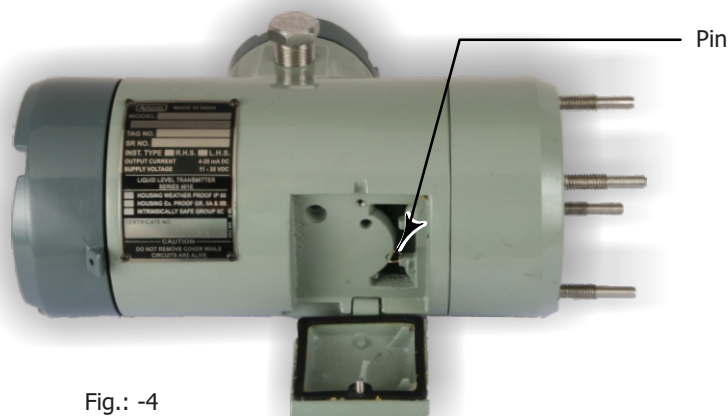


Fig.: -4

Electronic Head (Adjustment through pin during calibration)

Feature

- **Simplified setup and calibration-** For quick analog transmitter replacement (4-20mA output only, the instrument may be configured with default sensor data, zero level offset, differential process SG, and zero/span procedure only. For full compensation and diagnostic capabilities, complete sensor data entry and calibration is recommended.
- **Responsive to small process change-** Accurate, high-gain analog to digital conversion enables measurement of small changes in the process variable. This allow the 401E digital level controller to be used in difficult liquid level, interface or density applications.
- **Compensation-** The instruments measurement algorithm correct for the small motion of the displacer as buoyancy changes, allowing it to calculate the true cage or vessel level, This provides additional accuracy on the shorter displacer.
- **Rugged construction-** Mechanical safeguards designed in to the digital level controller help it to withstand physical abuse often incurred during installation or in transport, without compromising performance. The encapsulated printed wiring board resist the effect of vibration, temperature and corrosive atmospheres. The lever assembly is pinned at the neutral position when the coupling access door is open, providing shipping stabilization for a separate transmitter purchase. Locking set screws are provided for covers and the access door handle.
- **Easy Maintenance-** Field wiring connections are in a compartment separated from the electronics. This protects the electronics from any moisture brought into the housing by the field wiring. This also eases installation and maintenance. The digital level controller does not have to be removed to facilitate troubleshooting or service. Modular construction allows servicing in the field. However, if it is necessary to remove the digital level controller for in shop maintenance and calibration, field wiring does not need to be disconnected.

- **Alarm Jumper-** The 401E digital level controller induced self diagnostic that detect an error (e.g. electronic failure) that would render the process variable measurement inaccurate. The instrument can also be configured to indicate a process variable high or low alarm. When a process variable alarm or an error is detected the analog output signal is driven either above or below the normal 4 to 20 mA range, depending on the user selectable position of the alarm jumper. The units from the factory with jumper in the high position.

FOUNDATION FIELD BUS FEATURES

- Transmitters on the main field bus segment is able to communicate at a speed of 31.25 Kbps as a minimum.
- Transmitter will support peer to peer communication.
- Transmitters complying interoperability test clearance ITK6.1.1 for foundation fieldbus.
- Transmitters are capable to operate between 9-32 VDC maximum.
- Transmitters have capability to perform continuously their own self diagnostics to check their own health status.
- Transmitters have EDDL (Electronic Device Description Language) enabled as per IEC61804 latest Version.
- Transmitters are able to update output at the rate of 250msec.
- Transmitters have capability to provide input & function blocks such as signal linearization, input selector, arithmetic function, integrator and PID as a minimum.
- Function block execution time 25msec for analog input, 31.25 msec for PID.
- Transmitters are able to provide diagnostics as real time instruments status.
- Transmitters have capability to become device link master.

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Ordering Information

401E-

I	II	III	IV	V	VI	VII
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Electrical Classification

Weather proof..... **W**
 Explosion proof..... **E**
 Intrinsically Safe..... **I**

Transmitter Action

Transmitter Direct **D**
 Transmitter Reverse..... **R**

Style/ Process Connection

Top Bottom..... **I**
 Top Side..... **II**
 Side Side..... **III**
 Side Bottom..... **IV**
 Top Internal..... **V**
 Side Internal..... **VI**

Material Of Construction

Parts	CS	SS304	SS316	Teflon Coating	Inconel	Hastalloy	K.Monel
Cage, Cage Head & Flange	A	B	C	D	...	...	...
T.T.Housing	E	F	G	H	...	...	...
T.T	...	...	I	...	J	K	L
Displacer & Disp.Stem	...	M	N	...	...	...	...

Please Specify

Size of the Process Connection

For Style I - IV									For Style V - VI				
1" NPT	1"SW	2"NPT	2" SW	2"150#	2"300#	2"600#	2"900#	Others	3"150#	3"300#	4"150#	4"300#	Others
1	2	3	4	5	6	7	8	9	1	2	3	4	5

Please Specify

Please Specify

Displacer Length.....

Foundation Field Bus

Yes..... **Y**
 No..... **N**

Range mm (Minimum 100 mm & Maximum 6 meter)

MODEL DESCRIPTION WITH EXAMPLE - 401E- I -II -III- IV- V -VI -VII

401E -E -D-III-B-F-J-N-6-356mm-Y

401E -Smart type Displacer Level transmitter with explosion proof housing, direct action, with side- side mounting, cage, cage head, Process connection & torque tube housing of SS304 with Inconel torque tube & 316SS displacer with 2"300# process connection with range 356mm. with Foundation Field Bus

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STYLE 1	UPPER CONNECTION : TOP LOWER CONNECTION : BOTTOM	STYLE 2	UPPER CONNECTION : TOP LOWER CONNECTION : SIDE
STYLE 3	UPPER CONNECTION : SIDE LOWER CONNECTION : SIDE	STYLE 4	UPPER CONNECTION : SIDE LOWER CONNECTION : BOTTOM
STYLE 5	TOP INTERNAL MOUNTED	STYLE 6	SIDE INTERNAL MOUNTED

THESE DIMENSION ARE FOR PROCESS CONNECTION UPTO 600 ASA

TOLERANCE: (a) $\pm 1.5\text{mm}$ FOR CENTER TO CENTER DISTANCE AND PROCESS FLANGES. (b) $\pm 3\text{mm}$ FOR OTHER DIMENSIONS.

NOTE 1: ALL DIMENSION ARE IN mm UNLESS STATED OTHERWISE. NOTE 2: THESE FIGURES ARE WITH RIGHT HAND SIDE MOUNTING

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Applications

This transmitter will operate in most level measurement applications including

- Knock-out pots → HP Heater → LP Heater → Condensate Drums → Receiver Tanks
- Hot well level → Separators → Dearator → Storage Vessels → Others Contact Factory

INTERNAL VIEW OF ELECTRONIC HEAD

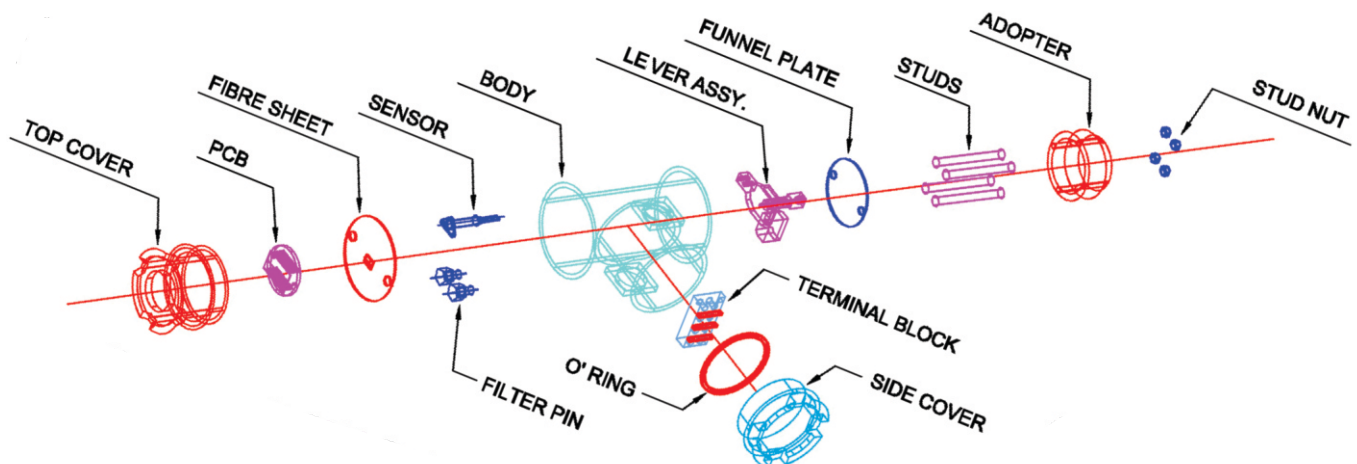


Fig. 5

Part List

Key Description

Part Name

1. O-Ring, Nitrile
2. Printed Wiring Board Assembly with Display unit (LCD)
3. Funnel plate m/c screw
4. Stud, Stainless Steel (4req'd)
5. Hex Nut Stainless Steel
6. Funnel Plate, Stainless Steel
7. Lever Assembly, Aluminium
8. Cap Screw, SS (2req'd) for lever assy. mounting
9. Housing Aluminium
10. Housing Cover, Aluminium
11. Vent Plug
12. Sensor Assembly, Stainless Steel
13. O-Ring, Nitrile
14. Sensor Screw
15. Adapter Ring
16. Torque Tube
17. Displacer
18. Displacer Arm
19. U Bearing
20. Positioning Plate
21. Cotter Pins
22. Displacer Rod
23. Top end Piece
24. Electronic unit
25. Torque tube Housing

Part Code

- E4003
- E4007
- E4011
- E4013
- E4014
- E4015
- E4016
- E4017
- E4020
- E4021
- E4022
- E4023
- E4024
- E4025
- E4030
- E4033
- E4034
- E4035
- E4036
- E4037
- E4039
- E4040
- E4041
- E4042
- E4043

REPLACEMENT

We are replacing Level Transmitter heads since **1997** and are serving to the entire satisfaction of our customers. This is what our customers have said about us:-

रिफाइनरीज एंड
पाइपलाइन डिवीजन
Refineries &
Pipelines Division

इंडियन ऑयल कॉर्पोरेशन लिमिटेड

गुजरात रिफाइनरी, डाक्टर : जवाहरनगर, जिला : वडोदरा, गुजरात 391 320

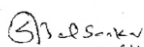
Indian Oil Corporation Limited

Gujarat Refinery, P.O. Jawaharnagar, Dist. Vadodara, Gujarat-391 320
Phone : Baroda 372631 (3) Lines, Telex : 0175-6307, Grams : GUJREFN



TO WHOMSOEVER IT MAY CONCERN

M/s V. AUTOMAT & INSTRUMENT (P) LTD., DELHI HAS RECENTLY IN DEC '97 SUPPLIED, ON TRAIL BASIS, FOR FCC UNIT (LCO STRIPPER LEVEL CONTROL) ONE NUMBER OF ELECTRONIC LEVEL TRANSMITTER FOR **MOTOYAMA** SUPPLIED PNEUMATIC LEVELTROL, KEEPING THE FLOAT AND FLOAT CHAMBER SAME AS THAT M/s **MOTOYAMA** THIS SYSTEM HAS BEEN COMMISSIONED IN DEC '97 AND HAS BEEN FUNCTIONING SATISFACTORILY.


S. BALASANKER 6/4/98
Chief Instrument Manager

Phison : 021442 - 2280 to 2290

Gram : GASCRACKER

Fax : 021442 - 2261 to 2264



इंडियन पेट्रोकेमिकल्स कॉर्पोरेशन लिमिटेड

(भारत सरकार का उपक्रम)
महाराष्ट्र गैस क्रैकर कॉम्प्लेक्स डिवीजन,
डा.क. - पेट्रोकेमिकल्स टाउनशिप, नागोथाने,
जि. रायगड, महाराष्ट्र - 402 125.

Indian Petrochemicals Corporation Limited

(A Government of India Undertaking)
Maharashtra Gas Cracker Complex Division,
P.O. Petrochemicals Township, Nagothane,
Dist. Raigad, Maharashtra - 402 125.

Date : 09/01/2001

To,
M/S, V. AUTOMAT & INSTRUMENTS (P) LTD.,
F-61, Okhla Industrial Area,
Phase - 1,
New Delhi - 20
Fax No. : 011-681 9440


Attn.: Mr. A. B. Datta Manager

Sub.: Performance Report of Electronic head

Sir,

In April 2000, we had replaced electronic head of **Parcol** Leveltrol by V. Automat Electronic head. Since installation this instrument is working satisfactory without problem. This performance report is being issued as per your letter dated 9/12/2000.

Yours Faithfully
For IPCL


(T.B. Kamble)
Maint. Manager (E&I)
PP Plant



Regd. Office : P.O. Petrochemicals, Dist. Vadodara - 391346, Gujarat.



GUJARAT STATE FERTILIZERS & CHEMICALS LTD.

Registered Office : P.O. Fertilisnagar-391 750, Dist. Vadodara, Gujarat, India.
Phone : 0265 - 2242451, 2242651, 2242751, 2242841



TO WHOMSOEVER IT MAY CONCERN

This is to certify that M/s V. Automat & Instruments (P) Ltd., F-61, Okhla Industrial Area, phase-1, New Delhi has supplied 6 Nos. of Smart Level Transmitter Electronic Units for Substituting ECKARDT make Displacement type Level Transmitters supplied by M/s. Chemtrols Engg, keeping the Float and Chamber same as original. The Transmitter supplied by M/s V. Automat & Instrument (P) Ltd. are functioning satisfactorily and the measurement is found to be accurate.

This certificate is issued to them on their request.

For Gujarat State Fertilizers & Chemicals Ltd.

Vadodara
21-4-2007


(M.R. Parmar)
Addl. General Manager (Instrument)



हिन्दुस्तान पेपर कॉर्पोरेशन लिमिटेड
Hindustan Paper Corporation Limited
(A GOVERNMENT OF INDIA ENTERPRISE)

Ref.: M/18-19/F/50/701

कच्छाड पेपर मिल
CACHAR PAPER MILL
P.O. PANCHSIRAM - 786302
DIST. HAILAKANDI, ASSAM
Phone : (03845) 68215, 68214, 68227
Fax No. : (03845) 68269/68225/68239
E-Mail : akhmal@hpa.vsnl.net.in



Dated: 18.5.01

To,
M/S, V. AUTOMAT
F-61, Okhla Industrial Area,
Phase - 1, New Delhi - 20

Sub.: PERFORMANCE FEEDBACK ON THE ELECTRONIC TYPE LEVEL HEAD

DEAR SIRs,

TWO NUMBER OF DISPLACER TYPE LEVEL HEAD BEARING SL. NO.

99/52 AND 99/53 OF M/S V. AUTOMAT MAKE (ONLY HEAD OF ELECTRONIC TYPE) HAD

BEEN RETROFITTED IN M/S FISHER MAKE PNEUMATIC LEVEL TROL INSTALLED IN

INTERMEDIATE AND MAIN GROUP CONDENSATE SEPARATOR TANK IN OUR PAPER

MACHINE NO:II THE PERFORMANCE OF THE SAME WAS OBSERVED FOR A PERIOD OF

SIX TO SEVEN MONTHS AND FOUND TO BE SATISFACTORY.


(B. BHATTACHARJEE)
DEPUTY GENERAL MANAGER (ENGG.)

Fax : 0265 - 2240966 / 2240119
Visit our WEB SITE at <http://www.gsfciltd.com> e-mail : ho@gsfciltd.com

Cautions for handling the product

In order to ensure maximum performance from the product's functions, please handle it properly while paying attention to the following precautions. Please make sure that you read the instruction manual of this product before use.

Cautions for Installation

Warning

- When installing, make sure that the gasket between process connections (Flange connections) does not protrude; otherwise fluid leakage or output error may occur.
- Do not operate the instrument beyond the specified pressure, temperature or conditions. Could result in damage to the instrument or fluid leakage which may lead to a serious accident.
- Wiring installation in an explosion proof area must be done in accordance with the procedure stated in the explosion guideline. For an explosion proof model with explosion proof cable gland adaptor, make sure that V. Automat made certified explosion proof cable gland adaptor is used. The cable for wiring should have a 60 deg.C withstand temperature or higher.
- Do not perform wiring with wet hands or while the power supply is on. This may result in electric shock.

Caution

- Do not use this instrument as a step or scaffold after installation. The instruments may be damage and this may result in injury.
- Do not hit indicator's glass window with any tool or hard object. Broken glass may cause the injury.
- Make sure that installation has been performed properly. If not, it may result in output err or or violation of industry regulations.
- This instrument is heavy. Be careful on scaffold and wear safety shoes.
- Make sure that wiring is done properly and checked thoroughly. Incorrect wiring may damage the instrument.
- Make sure that the power supply conforms to specifications and is used properly. An incorrect power supply will damage the instrument.

LIST OF PROCESS CONTROL INSTRUMENTS

SN	Items	SN	Items
Liquid Level Switches		Level Gauges	
1	Float Operated	1	Reflex Type
2	Displacer Type	2	Transparent Type
3	Rotary Paddle Type	3	Tubular Type
4	RF Type	4	Float and board
5	Conductivity Type	5	Float and Dial
6	Electronic Conductivity Type	6	Gear Type Level Gauge
7	Capacitance Type	Level Transmitters	
8	Balloon Type	1	Smart Displacement Type Level Transmitter(DGMS Approved)
9	Vibrating Rod/Fork Type	2	Bi-Color Magnetic Level Indicator/ Transmitter
Flow Switch		3	Non-Contact Radar Level Transmitter
1	Flapper Type (DGMS Approved)	4	Guided Wave Radar Level Transmitter
2	Plug Type (DGMS Approved)	5	Differential Pressure Flow Transmitter
Flow Indicator		6	Differential Pressure Level Transmitter
1	Rota meter	7	Pressure Transmitter
2	Side Flow Indicator	8	Ultrasonic Type Level Transmitters
Valve Positioner & Accessories		9	Temperature Transmitter
1	Smart Positioner	10	Gear Type Level Gauge/Transmitters
2	Electro Pneumatic Positioner	Pneumatic Level Instrument for Oil Industries	
3	Pneumatic-Pneumatic Positioner	1	Interface Level Controller
4	Positioner Transmitter	2	Level Controller Flex (Tube)
5	Volume Booster	3	Micro Valve Level Controller
6	Air Filter Regulator	4	Level Controller (Internal Ball Float)
7	I/P Converter	Instruments for Oil Production Industries	
8	Pressure Controller	1	Safety System for Heaters
GAS ANALYSERS (EMISSION)		2	Low Temperature Shut Down Switch for Pilot Burner
1	Nox	3	Self-Operated Temperature Controller/ Regulator with Mercury filled
2	Sox	4	Element
3	Co	5	Electronic Remote Igniter (Weather Proof / Explosion Proof)
4	Co2	6	Flare Pilot Burner
5	O2	7	Air/ Gas Pressure Regulators
6	H2	8	Time Cycle Controller (DGMS Approved)
7	HF	WATER ANALYSERS	
8	HCL	1	BOD
9	H2S	2	COD
10.	O3	3	TOC
11	NH3	4	TSS
12	CL2	5	TDS
Ambient Air Quality Monitoring System		6	DO
1	SO2, NO2, NO, CO, CO2, NH3, H2S, O3 O2 PM 2.5 PM 10	7	PH
WIRELESS INSTRUMENTS		8	ORP
1	GSM	9	CONDUCTIVITY
2	GPRS	10	TURBIDITY
3	2.4 / 5.8 GHZ	11	ARSENIC
4	Real Time Online Monitoring System	12	AMMONIA
		13	Water Hardness Analyzer
		14	Silica Analyzer
		15	Metal Analyzer
		Other Instruments	
		1	Electronic Time Cycle Controller
		2	Silo Material Blockage Removal Machine
		3	Plunger Lift Components
		4	Portable Corrosion & Hydrogen Flux Monitor

Replacement Scheme of Smart Displacement Type Level Transmitter

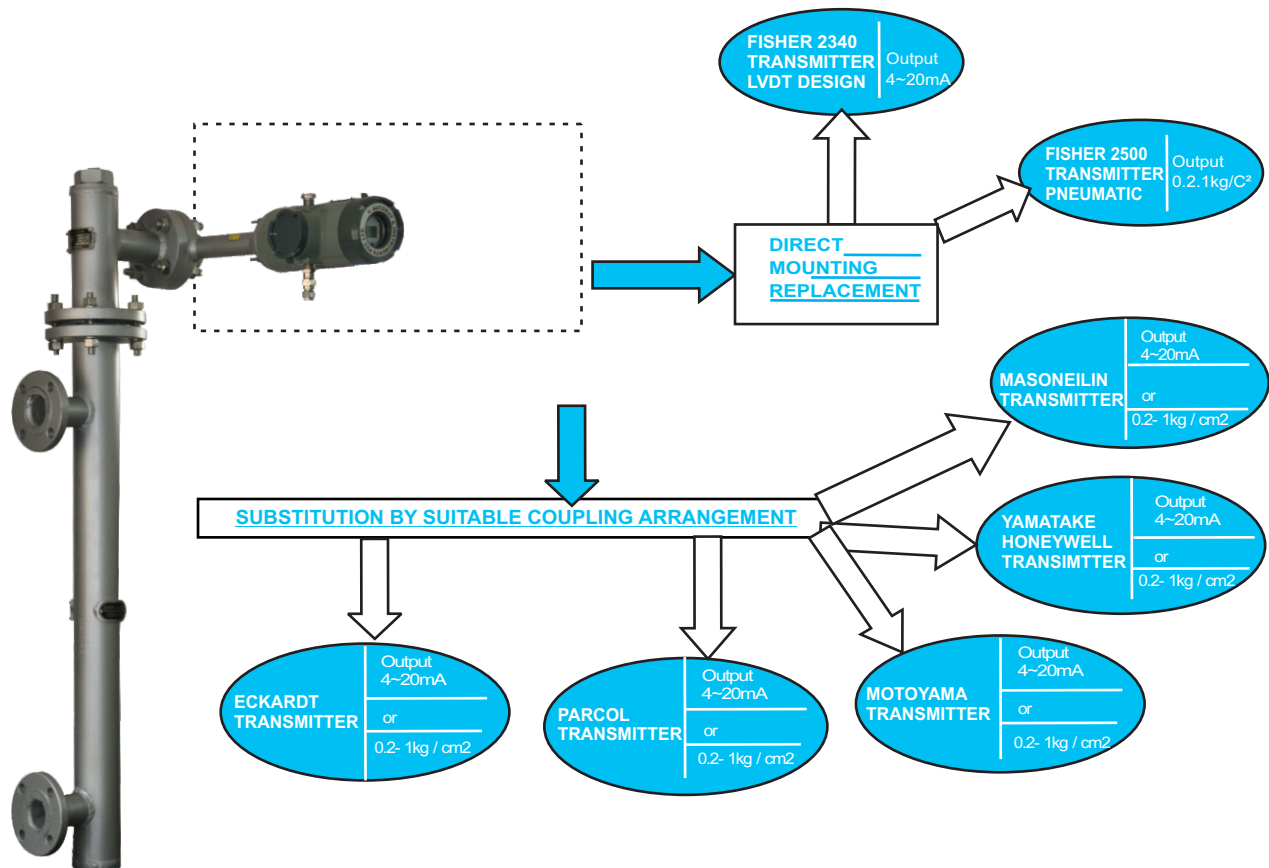


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Replacement of only Electronic / Pneumatic unit keeping the following manufacturers Displacement type level transmitter as it is:

HALL EFFECT SENSOR BASED TECHNOLOGY

Drawing shows that M/s. Fisher; M/s. Parcol, M/s. Motoyama, M/s. Masoneilin, M/s. Yamatake Transmitter etc. Electronic Head can be replaced with M/s. V. Automat's Electronic. Head Keeping the Chamber etc as it is.



- ★ Substitution of V. Automat Level Transmitter (Electronic) with Transmitter of above manufactures (Electronic / Pneumatic).
- ★ Range, Process Connection, Cage Design can be Synchronized with the Existing system and Service Conditions.

V. AUTOMAT & INSTRUMENTS (P) LTD.

Regd. Off.:- AUTOMAT HOUSE:- F-61, Okhla Industrial Area,
Phase-I, New Delhi-110020 (INDIA)
Ph.: 91-11- 47627200 , Fax : 91-11-26819440
Email : sales@vautomat.com, vautomat@airtelmail.in,
website : www.vautomat.com

Works:- AUTOMAT HOUSE:- F-34, Okhla Industrial Area,
Phase-I, New Delhi-110020 (INDIA)
Ph.: 91-011- 46353500 , Fax : 91-011-26819440
Email : production@vautomat.com, accounts@vautomat.com
website : www.vautomat.com

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See Website for address (Specifications Subject to change without prior notice)