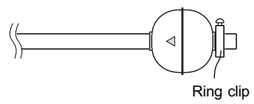
EG36 (EGX3001B-A1/EGX3021B-A1)
Magnetostrictive Level Transmitter Operation Manual

NOTICE FOR INSTALLATION

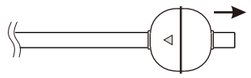
1. This product has been adjusted before leaving factory. The measuring position or distance should not be changed without permission.
2. Magnetostrictive level transmitter is a measuring instrument which is high in precision. Its body tube should not be buckled, or it will show an inaccuracy data or even does not work.
3. Please do not replace the specifications of the float without permission, or the product will not perform its proper functions.
4. User can install the product directly without having to take off the float, when connection hole at site is bigger than float diameter.
5. If the diameter of the float is wider than the connection hole at site, you should remove the float first and then fix it back after installing the product in accordance with the leaving-factory direction(the marked end on the ball should head toward the junction box).
6. T he stopper has to be fixed well on the stem score
7. The floating ball should be prevented from striking or dropping on the ground so as to avoid that the magnet inside the ball is broken and loses functions.
8. The product should be prevented from extrusion by heavy loads in case that the body tube becomes distorted and could not show the accurate record. If this happens, the product should be returned to factory and adjusted.
9. The connecting rod and float should be well packed by anti-seismic materials, such as bubble bags, foam gaskets and so forth.
10. Please do not open the junction box in order to ensure the accuracy of the measurement.

INSTALLATION METHOD IF THE FLOAT HAS TOBE TAKEN OFF BEFORE INSTALLATION:

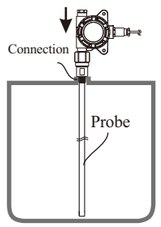
Step 1:
Loosen the ring clip at stem end



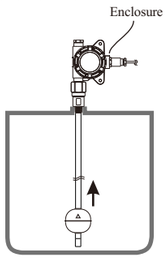
Step 2:
Take off the float



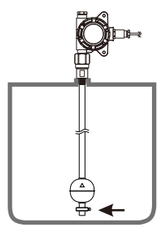
Step 3:
Insert the body pipe into the tank and screw the connection well



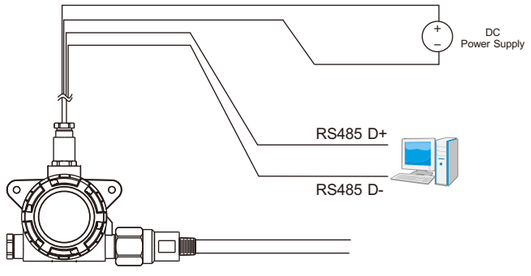
Step 4:
Put back the float onto the stem by specific direction mark on the float has to be toward the housing



Step 5:
Screw the ring clip well on the stem

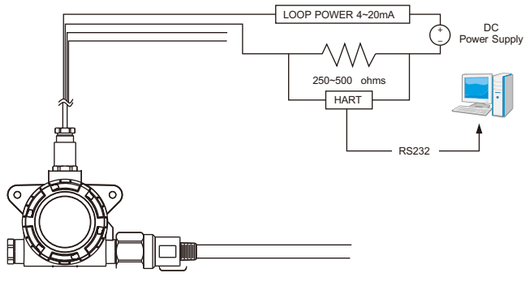


RS485 Communication



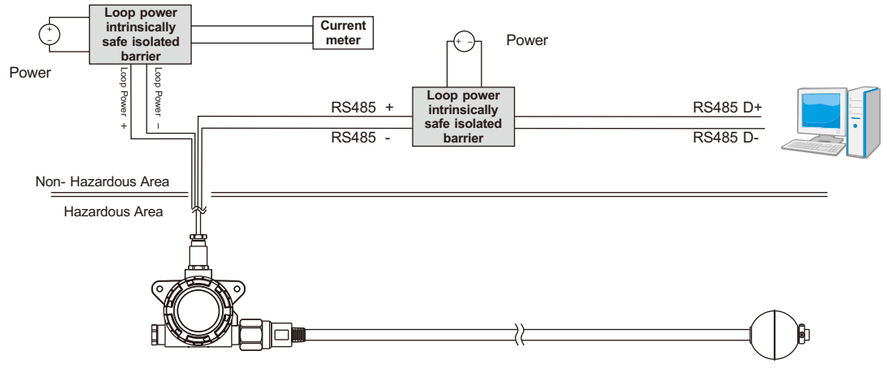
※If the current output is 4-20mA, please ignore RS 485 communication line.

HART Communication



※Select either of HART communication or RS-485 communication.

Wiring Instruction



※Please ignore connection of RS-485 when order without RS-485

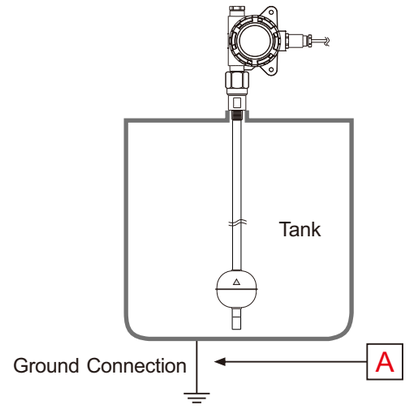
NEPSI explosion-proof certification Ex ia IIB T3...T6 Ga
Intrinsic safety control system GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
ATEX Ⓔx II 1G Ex ia IIB T3...T6

SPECIFICATIONS

Power supply	12-30 Vdc (Four-wire type) (RS 485 Communication) 16-30 Vdc (Two-wire type) 16-28 (Hazardous Area)
Measuring range	50~5500mm
Output signal	4~20 mA or 20~4 mA
Maximum load (Ω)	(Vs-16V)÷0.02 Vs=supply voltage
Non-Linearity	200mm~4000mm ±1mm 4001mm~5500mm ±0.025% F.S.
Repeatability	0.004 % F.S
Hysteresis	0.008 % F.S
Temperature coefficient	±100 ppm/°C
Ambient temp.	-40 ~ 85 °C
Operational temp.	-40 ~ 125 °C
Temperature sensor /Accuracy	PT100(optional) /±1 °C
Communication interface	HART/RS485(optional)
Protection rating	IP67/IP69
Communication certification	HART
Explosion proof certification	NEPSI

SPECIFIC REQUIREMENTS

1. When install EG36 liquid level transmitter, you must make sure that the flange is connected with the tank, and that the metal tank is connected indeed with the ground, as shown in picture A.
2. Permanent magnet is installed inside the floating ball which absorbs the magnetic element inside the probe all the time. When operated at the lowest liquid level, the floating ball will closely touch the probe and ring(the ball should be maintained regularly, and the sundries between the ball and probe are required to be removed).



OPERATION INSTRUCTIONS FOR EXPLOSION-PROOF PRODUCTS

■ Specific conditions for safe operation

1. The enclosure of the product is made of aluminum alloys, which requires safety precautions that prevent the product from collision or friction.
2. If the float is made of nonmetal materials, specific precautions should be taken to prevent from burning caused by static electricity

■ Precautions for use

1. The product could not work in hazardous areas where explosive gas mixture exists until it was combined with associated equipment placed in nonhazardous places. Meanwhile, the system wiring must follow the instructions for use of both the product and associated equipment that matches with. No wiring mistakes are allowed. The intrinsic safety electrical parameters of Magnetostrictive level transmitter are as follows.

Power supply circuit

Max. Input Voltage Ui(V)	Max. Input Current Ii(mA)	Max. Input Power Pi(mW)	Max. Internal Equivalent Parameter	
			Ci(μF)	Li(μH)
28	100	651	0	276

RS485 circuit

Max. Input Voltage Ui(V)	Max. Input Current Ii(mA)	Max. Input Power Pi(mW)	Max. Internal Equivalent Parameter	
			Ci(μF)	Li(μH)
8.5	90	192	0	0

Max. Input Voltage Ui(V)	Max. Input Current Ii(mA)	Max. Input Power Pi(mW)	Max. Outside Equivalent Parameter	
			Ci(μF)	Li(μH)
5.88	12.5	18.4	20	10

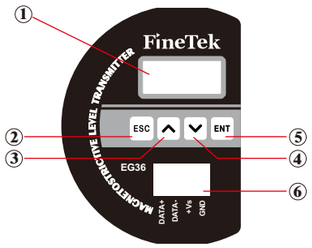
2. Sparks on the float caused by mechanical impact or friction should be avoided when the product is being installed, used or maintained.
3. Please do not replace spare parts of the product unless you have discussed and settled the trouble together with the manufacturer in case of any damage.
4. The relationship between the temperature class and maximum environmental temperature and measuring medium temperature are shown as:

Type	Temp. Class	Environmental Temp.(℃)	Medium Temp.(℃)
Normal temp. type	T6	-40~+62	-40~+80
	T5	-40~+77	-40~+95
	T4	-40~+85	-40~+125
	T3	-40~+85	-40~+125
High temp. type	T6	-40~+62	-40~+80
	T5	-40~+77	-40~+95
	T4	-40~+85	-40~+130
	T3	-40~+85	-40~+195
Covered type	T6	-40~+62	-40~+80
	T5	-40~+77	-40~+80
	T4	-40~+85	-40~+85
	T3	-40~+85	-40~+85

※ The practical tolerable temperature depends on the latest issued product catalog and is handled based on explosion-proof identification marks.

5. The instructions and standards below should be followed when the product is being installed, used and maintained: GB3836.13-1997 (IEC 60079-19:1993) "Part 13, Use of Electrical Equipment in an Environment of Explosive Gases: The Maintenance of Electrical Device in an Environment of Explosive Gases"、GB3836.15-2000 (IEC 60079-14:1996) "Part 15, Electrical Equipment Use in an Environment of Explosive Gases: Electrical Device Installation in Hazardous Places (coal mines excluded)"、GB3836.16-2006 (IEC 60079-17:2002) "Part16, Electrical Equipment Use in an Environment of Explosive Gases : Survey and Maintenance of Electrical Device (coal mines excluded)、GB3836.18-2010 (IEC 60079-25:2003) " Part18, an environment of explosive gases: intrinsic safety system and GB50257-1996 examination regulations of electrical device installation and construction project in hazardous environment.

PANEL INSTRUCTIONS



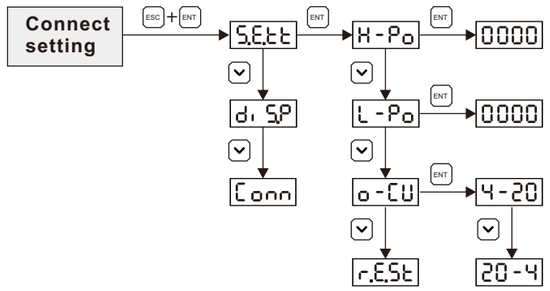
① : LCD display
② : Escape key
③ : Up
④ : Down
⑤ : Enter
⑥ : RS485/Power

PROGRAM INSTRUCTION DESCRIPTION

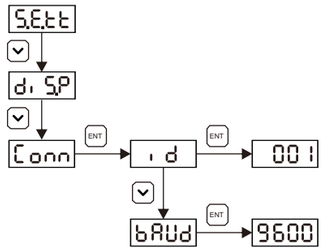
Main options	Parameters			
SEtt		SETTING	Set up	
	H-Po	HIGH POINT	High point setting	Maximum range
	L-Po	LOW POINT	Low point setting	
	o-CU	OUTPUT CURRENT	Output current setting	
	r.ESt	RESET	Factory reset	
di SP		DISPLAY CONTENT	Display setting	
	di.St	DISTANCE	Distance mode	Default mode
	CUrr	CURRENT	Current Mode	
	PEr.C	PERCENTAGE	Percentage Mode	
Conn		CONNECT SETTING	Connection settings	
	id	DEVICE ADDRESS	ID setting	Default 001
	bAUd	DEVICE BAUDRATE	Baurate setting	Default 9600

PROGRAM SETTING PROCESS DIAGRAM

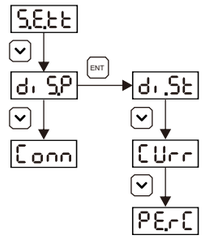
▶ Setting



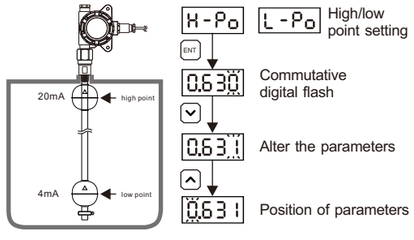
▶ Model setting display

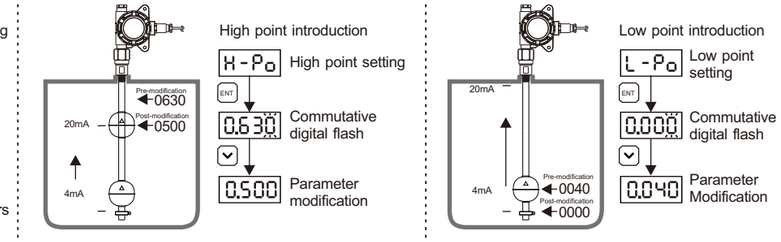


▶ Display the screen



▶ High or low point of liquid level





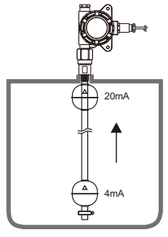
High point introduction

※The original position of 0630m is 20mA; after the modification, the high point parameter 0500m changes into 20mA

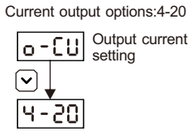
Low point introduction

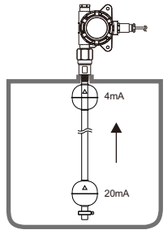
※The original position of 0000m is 4mA; after the modification, the high point parameter 0040m changes into 4mA

▶ Current output setting introduction

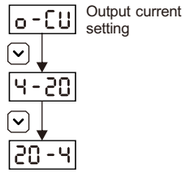


Current output options:4-20





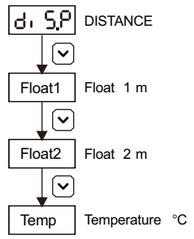
Current output options:20~4



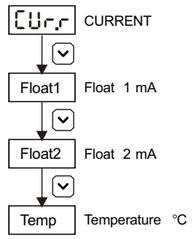
ESC : Escape
ENT : Storage parameters

▶ Content setting display

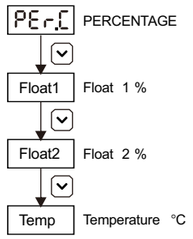
Distance model



Current mode

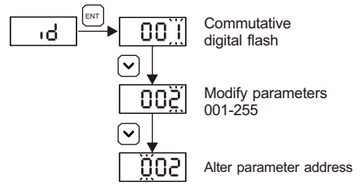


Percent mode

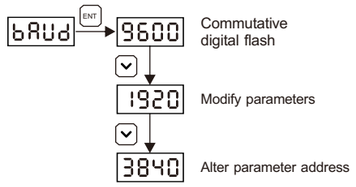


▶ Connection Setting

Device address



Device address



ESC : Escape
ENT : Storage parameters

MODBUS TABLE

	Name	Address(Hex)	Address(Dec)	Data Types	Quantity	Unit/Code	Definition
1	FineTek ID	0x1000	4096	STRING	1	FINE-TEK	READ
2	Product Type	0x1004	4100	UINT16	1	EG	READ
3	Product Number	0x1005	4101	UINT16	1	0x0005	READ
4	Product Version	0x1006	4102	UINT16	1	0x0001	READ
5	Float 1 distance	0x1007	4103	FLOAT	1	1mm	READ
6	Float 2 distance	0x100a	4106	FLOAT	1	1mm	READ
7	Measurable Range	0x1010	4112	FLOAT	1	1mm	READ
8	Display Percentage 1	0x1026	4134	FLOAT	1	%	READ
9	Display Percentage 2	0x1028	4136	FLOAT	1	%	READ
10	Temp Value	0x102a	4138	FLOAT	1	BC	READ WRITE
11	MODBUS ID	0x102c	4140	UINT16	1	ID=1	READ WRITE
12	MODBUS BAUDRATE	0x102d	4141	UINT16	1	BAUD=9600	READ WRITE
13	Float 1 High Limit	0x1034	4148	FLOAT	1	1mm	READ WRITE
14	Float 1 Low Limit	0x1036	4150	FLOAT	1	1mm	READ WRITE
15	Save System Var to EEPROM	0x1054	4180	UINT16	1	Set up value =1 (save setting)	READ WRITE
16	Save Calibration Setting	0x1057	4183	UINT16	1	Set up value =1 (save setting)	READ WRITE

WARRANTY INSTRUCTIONS

Warranty for new products

Products broken down within 12 months since the delivery day are detected and repaired without paying any fees if the products meet the warranty conditions. Broken down because of transportation instead of human factors, the products will be replaced and maintained by the manufacturer within 7 days based on relevant prove showed by customers. Please assemble the broken-down product before send back to the factory. Please do not disassemble unit parts without permission. Make sure that the products are well packed so as to avoid being damaged during transportation.

We do not take responsibility of the products warranty under the following circumstances. If it is needed, we will charge the maintenance fee based on specific institutions.

1. The product is beyond the warranty period.
2. The product is not operated in a proper environment according to the instructions (such as temperature excursion or over voltage).
3. The product is damaged because of irresistible force (such as flood, fire, earthquake, thunder strike or typhoon).

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