ELF series electric displacer level (interface) transmitter

Summary

ELT electric displacer transmitter is improved on the basis of model UTD. Still adopt the lever principle and stress measuring method in the transmitter part, measure the buoyancy force applied to the displacer in the liquid, acquire the measured signal identical with location of substance change through high precision double orifice suspension arm sensor, and the measured signal is transferred into 4-20mA standard signal output through a specific circuit.

The gaugehead is designed with popular style. Its sculpt is beautiful and each operating compartment separated. And the new model is equipped with static pressure adjustment device which greatly improved the precision and stability. The above mentioned two technologies have acquired the national patent.

The patent number for outward appearance design: 99 3 21507.6

The patent number for static pressure adjustment device: 99 2 23728.9

Main technical parameter

Model / contents	UTD electric displacer transmitter	ELF electric displacer transmitter
Operation pressure	24V DC	24V DC
Output signal	4~20mA DC	4~20mA DC
Load resistance	≤750Ω	≤750Ω
Measuring accuracy	1.0%	1.0%
Nominal pressure	2.5, 4.0, 6.4MPa	2.5, 4.0, 6.4MPa
Ambient temperature	-40~60° C	-40~60° C
Operation temperature	≤100° C(without radiator) ≤400° C(with radiator)	≤100° C(without radiator) ≤400° C(with radiator)
Material of touching liquid	Measuring compartment: carbon steel or 1Cr18Ni9Ti Others: 1Cr18Ni9Ti	Measuring compartment: carbon steel or 1Cr18Ni9Ti Others: 1Cr18Ni9Ti
Power supply inlet	G1/2″ (inner thread)	M20 × 1.5(inner thread)
Flange standard	JB/T82.1-94(plane flange) JB/T82.2-94(concave flange)	JB/T82.1-94(plane flange) JB/T82.2-94(concave flange)
Protection category	IP65	IP65
Damping	Non-adjustable	0.2~1.67 S Adjustable

Explosion proof type and certification number

Products model	UTD electric displacer	ELF electric displacer
Explosion proof type	Intrinsically ex-proof	Intrinsically ex-proof

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Explosion proof sign	Exia $IICT_5$	Exia $IICT_4$
Explosion proof certification number	GYB96241	GYB99272

Safety barriers unite taking certification table

Guard grating unite taking certificate form	
MTL of Britain	MTL728 MTL787
P+F of Germany	Z728 Z787
Wedmilla of Germany	S951 S965POS
Dandong Top Electronics Instrument Co. Ltd	TP5053 TP5047(Separation Guard Grating)
Ruian Explosion-proof Electric Factory	B902C B907
Wenling Automatization Instrument factory	KE940 KE987
No.2 meter factory of Jilin Chemical Industry company	SFA-3104
No. 5 Factory of Leqing Automatization Instrument Company	LB901(R)
Jiujiang PetroChemical Instrument Technology Engineering Company	JSD9501 JSD9502

Model UTD, ELF electric displacer measuring range and requirements for measured medium density

Measuring medium	Measuring range (mm)	Measured medium density
Liquid level	300、500、600、800、1000、 1500、2000、2500	Density≥0.3～1.6g/cm3
Interface level	500、600、800、1000、1500、2000、2500	Differential density ≥0.1g/cm3
Density	Same interface	Differential density ≥0.1g/cm3

operation principle

The cageless displacer is hung on the end of the lever of meter, the cageless displacer ascend or descend with buoyancy F1 of medium changing. F1 acts on lever one, under this force, the lever system brings minute deflection with shaft sealing membrane as the support point (the shaft sealing membrane not only as support point of lever, but also has sealing function). Drive lever two running, the sensor converts the deflection to 4～20mA standard signal output through signal treatment and conversion circuit, so that finish the conversion process.

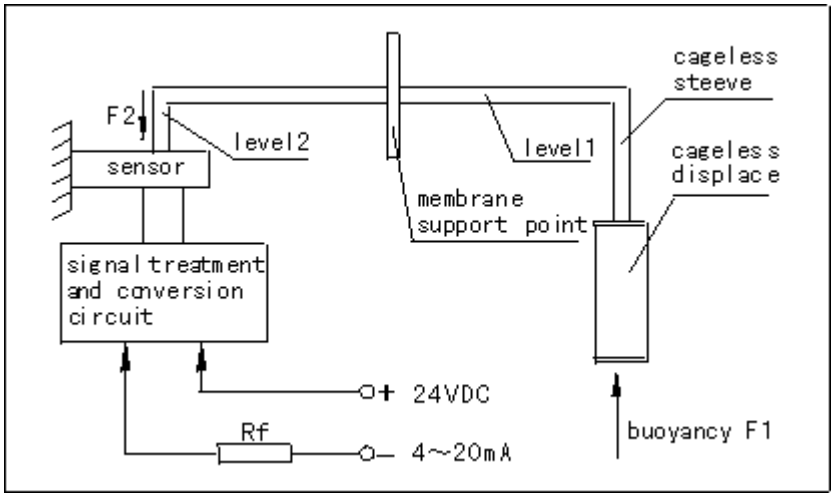

Figure 1 structure transmitting principle chart

Products options form

Model	Specification code								Contents
ELF-									electric displacer level (interface) transmitter
	1								Measuring level
	2								Measuring interface
	3								Measuring density
		A							Top-side mounted
		B							Top-bottom mounted
		C							Side-side mounted
		D							Bottom-side mounted
		E							Top mounted
		F							Side mounted
		S							Top-bottom mounted
			1						Nominal pressure PN2.5MPa
			2						Nominal pressure PN4.0MPa
			3						Nominal pressure PN6.4MPa
				/					
					i				Explosion-proof type: intrinsically safe explosion-proof
						T			Material of touching liquid: carbon steel
						H			Material of touching liquid: 1Cr18Ni9Ti
							D		Measured medium temperature:≤100℃
							G		Measured medium temperature: ≤ 400℃
								□	Medium density:（0.3～1.6g/cm3）

Measuring range	1	2	3	4	5	6	7	8	L
	300	500	600	800	1000	1500	2000	2500	Non-standard measuring range

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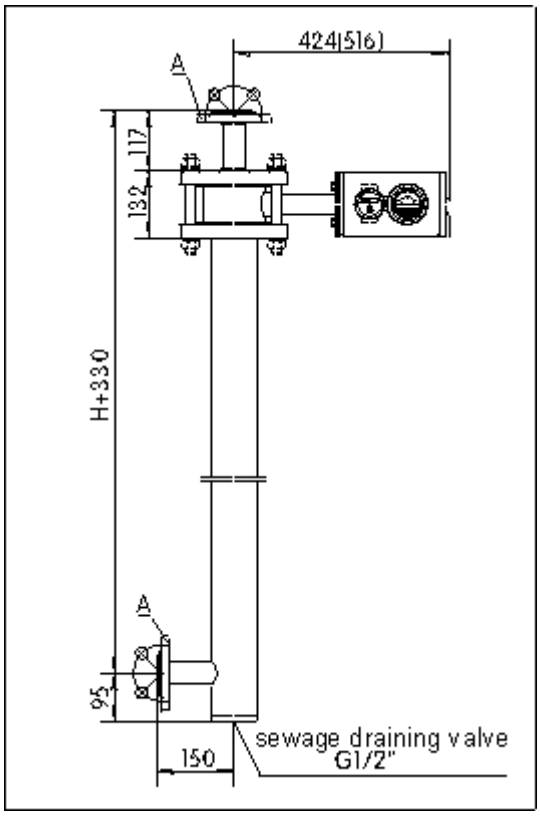
Append code	F	Flange joint with heating DN15, Pn2.5
	Z	Thread joint with heating ZG1/2″

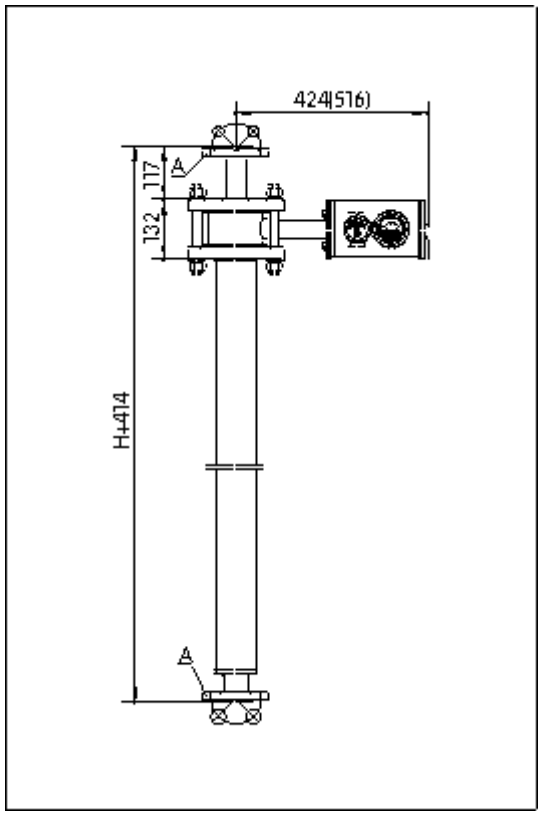
Outline and installation dimension

What the joint flange required in outline of mode ELF electric displacer

Flange code	Nominal diameter DN(mm)	Nominal pressure PN (MPa)	Flange type	Perform standard
A	40	2.5	Plane flange	JB/T82.1-94
		4.0、6.4	Convex flange	JB/T82.2-94
B	40	6.4	Concave flange	
C	15	2.5	Plane flange	JB/T82.1-94



A Top-side version



B Top-bottom version

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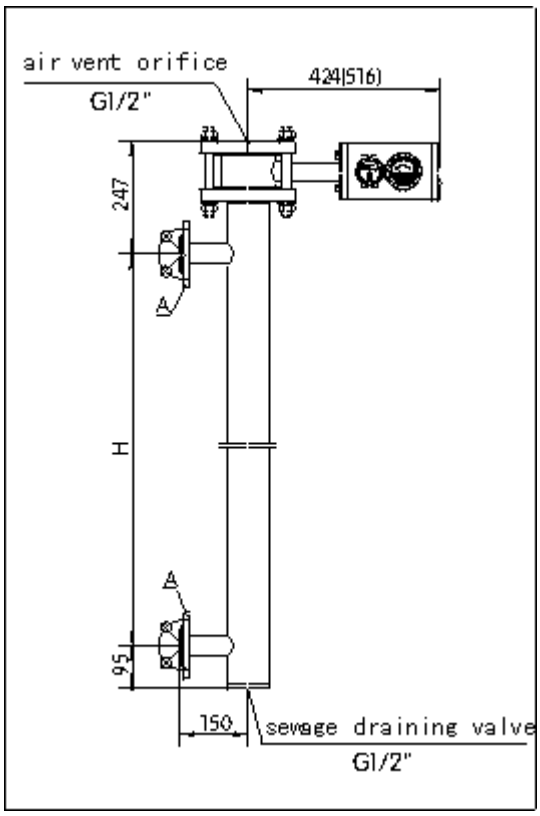
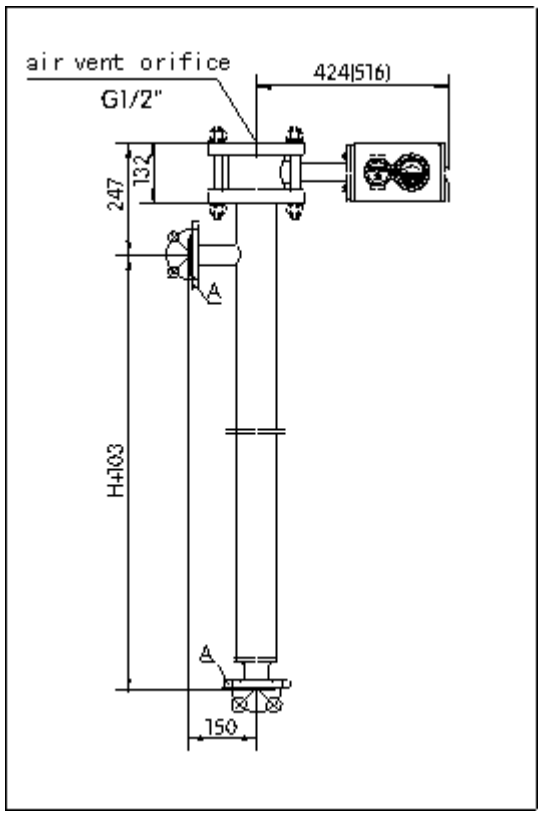
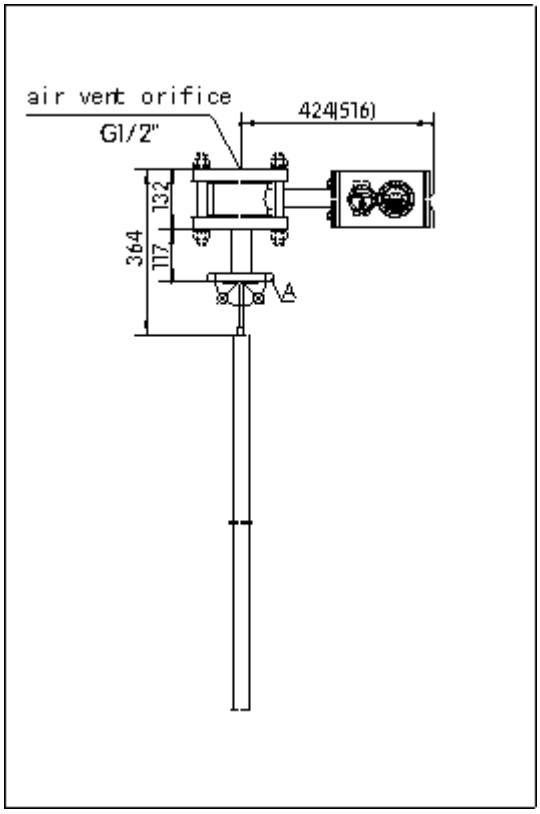


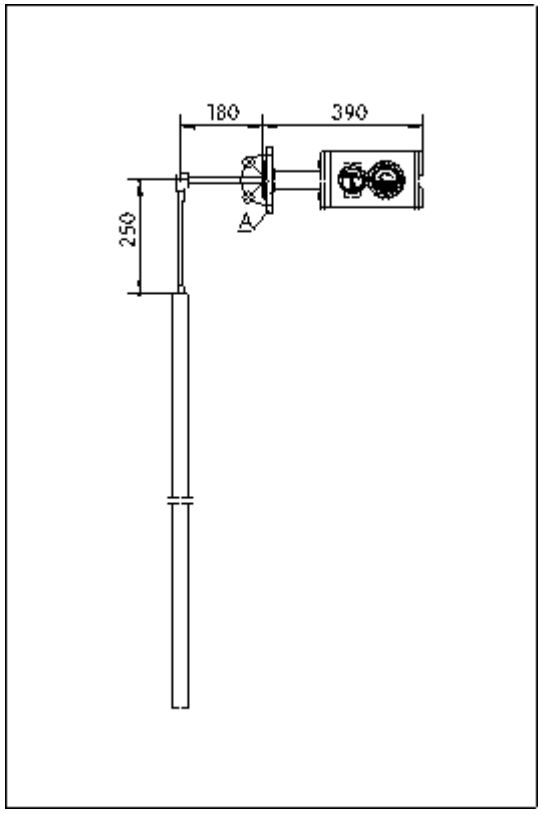
C Side-side version



D Bottom-side version



E Top version



F Side version

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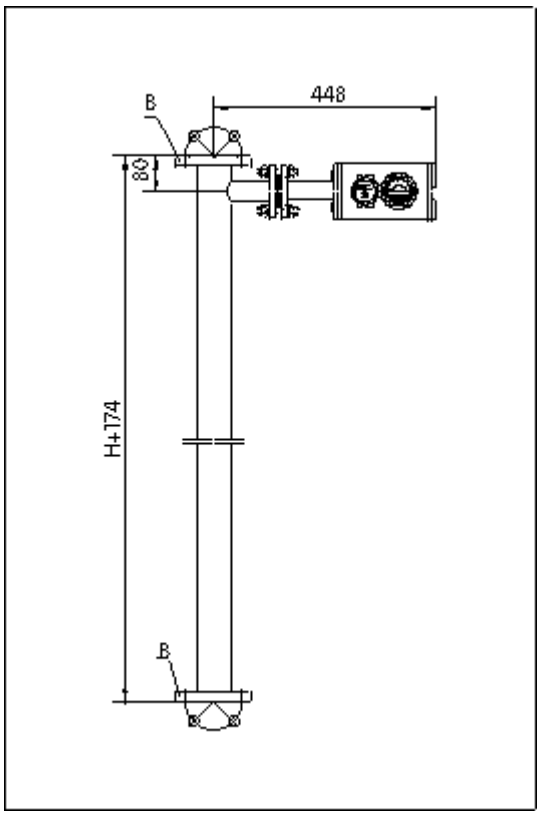
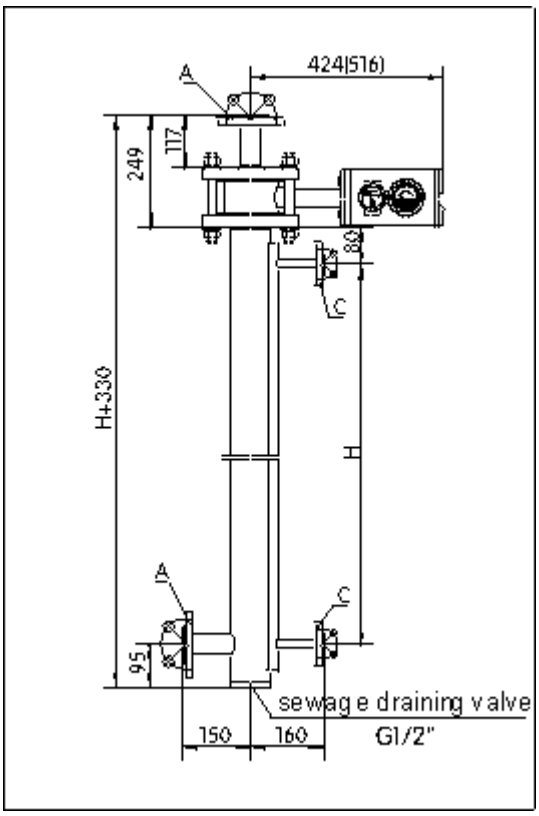
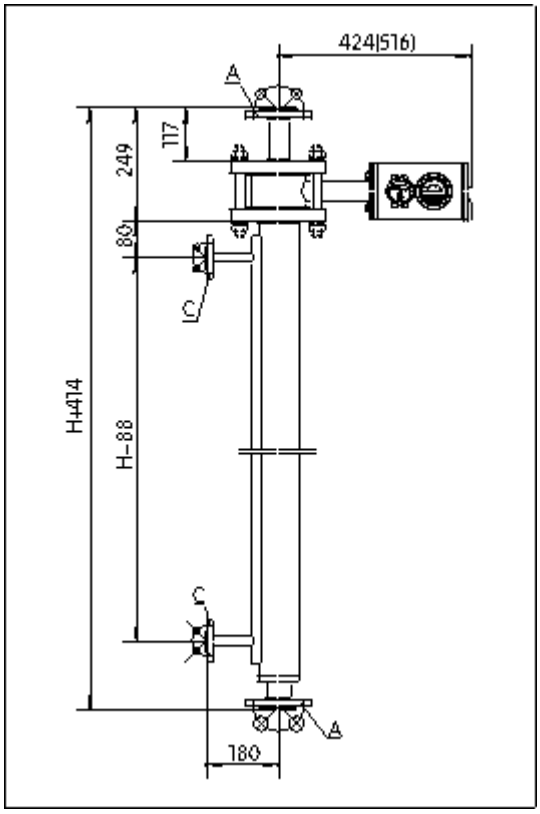


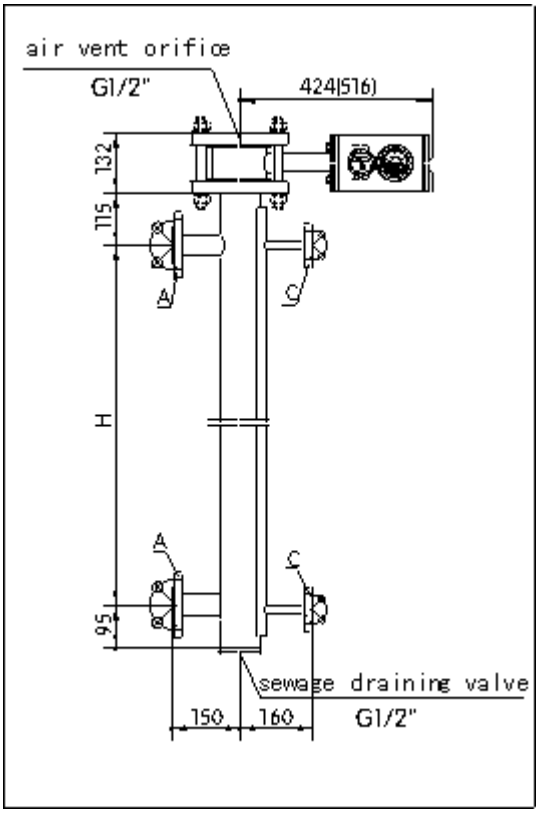
S Top-bottom version



A Top-side with heating



B Top-bottom with heating



C Sdie-side with heating

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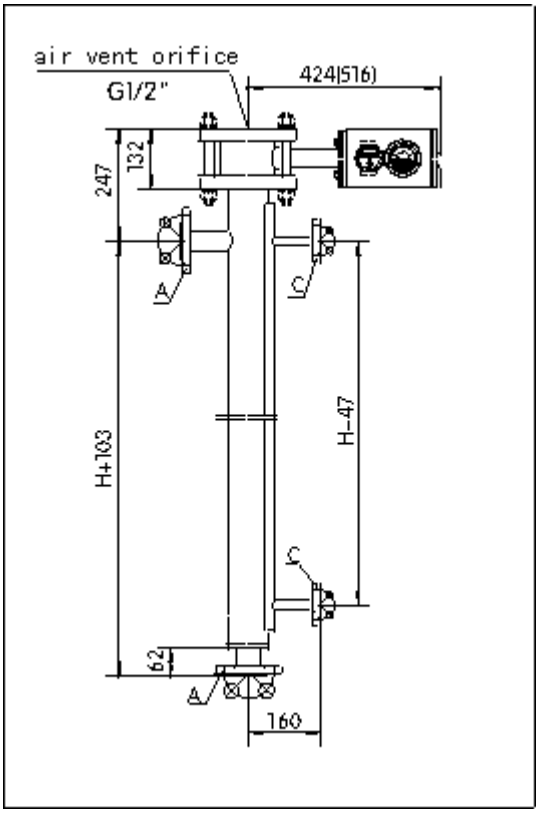
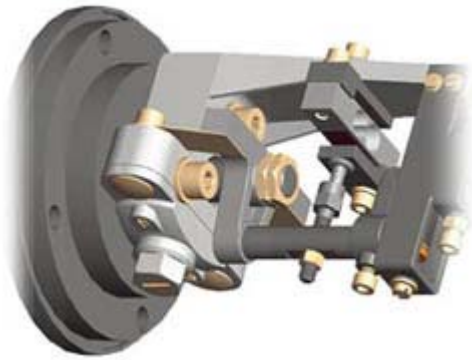
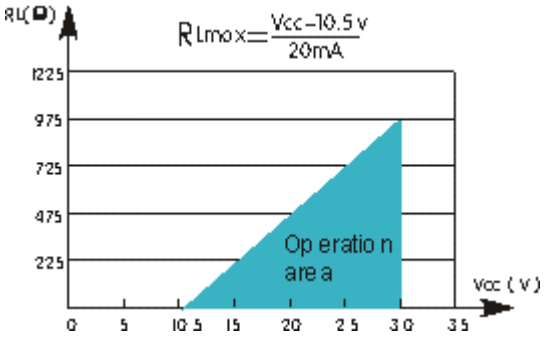




D Bottom-side with heating

load characteristic chart



Order requirements

1) Please fill in the form correctly according to the products options form.

2) Please note the information exclude in the products options form.

a. Operation pressure

b. The nameplate of special material of touching liquid

c. Location chart for meter installation

d. Perform other flange standard code

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