

## General Introduction

## HH Series Capacitance Type Transmitter

### FEATURES

- High accuracy
- No mechanical and movable parts, little repair work
- Span and zero continuous and adjustable from outside
- Good stability
- Positive shift amount to 500%; negative shift 600%
- Two-wire system 4~20mA DC
- Damping adjustable, overpressure protection
- Solid components, patch-type printed circuit board
- Explosion-proof structure, all-day use
- Unified structure, strong interchangeability of parts
- Miniaturization (total height 166mm)
- Diaphragm materials of contacting mediums option (316L, TAN, HAS-C, MONEL, etc.)
- smart HART protocol

### FUNCTION PARAMETERS

- ▲ Service: liquid, gas and steam
- ▲ Measuring range : 0~0.06 kPa to 0~40Mpa
- ▲ Output signal : 4~20mA DC (four-wire 220V AC power supply, 0~10mA DC output for special)
- ▲ Power supply : 12~45V DC, generally 24V DC
- ▲ Features of loading: relation equation of loading impedance RL and power voltage  
 $V_s: RL \leq 50(V_s - 12)$
- ▲ Indicator : pointer-type linearity indication 0~100% scale mark or LCD indicator, LED indicator.
- ▲ Explosion proof : a. explosion isolation d II BT4  
b. intrinsically safe ia II CT6
- ▲ Positive and negative shifts : after positive and negative shifts of zero absolute values of upper-and-lower-limit values of span and measuring range not exceed 100% of upper limit of measuring range.( smart type : turn down ratio 20:1)  
Maximum positive shift is 500% of minimum adjusting span; maximum negative shift is 600% of minimum adjusting span.
- ▲ Temperature range: amplifier operation temperature range: -29 ~ +93C  
(LT type: -25 ~ +70C); measuring component of fill silicone oil: -40 ~ +104C  
flange type transmitter fill hi-temperature silicone oil: -20 ~ +315C normal silicone oil: -40 ~ +149C
- ▲ Static pressure : 4, 10, 25, 32Mpa

- ▲ Humidity : relative humidity 0~100%
- ▲ Volume absorption : < 0.16cm<sup>3</sup>
- ▲ Damping (phase step response) : For silicone oil, generally between 0.2s and 1.67s, continuous and adjustable

## TECHNICAL DATAS

(no shift, under standard operation conditions, fill silicone oil, 316 SS diaphragm)

1. Accuracy class: +/-0.25%, +/-0.5% (smart type: +/-0.1%, +/-0.075%)
2. Dead zone: no (<=0.1%)
3. Stability : within 6 months not beyond absolute value of basic error of maximum span
4. Vibration effect: on a random ax upward, at vibration frequency of 200 Hz, error +/-5%/g of upper limit of measuring range.
5. Power effect : < 0.005%/V of output span
6. Loading effect : no effect from loading at stable power
7. Effect of installation position : at most 0.24kPa of zero error, no effect on span

## OTHERS

1. Diaphragm: 316 SS, HC -276, Monel or Ta
2. Exhaust/vent Valve: 316 SS, HC or Monel
3. Flange and Connector: 316 SS, HC or Monel
4. Contacting medium "O" ring: acrylonitrile-butadiene rubber, fluorine rubber
5. Fill liquid: silicone oil or inert oil
6. Blot: 316 SS
7. Electronic Body Material: low copper-aluminum alloy
8. Ignition Voltage Connection Fit : flange NPT 1/4, center distance 54mm; connector NPT 1/2 or M20 x1.5 male round-cone surface sealed, when carrying connector the center distance 50.8, 54, 57.2mm (NPT taper thread accords with GB/T12716-91)
9. Signal line connecting hole : G 1/2"
10. Weight : 4.5 kg (standard type)

## TRANSMITTER SELECTION

The following sheet illustrates the model constitution of our products in detail. Users can easily select product models according to this sheet.

Code	Name	
HH	Huahai M&C	
	Code	Directions
	0	Subatmospheric pressure
	1	Gauge pressure (differential pressure and static pressure is 0.4 Mpa for span formula 1,2 )
	2	Absolute pressure
	3	Differential pressure static pressure 2.5 MPa

4	Differential pressure	static pressure 4MPa
5	Differential pressure	static pressure 6.4MPa
6	Differential pressure	static pressure 16 MPa
7	Differential pressure	static pressure 25MPa
8	Differential pressure	static pressure 32 MPa
9	Differential pressure	static pressure 40MPa
Code Measuring range		
1	0-0.06~0.3kPa	
2	0-0.25~1.5kPa	
3	0-1.2~7.2kPa	
4	0-6~36kPa	
5	0-30~180kPa	
6	0-160~1000kPa	
7	0-400~2500kPa	
8	0-1600~10000kPa	
9	0-4000~25000kPa	
0	0-7000~40000kPa	
Code Type1		
0	Standard type	
1	Single flush flange	
2	Double flush flange	
3	Single insertion flange	
4	Double insertion flange	
5	One-flush & one-insertion flange	
Code Type 2		
0	Popularization type	
1	Normal smart type (HART communication)	

## HHLT Type

### Smart Flange Type Level Transmitter

HHLT (smart) flange type level transmitter can carry on accurate measurement of level and density for all kinds of containers. Flush flange and insertion flange available, 3" or 4", 15 01b or 3001b flange, custom-made flange option.



### FLANGE SPECIFICATION AND WEIGHT (KG)

Size specification	Flush flange	2" insert trunk	4" insert trunk	6" insert trunk
3" 1510b	10.4	11.3	11.4	12.2
4" 1510b	9.1	10.4	15.4	16.3
3" 3001b	12.6	13.6	14	14.4
4" 3001b	17.2	18.5	19.5	24.4

Flange size							Blot		
Order Code	Size	Specification	Diameter	A	B	C	Quantity	Diameter	Distributed diameter
A	3"	1501b	190.5	30	66	127	4	19	152
B	4"	1501b	228.6	30	89	157	8	19	190
C	3"	3001b	209.6	35	66	127	8	22.2	168
D	4"	3001b	254	38	89	157	8	22.2	200

### SELECTION OF HHLT FLANGE TYPE LEVEL TRANSMITTER

A	S	Code (single flush flange)	Measuring range	Code (single insertion flange)	Measuring range
Analogue	Smart	HHLT-3310	0-1.2-7.2kPa	HHLT-3330	0-1.2-7.2kPa
		HHLT-4410	0-6-36kPa	HHLT-4430	0-6-36kPa
		HHLT-4510	0-30-180kPa	HHLT-4530	0-30-180kPa
		HHLT-4610	0-160-1000kPa	HHLT-4630	0-160-1000kPa
		HHLT-4710	0-400-2500kPa	HHLT-4730	0-400-2500kPa
		HHLT-4810	0-1600-10000kPa	HHLT-4830	0-1600-10000kPa
				Code	Mounted flange specification

AA	1 " 1501b	A0	0
BB	2 " 1501b	B1	50
CC	1 " 3001b	C2	100
DD	2 " 3001b	D3	150
A	3 " 1501b	D4	Customer Specify
B	4 " 1510b		
C	3 " 3001b		
D	4 " 3001b		

Code	Optional components
M1	Linearity indicator 0-100% scale mark
M2	Digital indicator
B1	bend bracket for pipe mounting (2" pipe)
B2	bend bracket for plate mounting
B3	flat bracket for pipe mounting (2" pipe)
C	Capillary type
D1	Side exhaust/vent valve of flange on top
D2	Side exhaust/vent valve of flange on bottom
E1	Ordinary cable connector
E2	Flame-proof cable connector
G1	Waist type flange
G2	Welding pipe connector
d	Explosion separation type Exds II BT5
i	Intrinsically safe Ex ia II CT5



S	HHLT-3310	AA0	M2B1D1E1G2i	6kPa(factory span)
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Remarks: Factory span should be specified when ordering, if not specify, at the highest rated span output.