TRANTECH CALORIMETRIC FLOW SWITCH – TTFS10

Handheld flow set point adjustment tool

Product application

- Hydraulic/lubrication
- Pump
- Cooling systems
- Ventilation systems
- Water treatment

TRANSDUCER TECHNOLOGY

Principle characteristics

The Trantech TTFS10 Calorimetric flow switch adopts heat diffusion technology. The switch has two temperature sensors built into the probe: one is used as a reference sensor to measure the temperature of the medium, and the other is used as a measurement sensor after being heated. The temperature difference between the two sensors is used as the basis for measuring the flow velocity. When the flow velocity of the medium increases, the temperature difference decreases, and vice versa. The temperature difference value is converted into standard electrical signal and displayed after processing.
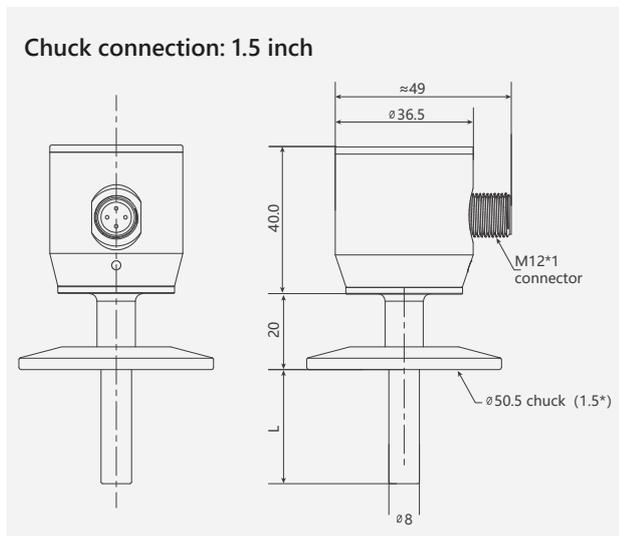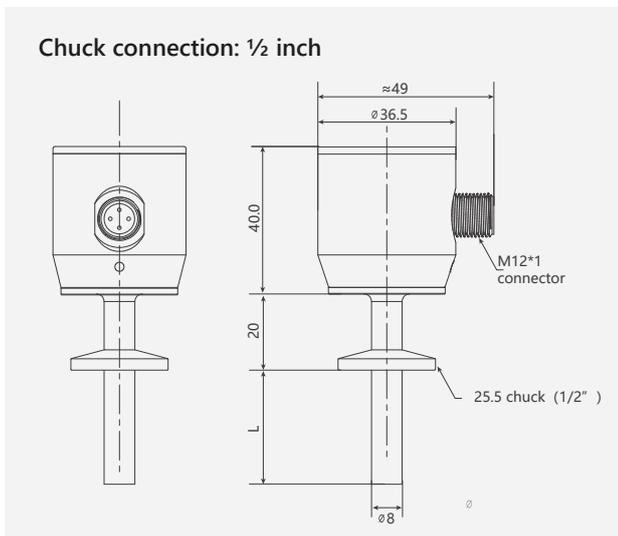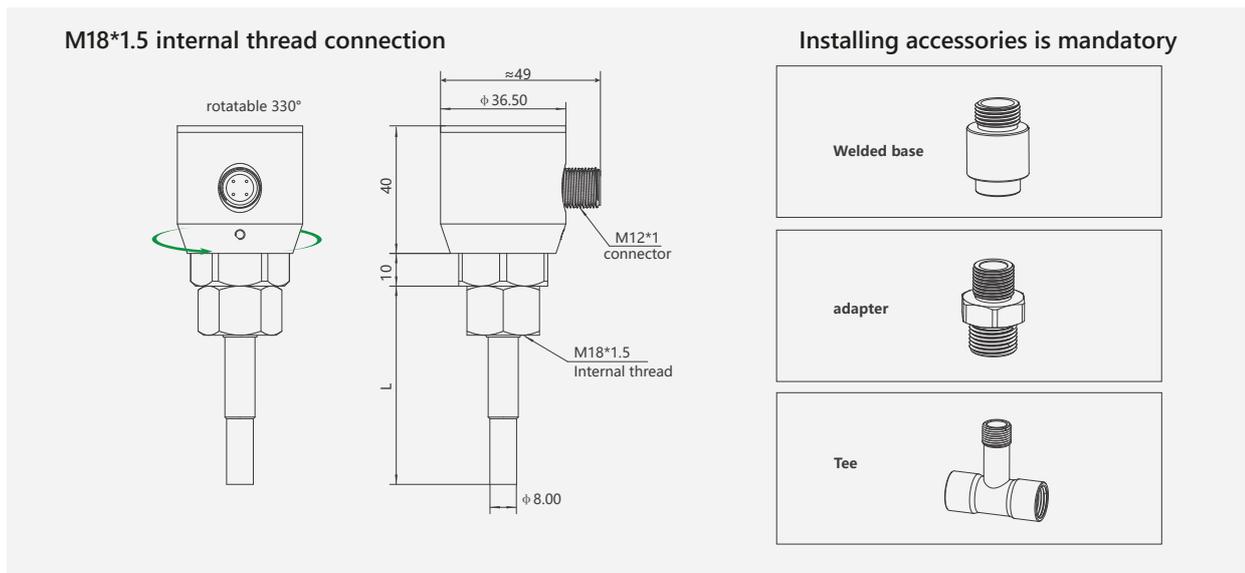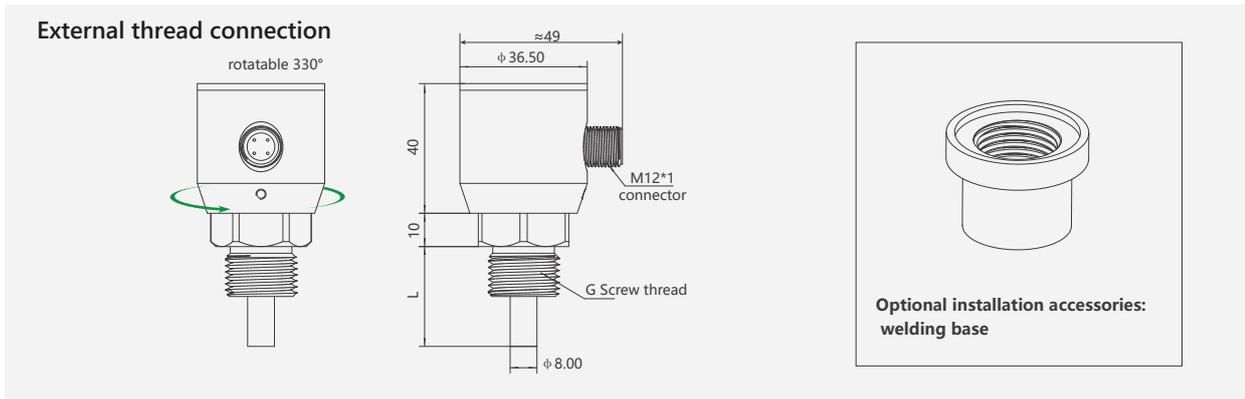
The TTFS10 series offers all stainless steel shell and connection, with 8-bit LED showing flow trend and switching status. This product is suitable for various pipe diameters. Flow set point is adjustable using magnetic adjustment tool. No moving parts, maintenance-free and suitable for a variety of liquid mediums

- Adjustable flow range / flow set point
- 8 LEDS show flow trend and on/off status
- PNP, NPN, and relay electrical output options
- Easy to operate inductive button setting
- IP67 protection
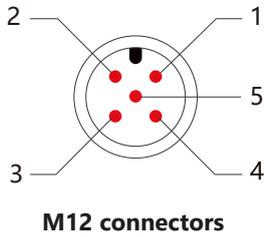- Small structure diameter 36mm
- Stainless steel construction

Technical parameters

◇ Measuring range

Water: 1... 150cm/s (the default display value is demarcated in water and specified in other media)

Oil: 3... 300cm/s

Air: 20... 2000cm/s

◇Measuring medium: water, oil, gas and other compatible stainless steel medium

◇repetitive: 1%@ < 0.6m/s; 3%@ < 1.5m/s; 10%@ > 1.5m/s

◇pressure: 100bar (300bar optional)

◇Initialization time: 1...8s

◇Response time: Typical value2s

◇power supply voltage: 12-30Vdc

◇No load current consumption: ≤40mA, At 24Vdc power supply

◇Switch output (normally open + normally closed)

Output type: PNP/NPN/ relay optional/normally on/normally off can be set

Load capacity: 500mA at 24Vdc power supply (NPN and PNP type)

60W (relay type)

◇Wiring protection: Reverse phase, overload, short circuit protection

◇Display:

Design: 3 red leds (flow rate < switching point)

1 yellow LED (flow rate = switching point)

4 green leds (flow velocity > switching point)

◇Temperature:

Working/storage temperature: -40... 85 ℃

Medium temperature: -20... 85 ℃

◇material

Case: 304 stainless steel

Probe: stainless steel 304/ stainless steel 306L

◇Protection level: IP67

◇Electrical connection: M12*1 connector

LED Function and Setting

|	
🔴🔴🔴⚪⚪⚪⚪⚪	The red light indicates that the current flow rate is lower than the set flow rate at the switch point, and the switch does not operate
🔴🔴🔴🟡⚪⚪⚪⚪	The yellow light indicates that the current flow rate is equal to the set flow rate at the switching point and the switching action
🔴🔴🔴🟡🟢🟢⚪⚪	The green light indicates that the current flow rate is higher than the set value of the switch point, and the switch maintains the output action. The more the green light, the higher the flow rate
annotation	Support field to set any switch value

External thread connection

rotatable 330°

≈49
φ36.50
40
10
M12*1 connector
L
G Screw thread
φ8.00

Optional installation accessories: welding base

M18*1.5 internal thread connection

rotatable 330°

≈49
φ36.50
40
10
M12*1 connector
L
M18*1.5 Internal thread
φ8.00

Installing accessories is mandatory

Welded base

adapter

Tee

Chuck connection: ½ inch

≈49
⌀36.5
40.0
20
M12*1 connector
L
25.5 chuck (1/2″)
⌀8

Chuck connection: 1.5 inch

≈49
⌀36.5
40.0
20
M12*1 connector
L
⌀50.5 chuck (1.5*)
⌀8

Wiring diagram

M12 connectors

Signal	Stitch	Line color
Power supply （+）	1	BN
Power supply （-）	3	BU
Switching output	4	BK
Switching output	2	WH
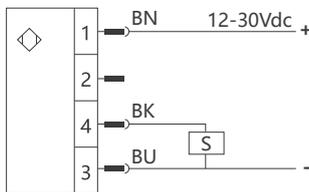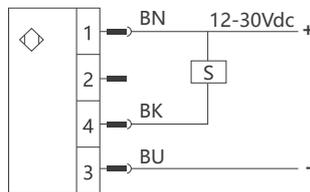
PNP	NPN	Relay output
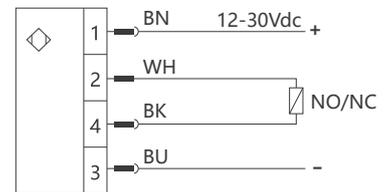
Selection table

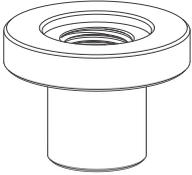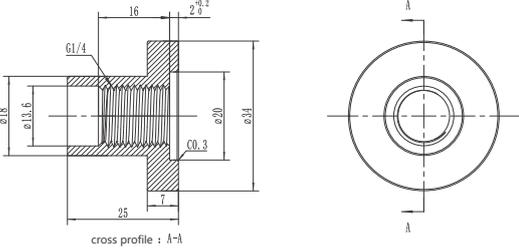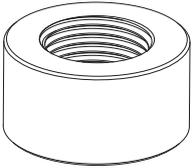| TTFS10	P	G12M	L30	expatiate	
TTFS10	H			Hot flow switch (OPTION H)	
	P			PNP output	
	N			NPN output	
	C			Relay output	
		G12M		Process connection： G1/2 external thread	
		G14M		Process connection： G1/4 external thread	
		R12M		Process connection： R1/2 external thread	
		R14M		Process connection： R1/4 external thread	
		M18K		Interface thread M18×1.5 internal thread (used with mounting accessories, easy to rotate and adjust in the field installation direction)	
		H25		Outer diameter 25.5mm, chuck connection (GB: ISO2852-1993)	
		H50		Outer diameter 50.5mm, chuck connection (GB: ISO2852-1993)	
			L25	Rod length L=25mm (≤DN10)	Only external thread is optional
			L30	Rod length L=30mm (≥DN15)	
			L50	Rod length L=50mm (≥DN40)	
			L60	Rod length L=60mm (M18 internal thread applicable diameter: ≥DN15; Diameter for external thread: ≥DN50)	
			L80	Rod length L=80mm (M18 internal thread applicable diameter: ≥DN40; Diameter for external thread: ≥DN80)	

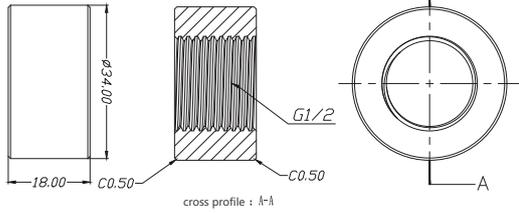## Electrical accessories | Factory standard: ZL04-PC02G

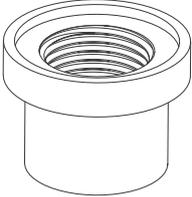| name	Outline drawing/dimension drawing（mm）	material	model	M12* 1-5Pin self-connector/size drawing（mm）	model
M12*1-4Pin （2m cable）		PUR	ZL04-PU02G		GL04 （4Pin joint）
M12*1-4Pin （5m cable）			ZL04-PU05G		
M12*1-4Pin （10m cable）			ZL04-PU010G		
		PVC	ZL04-PC02G		
			ZL04-PC05G		
			ZL04-PC010G		
M12*1-4Pin （2m cable）		PUR	ZL04-PU02W		WL04 （4Pin joint）
M12*1-4Pin （5m cable）			ZL04-PU05W		
M12*1-4Pin （10m cable）			ZL04-PU010W		
		PVC	ZL04-PC02W		
			ZL04-PC05W		
			ZL04-PC010W		

Welded base (M18 internal thread only optional)

name	External drawing	Size drawing (unit :mm)	model
M18*1.5 Welded base			FA002-M18 (Material: 304 stainless steel)

Welded base (optional external tonly)

name	External drawing	Size drawing (unit :mm)	model
G1/4 Welded base			FA002-G14 (Material: 304 stainless steel)
G1/2 High pressure welded base			FA002-G12H (Material: 304 stainless steel)
G1/2 Welded base			FA002-G12 (Material: 304 stainless steel)
Rc1/4 Welded base			FA002-R14 (Material: 304 stainless steel)
Rc1/2 Welded base			FA002-R12 (Material: 304 stainless steel)
M12*1 Welded base			FA002-M12 (Material: 304 stainless steel)
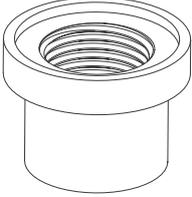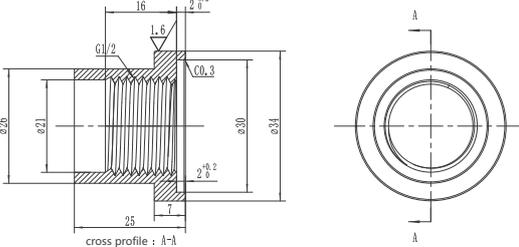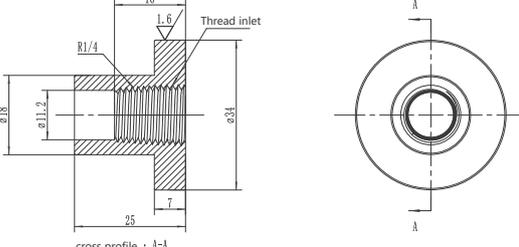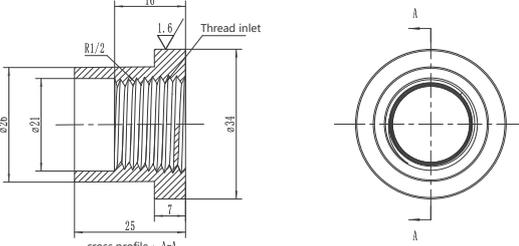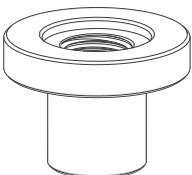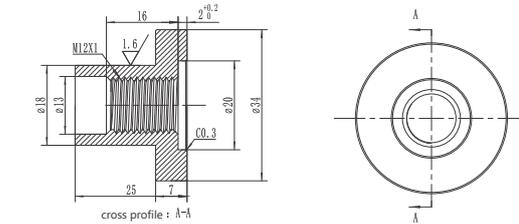
Adapter (M18 internal thread only optional)

name	External drawing	Size chart （mm）	model
M18 * 1.5 internal thread To g1/4 male thread, Probe insertion depth 15mm			FA004-M18G14S (Material: 304 stainless steel)
			FA004-M18G14T (Material: brass)
M18 * 1.5 internal thread To g1/2 male thread			FA004-M18G12S (Material: 304 stainless steel)
			FA004-M18G12T (Material: brass)

Tee (stainless steel) (M18 internal thread only optional)

name	External drawing	Size chart （mm）	model
M18 * 1.5 internal thread Equipped with G1/4 tee			FA003-M18G14 (Material: 304 stainless steel)
M18 * 1.5 internal thread With G3/8 tee			FA003-M18G38 (Material: 304 stainless steel)
M18 * 1.5 internal thread Equipped with G1/2 tee			FA003-M18G12 (Material: 304 stainless steel)
M18 * 1.5 internal thread With G3/4 tee			FA003-M18G34 (Material: 304 stainless steel)

Tee (PP) (external thread only optional)

name	External drawing	Size chart (mm)		model
Type G1/4 small flow tee				FA010-04G14 (material: PP)
Type G1/4 straight hole tee				FA010-06G14 (material: PP)
Type G1/4 small flow tee				FA010-08G14 (material: PP)
Type G1/2 straight hole tee				FA010-10G12 (material: PP)
Type G1/2 straight hole tee				FA010-12G12 (material: PP)
G1/4 gas only Tee adapter				FA012-01 (material: PP)

Tee (conventional stainless steel :40bar) (external thread only optional)

External drawing	Size table					

Conventional tee

Diameter of thread	Inch code	Pipe thread (R)	Model number
DN15	4 points	1/2	FA013-R12K

Reducing tee

Diameter of thread	Inch code	Pipe thread left (R)	Pipe thread center (R)	Pipe thread right (R)	Model number
DN20	6 points×4 points	3/4 "	1/2"	3/4 "	FA013-R12KR34K
DN25	1 inch x 4 points	1"	1/2"	1"	FA013-R12KR1K
DN32	1.2 inches x 4 points	1.2 "	1/2"	1.2 "	FA013-R12KR1.2K

Tee (high pressure stainless steel :200bar) (external thread only optional)

External drawing	Size table					

Conventional tee

Diameter of thread	Inch code	Pipe thread (G)	Model number
DN15	Four points	1/2	FA014-G12K

Reducing tee

Diameter of thread	Inch code	Pipe thread left (G)	Pipe thread center (G)	Pipe thread right (G)	Model number
DN20	6 points x 4 points	3/4 "	1/2"	3/4 "	FA014-G12KG34K