ASHCROFT®
Trust the shield.®

ATTS20 Temperature Transmitter For Sanitary Application

FEATURES

- Compact design with 316L wetted parts
- Surface finish to 0.76µm or 0.38µm
- Class A accuracy (IEC60751)
- Thin-film measuring element Pt100
- Built-in transmitter with 4-20mA output
- Adjustable and programmable measuring range
- Customized probe length (25mm to 600mm)

TYPICAL USES

- Pharmaceutical & Biotech
- Food & Beverage

MEASURING RANGE

Model:	Measuring Range:	Minimum Range:
Pt100, acc. IEC60751	-50°C to 20°C (-58°F to 392°F)	10°C

PERFORMANCE SPECIFICATIONS

Accuracy:	IEC60751, Class A
Response Time:	≤ 3 s, with temperature transmitter
Reference Operating Conditions:	Matching temperature (ice point): 0°C (32°F), applicable to Pt100 sensor Ambient temperature: 25°C ± 5°C (77°F ± 9°F), applicable to transmitter
Maximum Measurement Error:	The electronics 0.1 K (0.18°F), or 0.1% of the set range. Take the larger of the two values. Sensor (Pt100) - Error class is Class A, compliant with IEC 60751 standard, operating temperature range is -50°C to 200°C (-58°F to 392°F) - Maximum measurement error (°C) = 0.15 + 0.002 ·| T | | T | = temperature value (°C) Total error of the electronics and the sensor ▪ Operating temperature range: -50°C to 200°C (-58°F to 392°F) ▪ 0.25 K + 0.002 · | T | Total range error of measuring element and temperature transmitter
Long Term Stability of the Electronics:	≤ 0.1°C/year, or ≤ 0.05% set range/year (Under reference operating conditions. Take the larger of the two values.)

ashcroft.com.cn
sales@ashcroft.com.cn
400-187-6586

ASHCROFT®
Trust the shield.®

ATTS20 Temperature Transmitter For Sanitary Application

ELECTRICAL SPECIFICATIONS

Output Signal:	Standard: Pt100, cl. A, 4-wire system; 4...20 mA
Maximum Load:	(U power supply - 9V) / 0.025A (current output)
Minimum Current Consumption:	≤ 3.6 mA
Current Upper Limit:	≤ 21.5 mA
Supply Voltage:	Ub = 9VDC to 30VDC
Ripple Voltage:	Allowable ripple voltage $U_{ss} \leq 3$ V, when $U_b \geq 13$ V and $f_{max.} = 1$ kHz

ENVIRONMENTAL CONDITIONS

Ambient Temperature:	-40°C to 85°C (-104°C to 185°F)
Storage Temperature:	-40°C to 85°C (-104°C to 185°F)
Altitude:	Maximum 2000 m (6600 ft) above average sea level
Climate Class:	Compliant with IEC 60654-1, Cl. C standard
Protection:	IP66, IP67 with mating plug and connecting cable
Shock Resistance:	5g / 10~150Hz, compliant with EN60068-2-6

EMC, acc. IEC 61326-1

Static Electricity: Air and Contact Discharge	IEC 61326	4 kV	
Radiated Emissions	IEC 61326	80MHz - 1GHz	10V/m
Surge	IEC 61326	0.5kV	
Conducted Interference	IEC 61326	150kHz - 80MHz	3V

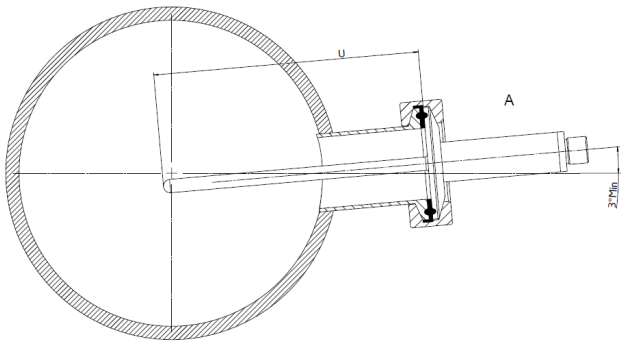
ashcroft.com.cn
sales@ashcroft.com.cn
400-187-6586

ASHCROFT®
Trust the shield.®

ATTS20 Temperature Transmitter For Sanitary Application

INSTALLATION

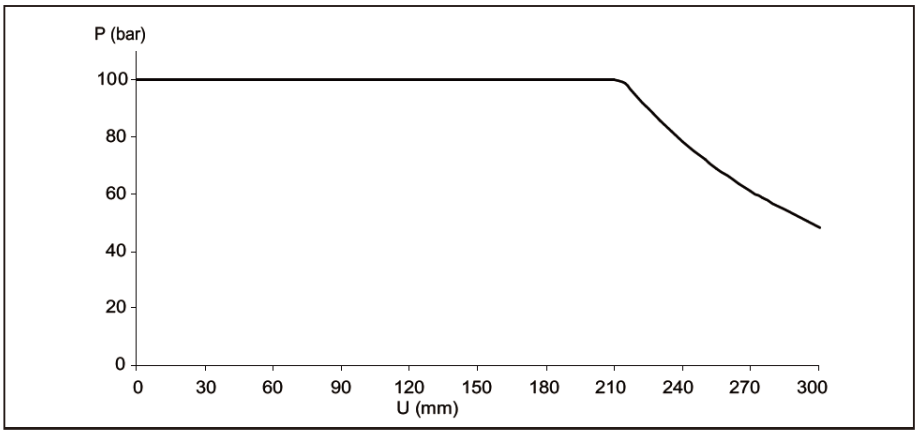
Installation Direction	There is no restriction. However, self-draining during the process must be ensured. When there is an opening for leak detection in the process connection, this opening must always be at the lowest point.
Installation Guide	The insertion depth of the compact transmitter may have a certain impact on the measurement accuracy. When the insertion length is too short, the heat diffusion through the process connection and the container wall will cause measurement errors. To reduce the measurement error caused by heat diffusion, the recommended minimum insertion depth is Umin = 30 mm.



Installing the compact transmitter in the pipeline:

- Position A: Install perpendicularly to the flow direction, and ATTS20 must maintain an inclination angle of at least 3° to facilitate self-draining.
- U = Insertion depth.

Process pressure range (The maximum allowable process pressure depends on the insertion depth and is also affected by the process connection.)



Maximum allowable process pressure

U Insertion depth
P Process pressure

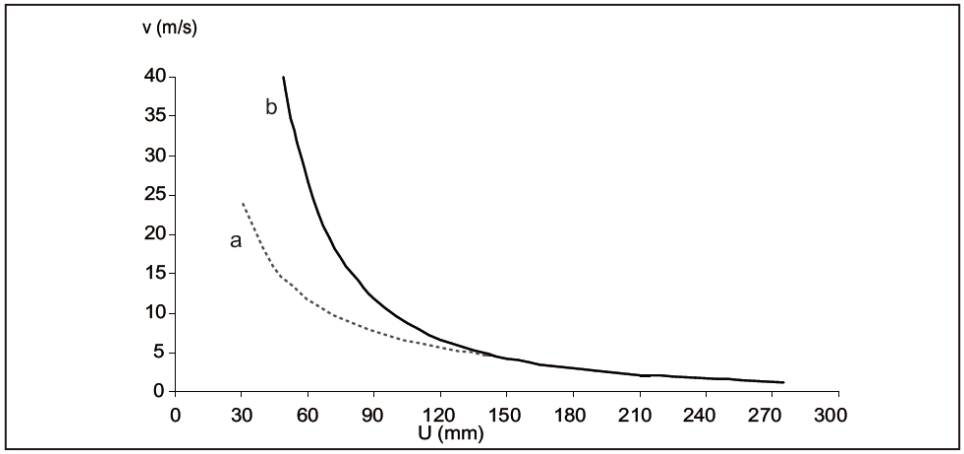
The figure evaluates the impact of overpressure and pressure load caused by fluid, where the safety factor when measuring at the specified flow rate is 1.9. Since the flow rate will increase the bending load, the greater the insertion depth, the lower the maximum allowable static pressure. Calculate the maximum allowable medium flow velocity based on the corresponding insertion depth (refer to the figure below).

ashcroft.com.cn
sales@ashcroft.com.cn
400-187-6586

ASHCROFT®
Trust the shield.®

ATTS20 Temperature Transmitter For Sanitary Application

Allowable flow rate depends on the insertion depth.

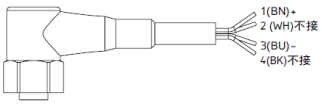


Allowable Flow Velocity

U ***Insertion depth during the flow process***
v ***Flow velocity***
a ***Medium: water, at T = 50 °C (122 °F)***
b ***Medium: superheated steam, at T = 200 °C (392 °F)***

The allowable flow velocity depends on the minimum resonance velocity (80% of the resonance distance). The flow caused by load or flow rate may cause failure of the thermowell or exceed the safety factor (1.9). It is calculated under the specified operating conditions (200 °C (392 °F) and ≤ 100 bar (1450 PSI) process pressure).

ELECTRICAL CONNECTION



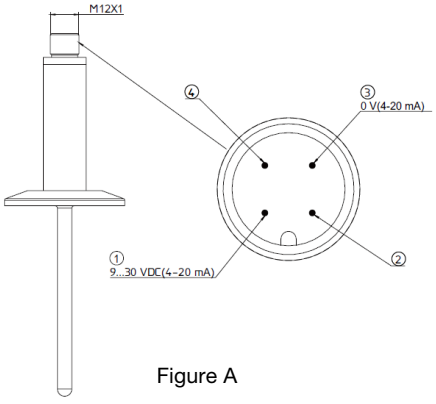


Figure A

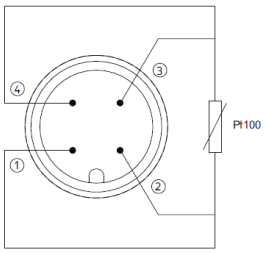


Figure B

Figure A: With electronic components,
M12 plug, 4 pins

Pin 1: 9...30 V DC power supply; 4...20 mA current output
(cable connection, core color: brown = BN)
Pin 2: Connect PC configuration cable - short pin
(cable connection, core color: white = WH)
Pin 3: 0 V DC power supply; 4...20 mA current output
(cable connection, core color: blue = BU)
Pin 4: Connect PC configuration cable - short pin
(cable connection, core color: black = BK)

Figure B: Without electronic components,
Pt100, 4-wire connection

ashcroft.com.cn
sales@ashcroft.com.cn
400-187-6586

ASHCROFT®
Trust the shield.®

ATTS20 Temperature Transmitter For Sanitary Application

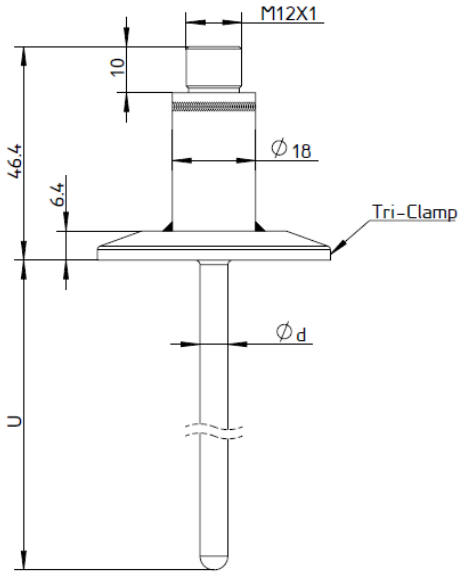
Ordering Code Example:		ATTS20	5	EW	42A	A	S15	25	R8	XC3
Model										
ATTS20	Temperature Transmitter	ATTS20								
Accuracy										
5	±0.5%		5							
Electrical Connection										
EW	M12 x 1, IP66			EW						
Output Signal										
PT100	PT100, IEC60751 Class A, 4-wire									
42A	4-20mA, 0...100°C (32…212°F)				42A					
42B	4-20mA, 0...150°C (32…302°F)									
42C	4-20mA, -50...100°C (-58…212°F)									
42D	4-20mA, -50…150°C (-58…302°F)									
42E	4-20mA, 0…200°C (32…392°F)									
42F	4-20mA, -50…200°C (-58…392°F)									
Wetted Material										
A	316L					A				
Process Connection										
S15	Tri-Clamp 1-1.5" (DIN 32676 DN25-40)						S15			
S20	Tri-Clamp 2" (DIN 32676 DN50)									
S75	Microclamp 1/2" - 3/4"									
Probe Length										
25	25mm, 6mm							25		
03	30mm, 6mm									
05	50mm, 6mm									
10	100mm, 6mm									
15	150mm, 6mm									
20	200mm, 6mm									
25	250mm, 6mm									
30	300mm, 6mm									
40	400mm, 6mm									
50	500mm, 6mm									
60	600mm, 6mm									
30X	30mm Ø6-Ø4									
50X	50mm Ø6-Ø4									
Surface Roughness										
R8	316L; Ra <=0.76µm (30µinch)								R8	
R4	316L; Ra <= 0.38µm (15µinch)									
Options (If choosing an option(s) must include a "X")										
T	Stainless steel tag, wired									
C3	3.1 Material certificate									XC3
3P	3-point test report									
6W	Cleaned for degreasing									
6B	Cleaned for gaseous oxygen service									

ashcroft.com.cn
sales@ashcroft.com.cn
400-187-6586

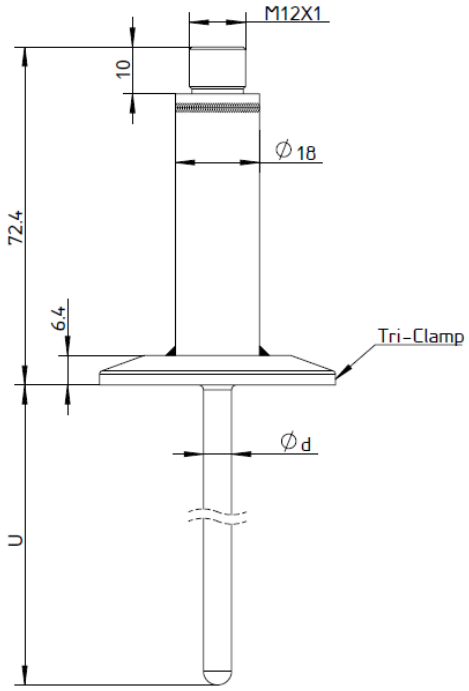
ASHCROFT®
Trust the shield.®

ATTS20 Temperature Transmitter For Sanitary Application

Dimensions are millimeters



Applicable to PT100



Applicable to 4-20mA

U = Insertion length, optional range 25mm to 600mm
ϕd = Probe diameter

ashcroft.com.cn
sales@ashcroft.com.cn
400-187-6586