The selection is detailed on page 6

DS71

Multi-Point Measuring Thermocouple

Working principle

Thermocouple is the use of thermoelectric effect for temperature measurement, thermoelectric effect refers to two different components of the conductor at both ends of the synthetic circuit, when the temperature of the two joint points is not the same, it will produce electromotive force in the circuit phenomenon, the generated electromotive force is called thermoelectric potential. The end that is directly used to measure the temperature of the medium is called the working end or the measuring end, and the end that is not directly used to measure the temperature of the medium is called the cold end or the compensation end. The cold end is connected with the display instrument or other supporting instruments, and the thermoelectric potential generated by the thermocouple will be displayed on the instrument.

Product description

Multipoint thermometers are commonly used to measure temperature curves in reactors or fuel depots, or to detect so-called "hot spots."
For a fast response time, the individual measuring points are pressed by a pressure spring to the inside of the tube well, which forms an integral part of the thermometer, or ideally can be a component already present in the reactor. The connection terminal or temperature transmitter is placed in the connection housing, which can be a component of a multi-point thermometer or can be mounted separately on a wall or pipe.=
The DS71 offers excellent reliability, practicality and safety. It can use multiple measuring points for various temperature measurements throughout the reactor, while providing flexibility for installation. In addition, this flexibility ensures that the sensor tip remains in continuous contact with the inner wall of the bend, even in the event of bending deformation. These characteristics, along with replaceability, response speed, bimetallic drive and point density, have made the design a standard used throughout the industry.
The purge design uses a thick-walled center support pipe that provides purge gas over the entire length of the pipe well. The purge protects the internal sensors of the tube well and the thermocouple.

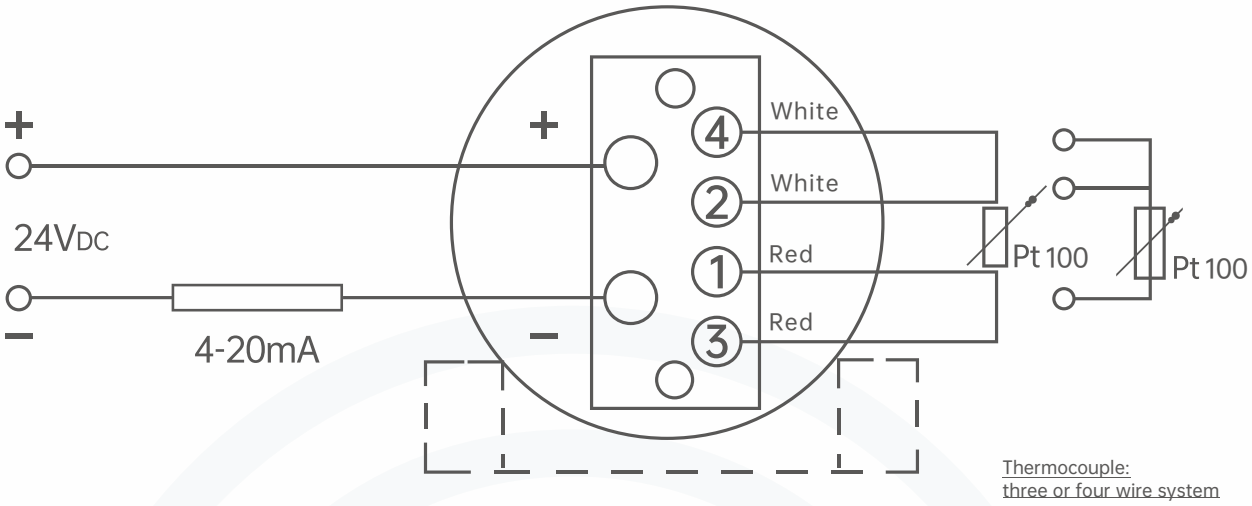
Product application

Chemical industry
Equipment and tank construction
Electric power engineering
Temperature measurement and hot spot measurement of reactor

Functional characteristics

Flexible installation
Secondary seal chamber replaceable

Working principle Analytic table



Thermocouple:
three or four wire system

Specification parameter

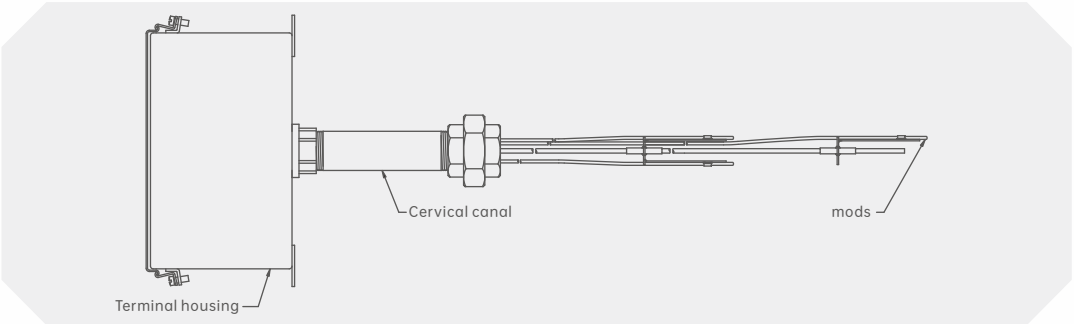
Edition	DS71-F: No purge
	DS71-P: with purge
Materials	Stainless steel 316L
	Special alloy or carbon steel as pipe well material
Process connection	All major national and international standard flanges
	Joints with male or female threads to customer specifications
	Secondary containment/seal
	Seal clamp connector
Type DS71-F sensor	Pt100 Class A or Class B is installed as sheathed cable
	Single and dual sensors
Type DS71-P sensor	Thermocouples are installed as sheathed cables
	Single and dual components
	The measuring point is not grounded or grounded
Shipment	DS71-F: Wooden cases up to 12 meters long are available on request with steel transport frames
	DS71-P: In a wooden box, coiled
Purge (optional)	DS71-P Model with purge connection (connection and power requirements are designed according to individual customer specifications)

Basic element of multipoint thermometer

The multi-point thermometer can be basically divided into five separate components, which are described as follows:

Multipoint thermometer without sheath (installed in sheath)

Multi-point thermometer with integrated sheath



Basic element of multipoint thermometer

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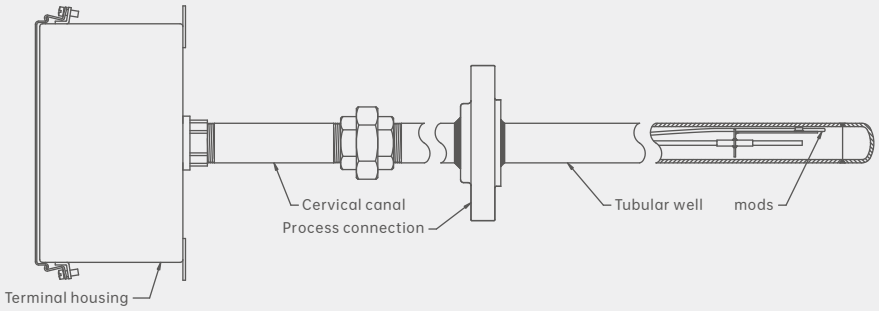
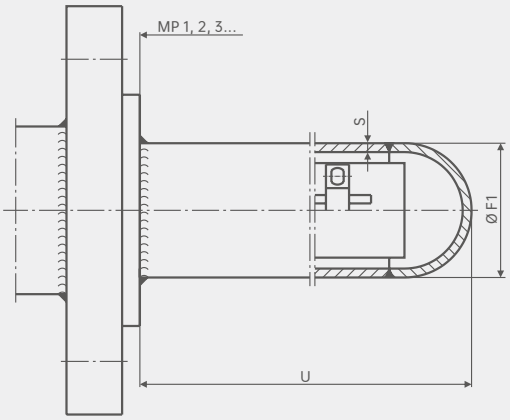


Size mm

Tube well (optional)



Pipe size Ø F1 x s

1 1/4 NPS
1 1/2 NPS
2 NPS
3 NPS
Other sizes available

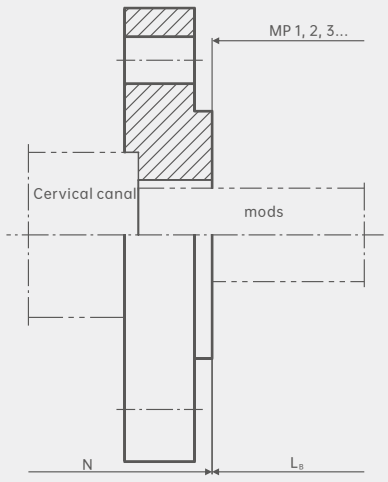
Insert length U

Free choice (up to 40m)

Materials

Stainless steel 316
Stainless steel 316L
Other materials available

Process connection



legend

L_B	Purge tube length (if applicable)
MP_1	Location of the first measuring point
MP_2	Location of the second measuring point
MP_3	Location of the third measuring point
N	Neck length

Flange design

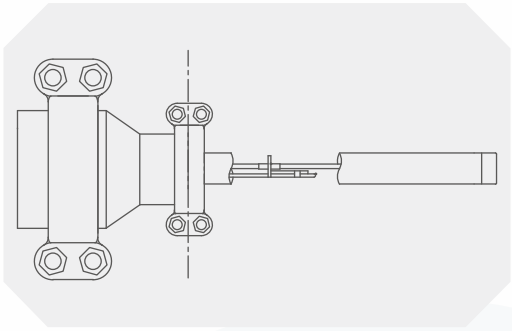
Flanges in accordance with applicable standards such as ANSI/ASME B16.5, EN 1092-1, DIN 2527, or to customer specifications

Standard	Flange design
ASME B16.5	Nominal width: 2...4"
	Pressure rating: 150... Class 2,500
EN 1092-1/DIN 2527	Nominal width: DN50...DN200
	Pressure rating: PN16...PN100

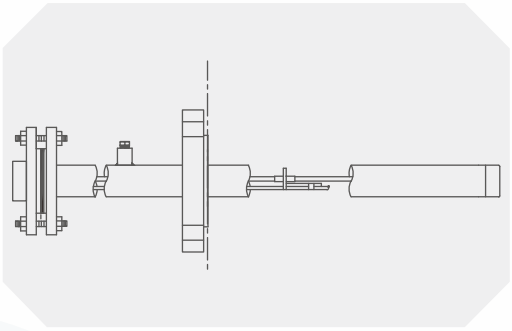
✆ 400-860-9760

Procedure connection option

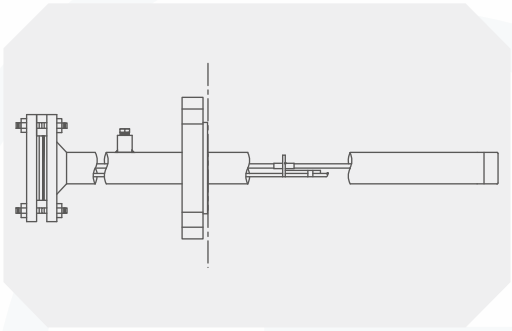
Multipoint thermometer without sheath (installed in sheath)

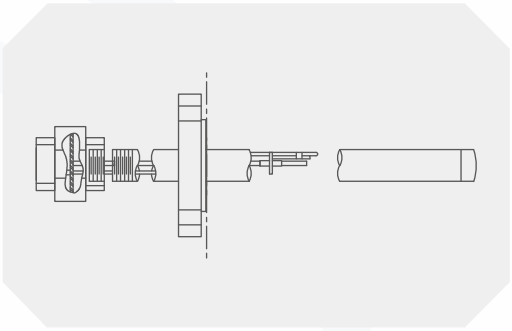


Multi-point thermometer with integrated sheath



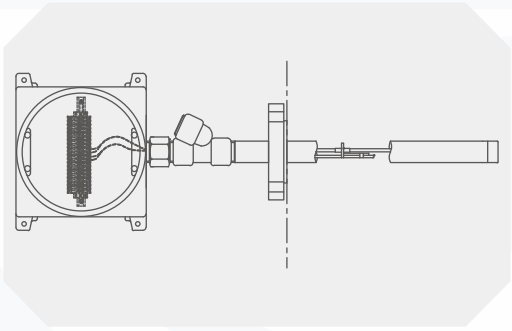
Multipoint thermometer without sheath (installed in sheath)

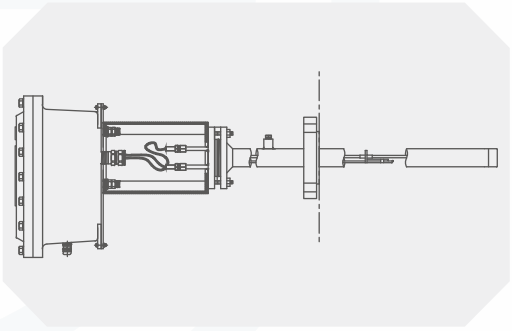




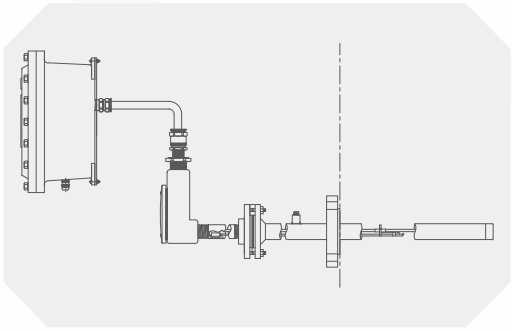
Cervical connection

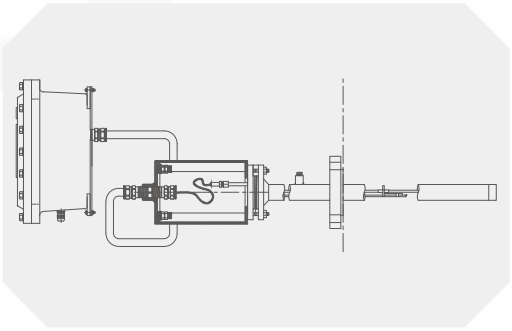
Multipoint thermometer without sheath (installed in sheath)





Multipoint thermometer without sheath (installed in sheath)

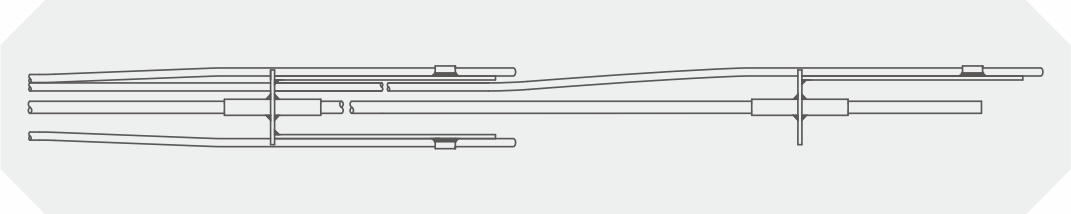




Outlet cover

Design with spring elements on both sides

One side design spring element



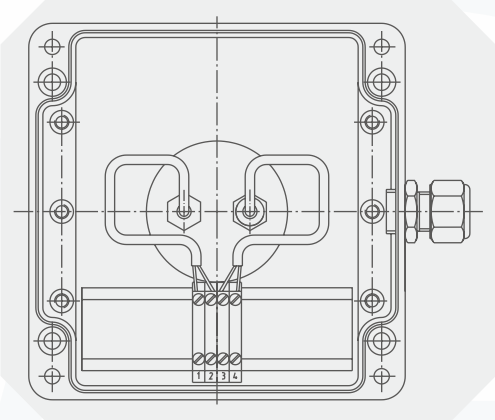
Junction box

Cable activity sleeve, according to customer specification requirements

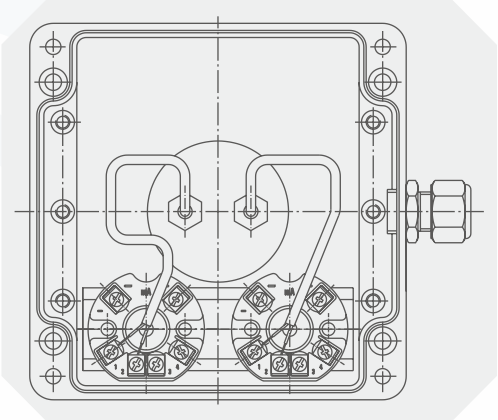
The actual wiring may be different from the diagram in the data.

Each DS71 multipoint thermometer is specially designed and manufactured to individual customer requirements. In multipoint thermometers with explosion-proof functions, the size of the junction box may differ greatly from the specification of the data sheet, depending on the design.

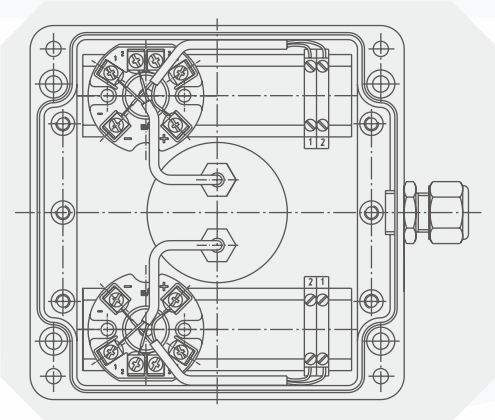
Connecting terminal



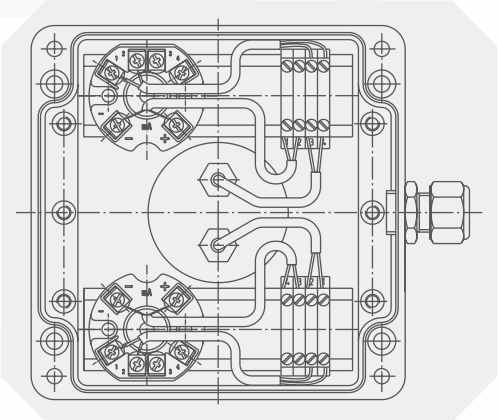
Transmitter



Transmitter on the terminal



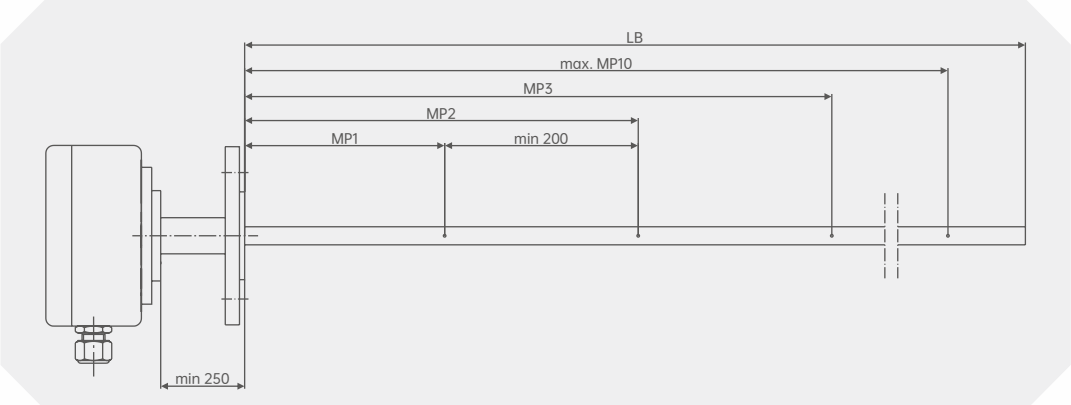
The terminal on the transmitter



Measuring point location

legend

- L_B Guide tape length
- MP1 Location of the first measuring point
- MP2 Location of the second measuring point
- MP3 Location of the third measuring point
- MP10 Location of the 10th measuring point



DS71-Selection composition

Selection example Threaded type **DS71**

B	S	G	O	V	X	A	D	L	0-400	U	A	K	N
1	2	3	4	5	6	7	8	9	10	11	12	13	14

1.Selection description	A		All-in-one transmitter
	B		Threaded casing
	C		Intrinsically safe explosion-proof type
	D		Flameproof type
	T( )		Other types
2.Threaded connection	S		Sliding thread
	T		Fixed thread
3.Insert probe design	G		Fixed installation
	H		Spring-fixed terminal block (replaceable ferrule)
4.Junction box	N		Aluminum
	O		Stainless steel
	P		Digital temperature display
	T( )		Other types of junction boxes
5.Electrical interface	U		1/2NPT
	V		M20×1.5
6.Wiring block/sensor	W		Crastin Terminal block
	X		Ceramic connection block
	Y		S10 (4-20mA transmitter)
	Z		S20 (HART transmitter)
	I		S30 (Fieldbus transmitter)
7.Wire system	A		Single 3-wire system
	B		Double branch 6-wire system
	T( )		Other wire system
8.Dimension of thread connection	C		1/2NPT
	D		G1/2
	E		M20×1.5
9.Thermocouple element	K		K (NiCr-Ni)
	L		E (NiCr-CuNi)
	M		N (NiCrSi-NiSi)
	N		J (Fe-CuNi)
	O		J (T-CuNi)
	T( )		Other measuring elements
10.Temperature range(℃)	P		-200...+1260
	T( )		Other measured temperatures
11.Rod diameter (mm)	R		3mm
	S		4mm
	T		5mm
	U		6mm
	V		8mm
	W		10mm
	T()		Note diameter

DS71-Selection composition

Selection example Threaded type **DS71**

1	2	3	4	5	6	7	8	9	10	11	12	13	14
B	S	G	O	V	X	A	D	L	0-400	U	A	K	N

12.Measuring point length (mm)	A	50
	B	100
	C	150
	D	200
	E	250
	F	300
	G	350
	H	400
	I	450
	J	500
	T( )	Other lengths

13.Number of measuring points	K	2 point
	F	4 point
	S	6 point
	E	8 point
	T()	Number of other measuring points

14.Probe rod material	N	304SS
	O	316L
	T( )	Other materials

15.Safety certification	Q	Intrinsic safety
	R	Flameproof
	S	There is no

16.Additional order information	X	Additional information
	N	There is no

Instructions:

Indicates that DS71 multi-point measuring thermocouple is a thermometer with threaded sleeve, threaded connection mode is sliding thread, probe rod design is fixed installation, connection box material is stainless steel, electrical interface M20*1.5, sensor is ceramic connection block, single three-wire system, thread specification G1/2, thermocouple element is E (NiCr-CuNi), Temperature range 0... 400℃, probe rod diameter 6mm, measuring point length 50mm, measuring points 2, probe rod material 304SS, item 15/16 in the table is not required.

DS71-Selection composition

Selection example
Flange connection type **DS71**

B	S	G	J	O	V	A	D	O	T	A	R	K	0-400
1	2	3	4	5	6	7	8	9	10	11	12	13	14

1.Selection description	A	All-in-one transmitter
	B	Flange casing
	C	Intrinsically safe explosion-proof type EEx-i
	D	Flameproof Ex-d
	T( )	Other types
2.Flange connection	S	20592 Standard flange
	F	ANSI Standard flange
3.Insert probe design	G	Fixed installation
	H	Spring-fixed terminal block (replaceable ferrule)
4.Junction box	I	Aluminum
	J	Stainless steel
	K	With digital temperature display
	T()	Other types of junction boxes
5.Electrical interface	N	1/2NPT
	O	M20×1.5
6.Wiring block/sensor	U	Crastin Terminal block
	V	Ceramic connection block
	W	S10 (4-20mA transmitter)
	X	S20 (HART transmitter)
	Y	S30 (Fieldbus transmitter)
7.Wire system	A	Single 3-wire system
	B	Double branch 6-wire system
	T( )	Other wire system
8.Flange connection size	D	DN25
	E	DN50
	F	DN80
	G	DN100
	H	ANSI 1"
	I	ANSI 2"
	J	ANSI 3"
	K	ANSI 4"
	T( )	Other flange types
9.Thermocouple element	N	K (NiCr-Ni)
	O	E (NiCr-CuNi)
	P	N (NiCrSi-NiSi)
	Q	J (Fe-CuNi)
	R	J (T-CuNi)
	T( )	Other measuring elements
10.Probe rod material	T	304SS
	U	316/316L (1.4401/1.4435)
	V	Other materials

DS71-Selection composition

Selection example
Flange connection type DS71

B	S	G	J	O	V	A	D	O	T	A	R	K	0-400
1	2	3	4	5	6	7	8	9	10	11	12	13	14

11.Measuring point length (mm)	A	50
	B	100
	C	150
	D	200
	E	250
	F	300
	G	350
	H	400
	I	450
	K	500
	T( )	Other lengths

12.Rod diameter	O	3mm
	P	4mm
	Q	5mm
	R	6mm
	S	8mm
	T	10mm

13.Number of measuring points	K	2 point
	F	4 point
	S	6 point
	E	8 point
	T()	Number of other measuring points

14.Temperature range (℃)	U	-200...+1260
	T( )	Other measured temperatures

15.Safety certification	W	Intrinsic safety
	X	flameproof
	N	There is no

16.Additional order information	Z	Additional information
	N	There is no

Instructions:

The DS71 multi-point measuring thermocouple is a thermometer with flanged sleeve, the connection mode is 20592 standard flange, the probe rod design is fixed installation, the connection box is stainless steel, the electrical interface is M20*1.5, the sensor is ceramic connecting block, single three-wire system, Flange specification is DN25, thermocouple element is E (NiCr-CuNi), probe rod material is 304SS, measuring point length is 50mm, probe rod diameter is 6mm, the number of measuring points is 2 points, temperature range is 0... 400 ° C: Item 15/16 in the table is optional.

Product certification

Compliance and approval; Rodwig thermometers meet key standards and certifications for process measurement technology; Thus guaranteeing the highest reliability in such Settings;

Ludwig China Representative Office
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