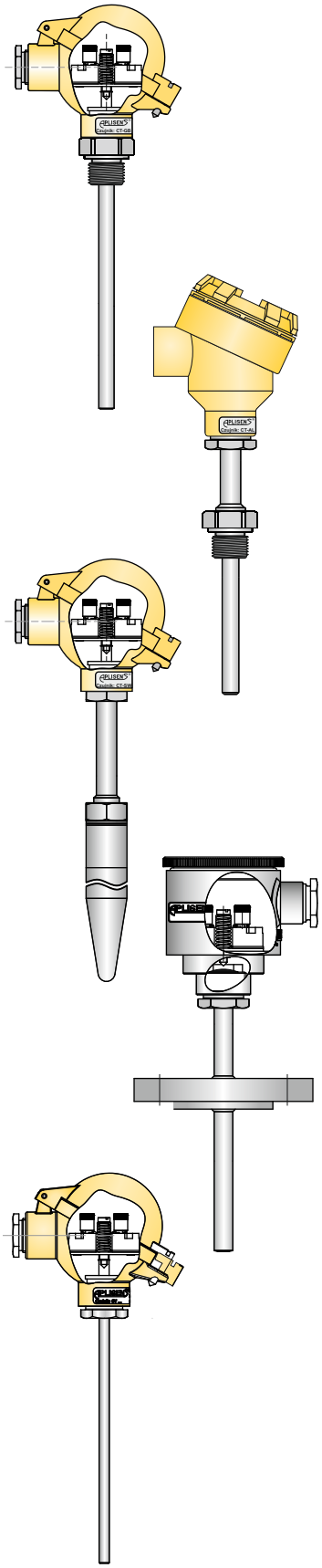
TEMPERATURE SENSORS WITH INTEGRATED PROTECTION TUBE OR ADDITIONAL THERMOWELL TYPE HTSM-30



- ✓ **RTD (Pt100, Pt1000) and TC sensors**
- ✓ **ATEX Exia certificate**
- ✓ **ATEX Exd certificate**
- ✓ **DNV/GL marine certificate**

Features

Temperature sensors HTSM-30 are offered as Pt100/Pt1000 resistance thermometers or thermocouples.

In resistance sensors (RTD) platinum resistors change their electrical resistance as a function of temperature. RTD, the most commonly used sensors in industry, are suitable for applications between -196…+600°C. The accuracy classes A and B are available with a tolerance acc. to IEC60751.

Thermocouples are made of two different conductors joined at the end. The temperature difference between junction, placed in measuring point (hot junction), and wire ends (cold junction), generate voltage proportional to the difference of temperature between these junctions. Thermocouples are suitable for the measurement of high temperatures, up to 1700°C.
The accuracy classes 1 and 2 are available with tolerance acc. to IEC60584.

Description

Temperature sensors model HTSM-30 are offered in two designs:

- with integrated protection tube, fully welded and screwed into enclosure.
- for additional thermowell: machined from bar stock or from pipe.

In both cases sensors are equipped in spring- loaded measuring inserts which are replaceable. The interchangeable inserts can be replaced without dismounting sensor from installation. This enables inspection or, if necessary, service without stopping of running production process.

Sensors are suitable for gases and liquids. A large number of approvals and wide choice of process connections, connection heads, lengths of immersion and necks, types of measuring elements and materials of wetted parts allow for applications in:

- power industry
- chemical and petrochemical industry
-marine and offshore industry
- heavy industry
- food industry
- machine building
- plant construction

Technical details

Process part type	Measuring range
GB1	Pt100: -70…150°C Marine version: -25…150°C
GN1	Pt100: -70...500°C / -196…150°C 1) TC type J/K: -40…-550°C Marine version: -25…500°C
T1	Pt100: -70…500°C / -196…150°C 1) TC type J/K: -40…550°C Marine version: -25…500°C
P1	Pt100: -70…500°C / -196…150°C 1) TC type J/K: -40…550°C Marine version: -25…500°C
GB3X + thermowell	Pt100: -70…150°C Marine version: -25…150°C
GN3X + thermowell	Pt100: -70…500°C TC type J/K: -40…570°C Marine version: -25…500°C

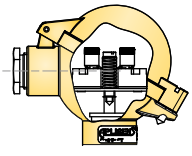
1) On request

Accuracy		
For resistance thermoelements Pt100 acc. to PN-EN 60751:2009		
Class	Temperature range (°C)	Accuracy (°C)
A	-30...300	±(0,15+0,002·|t|)
B	-50...500	±(0,3+0,005·|t|)
For resistance thermocpuples K acc. to PN-EN 60584-1:2014		
Class	Temperature range (°C)	Accuracy (°C)
1	-40...375	±1,5
	375...1000	±0,004·|t|
2	-40...333	±2,5
	333...1200	±0,0075·|t|
For resistance thermocpuples J acc. to PN-EN 60584-1:2014		
Class	Temperature range (°C)	Accuracy (°C)
1	-40...375	±1,5
	375...700	±0,004·|t|
2	-40...333	±2,5
	333...750	±0,0075·|t|

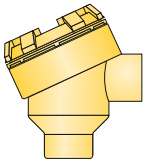
Certification					
Exia	Ⓔx	II 1/2 G Ex ia IIC T6...T1 Ga/Gb II 1D Ex ia IIIC T75°C Da	Ⓔx	I M1 Ex ia I Ma	1)
Exd 2)	Ⓔx	II 2G Ex d IIB+H_2T** Gb II 2D Ex tb IIIC T* Db	3)	Ⓔx	II 1/2G Ex d IIB+H_2 T** Ga/Gb II 1/2D Ex tb IIIC T* Da/Db	4)
MR	Marine certificate DNV				

1) Only HTSM-30-CL version
2) Only HTSM-30-AL version
3) Location of complete equipment in zone 1 or 21
4) Measuring stem with screwed to the opening D2 of housing thermowell, with proper wall thickness (zone 0 or 20):
a) minimum 1,5mm, made of corrosion resistant steel or
b) minimum 1mm and fixed in protective thermowell (wall thickness minimum 1mm) made of corrosion resistant steel

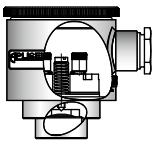
Casing



HTSM-30



HTSM-30-AL



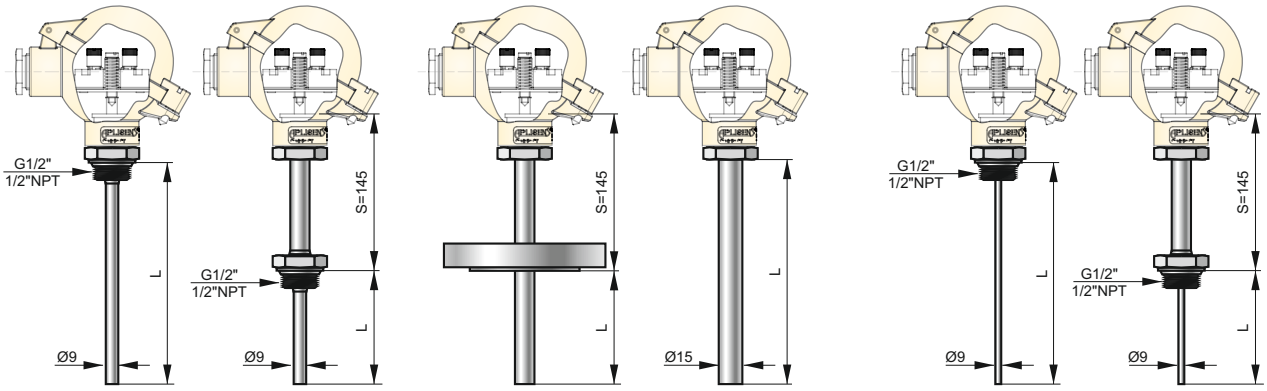
HTSM-30-CL

Process part

with integrated protection tube

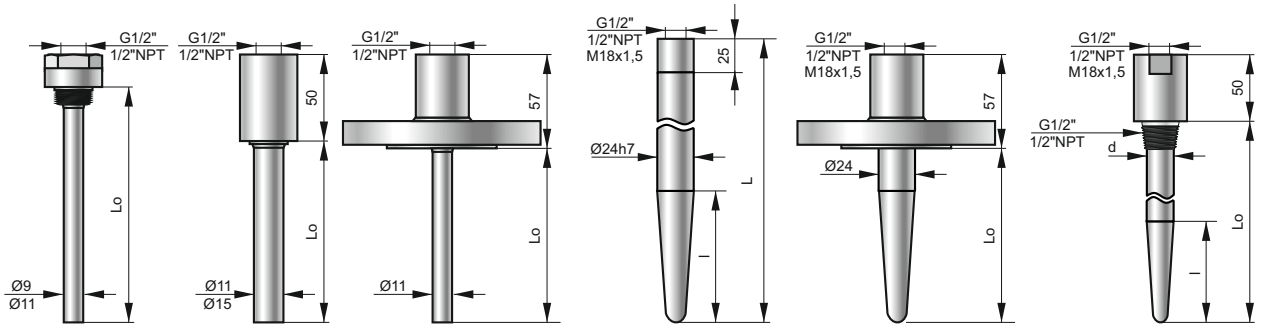
for additional thermowell

GB1 | GN1 | T1 | P1 | GB1X | GN1X



thermowell

OG2._ | OG3._ | T | SW2 | SW2T | SWG



ORDERING PROCEDURE

Head Material						
HTSM-30					aluminum housing NA type	
HTSM-30-AL					aluminum housing DAO type	
HTSM-30-CL					stainless steel housing KO type	
	Process part					
	sensors with integrated protection tube					
	GB1				sensor with threaded process connection, diameter of sensor 9mm, 316ss	
	GN1				diameter of sensor 9mm, neck S=145mm, wetted parts 316ss	
	T1				diameter of sensor 11mm, neck S=145mm, wetted parts 316ss	
	P1				diameter of sensor 15mm, wetted parts 316ss	
	sensors for additional thermowell					
	GB1X				spring loaded sensor, wetted parts 316ss	
	GN1X				spring loaded sensor, neck S=145mm, wetted parts 316ss	
		Certificate				
		x			standard version, no certificates	
		Exia /II		Ex	I M1 Ex ia I Ma	available in HTSM-30-CL housing only
		Exia /I		Ex	II 1/2 G Ex ia IIC T6..T1 Ga/Gb II 1D Ex iaD 20 T75°C Da	available in HTSM-30-AL housing
		Exd		Ex	II 2G Ex d IIB+H2T** Gb II 2D Ex tb IIIC T* Db	location of complete equipment in zone 1 or 21
				Ex	II 1/2G Ex d IIB+H2 T** Ga/Gb II 1/2D Ex tb IIIC T* Da/Db	measuring stem with screwed to the opening D2 of housing thermowell, with proper wall thickness (zone 0 or 20): a) minimum 1,5mm, made of corrosion resistant steel or b) minimum 1mm and fixed in protective thermowell (wall thickness minimum 1mm) made of corrosion resistant steel
		MR			marine certificate	
			Measuring element			
			Pt		Pt100	
			2xPt		2xPt100	
			Pt1000		Pt1000	
			J		TC type J	
			2xJ		2x TC type J	
			K		TC type K	
			2xK		2xTC type K	
				Class of element		
				A/3	TR sensor, Class A, 3 wires	
				A/4	TR sensor, Class A, 4 wires	
				B/2	TR sensor, Class B, 2 wires	
				1/O	TC sensor, Class 1, ungrounded junction	
				2/O	TC sensor, Class 2, ungrounded junction	
					Thermowell	
					x	no thermowell
					OG2.9	welded type, ext. diameter 9mm, wetted parts mat. 316ss
					OG2.11	welded type, ext. diameter 11m, wetted parts mat. 316ss
					OG2.15	welded type, ext. diameter 15mm, wetted parts mat. 316ss
					OG3.11	welded type, ext. diameter 11mm, wetted parts mat. 316ss
					OG3.15	welded type, ext. diameter 15mm, wetted parts mat. 316ss
					OGT1.11	welded type, ext. diameter 11mm, wetted parts mat. 316ss
					OGT1.15	welded type, ext. diameter 15mm, wetted parts mat. 316ss
					SWG	drilled type, ext. diameter 17mm, wetted parts mat. 316ss
					SW2	drilled type, ext. diameter 24h7, wetted parts mat. 316ss,
					SW2T	drilled type, ext. diameter 24mm, wetted parts mat. 316ss,
						Process connection
						threaded type
					M20x1.5	thread M20x1.5
					G1/2	thread G1/2"
					1/2NPT	Thread 1/2"NPT
						flange type
					DN25PN40	flange DN25PN40
					DN40PN40	flange DN40PN40
					DN50PN40	flange DN50PN40
					ANSI 1" #150	flange ANSI 1" #150
					ANSI 1,5" #150	flange ANSI 1,5" #150
					ANSI 2" #150	flange ANSI 2" #150
						Clamping grips
					UG15	diameter 15mm, thread M24x2
					Length of immersion part L	
					L= ….	required length of immersion [mm]

ORDERING PROCEDURE

Equipment of housing				
KZ				terminal block
TR				wires connections for assembling of temperature transmitter
AT-2				transmitter 4...20mA model AT-2
ATX-2				ATEX transmitter 4...20mA model ATX-2
LI-24G				smart transmitter 4…20mA + HART model LI-24G
LI-24G/Ex				ATEX smart transmitter 4...20mA + HART model LI-24G/Ex
LI-24G/SIL2				SIL 2, smart transmitter 4...20mA + HART model LI-24G/SIL2
LI-24G/Ex/SIL2				SIL 2, ATEX smart transmitter 4..20mA + HART model LI-24G/Ex/SIL2
GI-22-2				transmitter 4...20mA model GI-22-2
GIX-22-2				ATEX transmitter 4...20mA model GIX-22-2
	Measuring range			
	…			set range [deg C]
		Alarm signal		
		HI		signal >20mA
		LO		signal <4mA
			Special version	
			ND=…	diameter of sensor or thermowell different than standard [mm]
			NE=…	length of neck different than 145mm [mm]
			NM…..	wetted parts material different than standard
			NPC…	process connection different than standard
			…	description of required parameters