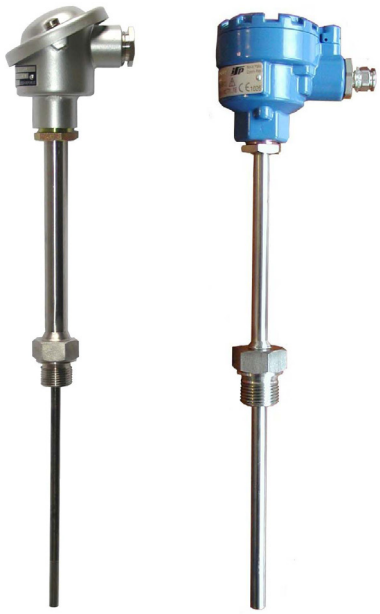
ModuTEMP® 70
Modular Resistance and Thermocouple Temperature Sensors without/with Transmitter

- **Measuring resistor 1x / 2x Pt100, thermocouple 1x / 2x “J“, “K“, “N“**
- **Measuring range -200 to +700 °C (Pt100), -200 to +800 °C (“J“), -200 to +1300 °C (“K“, “N“)**
- **Accuracy class A, B according to EN 60751, 1, 2 according to EN 60584-1**
- **Stem material stainless steel 1.4541, 1.4404, 2.4816, Nicrobell/Pyrosil.**
- **Extension piece (thermowell) material stainless steel 1.4541**
- **Protective tube material stainless steel 1.4541, 1.4845, 1.4762, Kanthal AF**
- **Optional headmounted transmitter with output 4 to 20 mA, HART, Profibus, Fieldbus, including version with galvanic isolation and intrinsically safe version**
- **Housing IP 65, IP 68**
- **Intrinsically safe version**
  Ex II 1/2G Ex ia IIC T6...Tx°C Ga/Gb,
  Ex II 1D Ex ia IIIC T85°C...Tx°C Da
- **Flameproof enclosure**
  Ex II 1/2G Ex da/db IIC T6...Tx°C Ga/Gb
- **Protection by enclosure**
  Ex II 1/2D Ex ta/tb IIIC T90°C...Tx°C Da/Db



Application

Industrial resistance (RTD) and thermocouple (TC) temperature sensors ModuTEMP® 70 made on the basis of interchangeable measuring inserts with mineral insulation are designed for accurate remote temperature measuring and temperature control of liquid and gaseous mediums in non-hazardous or in hazardous locations with potentially explosive atmosphere of gases or dusts (ATEX certificate).

Sensors can be supplied with connecting terminal box or with transmitter with output from 4 to 20 mA, possibly HART, Fieldbus, Profibus mounted in the sensor head.

J23, J32, J33, J63 - Sensors with thermowell
Sensors are intended for temperature measurement of flowing fluids, gasses and powdery mediums in pipelines, tanks, etc., at low to medium pressures and flowing velocities of a medium.

Thermowell is in this case an integral part of the sensor.

Submersible part of the sensor (thermowell) or possibly adjacent part for sealing (at sensor with a flange) can be coated by special plastic paint (Halar, Hyflon, polyamide, etc.) to increase corrosion resistance. Increasing resistance of thermowell against abrasion and erosion can be provided by coating with resistant corundum or other layer.

J13, J16, J21P - Sensors into thermowell
The sensors into the thermowell must be assembled with appropriate cylindrical or conical thermowell. Using this sensors without thermowell is not recommended and for flameproof enclosure (code ED) and protection by enclosure (code ET) version is prohibited.

The sensors in combination with suitable thermowell are intended for temperature measurement of flowing fluids, gasses and powdery mediums in pipelines, tanks, etc., at middle to high pressures (PN 250, PN 400) and flowing velocities of mediums (90 m/s).

Measuring insert RTD is efficient up to 700 °C, measuring insert TC “J“ up to 800 °C and “K“, “N“ up to 1300 °C, although measuring range of complete sensor is given by temperature resistance of used thermowell. The massive high-proof thermowells made of special materials extend the time of the sensor reaction. The strengths of these sensors are in easy operating service without breach of pressure technology tightness.

J43 - Sensors without thermowell
These sensors do not have protective thermowell and the sheath of measuring insert is directly in contact with the medium. The measuring insert is inseparably connected (welded, soldered) with a sensor fitting. Sensors are intended for measurement with higher requirements on quick reaction time of temperature change. They are used for lower pressures and lower velocities of medium.

B00, B01 - Sensors without fitting
Sensors are intended for temperature measurement of flowing and non-flowing fluids, gasses and powdery mediums at relative low pressures and flowing velocities of medium, at higher requirements on short reaction time of temperature change.

The required immersion is adjustable by fixing shift pipe union.

The stem length of sensor is not limited. Sensors with a length over one meter are supplied as default with measuring stem coiled into a circle.

The sensor can be used also for measurement of surface temperature and temperature in hard accessible places, where is used of advantage of workable stem with minimal curve diameter 5D, where D is diameter of the sensor stem.

B53, B63, B64, B66, B73, B74, B83, B84, B85, B86, B84Z, B842, B843, B852, B853 - Straight sensors
Straight sensors are intended for temperature measurement of liquid, gaseous and powdery mediums in furnaces, incinerators with overpressure up to 100 kPa.

Increasing resistance against abrasion and erosion can be provided by coating with resistant corundum or other layer.

P1E - Spatial sensors for explosive atmosphere of gasses or dusts
Spatial sensors are intended for ambient temperature measurement in locations of their installation.

Installation of the sensors into into explosion hazard environment acc. to EN 60079-0, EN 60079-1, EN 60079-10 and EN 60079-31

⚠ Any intervention into construction of the sensor with a ED, ET or EI version is not permitted and may cause an explosion!

J13, J16, J21P - Sensor into thermowell in ED, ET, EI version
Sensor into thermowell can be placed in, Zone 1, 2, 21, 22. Sensor must be mounted into the protective thermowell. Wall thickness of the thermowell must be at least 1 mm. Material of the thermowell must resist in the long term influence of medium and ambient environment. Protective thermowell can be installed in Zone 0, 1, 2, 20, 21, 22 according to EN 60079-10.

J23, J32, J33, J63 - Sensor with thermowell in ED, ET, EI version
Submersible part of the sensor (thermowell) can be mounted in Zone 0, 1, 2, 20, 21, 22 according to EN 60079-10. Other parts of the sensor (head, extension piece) can be placed in Zone 1, 2, 21, 22.

B53, B63, B64, B66, B73, B74, B83, B84, B85, B86, B84Z, B842, B843, B852, B853 - Straight sensor in ED, ET, EI version
Submersible part of the sensor (protective tube) can be placed in Zone 0, 1, 2, 20, 21, 22 according to EN 60079-10. Head of the sensor can be placed in Zone 1, 2, 21, 22.

P1E - Spatial sensors in ED, ET, EI version
Sensor can be mounted in Zone 1, 2, 21, 22 according to EN 60079-10. Head of the sensor can be placed in Zone 1, 2, 21, 22.

J43 - Sensor without thermowell in EI version
Submersible parts of the sensor (stems of measuring inserts) can be placed in, Zone 0, 1, 2, 20, 21, 22 according to EN 60079-10. Other parts of the sensor (head, extension piece) can be placed in Zone 1, 2, 21, 22.

B00, B01 - Sensor without fitting in EI version
Submersible part of the sensor (stem of measuring insert) can be placed in, Zone 0, 1, 2, 20, 21, 22 according to EN 60079-10. Head of the sensor can be placed in Zone 1, 2, 21, 22.

All sensors in EI version with heads H5, H5N, H6 or H7
These sensors with respect to other installation conditions can be fully mounted in Zone 20.

Description

Modular concept, variable dimension and used materials simplify ordering and application of modular temperature sensor ModuTEMP® 70.

Main part of the sensor is exchangeable measuring insert assembled with head and in some versions with protective fitting of the sensor.

Exchangeable measuring insert is fastened in sensor head by two suspended screws, providing down-force on thermowell bottom (or protective tube).

RTD - Resistance sensor is made of one or two measuring resistors, embedded in the stem of exchangeable measuring insert. Resistors are connected by inner wiring to the terminal block in the sensor head. There is used defined resistance change according to temperature change. At sensors with transmitter is resistance signal further transformed to linearized unified current signal 4 to 20 mA, optionally to HART, Profibus, Fieldbus output.

TC - Thermocouple sensor is made of one or two thermocouples, embedded in the stem of exchangeable measuring insert and connected to terminal block in the sensor head. There is used the defined change of thermoelectric voltage according to the temperature change. At sensors with transmitter is output thermocouple signal further transformed to linearized unified current signal 4 to 20 mA, optionally to HART, Profibus, Fieldbus output.

Technical specifications

Resistance sensors type T1070

Measuring resistor:
1xPt100, accuracy class A, B according to EN 60751,
inside wiring: two-wire, four-wire
2xPt100, accuracy class A, B according to EN 60751,
inside wiring: two-wire, three-wire

Measuring range:
-200 to +700 °C

Measuring current:
recommended ≤ 1 mA
maximal 2 mA

Output signal:
without transmitter resistance
with transmitter linearized 4 to 20 mA,
other after agreement

Dielectric strength:
500 V eff
250 V eff (only for version with outer sheath diameter 3 mm, 1xPt100/4-wire connection, 2xPt100/3 - wire connection)
at temperature (20 ±15)°C, max. 80 % relative humidity

Electrical insulation resistance:
min. 100 MΩ according to EN 60751,
at temperature (25 ±10)°C, max. 80 % relative humidity

Thermocouple sensors type T1570

Thermocouple:
1x / 2x “J“, “K“,“N“
accuracy class 1, 2 according to IEC 584-2

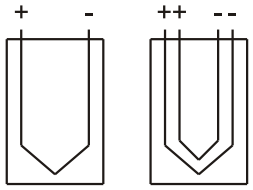
Measuring range:
-200 to +800 °C (“J“)
-200 to +1300 °C (“K“, “N“)

Output signal:
without transmitter voltage
with transmitter linearized 4 to 20 mA

Dielectric strength:
500 V eff (including version “1xJ“, 1x“K“, 1x“N“ with outer sheath diameter 3 mm)
250 V eff (only for version “2xJ“, 2x“K“, 2x“N“ with outer sheath diameter 3 mm)
at temperature (20 ±15)°C, max. 80 % relative humidity

Electrical insulation resistance:
min. 1000 MΩ according to EN 61515,
at temperature (20 ±15)°C, max. 80 % relative humidity

Standard version of measuring junction:



General

Response time:

Resistance sensors type T1070

Version J43, B00, B01

Stem diameter [mm]	$t_{0.5}$ [s]		$t_{0.9}$ [s]	
	water	air	water	air
3	1,5	14	4	41
4,5	3	23	9	71
6	4	38	13	118
6 with distance sleeve ∅8	9,5	89	28	280

Version J23 (thermowell 9x1)

Stem diameter [mm]	$t_{0.5}$ [s]		$t_{0.9}$ [s]	
	water	air	water	air
6	25	114	75	356

Version J33 (thermowell 11x2)

Stem diameter [mm]	$t_{0.5}$ [s]		$t_{0.9}$ [s]	
	water	air	water	air
6	32	170	96	534

Thermoelectric sensors type T1570

Version J43, B00, B01

Stem diameter [mm]	$t_{0.5}$ [s]		$t_{0.9}$ [s]	
	water	air	water	air
3	1	22	3	64
4,5	2,5	34	6,5	113
6	3	55	9	170

Version J23 (thermowell 9x1)

Stem diameter [mm]	$t_{0.5}$ [s]		$t_{0.9}$ [s]	
	water	air	water	air
6	9	165	27	510

Version J33 (thermowell 11x2)

Stem diameter [mm]	$t_{0.5}$ [s]		$t_{0.9}$ [s]	
	water	air	water	air
6	14	248	41	765

v_{water} = 0.4 m/s. v_{air} = 2 m/s
$t_{0.5}$ - 50 % of temperature step
$t_{0.9}$ - 90 % of temperature step

Materials:

head - aluminium alloy (codes H1, H2, H3, H4(N), H5(N), H6)
- stainless steel 1.4541(AISI 321) (code H7)
- polyamide (code H5PA)

stem of measuring insert
Pt100 - stainless steel 1.4404 (AISI 316L)
“J“ - stainless steel 1.4541 (AISI 321)
“K“, “N“ - alloy Inconel 600, Nicrobell/Pyrosil

RTD inside wiring - Cu, Ni

extension piece - stainless steel 1.4541 (AISI 321),
(codes J13, J16, J21P, J23, J32, J33, J43, J63)

thermowells - stainless steel 1.4541 (AISI 321),
(codes J23, J32, J32, J63)

protective tube
- stainless steel 1.4541 (AISI 321),
(codes B53, B63, B73, B83)
- heat-resisting steel 1.4845 (AISI 310)
(codes B64, B74, B84, B84Z, B842, B843)
- heat-resisting steel 1.4762 (AISI 446)
(codes B85, B852, B853)
- Kanthal AF (codes B66, B86)

Housing (according to EN 60529):
IP 65, IP 68 (according to used head)

Operation conditions

Maximal temperature of head (not for Ex version):
100 °C (without transmitter)
85 °C (with transmitter P5310, P5311 and 5335)

Maximal temperature of transition between stem of measuring insert and terminal block:
100 °C (in the short term 120 °C)

Ambient temperature of head Ta for Ex version (codes ED, ET, EI):
-50 ≤ Ta ≤ 85 °C temperature class T5...Tx,
-50 ≤ Ta ≤ 75 °C temperature class T6,

Maximal permissible operating properties of transmitter in the head for Ex version (codes ED, ET):
I_{imax}: 30 mA
P_{imax}: 1 W

Allowable load of protective tubes (codes B63, B64, B66, B73, B74, B83, B84, B85, B86, B84Z, B842, B843, B852, B853):
max. overpressure 100 kPa

Completion with thermowells for sensors designed for installation into thermowells:
WT70 C Thermowell, cylindrical, PN 160, for screwing, for welding, with flange, inner bore 9; 7; 5; 3.5 mm, optional outer connection and inner thread, optional nominal length and material

WT70 T Thermowell, conical, PN 400, for screwing, inner bore 9; 6.25; 3.2 mm, optional inner and outer thread, optional nominal length and material

WT70 D Thermowell, conical, according to DIN 43772, PN 250, for welding, with flange, inside bore 9; 7; 3.5 mm, optional inner and outer thread, nominal length and material

Optional protective coating, wide range of accessories. Detailed information can be found in data sheet No. 0993.

Surface temperature for Ex version (code ED, ET, EI):

User is obliged to ensure installation of temperature sensors in such a way, that there is no influence of external heat sources (measured medium, sun heating, etc.) on the surface of the sensor and its fittings that could lead to exceeding defined maximum surface temperature defined in EN 60079-0. When defining a surface temperature of the sensor, it has to be calculated with a 5 °C for heating of the sensor from possible maximum operating energy output (P_{imax} = 1 W).

Maximal surface temperatures for electrical devices group II for explosion hazard environment of gases, vapors and mists according to EN 60079-14 are listed in the following table. The maximal surface temperature for electrical equipment group II for explosion hazard environment of dusts according to EN 60079-14 is given by the smaller of the values defined in the following points:

a) ignition temperature of dust in layer decreased by 75 °C,

b) 2/3 of ignition temperature of dust in turbulent state.

Temperature class	Maximal surface temperature	Max. temperature of measured medium
T1	450 °C	440 °C
T2	300 °C	290 °C
T3	200 °C	195 °C
T4	135 °C	130 °C
T5	100 °C	95 °C
T6	85 °C	80 °C

For process temperature (measured medium) 440 °C < Tm ≤ 1200 °C, the maximal surface temperature of sensor Tx is determined from maximal temperature of the process (measured medium) Tm and safety addition 10 °C.

Tx = Tm + 10 °C

Maximal surface temperature Tx for dust explosive atmosphere is equal to measured medium temperature Tm.

Tx = Tm

Supplementary parameters

EMC (Electromagnetic compatibility):
according to EN 61326-1

EC Certificate on type examination, No. FTZÚ 03 ATEX 0297X with appendix No. 5 dated 16.4.2018.

For explosion hazard environment of gasses and dusts are approved these versions:

Versions with thermowell
T1070/T1570..J23/J32/J33/J63/J99..H6/H7..ED/ET

and straight versions
T1070/T1570..B53/B63/B64/B66/B73/B74/B83/B84/B85/B86/B84Z/B842/B843/B852/B853/B99..H6/H7..ED/ET

with marking:

II 1/2G Ex da/db IIC T6...Tx°C Ga/Gb
II 1/2D Ex ta/tb IIIC T90°C...Tx°C Da/Db

Versions into thermowell T1070/T1570..J13/J16/J21P/J19..H6/H7..ED/ET

with marking:

II 2G Ex db IIC T6...Tx°C Gb
II 2D Ex tb IIIC T90°C...Tx°C Db

Spatial version T1070..P1E..H6/H7..ED/ET

with marking:

II 2G Ex db IIC T5/T6 Gb
II 2D Ex tb IIIC T90°C Db

EC Certificate on type examination, No. FTZÚ 13 ATEX0080X dated 25.6.2018.

For explosion hazard environment of gasses and dusts are approved these versions:

Versions into thermowell T1070/T1570..J13/J16/J21P/J19..H5/H5N/H6/H7..EI

with marking:

II 2G Ex ia IIC T6…Tx°C Gb
II 1/2D Ex ia IIIC T 85°C…Tx°C Da/Db

Spatial version T1070..P1E..H5/H5N/H6/H7..EI

with marking:

II 2G Ex ia IIC T6…Tx°C Gb
II 1D Ex ia IIIC T 85°C…Tx°C Da

Other standard versions
T1070/T1570..(except J13 and P1E)..H5/H5N/H6/H7..EI

with marking:

II 1/2G Ex ia IIC T6…Tx°C Ga/Gb
II 1D Ex ia IIIC T 85°C…Tx°C Da

CAUTION!

In addition to specified cable glands, it is possible to use for the sensors also other cable glands with connection thread M20x1.5 and with individual approval for specific type of protection. Cable gland must meet the requirements of EN 60079-1.

When using cable glands (code KME1, KME2) designed for fixed cable installation, the cable shall be fixed against a possible rotation and displacements. Cable gland provides proper protection if it is correctly tight and used with sealing.

Any intervention into construction of the sensor with a ED, ET or EI version is not permitted as may cause an explosion!

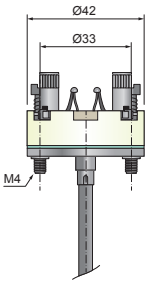
Sensor weight T1070 and T1570 [kg]									
Sensor version	**J13**	**J23**		**J33**		**J43**	**B00, B01**	**B63**	**B64**
without transmitter with head H1	**with extension piece**	**without extension piece**	**with extension piece**	**with screwing**	**with flange**	**without thermowell**	**without fitting**	**straight with dia. 14**	**straight with dia. 14**
Nominal length									
L100	0.52	0.37	0.47	0.65	1.5	0.52	--	--	--
L110	--	--	--	--	--	--	0.32	--	--
L160	0.53	0.38	0.49	0.7	1.54	0.53	--	--	--
L170	--	--	--	--	--	--	0.33	--	--
L230	--	0.39	--	--	--	--	--	--	--
L240	--	--	--	--	--	--	0.34	--	--
L250	0.55	--	0.53	0.75	1.59	0.55	--	0.69	0.69
L300	--	--	--	--	--	--	0.35	--	--
L310	--	--	--	--	--	--	--	0.8	0.8
L380	--	0.42	--	--	--	--	--	--	--
L390	--	--	--	--	--	--	0.37	--	--
L400	0.58	--	0.58	0.8	1.68	0.58	--	0.98	0.98
L500	--	--	--	--	--	--	0.39	1.17	1.17
L530	--	0.46	--	--	--	--	--	--	--
L540	--	--	--	--	--	--	0.4	--	--
L630	0.63	--	0.63	0.95	1.82	0.63	--	--	--
L710	--	--	--	--	--	--	0.42	1.57	1.57
L770	--	--	--	--	--	--	0.43	--	--
L800	--	--	--	--	--	--	--	1.75	1.75
L1000	--	--	--	--	--	--	0.48	2.14	2.14
L1400	--	--	--	--	--	--	0.55	2.91	2.91
L1600	--	--	--	--	--	--	--	3.3	3.3
L2000	--	--	--	--	--	--	0.66	4.08	4.08
L999	--								
Head weight [kg]									
H2	0.04								
H3	0.05								
H4, H5	0.2						--	0.2	
H6	0.16						--	0.16	
H7	0.7						--	0.7	
H9	--								
Transmitter weight [kg]									
P5310	0.04								
P5311	0.05								
5335	0.05								

Dimensional drawings

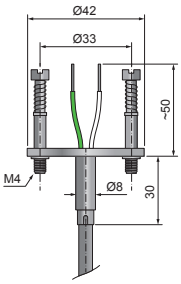
Resistance and thermocouple measuring inserts with mineral isolation

Cold-end

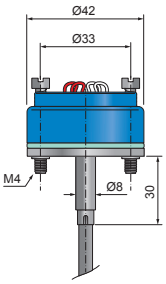
S1
with terminal board



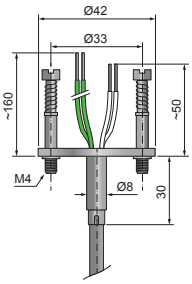
S2
with flying leads



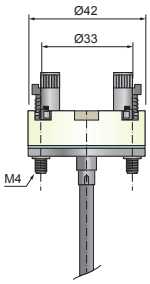
S3
with transmitter



S4
with flying leads, for double sensor



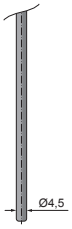
S5
with terminal, embedded pins



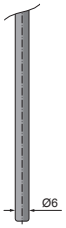
Measuring-end

D1
for sensors into thermowell, without thermowell, without fitting

D2
for sensors into thermowell, without thermowell, without fitting



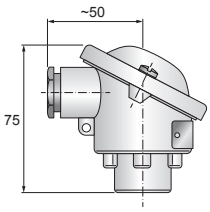
D3
for all fittings



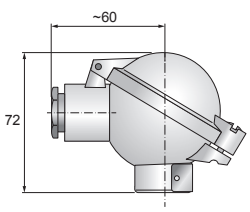
D5
for sensors into thermowell, without fitting

Head

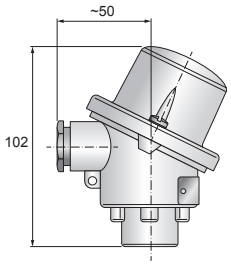
H1



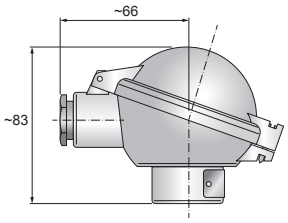
H2



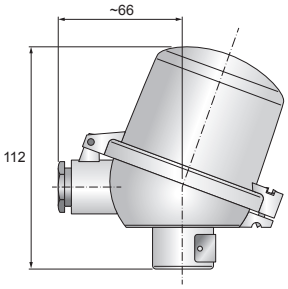
H3



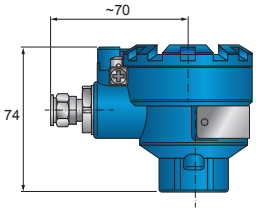
H4N, H5N



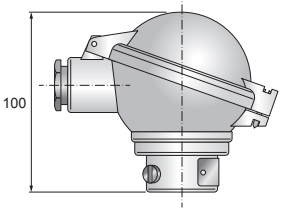
H4, H5, H5PA, H4DW, H5DW



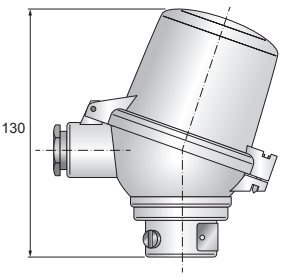
H6, H7



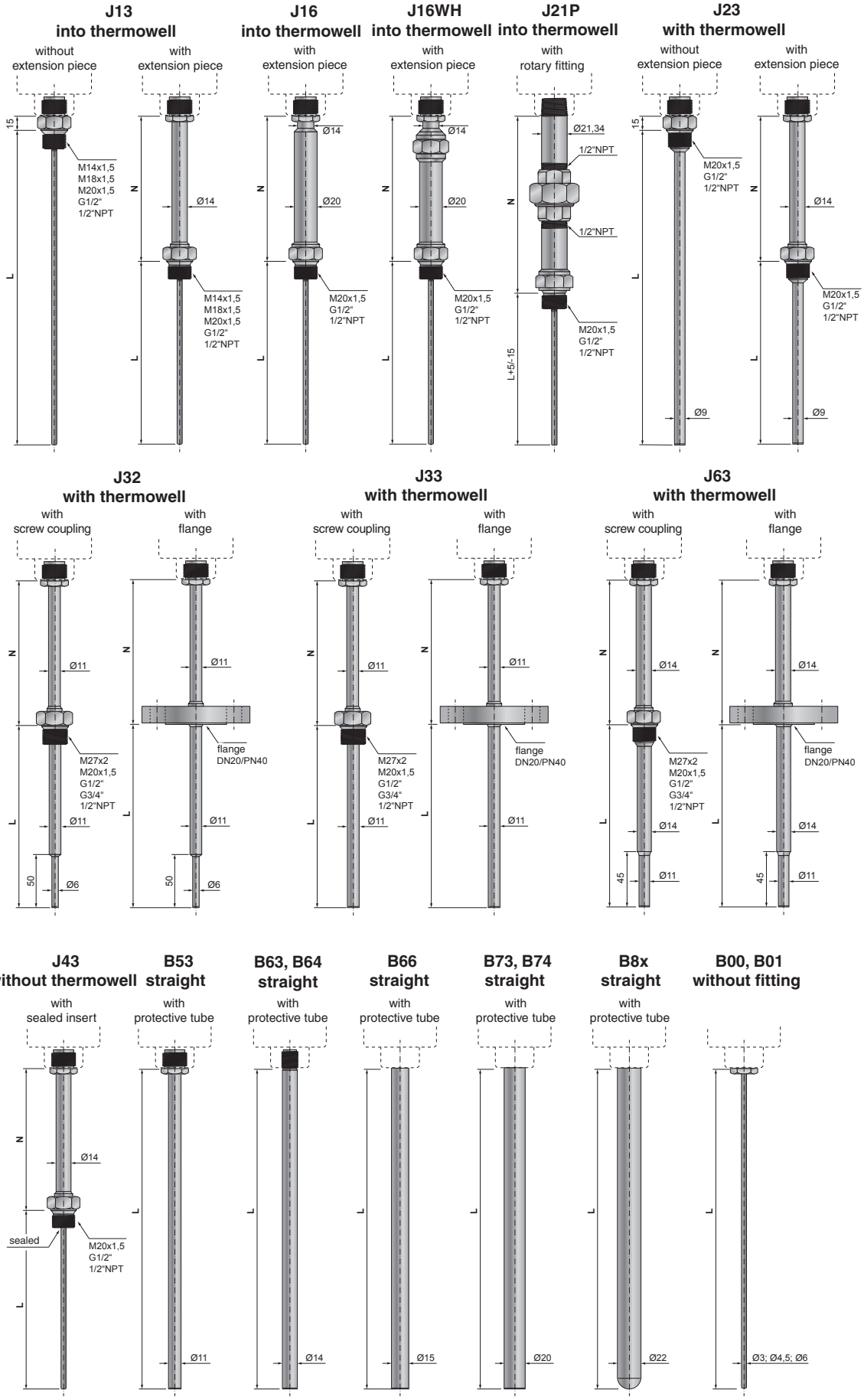
HAN



HA



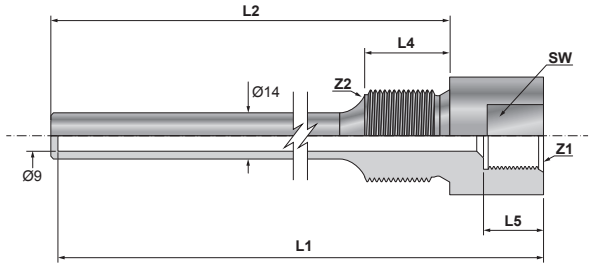
Fittings


J13
into thermowell
without extension piece
with extension piece
15
N
L
M14x1,5
M18x1,5
M20x1,5
G1/2"
1/2"NPT
Ø14
J16
into thermowell
with extension piece
Ø20
M20x1,5
G1/2"
1/2"NPT
J16WH
into thermowell
with extension piece
J21P
into thermowell
with rotary fitting
Ø21,34
1/2"NPT
L+5/-15
J23
with thermowell
without extension piece
with extension piece
Ø9
J32
with thermowell
with screw coupling
with flange
Ø11
M27x2
M20x1,5
G1/2"
G3/4"
1/2"NPT
flange
DN20/PN40
50
Ø6
J33
with thermowell
J63
with thermowell
Ø14
45
J43
without thermowell
with sealed insert
sealed
B53
straight
with protective tube
B63, B64
straight
B66
straight
B73, B74
straight
B8x
straight
Ø15
Ø20
Ø22
B00, B01
without fitting
Ø3; Ø4,5; Ø6

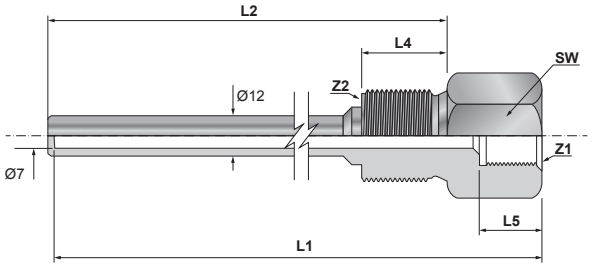
Thermowells

WT70 C, for screwing

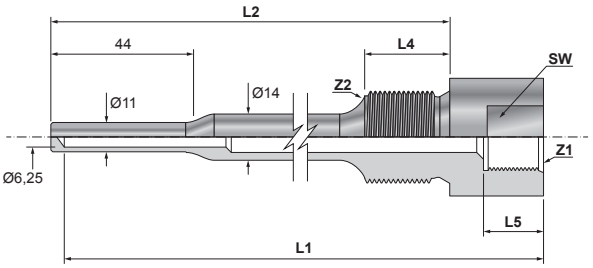
WT70 C 01 V900 ...



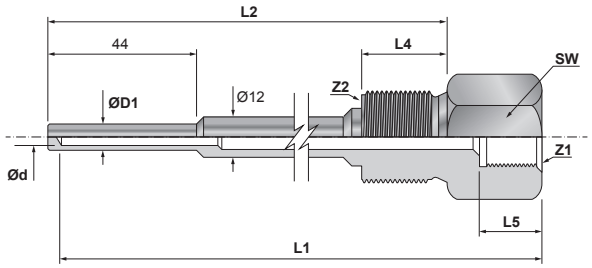
WT70 C 01 V700 ...



WT70 C 01 V625 ...

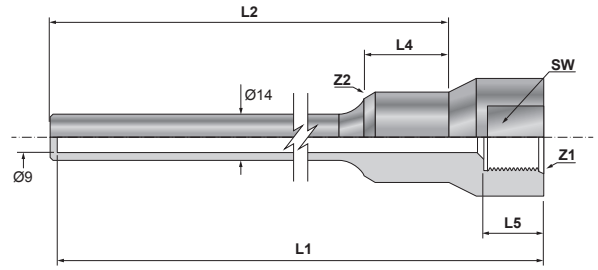


WT70 C 01 V350 / V500 ...

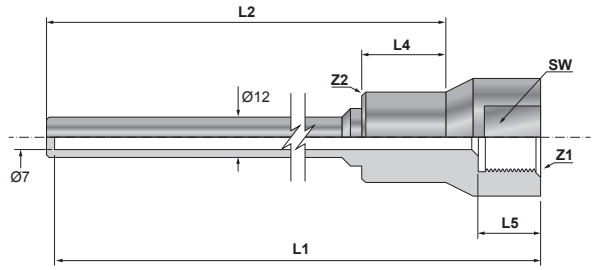


WT70 C, for welding

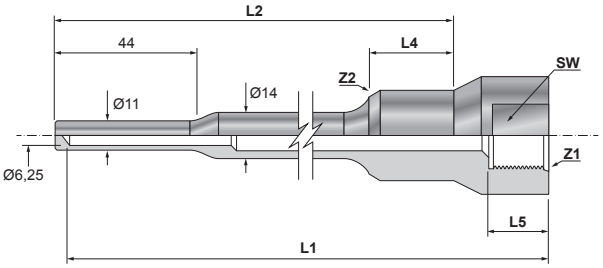
WT70 C 02 V900 ...



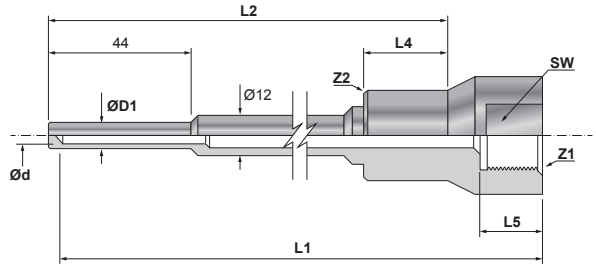
WT70 C 02 V700 ...



WT70 C 02 V625 ...

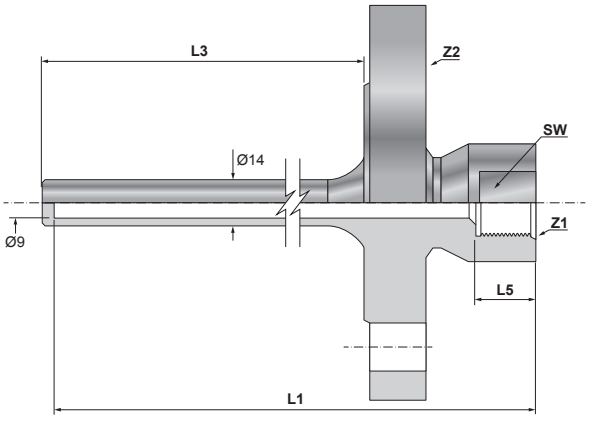


WT70 C 02 V350 / V500 ...

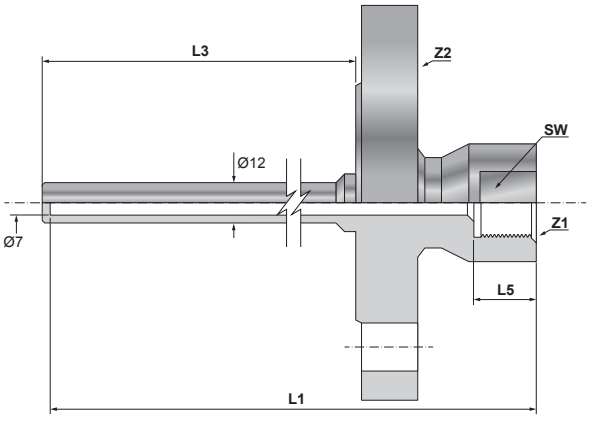


WT70 C, with flange

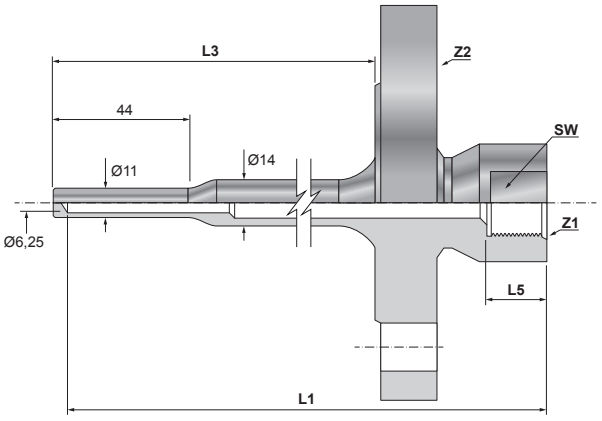
WT70 C 03 V900 ...



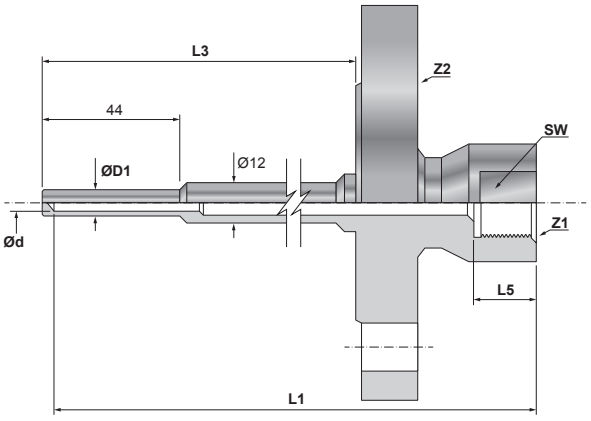
WT70 C 03 V700 ...



WT70 C 03 V625 ...

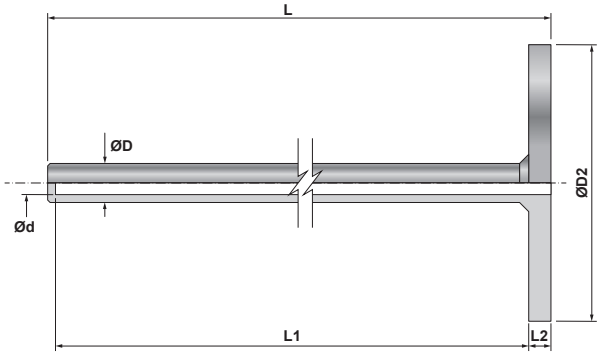


WT70 C 03 V300 / V500 ...



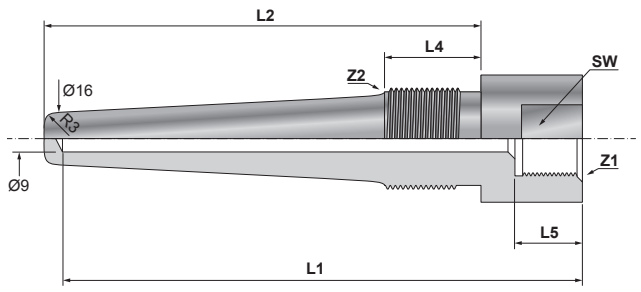
WT70 C, between flanges

WT70 C 03 ... P89

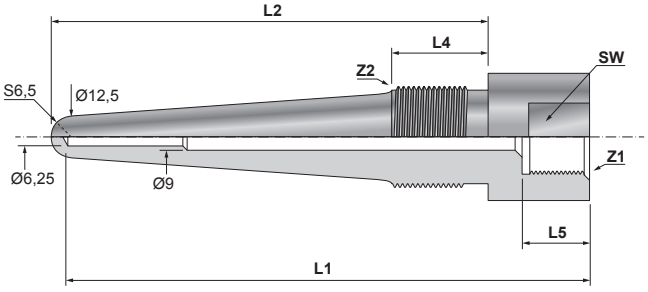


WT70 T, for screwing

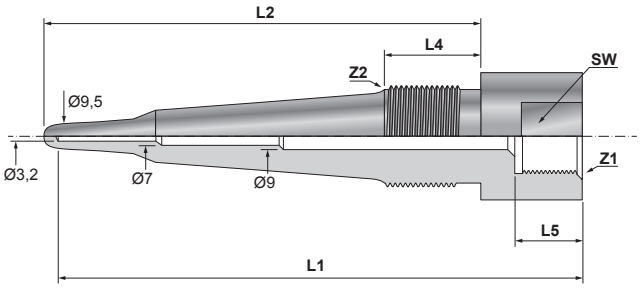
WT70 T 21 V900 ...



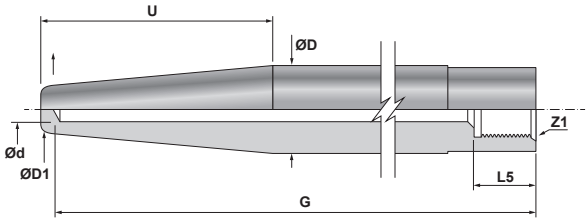
WT70 T 21 V625 ...



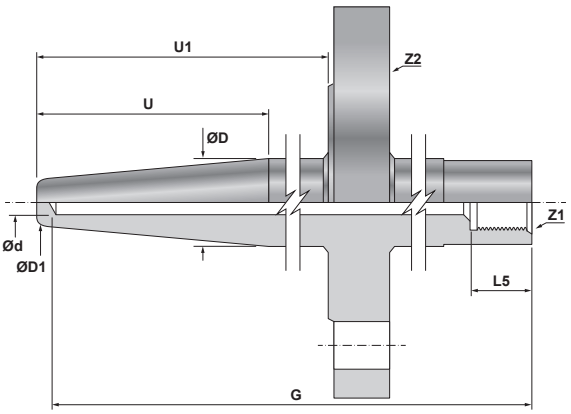
WT70 T 21 V320 ...



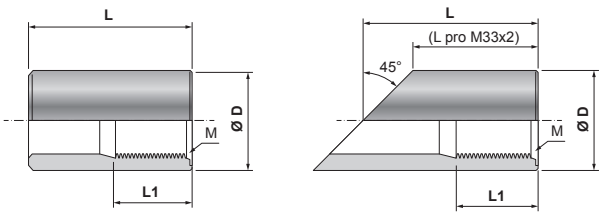
WT70 D, for welding



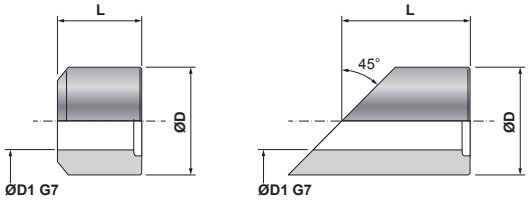
WT70 D, with flange



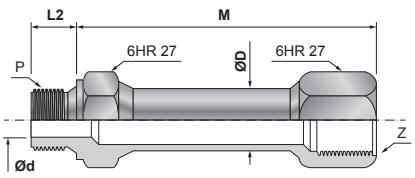
NV Welded on piece for WT70 C and WT70 T



NV D Welded on piece for WT70 D

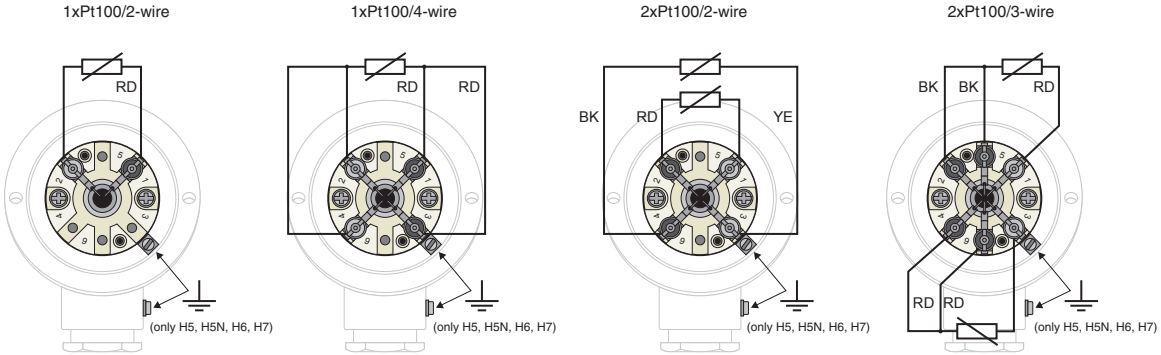


NT70 Extension piece for temperature sensors

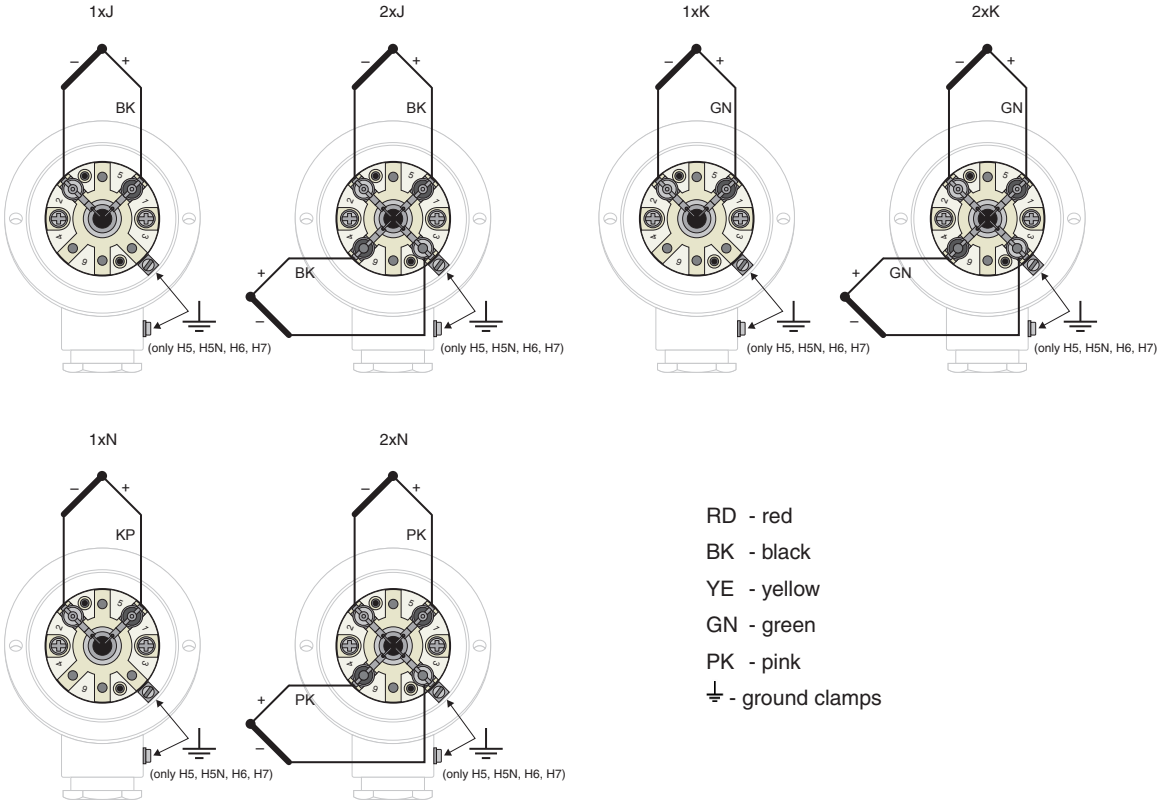


Electrical connection

a) RTD



b) TC



RD - red
BK - black
YE - yellow
GN - green
PK - pink
⏚ - ground clamps

ModuTEMP® 70 - Sensors with thermowell

Table 1

	Type	Description			
○	**T1070**	**Resistance temperature sensor with thermowell**			
○	**T1570**	**Thermocouple temperature sensor with thermowell**			
	Code	**Temperature sensor**			
		Resistance (RTD)	*Sheath material*	*Max. temperature of use*	
○	**04**	**1xPt100, two-wire inside wiring**	**1.4404**	**up to 500 °C**	
○	**06**	**1xPt100, four-wire inside wiring**	**1.4404**	**up to 600 °C**	
	06HT	1xPt100, four-wire inside wiring	Inconel 600	up to 700 °C	- only for code F7
○	**07**	**2xPt100, three-wire inside wiring**	**1.4404**	**up to 600 °C**	
	08	2xPt100, two-wire inside wiring	1.4404	up to 500 °C	
	09	2xPt100, four-wire inside wiring	1.4404	up to 600 °C	
	…VR	Increased resistance to vibration and shock		up to 500 °C	- only for code 06 F2
		Thermocouple (TC)	*Sheath material*	*Measuring range*	
○	**21**	**1x"J" (Fe-CuNi), insulated**	**1.4541**	**-200 to +800 °C**	
○	**61**	**2x"J" (Fe-CuNi), insulated, isolated junctions**	**1.4541**	**-200 to +800 °C**	
○	**22**	**1x"K" (NiCr-NiAl), insulated**	**Inconel 600**	**-200 to +1100 °C**	
○	**62**	**2x"K" (NiCr-NiAl), insulated, isolated junctions**	**Inconel 600**	**-200 to +1100 °C**	
	23	1x"N" (NiCrSi-NiSi), insulated	Inconel 600	-200 to +1100 °C	
	63	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Inconel 600	-200 to +1100 °C	
	22HT	1x"K" (NiCr-NiAl), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	62HT	2x"K" (NiCr-NiAl), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	23HT	1x"N" (NiCrSi-NiSi), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	63HT	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	…U	Grounded version of junction TC			
	99	Other			
	Code	**Accuracy class**	**Inside wiring materia**	**Measuring range**	
		Resistance (RTD) according to EN 60751			
○	**F1**	**B**	**Cu**	**-50 to +300 °C**	**- not for code 06HT**
○	**F2**	**B**	**Cu**	**-70 to +500 °C**	**- not for code 06HT**
○	**F3**	**B**	**Ni** [1)]	**-200 to +600 °C**	**- only for codes 06, 07 and 09**
○	**F7**	**B**	**Ni** [1)]	**-200 to +700 °C**	**- only for code 06HT**
○	**F4**	**A**	**Cu**	**-30 to +300 °C**	**- only for codes 06, 07 and 09**
○	**F5**	**A**	**Cu**	**-100 to +450 °C**	**- only for codes 06, 07 and 09**
	F9	Other			
		Thermocouple (TC) according to EN 60584-1			
○	**T7**	**2**			
○	**T6**	**1**			
	T9	Other			
	Code	**Fitting of the sensor** [2)]		**Diameter of extension piece**	**Fitting material**
○	**J23**	**With thermowell Ø 9 x 1 mm, PN 63**		**14 x 2.5 mm**	**1.4541**
○	**J32**	**With thermowell Ø 11 x 2 mm reduced to Ø 6 x 1.3 mm, PN 100**		**11 x 2 mm**	**1.4541**
○	**J33**	**With thermowell Ø 11 x 2 mm, PN 100**		**11 x 2 mm**	**1.4541**
○	**J63**	**With thermowell Ø 14 x 2.5 mm reduced to Ø 11 x 2.4 mm, PN 160**		**14 x 2.5 mm**	**1.4541**
	J99	Other with thermowell			
	Code	**Nominal immersion of sensor L [mm]**			
○	**L100**	**100**			
○	**L160**	**160**			
○	**L250**	**250**	**- not for J23 N000**		
○	**L400**	**400**	**- not for J23 N000**		
○	**L630**	**630**	**- not for J23 N000**		
○	**L230**	**230**	**- only for J23 N000**		
○	**L380**	**380**	**- only for J23 N000**		
○	**L530**	**530**	**- only for J23 N000**		
	L….	Other (please fill nominal immersion of sensor in mm)			
	Code	**Head**			
○	**H1**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H2**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H3**	**Al alloy, with high cap for mounting of transmitter with Ø 44 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H4N**	**Al alloy, with low cap, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H4**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H5N**	**Al alloy, with low cap, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 m, IP 65**			
○	**H5**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 mm, IP 65**			
○	**H5PA**	**Polyamide, with high cap for mounting of transmitter with Ø 62 mm, Tmax 80 °C, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H6**	**Al alloy, ground clamps, thread for cable outlet M20x1.5, IP 68**			
○	**H7**	**Stainless steel, ground clamps, thread for cable outlet M20x1.5, IP 68**			
	…D	Double cable outlet	- only for codes H4, H4N, H5, H5N		
	…W	Sensor head with peephole for display	- only for codes H4 Z1, H4D Z1, H5 Z1E and S2, S3; not for double sensors		
	H9	Other			
	Code	**Cold-end of measuring insert**			
○	**S1**	**With ceramic terminal block (diameter 42 mm) on flange of measuring insert**			
○	**S2**	**For single sensor, without terminal block, with set for mounting of transmitter on flange of measuring insert (instead of terminal block)**			
○	**S3**	**For single sensor, with mounted selected transmitter on flange of measuring insert (necessary specifications of transmitter)**			
○	**S4**	**For double sensor, without terminal block, with set for mounting of two transmitters (not suitable for H1, H2, H5N, H6 and H7)**			
○	**S5**	**With ceramic terminal block (diameter 42 mm), embedded pins (according to NAMUR)**			
	S9	Other			
	Code	**Extension piece /Nominal length of extension piece N/**		**Max. temperature of connection thread**	
○	**N000** [3)]	**Without extension piece N=15 mm (only for J23)**		**120 °C**	
○	**N145**	**With extension piece N=145 mm**		**600 °C**	
	N…	Other (please fill nominal length of extension piece in mm)			

	Code	Process connection		
		J23	**J32, J33, J63**	
°	**P3**	**Male thread M20x1.5**	**Male thread M20x1.5**	
°	**P4**	-	**Male thread M27x2**	
°	**P5**	**Male thread G1/2"**	**Male thread G1/2"**	
°	**P6**	-	**Male thread G3/4"**	
°	**P7**	**Male thread 1/2"NPT**	**Male thread 1/2"NPT**	
	P8	-	Flat flange DN20/PN40	
	P9	Other	Other	
	Code	**OPTIONAL ACCESSORIES** **Versions for explosive atmosphere of gasses or dusts**		
		Flameproof enclosure "Ex d" only for gasses and protection by enclosure "Ex t" only for dusts, intrinsically safe version "Ex i" for gasses and dusts		
°	**ED/ET**	**(Ex) II 1/2G Ex da/db IIC T6...Tx°C Ga/Gb** **(Ex) II 1/2D Ex ta/tb IIIC T90°C…Tx°C Da/Db**	**- only for version with heads codes H6, H7**	
°	**EI**	**(Ex) II 1/2G Ex ia IIC T6...Tx°C Ga/Gb** **(Ex) II 1D Ex ia IIIC T85°C…Tx°C Da**	**- only for version with heads codes H5, H5N, H6, H7**	
	Code	**Protective spray**	**T_{MAX} (with spray)**	
	X01	Polyamide PA 11	100 °C (depends on measured medium)	
	X02	E-CTFE "Halar"	170 °C (depends on measured medium)	
	X03	PFA	260 °C (depends on measured medium)	
	X04	ETFE "Hyflon"	130 °C (depends on measured medium)	
	X05	PTFE	260 °C (depends on measured medium)	
	X07	Hard metal coating (Fe-Cr-Mn-Si-B-C) for abrasive medium	925 °C	
	X08	Corundum spray for intense abrasive medium	according to specific composition of coating	
	X99	Other		
	Code	**Indication units**		
	Z1	LED display mounted in sensor head (only for code H4(D)W and S2, S3; operating temperature -20 to +80 °C)		
	Z1E	Intrinsically safe LED display in sensor head (Ex) II 2G Ex ia IIC T6 (only for codes H5W and S2, S3; operating temperature -20 to +80 °C)		
	Code	**Cable outlet** [4]		
•	**KM1**	**Cable outlet, nickel-plated brass, IP 68, M20x1.5, for cable Ø 5 to 10 mm (standard for H6, H7)**		
	KM4	Cable outlet, stainless steel, IP 68, M20x1.5, for cable ∅ 7 to 12 mm		
•	**KME1**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 4.5 to 8.5 mm**		
•	**KME2**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 7 to 12 mm**		
	KME3	Cable outlet, stainless steel, Ex d, M20x1.5, IP 68, for fixed assembly cable ∅ 4 to 8 mm		
	KME5	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 5 to 9 mm, operating temperature -20 to +95 °C (not for H5PA)		
	KME6	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 6.5 to 12 mm, operating temperature -20 to +95 °C (not for H5PA)		
	KM9	Other		
•	**PK1**	**Lock anti pull-up cable for Ex d cable outlet KME1**		
•	**PK2**	**Lock anti pull-up cable for Ex d cable outlet KME2**		
	Code	**Snap lock**		
•	**RU**	**Snap lock**	**- only with codes H2, H4, H4N, H5, H5N**	
	Code	**Calibration in customer defined points, including certificate of calibration**		
°	**KTE31A**	**Resistance temperature sensor calibration in three points in range -40 to +660 °C**		
°	**KTE51A**	**Resistance temperature sensor calibration in five points in range -40 to +660 °C**		
°	**KTE32AA**	**Thermocouple temperature sensor calibration in three points in range -40 to +660 °C**		
°	**KTE52AA**	**Thermocouple temperature sensor calibration in five points in range -40 to +660 °C**		
	KTE9	Other		
	Code	**Extended warranty**		
°	**WE36**	**Product warranty 36 months**	**- not for code VR**	
	WE..	Other (the number of months must be added to the code)	- not for code VR	
	Code	**Accessories**		
•	**BZS**	**Stainless steel tag for attachment (70x15 mm) with laser description according to the order**		
•	**PPZ**	**Laser description of sensor according to the order**		
•	**Q1**	**Material certificate according to EN 10204, 3.1**		
	Code	**Transmitters for headmounting**		
•	**P5310 H10**	**Transmitter with LHP protocol (see data sheet No. 0824)**		
°	**P5310EN2 H10**	**Transmitter with LHP protocol, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**		
•	**P5311 H10**	**Transmitter with LHP protocol with galvanic isolation (see data sheet No. 0824)**		
°	**P5311EN2 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**		
°	**P5311EI1 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC T106°C Da (see data sheet No. 0824)**		
•	**P5315 H10**	**Precision transmitter with LHP protocol with galvanic isolation (see data sheet No. 2098)**		
	P5315EN2 H10	Precision transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 2098)		
•	**P5320 H10**	**Precision transmitter with HART protocol with galvanic isolation (see data sheet No. 0825)**		
•	**P5320EN2 H10**	**Precision transmitter with HART protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 0825)**		
	P5320EI1 H10	Precision transmitter with HART protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC Txx°C Da (see data sheet No. 0825)		

Example of order: T1070 04 F2 J33 L160 H3 S1 N145 P3 KTE31A (-40, 200, 500 °C)

• ... Ex stock version ° ... Marked version can be dispatched up to 5 working days (with calibration up to two weeks)

[1] … Not allowable to use two-wire connection because of nickel inner wiring.

[2] … max. use temperature up to +600 ° C; for medium pressure up to 1 bar and for low flow velocity it can be used up to + 800 ° C

[3] … Sensor head is NOT POSSIBLE to turn with cable outlet to the to the desired position after installation to the technology.

[4] ... The heads H1, H2, H3, H4, H4N, H5, H5N are usually equipped with nickel-plated brass cable outlet for cable with diameter 4 to 12.5 mm.

ModuTEMP® 70 - Sensors into thermowell

Table 2

	Type	Description			
○	**T1070**	**Resistance temperature sensor into thermowell**			
○	**T1570**	**Thermocouple temperature sensor into thermowell**			
	Code	**Temperature sensor**			
		Resistance (RTD)	*Sheath material*	*Max. temperature of use*	
○	**04**	**1xPt100, two-wire inside wiring**	**1.4404**	**up to 500 °C**	
○	**06**	**1xPt100, four-wire inside wiring**	**1.4404**	**up to 600 °C**	
○	06HT	1xPt100, four-wire inside wiring	Inconel 600	up to 700 °C	- only for code F7
○	**07**	**2xPt100, three-wire inside wiring**	**1.4404**	**up to 600 °C**	
	08	2xPt100, two-wire inside wiring	1.4404	up to 500 °C	
○	09	2xPt100, four-wire inside wiring	1.4404	up to 600 °C	
○	…VR	Increased resistance to vibration and shock		up to 500 °C	- only for code 06 F2
○		*Thermocouple (TC)*	*Sheath material*	*Measuring range*	
○	**21**	**1x"J" (Fe-CuNi), insulated**	**1.4541**	**-200 to +800 °C**	
○	**61**	**2x"J" (Fe-CuNi), insulated, isolated junctions**	**1.4541**	**-200 to +800 °C**	
○	**22**	**1x"K" (NiCr-NiAl), insulated**	**Inconel 600**	**-200 to +1100 °C**	
○	**62**	**2x"K" (NiCr-NiAl), insulated, isolated junctions**	**Inconel 600**	**-200 to +1100 °C**	
	23	1x"N" (NiCrSi-NiSi), insulated	Inconel 600	-200 to +1100 °C	
	63	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Inconel 600	-200 to +1100 °C	
	22HT	1x"K" (NiCr-NiAl), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	62HT	2x"K" (NiCr-NiAl), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	23HT	1x"N" (NiCrSi-NiSi), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	63HT	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	…U	Grounded version of junction TC			
	99	Other			
	Code	**Accuracy class**	**Inside wiring material**	**Measuring range**	
		Resistance (RTD) according to EN 60751			
○	**F1**	**B**	**Cu**	**-50 to +300 °C**	**- not for code 06HT**
○	**F2**	**B**	**Cu**	**-70 to +500 °C**	**- not for code 06HT**
○	**F3**	**B**	**Ni** [1]	**-200 to +600 °C**	**- only for codes 06, 07 and 09**
○	**F7**	**B**	**Ni** [1]	**-200 to +700 °C**	**- only for code 06HT**
○	**F4**	**A**	**Cu**	**-30 to +300 °C**	**- only for codes 06, 07 and 09**
○	**F5**	**A**	**Cu**	**-100 to +450 °C**	**- only for codes 06, 07 and 09**
	F9	Other			
		Thermocouple (TC) according to EN 60584-1			
○	**T7**	**2**			
○	**T6**	**1**			
	T9	Other			
	Code	**Fitting of the sensor**		**Diameter of extension piece**	**Fitting material**	**T_{MAX}**
○	**J13**	**Into thermowell**		**14 x 2.5 mm**	**1.4541**	[3]
○	**J16**	**Into thermowell**		**20 x 3 mm**	**1.4541**	[3]
	J16WH	Into thermowell, with 6HR 27 mm welded to the adapter under the sensor head		20 x 3 mm	1.4541	[3]
	J21P	Into thermowell, with rotary fitting in the middle of extension piece [2]		21.3 x 2.6 mm	1.4541	[3]
	J19	Other into thermowell				
	Code	**Nominal immersion of sensor L [mm]**				
○	**L100**	**100**				
○	**L160**	**160**				
○	**L165**	**165**				
○	**L195**	**195**				
○	**L250**	**250**				
○	**L255**	**255**				
○	**L400**	**400**				
○	**L405**	**405**				
○	**L630**	**630**				
	L….	Other (please fill nominal immersion of sensor in mm)				
	Code	**Head**				
○	**H1**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**				
○	**H2**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**				
○	**H3**	**Al alloy, with high cap for mounting of transmitter with Ø 44 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**				
○	**H4N**	**Al alloy, with low cap, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**				
○	**H4**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**				
○	**H5N**	**Al alloy, with low cap, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 m, IP 65**				
○	**H5**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 mm, IP 65**				
○	**H5PA**	**Polyamide, with high cap for mounting of transmitter with Ø 62 mm, Tmax 80 °C, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**				
○	**H6**	**Al alloy, ground clamps, thread for cable outlet M20x1.5, IP 68**				
○	**H7**	**Stainless steel, ground clamps, thread for cable outlet M20x1.5, IP 68**				
	…D	Double cable outlet	- only for codes H4, H4N, H5, H5N			
	…W	Sensor head with peephole for display	- only for codes H4 Z1, H4D Z1, H5 Z1E and S2, S3; not for double sensors			
	H9	Other				
	Code	**Cold-end of measuring insert**				
○	**S1** [4]	**With ceramic terminal block (diameter 42 mm) on flange of measuring insert (only for diameter 6 mm (code D3, D5))**				
○	**S2** [4]	**For single sensor, without terminal block, with set for mounting of transmitter on flange of measuring insert (instead of terminal block)**				
○	**S3** [4]	**For single sensor, with mounted selected transmitter on flange of measuring insert (necessary specifications of transmitter)**				
○	**S4** [5]	**For double sensor, without terminal block, with set for mounting of two transmitters (not suitable for H1, H2, H5N, H6 and H7)**				
○	**S5**	**With ceramic terminal block (diameter 42 mm), embedded pins (according to NAMUR)**				
	S9	Other				
	Code	**Measuring insert diameter [mm]**				
○	**D1** [5]	**Ø 3**				
○	**D2** [5]	**Ø 4.5 (only for TC)**				
○	**D3**	**Ø 6**				
○	**D5**	**Ø 6 with distance sleeve Ø 8**				
	D9	Other				

	Code	Extension piece /Nominal length of extension piece N/	Max. temperature of connection thread	
°	**N000** [6]	**Without extension piece N=15 mm**	**120 °C**	
°	**N140**	**With extension piece N=140 mm**	**600 °C**	**- standard version for L=165, 195, 255 and 405 mm**
°	**N145**	**With extension piece N=145 mm**	**600 °C**	**- standard version for L=100, 160, 250, 400 and 630 mm**
	N…	Other (please fill nominal length of extension piece in mm)		
		Process connection		
	Code	**J13**	**J16, J21P**	
	P1	Male thread M14x1.5	-	
	P2	Male thread M18x1.5	-	
°	**P3**	**Male thread M20x1.5**	**Male thread M20x1.5**	
°	**P5**	**Male thread G1/2"**	**Male thread G1/2"**	
°	**P7**	**Male thread 1/2"NPT**	**Male thread 1/2"NPT**	
	P9	Other	Other	
		OPTIONAL ACCESSORIES		
	Code	**Versions for explosive atmosphere of gasses or dusts**		
		Flameproof enclosure "Ex d" only for gasses and protection by enclosure "Ex t" only for dusts, intrinsically safe version "Ex i" for gasses and dusts		
°	**ED/ET**	**(Ex) II 2G Ex db IIC T6...Tx°C Gb** **(Ex) II 2D Ex tb IIIC T90°C…Tx°C Db**	**- only for version with heads codes H6, H7**	
°	**EI**	**(Ex) II 2G Ex ia IIC T6...Tx°C Gb** **(Ex) II 1/2D Ex ia IIIC T85°C…Tx°C Da/Db**	**- only for version with heads codes H5, H5N, H6, H7**	
	Code	**Indication units**		
	Z1	LED display mounted in sensor head (only for code H4(D)W and S2, S3; operating temperature -20 to +80 °C)		
	Z1E	Intrinsically safe LED display in sensor head (Ex) II 2G Ex ia IIC T6 (only for codes H5W and S2, S3; operating temperature -20 to +80 °C)		
	Code	**Cable outlet** [7]		
•	**KM1**	**Cable outlet, nickel-plated brass, IP 68, M20x1.5, for cable Ø 5 to 10 mm (standard for H6, H7)**		
	KM4	Cable outlet, stainless steel, IP 68, M20x1.5, for cable ∅ 7 to 12 mm		
•	**KME1**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 4.5 to 8.5 mm**		
•	**KME2**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 7 to 12 mm**		
	KME3	Cable outlet, stainless steel, Ex d, M20x1.5, IP 68, for fixed assembly cable ∅ 4 to 8 mm		
	KME5	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 5 to 9 mm, operating temperature -20 to +95 °C (not for H5PA)		
	KME6	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 6.5 to 12 mm, operating temperature -20 to +95 °C (not for H5PA)		
	KM9	Other		
•	**PK1**	**Lock anti pull-up cable for Ex d cable outlet KME1**		
•	**PK2**	**Lock anti pull-up cable for Ex d cable outlet KME2**		
	Code	**Snap lock**		
•	**RU**	**Snap lock**	**- only with codes H2, H4, H4N, H5, H5N**	
	Code	**Calibration in customer defined points, including certificate of calibration**		
°	**KTE31A**	**Resistance temperature sensor calibration in three points in range -40 to +660 °C**		
°	**KTE51A**	**Resistance temperature sensor calibration in five points in range -40 to +660 °C**		
°	**KTE32AA**	**Thermocouple temperature sensor calibration in three points in range -40 to +660 °C**		
°	**KTE52AA**	**Thermocouple temperature sensor calibration in five points in range -40 to +660 °C**		
°	**KTE32AB**	**Thermocouple temperature sensor calibration in three points in range -40 to +1100 °C**		
°	**KTE52AB**	**Thermocouple temperature sensor calibration in five points in range -40 to +1100 °C**		
°	**KTE32B**	**Thermocouple temperature sensor calibration in three points in range +400 to +1300 °C**		
°	**KTE52B**	**Thermocouple temperature sensor calibration in five points in range +400 to +1300 °C**		
	KTE9	Other		
	Code	**Extended warranty**		
°	**WE36**	**Product warranty 36 months**	**- not for code VR**	
	WE..	Other (the number of months must be added to the code)	- not for code VR	
	Code	**Accessories**		
•	**BZS**	**Stainless steel tag for attachment (70x15 mm) with laser description according to the order**		
•	**PPZ**	**Laser description of sensor according to the order**		
•	**Q1**	**Material certificate according to EN 10204, 3.1**		
	Code	**Transmitters for headmounting**		
•	**P5310 H10**	**Transmitter with LHP protocol (see data sheet No. 0824)**		
°	**P5310EN2 H10**	**Transmitter with LHP protocol, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**		
•	**P5311 H10**	**Transmitter with LHP protocol with galvanic isolation (see data sheet No. 0824)**		
°	**P5311EN2 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**		
°	**P5311EI1 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC T106°C Da (see data sheet No. 0824)**		
•	**P5315 H10**	**Precision transmitter with LHP protocol with galvanic isolation (see data sheet No. 2098)**		
	P5315EN2 H10	Precision transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 2098)		
•	**P5320 H10**	**Precision transmitter with HART protocol with galvanic isolation (see data sheet No. 0825)**		
•	**P5320EN2 H10**	**Precision transmitter with HART protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 0825)**		
	P5320EI1 H10	Precision transmitter with HART protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC Txx°C Da (see data sheet No. 0825)		
	Code	**Thermowells and welded on pieces**		
•	**WT70 C**	**Cylindric thermowell to screwing, to welding, with flange, PN 160 (see data sheet No. 0993)**		
	WT70 D	Conical thermowell to welding according to DIN 43772, PN 250 (see data sheet No. 0993)		
	WT70 T	Conical thermowell to screwing, PN 400 (see data sheet No. 0993)		
•	**NV**	**Welded on piece for thermowells WT70 C, WT70 D and WT70 T (see data sheet No. 0993)**		
		Example of order: T1070 04 F2 J13 L160 H3 S1 D3 N145 P3 KTE31A (-40, 200, 500 °C)		

• ... Ex stock version ° ... Marked version can be dispatched up to 5 working days (with calibration up to two weeks)

[1] … Not allowable to use two-wire connection because of nickel inner wiring. [2] … Spring stroke of insert 15 mm.

[3] … Max. temperature of connection thread is 600 °C. [4] … In the case of J21 direct mounting to the sensor head. [5] … Not for J21P.

[6] … Sensor head is NOT POSSIBLE to turn with cable outlet to the to the desired position after installation to the technology.

[7] ... The heads H1, H2, H3, H4, H4N, H5, H5N are usually equipped with nickel-plated brass cable outlet for cable with diameter 4 to 12.5 mm.

ModuTEMP® 70 - Sensors without thermowell

Table 3

	Type	Description			
○	**T1070**	**Resistance temperature sensor without thermowell**			
○	**T1570**	**Thermocouple temperature sensor without thermowell**			
	Code	**Temperature sensor**			
		Resistance (RTD)	*Sheath material*	*Max. temperature of use*	
○	**04**	**1xPt100, two-wire inside wiring**	**1.4404**	**up to 500 °C**	
○	**06**	**1xPt100, four-wire inside wiring**	**1.4404**	**up to 600 °C**	
	06HT	1xPt100, four-wire inside wiring	Inconel 600	up to 700 °C	- only for code F7
○	**07**	**2xPt100, three-wire inside wiring**	**1.4404**	**up to 600 °C**	
	08	2xPt100, two-wire inside wiring	1.4404	up to 500 °C	
	09	2xPt100, four-wire inside wiring	1.4404	up to 600 °C	
	…VR	Increased resistance to vibration and shock		up to 500 °C	- only for code 06 F2
		Thermocouple (TC)	*Sheath material*	*Measuring range*	
○	**21**	**1x"J" (Fe-CuNi), insulated**	**1.4541**	**-200 to +800 °C**	
○	**61**	**2x"J" (Fe-CuNi), insulated, isolated junctions**	**1.4541**	**-200 to +800 °C**	
○	**22**	**1x"K" (NiCr-NiAl), insulated**	**Inconel 600**	**-200 to +1100 °C**	
○	**62**	**2x"K" (NiCr-NiAl), insulated, isolated junctions**	**Inconel 600**	**-200 to +1100 °C**	
	23	1x"N" (NiCrSi-NiSi), insulated	Inconel 600	-200 to +1100 °C	
	63	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Inconel 600	-200 to +1100 °C	
	22HT	1x"K" (NiCr-NiAl), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	62HT	2x"K" (NiCr-NiAl), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	23HT	1x"N" (NiCrSi-NiSi), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	63HT	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	…U	Grounded version of junction TC			
	99	Other			
	Code	**Accuracy class**	**Inside wiring material**	**Measuring range**	
		Resistance (RTD) according to EN 60751			
○	**F1**	**B**	**Cu**	**-50 to +300 °C**	**- not for code 06HT**
○	**F2**	**B**	**Cu**	**-70 to +500 °C**	**- not for code 06HT**
○	**F3**	**B**	**Ni** [1)]	**-200 to +600 °C**	**- only for codes 06, 07 and 09**
○	**F7**	**B**	**Ni** [1)]	**-200 to +700 °C**	**- only for code 06HT**
○	**F4**	**A**	**Cu**	**-30 to +300 °C**	**- only for codes 06, 07 and 09**
○	**F5**	**A**	**Cu**	**-100 to +450 °C**	**- only for codes 06, 07 and 09**
	F9	Other			
		Thermocouple (TC) according to EN 60584-1			
○	**T7**	**2**			
○	**T6**	**1**			
	T9	Other			
	Code	**Fitting of the sensor**	**Diameter of extension piece**	**Fitting material**	**T_{MAX}** [2)]
○	**J43**	**Without thermowell**	**14 x 2.5 mm**	**1.4541**	
	J49	Other without thermowell			
	Code	**Nominal immersion of sensor L [mm]**			
○	**L100**	**100**			
○	**L160**	**160**			
○	**L250**	**250**			
○	**L400**	**400**			
○	**L630**	**630**			
	L.…	Other (please fill nominal immersion of sensor in mm)			
	Code	**Head**			
○	**H1**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H2**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H3**	**Al alloy, with high cap for mounting of transmitter with Ø 44 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H4N**	**Al alloy, with low cap, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H4**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H5N**	**Al alloy, with low cap, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 m, IP 65**			
○	**H5**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 mm, IP 65**			
○	**H5PA**	**Polyamide, with high cap for mounting of transmitter with Ø 62 mm, Tmax 80 °C, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H6**	**Al alloy, ground clamps, thread for cable outlet M20x1.5, IP 68**			
○	**H7**	**Stainless steel, ground clamps, thread for cable outlet M20x1.5, IP 68**			
	…D	Double cable outlet	- only for codes H4, H4N, H5, H5N		
	…W	Sensor head with peephole for display	- only for codes H4 Z1, H4D Z1, H5 Z1E and S2, S3; not for double sensors		
	H9	Other			
	Code	**Cold-end of measuring insert**			
○	**S1**	**With ceramic terminal block (diameter 42 mm) on flange of measuring insert (only for diameter 6 mm (code D3))**			
○	**S2**	**For single sensor, without terminal block, with set for mounting of transmitter on flange of measuring insert (instead of terminal block)**			
○	**S3**	**For single sensor, with mounted selected transmitter on flange of measuring insert (necessary specifications of transmitter)**			
○	**S4**	**For double sensor, without terminal block, with set for mounting of two transmitters (not suitable for H1, H2, H5N, H6 and H7)**			
	S9	Other			
	Code	**Measuring insert diameter [mm]**			
○	**D1**	**Ø 3**			
○	**D2**	**Ø 4.5 (only for TC)**			
○	**D3**	**Ø 6**			
	D9	Other			
	Code	**Extension piece /Nominal length of extension piece N/**	**Max. temperature of connection thread**		
○	**N145**	**With extension piece N=145 mm (standard)**	**500 °C (300 °C for diameter of measuring insert 3 mm, code D1)**		
	N…	Other (please fill nominal length of extension piece in mm)			
	Code	**Process connection**			
○	**P3**	**Male thread M20x1.5**			
○	**P5**	**Male thread G1/2"**			
○	**P7**	**Male thread 1/2"NPT**			
	P9	Other			

	Code	OPTIONAL ACCESSORIES Versions for explosive atmosphere of gasses or dusts
°	**EI**	**(Ex) II 2G Ex ia IIC T6...Tx°C Gb** **(Ex) II 1/2D Ex ia IIIC T85°C…Tx°C Da/Db** **- only for version with heads codes H5, H5N, H6, H7**
	Code	**Indication units**
	Z1	LED display mounted in sensor head (only for code H4(D)W and S2, S3; operating temperature -20 to +80 °C)
	Z1E	Intrinsically safe LED display in sensor head (Ex) II 2G Ex ia IIC T6 (only for codes H5W and S2, S3; operating temperature -20 to +80 °C)
	Code	**Cable outlet** [3]
•	**KM1**	**Cable outlet, nickel-plated brass, IP 68, M20x1.5, for cable Ø 5 to 10 mm (standard for H6, H7)**
	KM4	Cable outlet, stainless steel, IP 68, M20x1.5, for cable ∅ 7 to 12 mm
•	**KME1**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 4.5 to 8.5 mm**
•	**KME2**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 7 to 12 mm**
	KME3	Cable outlet, stainless steel, Ex d, M20x1.5, IP 68, for fixed assembly cable ∅ 4 to 8 mm
	KME5	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 5 to 9 mm, operating temperature -20 to +95 °C (not for H5PA)
	KME6	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 6.5 to 12 mm, operating temperature -20 to +95 °C (not for H5PA)
	KM9	Other
•	**PK1**	**Lock anti pull-up cable for Ex d cable outlet KME1**
•	**PK2**	**Lock anti pull-up cable for Ex d cable outlet KME2**
	Code	**Snap lock**
•	**RU**	**Snap lock** **- only with codes H2, H4, H4N, H5, H5N**
	Code	**Calibration in customer defined points, including certificate of calibration**
°	**KTE31A**	**Resistance temperature sensor calibration in three points in range -40 to +660 °C**
°	**KTE51A**	**Resistance temperature sensor calibration in five points in range -40 to +660 °C**
°	**KTE32AA**	**Thermocouple temperature sensor calibration in three points in range -40 to +660 °C**
°	**KTE52AA**	**Thermocouple temperature sensor calibration in five points in range -40 to +660 °C**
°	**KTE32AB**	**Thermocouple temperature sensor calibration in three points in range -40 to +1100 °C**
°	**KTE52AB**	**Thermocouple temperature sensor calibration in five points in range -40 to +1100 °C**
°	**KTE32B**	**Thermocouple temperature sensor calibration in three points in range +400 to +1300 °C**
°	**KTE52B**	**Thermocouple temperature sensor calibration in five points in range +400 to +1300 °C**
	KTE9	Other
	Code	**Extended warranty**
°	**WE36**	**Product warranty 36 months** **- not for code VR**
	WE..	Other (the number of months must be added to the code) - not for code VR
	Code	**Accessories**
•	**BZS**	**Stainless steel tag for attachment (70x15 mm) with laser description according to the order**
•	**PPZ**	**Laser description of sensor according to the order**
•	**Q1**	**Material certificate according to EN 10204, 3.1**
	Code	**Transmitters for headmounting**
•	**P5310 H10**	**Transmitter with LHP protocol (see data sheet No. 0824)**
°	**P5310EN2 H10**	**Transmitter with LHP protocol, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**
•	**P5311 H10**	**Transmitter with LHP protocol with galvanic isolation (see data sheet No. 0824)**
°	**P5311EN2 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**
°	**P5311EI1 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC T106°C Da (see data sheet No. 0824)**
•	**P5315 H10**	**Precision transmitter with LHP protocol with galvanic isolation (see data sheet No. 2098)**
	P5315EN2 H10	Precision transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 2098)
•	**P5320 H10**	**Precision transmitter with HART protocol with galvanic isolation (see data sheet No. 0825)**
•	**P5320EN2 H10**	**Precision transmitter with HART protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 0825)**
	P5320EI1 H10	Precision transmitter with HART protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC Txx°C Da (see data sheet No. 0825)
		Example of order: T1070 04 F2 J43 L160 H3 S1 D3 N145 P3 KTE31A (-40, 200, 500 °C)

• ... Ex stock version ° ... Marked version can be dispatched up to 5 working days (with calibration up to two weeks)

[1] … Not allowable to use two-wire connection because of nickel inner wiring.

[2] … Max. temperature of connection thread is 500 °C for diameter of stem 6 mm and 300 °C for diameter of stem less than 6 mm (silver solder joint).

[3] ... The heads H1, H2, H3, H4, H4N, H5, H5N are usually equipped with nickel-plated brass cable outlet for cable with diameter 4 to 12.5 mm.

ModuTEMP® 70 - Sensors without fitting

Table 4

	Type	Description			
○	**T1070**	**Resistance temperature sensor without fitting**			
○	**T1570**	**Thermocouple temperature sensor without fitting**			
	Code	**Temperature sensor**			
		Resistance (RTD)	*Sheath material*	*Max. temperature of use*	
○	**04**	**1xPt100, two-wire inside wiring**	**1.4404**	**up to 500 °C**	
○	**06**	**1xPt100, four-wire inside wiring**	**1.4404**	**up to 600 °C**	
	06HT	1xPt100, four-wire inside wiring	Inconel 600	up to 700 °C	- only for code F7
○	**07**	**2xPt100, three-wire inside wiring**	**1.4404**	**up to 600 °C**	
	08	2xPt100, two-wire inside wiring	1.4404	up to 500 °C	
	09	2xPt100, four-wire inside wiring	1.4404	up to 600 °C	
	…VR	Increased resistance to vibration and shock		up to 500 °C	- only for code 06 F2
		Thermocouple (TC)	*Sheath material*	*Measuring range*	
○	**21**	**1x"J" (Fe-CuNi), insulated**	**1.4541**	**-200 to +800 °C**	
○	**61**	**2x"J" (Fe-CuNi), insulated, isolated junctions**	**1.4541**	**-200 to +800 °C**	
○	**22**	**1x"K" (NiCr-NiAl), insulated**	**Inconel 600**	**-200 to +1100 °C**	
○	**62**	**2x"K" (NiCr-NiAl), insulated, isolated junctions**	**Inconel 600**	**-200 to +1100 °C**	
	23	1x"N" (NiCrSi-NiSi), insulated	Inconel 600	-200 to +1100 °C	
	63	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Inconel 600	-200 to +1100 °C	
	22HT	1x"K" (NiCr-NiAl), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	62HT	2x"K" (NiCr-NiAl), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	23HT	1x"N" (NiCrSi-NiSi), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	63HT	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	…U	Grounded version of junction TC			
	99	Other			
	Code	**Accuracy class**	**Inside wiring**	**Measuring range**	
		Resistance (RTD) according to EN 60751			
○	**F1**	**B**	**Cu**	**-50 to +300 °C**	**- not for code 06HT**
○	**F2**	**B**	**Cu**	**-70 to +500 °C**	**- not for code 06HT**
○	**F3**	**B**	**Ni** [1)]	**-200 to +600 °C**	**- only for codes 06, 07 and 09**
○	**F7**	**B**	**Ni** [1)]	**-200 to +700 °C**	**- only for code 06HT**
○	**F4**	**A**	**Cu**	**-30 to +300 °C**	**- only for codes 06, 07 and 09**
○	**F5**	**A**	**Cu**	**-100 to +450 °C**	**- only for codes 06, 07 and 09**
	F9	Other			
		Thermocouple (TC) according to EN 60584-1			
○	**T7**	**2**			
○	**T6**	**1**			
	T9	Other			
	Code	**Fitting of the sensor**			
○	**B00**	**Without fitting**			
○	**B01**	**Without fitting, with SST thermometer holder for wallmounting** [2)]			
	B99	Other without fitting			
	Code	**Nominal length L [mm]**			
○	**L115**	**115**			
○	**L175**	**175**			
○	**L245**	**245**			
○	**L305**	**305**			
○	**L335**	**335**			
○	**L395**	**395**			
○	**L500**	**500**			
○	**L545**	**545**			
○	**L710**	**710**			
○	**L775**	**775**			
○	**L800**	**800**			
○	**L1000**	**1000**			
	L1400	1400			
	L2000	2000			
	L ….	Other (please fill nominal length in mm)			
	Code	**Head**			
○	**H1**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H2**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H3**	**Al alloy, with high cap for mounting of transmitter with Ø 44 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H4N**	**Al alloy, with low cap, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H4**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H5N**	**Al alloy, with low cap, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 m, IP 65**			
○	**H5**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 mm, IP 65**			
○	**H5PA**	**Polyamide, with high cap for mounting of transmitter with Ø 62 mm, Tmax 80 °C, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H6**	**Al alloy, ground clamps, thread for cable outlet M20x1.5, IP 68**			
○	**H7**	**Stainless steel, ground clamps, thread for cable outlet M20x1.5, IP 68**			
	…D	Double cable outlet	- only for codes H4, H4N, H5, H5N		
	…W	Sensor head with peephole for display	- only for codes H4 Z1, H4D Z1, H5 Z1E and S2, S3; not for double sensors		
	H9	Other			
	Code	**Cold-end of measuring insert**			
○	**S1**	**With ceramic terminal block (diameter 42 mm) on flange of measuring insert (only for diameter 6 mm (code D3, D5))**			
○	**S2**	**For single sensor, without terminal block, with set for mounting of transmitter on flange of measuring insert (instead of terminal block)**			
○	**S3**	**For single sensor, with mounted selected transmitter on flange of measuring insert (necessary specifications of transmitter)**			
○	**S4**	**For double sensor, without terminal block, with set for mounting of two transmitters (not suitable for H1, H2, H5N, H6 and H7)**			
○	**S5**	**With ceramic terminal block (diameter 42 mm), embedded pins (according to NAMUR)**			
	S9	Other			
	Code	**Measuring insert diameter [mm]**			
○	**D1**	**Ø 3**			
○	**D2**	**Ø 4.5 (only for TC)**			
○	**D3**	**Ø 6**			
○	**D5**	**Ø 6 with distance sleeve Ø 8**			
	D9	Other			

	Code	OPTIONAL ACCESSORIES Versions for explosive atmosphere of gasses or dusts	
○	**EI**	**(Ex) II 1/2G Ex ia IIC T6...Tx°C Ga/Gb (Ex) II 1D Ex ia IIIC T85°C…Tx°C Da**	**- only for version with heads codes H5, H5N, H6, H7**
	Code	**Indication units**	
	Z1	LED display mounted in sensor head (only for code H4(D)W and S2, S3; operating temperature -20 to +80 °C)	
	Z1E	Intrinsically safe LED display in sensor head (Ex) II 2G Ex ia IIC T6 (only for codes H5W and S2, S3; operating temperature -20 to +80 °C)	
	Code	**Cable outlet** [3]	
•	**KM1**	**Cable outlet, nickel-plated brass, IP 68, M20x1.5, for cable Ø 5 to 10 mm (standard for H6, H7)**	
	KM4	Cable outlet, stainless steel, IP 68, M20x1.5, for cable ∅ 7 to 12 mm	
•	**KME1**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 4.5 to 8.5 mm**	
•	**KME2**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 7 to 12 mm**	
	KME3	Cable outlet, stainless steel, Ex d, M20x1.5, IP 68, for fixed assembly cable ∅ 4 to 8 mm	
	KME5	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 5 to 9 mm, operating temperature -20 to +95 °C (not for H5PA)	
	KME6	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 6.5 to 12 mm, operating temperature -20 to +95 °C (not for H5PA)	
	KM9	Other	
•	**PK1**	**Lock anti pull-up cable for Ex d cable outlet KME1**	
•	**PK2**	**Lock anti pull-up cable for Ex d cable outlet KME2**	
	Code	**Holder, snap lock**	
•	**DH1**	**Holder for wallmounting (optional only for code B00 with head H1, H2, H3)**	
•	**RU**	**Snap lock**	**- only with codes H2, H4, H4N, H5, H5N**
	Code	**Calibration in customer defined points, including certificate of calibration**	
○	**KTE31A**	**Resistance temperature sensor calibration in three points in range -40 to +660 °C**	
○	**KTE51A**	**Resistance temperature sensor calibration in five points in range -40 to +660 °C**	
○	**KTE32AA**	**Thermocouple temperature sensor calibration in three points in range -40 to +660 °C**	
○	**KTE52AA**	**Thermocouple temperature sensor calibration in five points in range -40 to +660 °C**	
○	**KTE32AB**	**Thermocouple temperature sensor calibration in three points in range -40 to +1100 °C**	
○	**KTE52AB**	**Thermocouple temperature sensor calibration in five points in range -40 to +1100 °C**	
○	**KTE32B**	**Thermocouple temperature sensor calibration in three points in range +400 to +1300 °C**	
○	**KTE52B**	**Thermocouple temperature sensor calibration in five points in range +400 to +1300 °C**	
	KTE9	Other	
	Code	**Extended warranty**	
○	**WE36**	**Product warranty 36 months**	**- not for code VR**
	WE..	Other (the number of months must be added to the code)	- not for code VR
	Code	**Accessories**	
•	**BZS**	**Stainless steel tag for attachment (70x15 mm) with laser description according to the order**	
•	**PPZ**	**Laser description of sensor according to the order**	
	Code [4]	**Fixing shift pipe unions**	
•	**UPS3M12**	**Fixing shift pipe union for diameter 3 mm, connecting thread M12x1.5 (see data sheet No. 0126)**	
•	**UPS4,5M12**	**Fixing shift pipe union for diameter 4.5 mm, connecting thread M12x1.5 (see data sheet No. 0126)**	
•	**UPS6M20**	**Fixing shift pipe union for diameter 6 mm, connecting thread M20x1.5 (see data sheet No. 0126)**	
	Code	**Transmitters for headmounting**	
•	**P5310 H10**	**Transmitter with LHP protocol (see data sheet No. 0824)**	
○	**P5310EN2 H10**	**Transmitter with LHP protocol, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**	
•	**P5311 H10**	**Transmitter with LHP protocol with galvanic isolation (see data sheet No. 0824)**	
○	**P5311EN2 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**	
○	**P5311EI1 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC T106°C Da (see data sheet No. 0824)**	
•	**P5315 H10**	**Precision transmitter with LHP protocol with galvanic isolation (see data sheet No. 2098)**	
	P5315EN2 H10	Precision transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 2098)	
•	**P5320 H10**	**Precision transmitter with HART protocol with galvanic isolation (see data sheet No. 0825)**	
•	**P5320EN2 H10**	**Precision transmitter with HART protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 0825)**	
	P5320EI1 H10	Precision transmitter with HART protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC Txx°C Da (see data sheet No. 0825)	
		Example of order: T1070 04 F2 B00 L175 H3 S1 D3 KTE31A (-40, 200, 500 °C)	

	Typ	Fixing shift pipe union for sheath temperature sensor Description			
•	**P**	**Fixing shift pipe union for sheath temperature sensor**			
	Code	**Version**		**T_{MAX}**	**p_{MAX}**
•	**S** [5]	**With stainless steel cutting ring, pipe union of stainless steel material**		**600 °C / 0.1 MPa**	**4 MPa / 100 °C**
•	**T** [6]	**With PTFE sealing ring, pipe union of stainless steel material**		**200 °C / 0.1 MPa**	**0.6 MPa / 100 °C**
	Code	**Connection thread Z**			
•	**M01**	**M8x1**	**- only for sensors with diameter sheath 3 mm**		
•	**M02**	**M12x1.5**	**- only for sensors with diameter sheath 3 to 6 mm**		
	M03	M16x1.5	- only for sensors with diameter sheath 3 to 6 mm		
•	**M04**	**M20x1.5**	**- only for sensors with diameter sheath 3 to 6 mm**		
•	**G01**	**G1/8"**	**- only for sensors with diameter sheath 3 mm**		
•	**G02**	**G1/4"**	**- only for sensors with diameter sheath 3 to 6 mm**		
•	**G03**	**G3/8"**	**- only for sensors with diameter sheath 3 to 6 mm**		
•	**G04**	**G1/2"**	**- only for sensors with diameter sheath 3 to 6 mm**		
	N01	1/8" NPT	- only for sensors with diameter sheath 3 mm		
	N02	1/4" NPT	- only for sensors with diameter sheath 3 to 6 mm		
	N03	3/8" NPT	- only for sensors with diameter sheath 3 to 6 mm		
	N04	1/2" NPT	- only for sensors with diameter sheath 3 to 6 mm		
	Code	**Outer diameter of stem sensor**			
•	**D30**	**3 mm**			
	D45	4,5 mm			
•	**D60**	**6 mm**			
		Example of order: PS M04 D30			

• ... Ex stock version ° ... Marked version can be dispatched up to 5 working days (with calibration up to two weeks)

[1] … Not allowable to use two-wire connection because of nickel inner wiring.

[2] … Standard for heads H4, H5.., H6 and H7; it is possible to use for heads H1, H2 and H3, but the version B00 with holder DH1 is cheaper.

[3] ... The heads H1, H2, H3, H4, H4N, H5, H5N are usually equipped with nickel-plated brass cable outlet for cable with diameter 4 to 12.5 mm.

[4] … It is suitable only for non-flowing gas medium, free of mechanical stress including impacts and vibrations, where adjustable nominal length is required and it is impossible to use fixing pipe unions PT because of high temperature.

[5] … Adjustable nominal length only for first time of mounting.

[6] … Always adjustable nominal length.

ModuTEMP® 70 - Straight sensors

Table 5

	Type	Description			
○	**T1070**	**Straight resistance temperature sensor**			
○	**T1570**	**Straight thermocouple temperature sensor**			
	Code	**Temperature sensor**			
		Resistance (RTD)	*Sheath material*	*Max. temperature of use*	
○	**04**	**1xPt100, two-wire inside wiring**	**1.4404**	**up to 500 °C**	
○	**06**	**1xPt100, four-wire inside wiring**	**1.4404**	**up to 600 °C**	
	06HT	1xPt100, four-wire inside wiring	Inconel 600	up to 700 °C	- only for code F7
○	**07**	**2xPt100, three-wire inside wiring**	**1.4404**	**up to 600 °C**	
	08	2xPt100, two-wire inside wiring	1.4404	up to 500 °C	
	09	2xPt100, four-wire inside wiring	1.4404	up to 600 °C	
	…VR	Increased resistance to vibration and shock		up to 500 °C	- only for code 06 F2
		Thermocouple (TC)	*Sheath material*	*Measuring range*	
○	**21**	**1x"J" (Fe-CuNi), insulated**	**1.4541**	**-200 to +800 °C**	
○	**61**	**2x"J" (Fe-CuNi), insulated, isolated junctions**	**1.4541**	**-200 to +800 °C**	
○	**22**	**1x"K" (NiCr-NiAl), insulated**	**Inconel 600**	**-200 to +1100 °C**	
○	**62**	**2x"K" (NiCr-NiAl), insulated, isolated junctions**	**Inconel 600**	**-200 to +1100 °C**	
	23	1x"N" (NiCrSi-NiSi), insulated	Inconel 600	-200 to +1100 °C	
	63	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Inconel 600	-200 to +1100 °C	
	22HT	1x"K" (NiCr-NiAl), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	62HT	2x"K" (NiCr-NiAl), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	23HT	1x"N" (NiCrSi-NiSi), insulated	Nicrobell/Pyrosil	-200 to +1300 °C	
	63HT	2x"N" (NiCrSi-NiSi), insulated, isolated junctions	Nicrobell/Pyrosil	-200 to +1300 °C	
	…U	Grounded version of junction TC			
	99	Other			
	Code	**Accuracy class**	**Inside wiring material**	**Measuring range**	
		Resistance (RTD) according to EN 60751			
○	**F1**	**B**	**Cu**	**-50 to +300 °C**	**- not for code 06HT**
○	**F2**	**B**	**Cu**	**-70 to +500 °C**	**- not for code 06HT**
○	**F3**	**B**	**Ni** [1)]	**-200 to +600 °C**	**- only for codes 06, 07 and 09**
○	**F7**	**B**	**Ni** [1)]	**-200 to +700 °C**	**- only for code 06HT**
○	**F4**	**A**	**Cu**	**-30 to +300 °C**	**- only for codes 06, 07 and 09**
○	**F5**	**A**	**Cu**	**-100 to +450 °C**	**- only for codes 06, 07 and 09**
	F9	Other			
		Thermocouple (TC) according to EN 60584-1			
○	**T7**	**2**			
○	**T6**	**1**			
	T9	Other			
	Code	**Fitting of the sensor: straight sensor with protective tube**	**Fitting material**	**T_{MAX}**	
○	**B53**	**Ø 11 x 2 mm**	**1.4541**	**up to 800 °C**	
○	**B63**	**Ø 14 x 2.5 mm**	**1.4541**	**up to 800 °C**	
○	**B64**	**Ø 14 x 2.5 mm**	**1.4845**	**up to 1100 °C**	
○	**B66**	**Ø 15 x 1.3 mm**	**Kanthal AF**	**up to 1300 °C**	- only for code ..HT, H4.., H5..
○	**B73**	**Ø 20 x 3 mm**	**1.4541**	**up to 800 °C**	
○	**B74**	**Ø 20 x 3 mm**	**1.4845**	**up to 1100 °C**	
○	**B83**	**Ø 22 x 2 mm**	**1.4541**	**up to 800 °C**	
○	**B84**	**Ø 22 x 2 mm**	**1.4845**	**up to 1100 °C**	
○	**B85**	**Ø 22 x 2 mm**	**1.4762**	**up to 1100 °C**	
○	**B86**	**Ø 22 x 1.3 mm**	**Kanthal AF**	**up to 1300 °C**	- only for code ..HT
	. . . C	Inner ceramic protective tube ∅ 15 mm of C610 (only for tubes 22x2 mm and 22x1.3 mm and heads HA, HAN, not for S8)			
○	**B84Z**	**Ø 22 x 3.5**	**1.4845**	**up to 1100 °C**	
	B842	∅ 22 x 7.5 mm in length 200 mm, then 22 x 2 mm	1.4845	up to 1100 °C	
	B843	∅ 22 x 7.5 mm in length 300 mm, then 22 x 2 mm	1.4845	up to 1100 °C	
	B852	∅ 22 x 7.5 mm in length 200 mm, then 22 x 2 mm	1.4762	up to 1100 °C	
	B853	∅ 22 x 7.5 mm in length 300 mm, then 22 x 2 mm	1.4762	up to 1100 °C	
	B99	Other straight			
	Code	**Nominal length L [mm]**			
○	**L180**	**180**			
○	**L250**	**250**			
○	**L310**	**310**			
○	**L400**	**400**			
○	**L500**	**500**			
○	**L600**	**600**			
○	**L710**	**710**			
○	**L800**	**800**			
○	**L1000**	**1000**			
	L1200	1200			
	L1400	1400			
	L1600	1600			
	L2000	2000			
	L ….	Other (please fill nominal length in mm)			
	Code	**Head**			
○	**H1**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H2**	**Al alloy, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H3**	**Al alloy, with high cap for mounting of transmitter with Ø 44 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H4N**	**Al alloy, with low cap, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H4**	**Al alloy, with high cap for mounting of transmitter with Ø 62 mm, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H5N**	**Al alloy, with low cap, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 m, IP 65**			
○	**H5**	**Al alloy, with high cap for mounting of transmitter with ∅ 62 mm, ground clamps, cable outlet M20x1.5 for cable Ø 5 to 10 mm, IP 65**			
○	**H5PA**	**Polyamide, with high cap for mounting of transmitter with Ø 62 mm, Tmax 80 °C, cable outlet M20x1.5 for cable Ø 4 to 12.5 mm, IP 65**			
○	**H6**	**Al alloy, ground clamps, thread for cable outlet M20x1.5, IP 68**			
○	**H7**	**Stainless steel, ground clamps, thread for cable outlet M20x1.5, IP 68**			
○	**HAN**	**type A, Al alloy, with low cap, cable outlet M20x1.5, IP 53**			**- only for B8x**
○	**HA**	**type A, Al alloy, with high cap for mounting of transmitter with Ø 62 mm, cable outlet M20x1.5, IP 53**			**- only for B8x**
	…D	Double cable outlet	- only for codes H4, H4N, H5, H5N, HA, HAN		
	…W	Sensor head with peephole for display	- only for codes H4 Z1, H4D Z1, H5 Z1E and S2, S3; not for double sensors		
	H9	Other			

	Code	Cold-end of measuring insert	
°	**S1**	**With ceramic terminal block (diameter 42 mm) on flange of measuring insert**	
°	**S2**	**For single sensor, without terminal block, with set for mounting of transmitter on flange of measuring insert (instead of terminal block)**	
°	**S3**	**For single sensor, with mounted selected transmitter on flange of measuring insert (necessary specifications of transmitter)**	
°	**S4**	**For double sensor, without terminal block, with set for mounting of two transmitters (not suitable for H1, H2, H5N, H6 and H7)**	
°	**S5**	**With ceramic terminal block (diameter 42 mm), embedded pins (according to NAMUR)**	
	S8	With ceramic terminal block (diameter 55 mm), with hole for insertion of control sensor	- only for HA, HAN
	S9	Other	
		OPTIONAL ACCESSORIES	
	Code	**Versions for explosive atmosphere of gasses or dusts**	
		Flameproof enclosure "Ex d" only for gasses and protection by enclosure "Ex t" only for dusts, intrinsically safe version "Ex i" for gasses and dusts	
°	**ED/ET**	**(Ex) II 1/2G Ex da/db IIC T6...Tx°C Ga/Gb** **(Ex) II 1/2D Ex ta/tb IIIC T90°C…Tx°C Da/Db**	**- only for version with heads codes H6, H7**
°	**EI**	**(Ex) II 1/2G Ex ia IIC T6...Tx°C Ga/Gb** **(Ex) II 1D Ex ia IIIC T85°C…Tx°C Da**	**- only for version with heads codes H5, H5N, H6, H7**
	Code	**Protective spray**	**T_{MAX} (with spray)**
	X01	Polyamide PA 11	100 °C (depends on measured medium)
	X02	E-CTFE "Halar"	170 °C (depends on measured medium)
	X03	PFA	260 °C (depends on measured medium)
	X04	ETFE "Hyflon"	130 °C (depends on measured medium)
	X05	PTFE	260 °C (depends on measured medium)
	X07	Hard metal coating (Fe-Cr-Mn-Si-B-C) for abrasive medium	925 °C
	X08	Corundum spray for intense abrasive medium	according to specific composition of coating
	X99	Other	
	Code	**Indication units**	
	Z1	LED display mounted in sensor head (only for code H4(D)W and S2, S3; operating temperature -20 to +80 °C)	
	Z1E	Intrinsically safe LED display in sensor head (Ex) II 2G Ex ia IIC T6 (only for codes H5W and S2, S3; operating temperature -20 to +80 °C)	
	Code	**Cable outlet** [2]	
•	**KM1**	**Cable outlet, nickel-plated brass, IP 68, M20x1.5, for cable Ø 5 to 10 mm (standard for H6, H7)**	
	KM4	Cable outlet, stainless steel, IP 68, M20x1.5, for cable ∅ 7 to 12 mm	
•	**KME1**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 4.5 to 8.5 mm**	
•	**KME2**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable Ø 7 to 12 mm**	
	KME3	Cable outlet, stainless steel, Ex d, M20x1.5, IP 68, for fixed assembly cable ∅ 4 to 8 mm	
	KME5	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 5 to 9 mm, operating temperature -20 to +95 °C (not for H5PA)	
	KME6	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 6.5 to 12 mm, operating temperature -20 to +95 °C (not for H5PA)	
	KM9	Other	
•	**PK1**	**Lock anti pull-up cable for Ex d cable outlet KME1**	
•	**PK2**	**Lock anti pull-up cable for Ex d cable outlet KME2**	
	Code	**Snap lock**	
•	**RU**	**Snap lock**	**- only for codes H2, H4, H4N, H5, H5N, HA, HAN**
	Code	**Calibration in customer defined points, including certificate of calibration**	
°	**KTE31A**	**Resistance temperature sensor calibration in three points in range -40 to +660 °C**	
°	**KTE51A**	**Resistance temperature sensor calibration in five points in range -40 to +660 °C**	
°	**KTE32AB**	**Thermocouple temperature sensor calibration in three points in range -40 to +1100 °C**	
°	**KTE52AB**	**Thermocouple temperature sensor calibration in five points in range -40 to +1100 °C**	
°	**KTE32B**	**Thermocouple temperature sensor calibration in three points in range +400 to +1300 °C**	
°	**KTE52B**	**Thermocouple temperature sensor calibration in five points in range +400 to +1300 °C**	
	KTE9	Other	
	Code	**Extended warranty**	
°	**WE36**	**Product warranty 36 months**	**- not for code VR**
	WE..	Other (the number of months must be added to the code)	- not for code VR
	Code	**Accessories**	
•	**BZS**	**Stainless steel tag for attachment (70x15 mm) with laser description according to the order**	
•	**PPZ**	**Laser description of sensor according to the order**	
•	**Q1**	**Material certificate according to EN 10204, 3.1**	
	Code [3]	**Fixing shift pipe unions and flanges**	
•	**UPS11M20**	**Fixing shift pipe union for diameter 11 mm, connecting thread M20x1,5 (see data sheet No. 0126)**	
•	**UPS14M27**	**Fixing shift pipe union for diameter 14 mm, connecting thread M27x2 (see data sheet No. 0126)**	
•	**UPS15M27**	**Fixing shift pipe union for diameter 15 mm, connecting thread M27x2 (see data sheet No. 0126)**	
•	**UPS20M30**	**Fixing shift pipe union for diameter 20 mm, connecting thread M30x2 (see data sheet No. 0126)**	
•	**UPS22M33**	**Fixing shift pipe union for diameter 22 mm, connecting thread M33x2 (see data sheet No. 0126)**	
•	**UP01**	**Fixing shift flange for diameter 14 mm (see data sheet No. 0126)**	
•	**UP02**	**Fixing shift flange for diameter 15 mm (see data sheet No. 0126)**	
•	**UP03**	**Fixing shift flange for diameter 22 mm (see data sheet No. 0126)**	
	P9	Other	
	Code	**Transmitters for headmounting**	
•	**P5310 H10**	**Transmitter with LHP protocol (see data sheet No. 0824)**	
°	**P5310EN2 H10**	**Transmitter with LHP protocol, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**	
•	**P5311 H10**	**Transmitter with LHP protocol with galvanic isolation (see data sheet No. 0824)**	
°	**P5311EN2 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**	
°	**P5311EI1 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC T106°C Da (see data sheet No. 0824)**	
•	**P5315 H10**	**Precision transmitter with LHP protocol with galvanic isolation (see data sheet No. 2098)**	
	P5315EN2 H10	Precision transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 2098)	
•	**P5320 H10**	**Precision transmitter with HART protocol with galvanic isolation (see data sheet No. 0825)**	
•	**P5320EN2 H10**	**Precision transmitter with HART protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 0825)**	
	P5320EI1 H10	Precision transmitter with HART protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC Txx°C Da (see data sheet No. 0825)	
		Example of order: T1070 04 F2 B53 L310 H3 S1 KTE31A (-40, 200, 500 °C)	

• ... Ex stock version ° ... Marked version can be dispatched up to 5 working days (with calibration up to two weeks)

[1] … Not allowable to use two-wire connection because of nickel inner wiring.

[2] ... The heads H1, H2, H3, H4, H4N, H5, H5N are usually equipped with nickel-plated brass cable outlet for cable with diameter 4 to 12.5 mm.

[3] … It is suitable only for non-flowing gas medium, free of mechanical stress including impacts and vibrations, where adjustable nominal length is required and it is impossible to use fixing pipe unions PT because of high temperature.

ModuTEMP® 70 - Spatial sensors for explosive atmosphere of gasses or dusts

Table 6

	Type	Description		
○	**T1070**	**Spatial resistance temperature sensor for explosive atmosphere**		
	Code	**Temperature sensor**		
		Resistance (RTD)	*Sheath material*	
○	**04**	**1xPt100, two-wire inside wiring**	**1.4404**	
○	**06** [1]	**1xPt100, four-wire inside wiring**	**1.4404**	
○	**07** [1]	**2xPt100, three-wire inside wiring**	**1.4404**	
	08	2xPt100, two-wire inside wiring	**1.4404**	
	99	Other		
	Code	**Accuracy class**	**Inside wiring material**	**Measuring range**
		Resistance (RTD) according to EN 60751		
○	**F1**	**B**	**Cu**	**-50 to +100 °C (85 °C for code ED)**
○	**F4**	**A**	**Cu**	**-30 to +100 °C (85 °C for code ED)**
	F9	Other		
	Code	**Fitting of the sensor**		
○	**P1E**	**Spatial for explosive atmosphere**		
	Code	**Nominal lenght L [mm]**		
○	**L75**	**75**		
	Code	**Head**		
○	**H5N**	**Al alloy, with low cap, ground clamps, cable outlet M20x1.5 for cable ∅ 5 to 10 m, IP 65**		
○	**H5**	**Al alloy, with high cap for mounting of transmitter with ∅ 62 mm, ground clamps, cable outlet M20x1.5 for cable ∅ 5 to 10 mm, IP 65**		
○	**H6**	**Al alloy, ground clamps, thread for cable outlet M20x1.5, IP 68**		
○	**H7**	**Stainless steel, ground clamps, thread for cable outlet M20x1.5, IP 68**		
	…D	Double cable outlet	- only for codes H5, H5N	
	…W	Sensor head with peephole for display	- only for codes H5 Z1E and S2, S3; not for double sensors	
	H9	Other		
	Code	**Cold-end of measuring insert**		
○	**S1**	**With ceramic terminal block (diameter 42 mm) on flange of measuring insert**		
○	**S2**	**For single sensor, without terminal block, with set for mounting of transmitter on flange of measuring insert (instead of terminal block)**		
○	**S3**	**For single sensor, with mounted selected transmitter on flange of measuring insert (necessary specifications of transmitter)**		
○	**S4**	**For double sensor, without terminal block, with set for mounting of two transmitters (not suitable for H5N, H6 and H7)**		
○	**S5**	**With ceramic terminal block (diameter 42 mm), embedded pins (according to NAMUR)**		
	S9	Other		
	Code	**Measuring insert diameter [mm]**		
	D1	∅ 3		
○	**D3**	**∅ 6 (standard)**		
	Code	**Versions for explosive atmosphere of gasses or dusts**		
		Flameproof enclosure "Ex d" only for gasses and protection by enclosure "Ex t" only for dusts, intrinsically safe version "Ex i" for gasses and dusts		
○	**ED/ET**	**(Ex) II 2G Ex db IIC T5/T6 Gb** **(Ex) II 2D Ex tb IIIC T90°C Db**	**- only for version with heads codes H6, H7**	
○	**EI**	**(Ex) II 2G Ex ia IIC T6...Tx°C Gb** **(Ex) II 1D Ex ia IIIC T85°C…Tx°C Da**		
		OPTIONAL ACCESSORIES		
	Code	**Indication units**		
	Z1E	Intrinsically safe LED display in sensor head (Ex) II 2G Ex ia IIC T6 (only for codes H5W and S2, S3; operating temperature -20 to +80 °C)		
	Code	**Cable outlet** [2]		
•	**KME1**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable ∅ 4.5 to 8.5 mm**		
•	**KME2**	**Cable outlet, nickel-plated brass, Ex d, M20x1.5, IP 68, for fixed assembly cable ∅ 7 to 12 mm**		
	KME3	Cable outlet, stainless steel, Ex d, M20x1.5, IP 68, for fixed assembly cable ∅ 4 to 8 mm		
	KME5	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 5 to 9 mm, operating temperature -20 to +95 °C (not for ED)		
	KME6	Cable outlet, polyamide (light blue), Ex e, M20x1.5, IP 68, for fixed assembly cable ∅ 6.5 to 12 mm, operating temperature -20 to +95 °C (not for ED)		
	KM9	Other		
•	**PK1**	**Lock anti pull-up cable for Ex d cable outlet KME1**		
•	**PK2**	**Lock anti pull-up cable for Ex d cable outlet KME2**		
	Code	**Snap lock**		
•	**RU**	**Snap lock**	**- only with codes H5, H5N**	
	Code	**Calibration in customer defined points, including certificate of calibration**		
○	**KTE31A**	**Resistance temperature sensor calibration in three points in range -20 to +100 °C**		
○	**KTE41A**	**Resistance temperature sensor calibration in four points in range -20 to +100 °C**		
○	**KTE51A**	**Resistance temperature sensor calibration in five points in range -20 to +100 °C**		
	KTE9	Other		
	Code	**Accessories**		
•	**BZS**	**Stainless steel tag for attachment (70x15 mm) with laser description according to the order**		
•	**PPZ**	**Laser description of sensor according to the order**		
	Code	**Transmitters for headmounting**		
•	**P5310 H10**	**Transmitter with LHP protocol (see data sheet No. 0824)**		
○	**P5310EN2 H10**	**Transmitter with LHP protocol, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**		
•	**P5311 H10**	**Transmitter with LHP protocol with galvanic isolation (see data sheet No. 0824)**		
○	**P5311EN2 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA IIC T4 Gc (see data sheet No. 0824)**		
○	**P5311EI1 H10**	**Transmitter with LHP protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC T106°C Da (see data sheet No. 0824)**		
•	**P5315 H10**	**Precision transmitter with LHP protocol with galvanic isolation (see data sheet No. 2098)**		
	P5315EN2 H10	Precision transmitter with LHP protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 2098)		
•	**P5320 H10**	**Precision transmitter with HART protocol with galvanic isolation (see data sheet No. 0825)**		
•	**P5320EN2 H10**	**Precision transmitter with HART protocol with galvanic isolation, (Ex) II 3G Ex nA [ic] IIC T4 Gc (see data sheet No. 0825)**		
	P5320EI1 H10	Precision transmitter with HART protocol with galvanic isolation, (Ex) II 1G Ex ia IIC T4-T6 Ga, (Ex) II 1D Ex ia IIIC Txx°C Da (see data sheet No. 0825)		

Example of order: T1070 04 F2 P1E L75 H5 S1 D3 KTE31A (-40, 50, 100 °C)

• ... Ex stock version ° ... Marked version can be dispatched up to 5 working days (with calibration up to two weeks)

[1] … Not allowable to use two-wire connection because of nickel inner wiring.

[2] ... The heads H5, H5N are usually equipped with nickel-plated brass cable outlet for cable with diameter 4 to 12.5 mm.