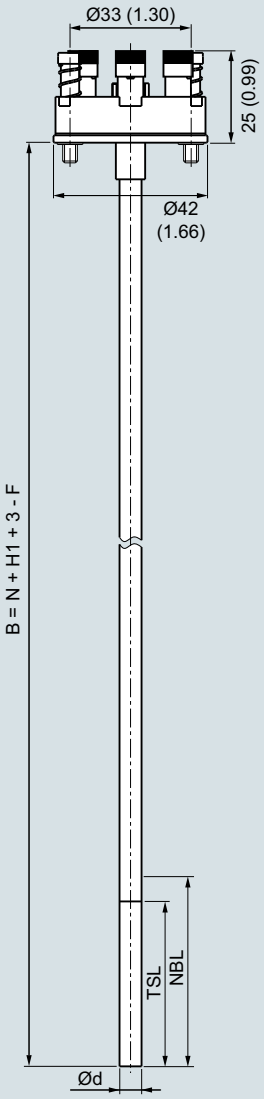
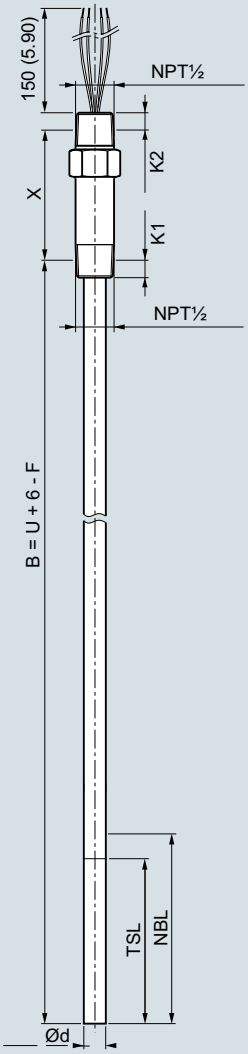
Measuring inserts for retrofitting and upgrading - European and American type

Dimensional drawings

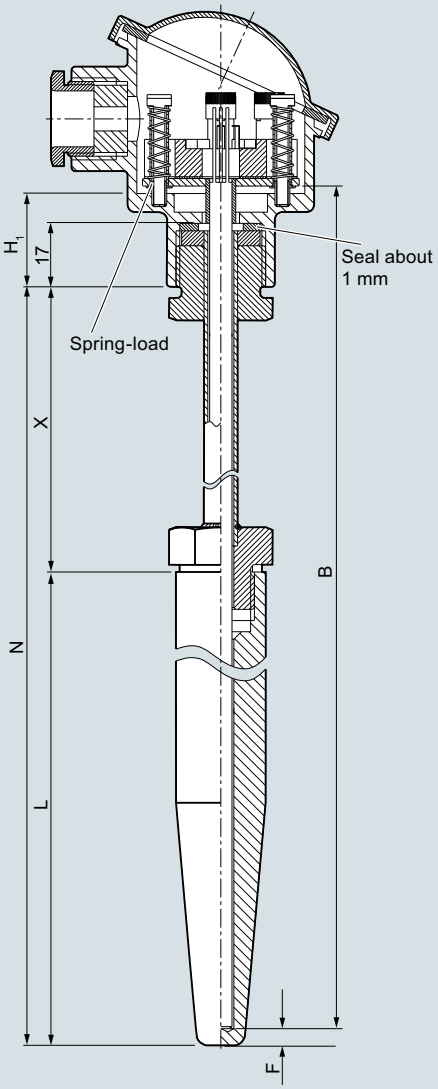
European type



American type



Determination of the measuring insert length



B	Measuring insert length	K1	Screw depth
Ød	Measuring insert outer diameter	K2	Screw depth
N	Nominal length	L/U	Thermowell length U for Form 2*/ 3*/ 4F L for Form 4
NBL	Non-bending length	H_1	Type Axx = 41 (1.61) Type Bxx = 26 (1.02)
TSL	Temperature-sensitive length		
F	Floor strength Type 2: 3 (0.12) Type 3: 6 (0.24) Type 4: 4 (0.16) ASME types: 6.4 (0.25); round down to 6 (0.24)		
X	Extension length		

Recommended spring-load:
European versions with ceramic base = 3 (0.12)
European versions with transmitter = 1 (0.04)
American versions: 6.4 (0.25); round down to 6 (0.24)

Example calculations

European measuring insert (with ceramic base)
Connection head BC0, Thermowell Form 2F, U = 225 mm, X = 64
B = U + X + H1 + 3 – F
B = 225 + 64 + 26 + 3 – 3 = 315

American measuring insert
Connection head AG0, Thermowell Form 4, L = 200 mm
B = L + 6 - F
B = 200 + 6 – 4 = 202

For the NTP thread, please take tolerances into consideration and select a shorter sensor or use PTFE tape for mounting, for example: -3 (0.12).

SITRANS TSinsert measuring inserts for temperature sensors, replaceable, mineral-insulated design
European type (DIN ceramic base), spring load approx. 6 mm (0.24 inch)/3 mm (0.12 inch) with transmitter
American type, spring load approx. 21 mm (0.83 inch); determination of measuring insert length, dimensions in mm (inch);
Cold End types: see drawings on page 2/102

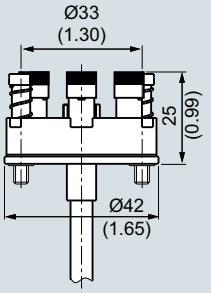
Selection and Ordering data	Article No.
SITRANS TSinsert for temperature sensors, replaceable, mineral-insulated design, European or American type	**7MC701** ■ - ■■■■■■
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Measurement tip diameter	
6 mm (0.24 inch)	6
8 mm (0.31 inch) (with sleeve)	8
10 mm (0.39 inch) (with sleeve)	0
Type	
European type - DIN ceramic base	1
European type - DIN flying leads, absolutely necessary with built-on transmitter	2
American type - ANSI (nipple spring)	5
Sensor[1)]	
Please note: The accuracy class range can be lower than the measuring range. For more information, see page 2/21	
Pt100, basis, -50 ... +400 °C (-58 ... +752 °F)	A
Pt100, vibration-resistant, -50 ... +400 °C (-58 ... +752 °F)	B
Pt100, expanded range, Umin = 100 mm -196 ... +600 °C (-321 ... +1 112 °F)	C
Thermocouple Type J, -40 ... +750 °C (-40 ... +1 382 °F)	J
Thermocouple Type K, -40 .. . +1 000 °C (-40 ... +1 832 °F)	K
Thermocouple Type N, -40 ... +1 000 °C (-40 ... +1 832 °F)	N
Sensor number/Accuracy	
Pt 100 connection: 1 x 4-wire connection or 2 x 3-wire connection, see "Measuring technology: connection types" page 2/23	
Single, basic accuracy (Class 2/Class B)	A
Single, increased accuracy (Class 1/Class A)	B
Single, highest accuracy (Class AA)	C
Double, basic accuracy (Class 2/Class B)	D
Double, increased accuracy (Class 1/Class A)	E
Double, highest accuracy (Class AA)	F
Measuring insert length B, standard	
145 mm (6.89 inch)	1 3
205 mm (8.07 inch)	1 7
275 mm (10.83 inch)	2 1
315 mm (12.40 inch)	2 3
345 mm (13.58 inch)	2 4
375 mm (14.76 inch)	2 5
405 mm (15.94 inch)	2 7
435 mm (17.13 inch)	2 0
555 mm (21.85 inch)	3 5
585 mm (23.03 inch)	3 6

Selection and Ordering data	Article No.
SITRANS TSinsert for temperature sensors, replaceable, mineral-insulated design, European or American type	**7MC701** ■ - ■■■■■■
Measuring insert length B, customer-specific	
specify length with Y44, s. page 2/93	
85 ... 100 mm (3.37 ... 3.94 inch) Initial: 100 mm (3.94 inch)	1 1
101 ... 150 mm (3.98 ... 5.91 inch) Initial: 145 mm (5.71 inch)	1 3
151 … 200 mm (5.95 ... 7.87 inch) Initial: 200 mm (7.87 inch)	1 5
201 … 250 mm (7.91 ... 9.84 inch) Initial: 205 mm (8.07 inch)	1 7
251 … 300 mm (9.88 ... 11.81 inch) Initial: 275 mm (10.83 inch)	2 1
301 … 350 mm (11.85 ... 13.78 inch) Initial: 315 mm (12.40 inch)	2 3
351 … 400 mm (13.82 ... 15.75 inch) Initial: 375 mm (14.76 inch)	2 5
401 … 450 mm (15.79 ... 17.72 inch) Initial: 405 mm (15.94 inch)	2 7
451 … 500 mm (17.76 ... 19.68 inch) Initial: 500 mm (19.68 inch)	3 1
501 … 550 mm (19.72 ... 21.65 inch) Initial: 525 mm (20.67 inch)	3 3
551 … 600 mm (21.69 ... 23.92 inch) Initial: 555 mm (21.85 inch)	3 5
601 … 700 mm (23.66 ... 27.56 inch) Initial: 655 mm (25.79 inch)	3 7
701 … 800 mm (27.60 ... 31.50 inch) Initial: 735 mm (28.94 inch)	4 1
801 … 900 mm (31.54 ... 35.43 inch) Initial: 825 mm (32.48 inch)	4 3
901 … 1 000 mm (35.47 ... 39.37 inch) Initial: 950 mm (37.40 inch)	4 5
1 001 … 1 500 mm (39.41 ... 59.05 inch) Initial: 1 250 mm (49.21 inch)	4 7
1 501 … 2 000 mm (59.09 ... 78.74 inch) Initial: 1 700 mm (66.93 inch)	4 8

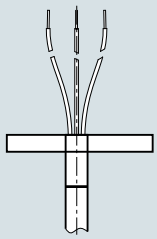
[1)] Pt1000 versions are also available. To find these, please switch to Online Configuration in the PIA Life Cycle Portal: www.siemens.com/pia-portal

Additional configurations on page after next page!

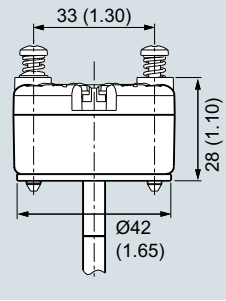
You find ordering examples on page 2/40!



Cold end type, ceramic base, dimensions in mm (inch)



Cold end type, free wire ends, dimensions in mm (inch)



European type:
cold end type, built-on transmitter, dimensions in mm (inch)

Selection and Ordering data	Order code
Further designs	
Add "**-Z**" to Article No. and specify Order code.	
Measuring insert length B Select range, enter desired length in plain text (No entry = standard length)	**Y44**
Options Add "**-Z**" to Article No. and add options, separate extensions with "+".	
Built-in head transmitter Measuring range to be set must be specified with plain text data "Y01".	
SITRANS TH100, input 1 x Pt100, 4 ... 20 mA	**T12**
SITRANS TH320, input 1 x universal, 4 ... 20 mA	**T24**
SITRANS TH320, input 1 x universal, HART	**T34**
SITRANS TH420, input 2 x universal, HART	**T35**
SITRANS TH400, input 1 x universal, PA	**T40**
SITRANS TH400, input 1 x universal, PA, Ex	**T41**
SITRANS TH400, input 1 x universal, FF	**T45**
SITRANS TH400, input 1 x universal, FF, Ex	**T46**
Explosion protection	
Without explosion protection requirements (Europe, Australia, New Zealand)	**E00**
Intrinsic safety "i"/"IS"[1] according to ATEX and IECEx (Europe, Australia, New Zealand)	**E01**
For SITRANS TS500 in flameproof enclosure "d"/"XP type of protection; dust protection through housing "t"/"DIP"[2] according to ATEX and IECEx (Europe, Australia, New Zealand)	**E03**
For SITRANS TS500 in Non-sparking "ec" according to ATEX and IECEx type of protection (Europe, Australia, New Zealand)	**E04**
Without explosion protection requirements (USA, Canada) Basis FM	**E10**
Flameproof enclosure "d"/"XP; dust protection through housing "t"/"DIP"[2] according to cFMus (USA); NPT connections at the enclosure are mandatory	**E13**
Flameproof enclosure "d"/"XP; dust protection through housing "t"/"DIP"[2] according to cFMus (USA, Canada); other connections (M,G,R)	**E14**
Non-sparking "nA"/"NI" according to cFMus (USA, Canada)	**E16**
Without explosion protection requirements (USA, Canada), Basis CSA	**E17**
Intrinsic safety "i"/"IS"[1] according to cCSAus (USA, Canada)	**E18**
For SITRANS TS500 in flameproof enclosure "d"/"XP type of protection; dust protection through housing "t"/"DIP"[2] according to cCSAus (USA, Canada); NPT connections **at the enclosure** are mandatory	**E20**
For SITRANS TS500 in flameproof enclosure "d"/"XP type of protection; dust protection through housing "t"/"DIP"[2] according to cCSAus (USA); other connections (M, G, R)	**E21**
For SITRANS TS500 in non-sparking "nA"/"NI" type of protection according to cCSAus (USA, Canada)	**E23**
Without explosion protection requirements (China)	**E54**
Intrinsic safety "i"/"IS"[1] according to NEPSI (China)	**E55**
For SITRANS TS500 in flameproof enclosure "d" type of protection; dust protection through housing "t"[2] according to NEPSI (China)	**E56**
For SITRANS TS500 in non-sparking "nA"/"NI" type of protection according to NEPSI (China)	**E57**
Without explosion protection requirements (EAC)	**E80**
Intrinsic safety "i"/"IS"[1] according to EACEx (EAC)	**E81**
For SITRANS TS500 in flameproof enclosure "d"/"XP type of protection; dust protection through housing "t"/"DIP"[2] according to EACEx (EAC)	**E82**
For SITRANS TS500 in non-sparking "nA"/"NI" type of protection according to EACEx (EAC)	**E83**

Selection and Ordering data	Order code
Marine approvals	
Det Norske Veritas Germanischer Lloyd (DNV GL)	**D01**
Designation, calibration	
Stainless steel TAG plate , enter lettering in plain text	**Y15**
Plant calibration per 1 point, enter temperature in plain text	**Y33**
Transmitter options	
Transmitter, enter complete setting in plain text (Y01:+/-NNNN ... +/-NNNN C,F)	**Y01**
Enter measuring point (max. 8 characters) in plain text	**Y17**
Transmitter, enter measuring point description (max. 16 characters) in plain text	**Y23**
Transmitter, enter measuring point text (max. 32 characters) in plain text	**Y24**
Transmitter, enter bus address in plain text	**Y25**
Transmitter, fail-safe value 3.6 mA (instead of 22.8 mA)	**U36**
SITRANS TH320/420 transmitter with SIL2/3 certificate	**C20**
Transmitter test protocol (5 points)	**C11**

[1] Please select Ex i version of the optional transmitter.

[2] Only with connection heads code AG0, AH0, AU0, AV0, without cable gland (please select non-Ex version of the optional transmitter).

You find ordering examples on page 2/40.
Accessories, see page 2/251.