





- Thermocouples •
- RTDs •
- **Thermowell & Protection Tubes**
- Sensor Box[™] •
- Transmitters •
- Accessories

	Thermocouples
Style(s)	Description
	Section 1A: Terminal Head Styles - Types J, K, E, T
15	NEMA 4, welded NPT process fitting
21	Welded sheath, no process fitting, with optional head
22	ATEX-approved, explosion-proof, welded NPT process fitting
45	NEMA 4, spring-loaded, NUN hardware
48	Spring loaded hex fitting, NUN hardware, optional head
65	NEMA 4 connection head with flexible armor cable
75	Spring-loaded hex fitting, with optional head
77	Explosion-proof, spring-loaded, NUN hardware
78	Explosion-proof, welded NPT process fitting
82	NEMA 4 connection head with tungsten carbide tip
	ion 1B: Terminal Head Beaded Styles - Types R, S, B, J, K
81N	Primary protection tube only
81B	Dual protection tubes, bushing mounting
81C	Dual protection tubes, collar mounting
81C	Dual protection tubes, flange mounting
80	NEMA 4 head, beaded element
50	Replacement element for J/K beaded thermocouples
51	
51	Replacement element for R,S,B assemblies
02/04/20	Section 1C: Sheath Styles
02/04/28	Sheath with leadwire, stripped ends
03	Sheath with leade and atmor
05/07/69	Sheath with leads and plug
14/74	Sheath with attached plug
23I/23P/24 32	Sheath with leads and NPT process or instrument fitting
	Washer mounting with leads and armor
38	Cutable sheath
41	Mounting lug with leadwire
71	Spring-loaded bayonet cap with armor
	RTD
15	Section 2A: Terminal Head Styles
15	NEMA 4, welded NPT process fitting
21	Welded sheath, no process fitting, with optional head
22	ATEX-approved, explosion-proof, welded NPT process fitting
45	NEMA 4, spring-loaded, NUN hardware
48	Spring loaded hex fitting, NUN hardware, optional head
65	NEMA 4 connection head with flexbile cable
75	Spring-loaded hex fitting, with optional head
77	Explosion-proof, spring-loaded, NUN hardware
78	Explosion-proof, welded NPT process fitting
	Section 2B: Sanitary Process Connection Styles
33	Sanitary process connection with terminal head
58	Sanitary process connection with leadwire
	Section 2C: Sheath Styles
03	Sheath with leadwire and armor
14	Sheath with attached plug
20/28	Sheath with leadwire, stripped ends
23I/23P/24	Sheath with leads and NPT process or instrument fitting
32	Washer mounting with leads and armor

PRODUCT INDEX

RTD (continued)				
Style(s)	Description			
	Section 2C, Continued			
38	Cutable sheath			
39	Weld pad mounting with leadwire			
41	Mounting lug with leadwire			
42	Sheath with protective teflon sleeve			
	Section 2D: Heat Trace Styles			
T14X —	Fixed element with weld pad			
T18X —	Replaceable element with weld pad			
Sec	tion 3: Thermowells and Protection Tubes			
	Bar stock thermowells			
H, S	NPT process connections			
HL, SL	NPT process connections, with lag			
LS	NPT process connections, limited space			
F, FH	Flange connection, welded or ring-type joint			
SW	Socket-weld connection			
SWL	Socket-weld connection, with lag			
WIH	Weld-in connection			
WIHL	Weld-in connection, with lag			
VS	Van Stone flange connection			
	Protection tubes			
CT1	Plain ceramic tube			
СТ2, СТ3	Ceramic tube with hex fitting or nipple			
MT1, MT2	Closed tube, with or without bushing			
MT4	Closed tube, with welded or ring-type flange			
Sp	ecial secondary (outer) protection tubes			
PT2	Outer protection tube, with bushing			
PT3	Outer protection tube, with slip flange			
	Section 4: Sensor Box™			
SB188/SB250	See Sensor Box bulletin			
	Section 5: Transmitters			
UNI5-S	Isolated 4-20 mA output			
UNI5-I	Isolated 4-20 mA output			
UNI5-H	Isolated HART [®] protocol output			
TC2/RTD2	Non-isolated 4-20 mA output			
	Section 6: Accessories			
<u>NEMA 4 & 4X te</u>	erminal heads and blocks			
FM/CSA/ATEX a	approved explosion-proof terminal heads and blocks			
Connection Components (plugs/jacks, compression fittings, spring- loaded fittings, bayonet adaptors)				
Thermocouple and extension wire				



CONNECTION HEAD WITH WELDED NPT PROCESS CONNECTION

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	OPTIONS

SENSOR TYPE

MI – Mineral insulated thermocouple

ASSEMBLY STYLE

15 - Sheath with cast aluminum head and 1/2" NPT welded stainless steel

process connection; head conforms to NEMA 4 requirements; 3/4" NPT conduit connection; ceramic terminal block; gasketed screw cover with stainless steel chain (Note: for spring-loaded assembly, see Style 75 and add optional head)

SHEATH DIAMETER (in inches)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9 3/8 (0.375)

SHEATH MATERIAL

- 2 310 stainless steel (available on diameters 6 & 7, with K or KK calibration)
- 3 316 stainless steel
- $\textbf{5} Inconel^{\circledast} \ 600$

CALIBRATION - Standard limits

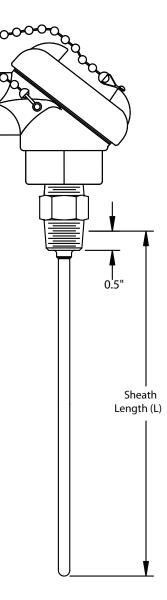
J – Single J	JJ – Dual J

- K Single K KK Dual K
- T Single TTT Dual TE Single EEE Dual E
- Special limits are available consult AST

HOT JUNCTION

- **G** Grounded junction
- $\boldsymbol{\mathsf{U}}$ Ungrounded junction
- E Exposed junction

<u>SHEATH LENGTH</u> (Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order) L# - (e.g., L6 = 6" sheath, L12.5 = 12.5" length)



Process

Connection

1/2"

1/2"

Conduit

Connection

1/2"

3/4″

AVAILABLE OPTION	S and MODIFICATIONS
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NEMA 4 OR 4X TERMINAL HEAD OPTIONS Head with

HD11*

HD13*

internal ground

screw Cast aluminum, screw cover with chain, NEMA 4

Epoxy-coated aluminum, screw cover with chain, NEMA 4X

Head without

ground screw

HD10*

Std.*

ASSEMBLY OPTIO	NS
Option Code	Description
TAG1	Stainless steel tag and wire
PC25	1/4" NPT process connection
PC75	3/4" NPT process connection
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
RB10	Replace terminal block with customer supplied part
RB11	Supply assembly with no terminal block inside head
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections
WC21	Wiring cable gland for $0.125 - 0.187$ diameter cables, for terminal heads with $1/2''$ NPT conduit connections
TRANSMITTERS -	For complete specs, see Transmitters section
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200°C) and optional terminal head with *.
TR12	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, iso- lated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.
UNION CONNECT	OR (converts male connection to female)
Option Code	Description
UC10	Stainless steel, 1/2" x 1/2" NPT, ordinary location
Note: adding the un view). Adjust L dime	ion connector reduces the sensor's L length by 1.68" (see ension accordingly.

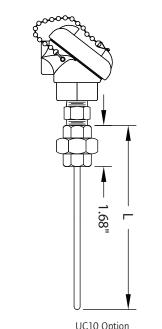
HD50* HD51* 1/2" 1/2" HD52* HD53* 1/2" 3/4" Cast iron, screw cover with chain, NEMA 4 HD20* HD21* 1/2" 1/2" HD22* HD23* 1/2" 3/4" 316 stainless steel, screw cover with chain, NEMA 4X HD40* HD41* 1/2" 3/4" White polypropylene, screw cover with chain, NEMA 4 HD30 N/A 1/2" 3/4" Black polypropylene, screw cover with chain, NEMA 4 HD31 N/A 1/2" 3/4" Nylon, screw cover 1/2" HD32 N/A 1/2" *can be used with transmitters

Notes:

1. See Accessories for additional information.

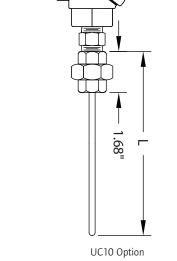
2. For former Style 60, use option HD20.

3. For former Style 29, use option HD32.



UE APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART $^{\circ}$ is a registered trademark of the HART Communication Foundation.



http://www.appliedsensortech.com



CONNECTION HEAD WITH WELDED HEX FITTING

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SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	OPTIONS

SENSOR TYPE

MI – Mineral insulated thermocouple

ASSEMBLY STYLE

21 – **Sheath with cast aluminum head and welded stainless steel connection**; for use as ambient sensor or with compression fitting for process mounting; head conforms to NEMA 4 requirements; 3/4" conduit connection; ceramic terminal block; gasketed screw cover with stainless steel chain. See page 1-7b for other head options.

SHEATH DIAMETER (in inches)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

- 3 316 stainless steel
- 5 Inconel® 600

CALIBRATION – Standard Limits

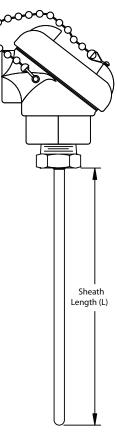
J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	🎞 – Dual T

E – Single E **EE** – Dual E Special limits are available – consult AST

HOT JUNCTION

- **G** Grounded junction
- $\boldsymbol{\mathsf{U}}$ Ungrounded junction
- E Exposed junction

SHEATH LENGTH (Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order) **L#** – (e.g., L6 = 6" sheath, L12.5 = 12.5" length)





ASSEMBLY OPTIC	NS				
Option Code Description					
TAG1		Stainless steel tag and wire			
B90-		90° bend in sheath [specify length from tip in inches e.g., B90-6)			
B45-		45° bend in sheath (specify length from tip in inches e.g., B45-6)			
CAL1		NIST traceable calibration [specify point(s)]			
CRT1		Certificate o	of conformance		
RB10		Replace terr	ninal block with cust	omer supplied part	
RB11		Supply asse	mbly with no termina	I block inside head	
WC20			e gland for 0.187 - 0. erminal heads with 1		
WC21			e gland for 0.125 - 0. erminal heads with 1		
COMPRESSION F	TTIN	IGS (for diam	eters 4, 6, 7)		
Option Code	NP	Т	Material	Ferrule	
CF10	1/	8″	Stainless steel	Stainless steel	
CF11	1/	8″	Stainless steel	Teflon®	
CF12	1/	8″	Brass	Brass	
CF20	1/	4″	Stainless steel	Stainless steel	
CF21	1/	4"	Stainless steel	Teflon®	
CF22	1/	4"	Brass	Brass	
CF30	1/	2"	Stainless steel	Stainless steel	
CF31	1/	2″	Stainless steel	Teflon®	
CF32	1/	2"	Brass	Brass	
TRANSMITTERS -	for c	omplete specs	s, see Transmitters see	ction	
TR11	4-20 mA, 2-wire, single input, isolated output; specify range, units of measure (e.g., 0-200°C) and optional head with *. See Accessories section for additional information.			C) and optional	
TR12	out	tput; specify ra	transmitter, single in ange and units of me erminal head with *.		
TR13	iso	lated output;	A, 2-wire transmitter, specify range and un erminal head with *.		
WELD PADS					
Option Code	Radi	us To Fit Pipe			
WP00	Hori	zontal pad∕fl	at		
WP10	1" nominal pipe size				
WP15	1.5″	nominal pipe	size		
WP20	2" nominal pipe size				
WP25	2.5" nominal pipe size				
WP30	3" nominal pipe size				
WP35		nominal pipe			
WP40	4″ n	ominal pipe si	ze		

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.



APPLIED SENSOR TECHNOLOGIES

STYLE 21

AVAILABLE OPTIONS and MODIFICATIONS

NEMA 4 OR 4X TERMINAL HEAD OPTIONS				
Head without ground screw	Head with internal ground screw	internal ground screw Connection		Conduit Connection
Cast aluminum, so	rew cover with cha	in		
HD10*	HD11*	1/2"		1/2"
Std.*	HD13*	1/2"		3/4"
Epoxy-coated, cast	t aluminum, NEMA	4X		
HD50*	HD51*	1/2″		1/2"
HD52*	HD53*	1/2"		3/4"
Cast iron, screw co	over with chain			
HD20*	HD21*	1/2"		1/2"
HD22*	HD23*	1/2″		3/4"
316 stainless steel	, screw cover; NEM	A 4X		
HD40*	HD41*	1/2"		3/4"
Polypropylene, wh	ite, screw cover			·
HD30	N/A	1/2"		3/4"
Polypropylene, bla	ick screw cover			
HD31	N/A	1/2"		3/4"
Nylon, screw cover	r			
HD32	N/A	1/2″		1/2"
EXPLOSION-PRO	OF TERMINAL H	EAD OPTIC	ONS	
Option Code	Process Connection	on	Conduit	t Connection
Cast aluminum, so ceramic terminal b	Process Connection rew cover with cha plock; FM/CSA app E, F, G; internal group	in; o-ring ga roved for Cl	asket rat	ed to 100°C;
Cast aluminum, so ceramic terminal b	rew cover with cha block; FM/CSA app	in; o-ring ga roved for Cl	asket rat	ed to 100°C;
Cast aluminum, so ceramic terminal b D; Class II, Groups	trew cover with cha block; FM/CSA app 5 E, F, G; internal gro	in; o-ring ga roved for Cl	asket rat ass I Div	ed to 100°C;
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71*	rew cover with cha plock; FM/CSA app E, F, G; internal gro	in; o-ring ga roved for Cl ound screw	asket rat ass I Div 1/2"	ed to 100°C;
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71*	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2"	in; o-ring ga roved for Cl ound screw	asket rat ass I Div 1/2"	ed to 100°C;
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (sau	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" me specs as HD70/	in; o-ring ga roved for Cl ound screw	asket rat ass I Div 1/2" 3/4"	ed to 100°C;
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (san HD74* HD75*	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" ne specs as HD70/ 1/2"	in; o-ring ga roved for Cl bund screw (71)	asket rat ass I Div 1/2" 3/4" 1/2"	ed to 100°C;
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (san HD74* HD75*	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" me specs as HD70/ 1/2" 1/2"	in; o-ring ga roved for Cl bund screw (71)	asket rat ass I Div 1/2" 3/4" 1/2"	ed to 100°C;
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (sai HD74* HD75* Epoxy-coated (san	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" ne specs as HD70/ 1/2" 1/2" ne specs as HD70/	in; o-ring ga roved for Cl bund screw (71)	asket rat ass I Div 1/2" 3/4" 1/2" 3/4"	ed to 100°C;
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (san HD74* HD75* Epoxy-coated (san HD80* HD81* Cast aluminum; A silicone rubber o-r	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" me specs as HD70/ 1/2" ne specs as HD70/ 1/2"	(71) The first of the first of	asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove ock; rate	ed to 100°C; 1, Groups B, C,
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (san HD74* HD75* Epoxy-coated (san HD80* HD81* Cast aluminum; A silicone rubber o-r	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" ne specs as HD70/ 1/2" 1/2" 1/2" 1/2" Expers as HD70/ 1/2" TEX approved for E ing gasket; ceramic	(71) The first of the first of	asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove ock; rate	ed to 100°C; 1, Groups B, C,
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (sai HD74* HD75* Epoxy-coated (sai HD80* HD81* Cast aluminum; A silicone rubber o-r IP66 to IP68; inte	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" me specs as HD70/ 1/2" 1/2" 1/2" 1/2" T/2" 1/2" TEX approved for E ing gasket; ceramic mal and external g	(71) The first of the first of	asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove ock; ratu rs	ed to 100°C; 1, Groups B, C,
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (sai HD74* HD75* Epoxy-coated (san HD80* HD81* Cast aluminum; A silicone rubber o-r IP66 to IP68; inte HD72* HD73* Cast aluminum (Fo	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" ne specs as HD70/ 1/2" 1/2" 1/2" 1/2" TEX approved for E ing gasket; ceramic rnal and external g 1/2"	(71) Ex d IIC; screw terminal bl round screw	asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove ock; rata /s 1/2" 3/4" plastic t	ed to 100°C; /. 1, Groups B, C,
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (sai HD74* HD75* Epoxy-coated (san HD80* HD81* Cast aluminum; A silicone rubber o-r IP66 to IP68; inte HD72* HD73* Cast aluminum (Fo UL/CSA approved	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" ne specs as HD70/ 1/2" 1/2" 1/2" 1/2" TEX approved for E ing gasket; ceramic rnal and external g 1/2" 1/2" try gasket; ceramic rnal and external g	(71) Ex d IIC; screw terminal bl round screw	asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove ock; rata /s 1/2" 3/4" plastic t	ed to 100°C; 1, Groups B, C,
Cast aluminum, sc ceramic terminal b D; Class II, Groups HD70* HD71* Stainless steel (sai HD74* HD75* Epoxy-coated (san HD80* HD81* Cast aluminum; A silicone rubber o-r IP66 to IP68; inte HD72* HD73* Cast aluminum (Fu UL/CSA approved and G.	rew cover with cha plock; FM/CSA app E, F, G; internal gro 1/2" 1/2" ne specs as HD70/ 1/2"	(71) Ex d IIC; screw terminal bl round screw	asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove ock; rato s 1/2" 3/4" plastic t d D; Cla	ed to 100°C; 1, Groups B, C,

180 Dexter Avenue, P.O. Box 9143, Watertown, MA 02471-9143

Note: See Accessories section for outline drawings and additional specs.



ATEX-APPROVED, CONNECTION HEAD WITH WELDED NPT PROCESS CONNECTION

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SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	OPTIONS

SENSOR TYPE

MI – Mineral insulated thermocouple

ASSEMBLY STYLE

22 - Sheath with cast aluminum head and 1/2" NPT welded stainless steel process

connection; head ATEX approved for EEx d IIC; IP66 to 68; screw cover with chain and gasketed o-ring, meets NEMA 4X; ceramic terminal block; 3/4" NPT conduit connection; internal and external ground screws (Note: for spring-loaded fitting, see Style 75 and add optional head).

SHEATH DIAMETER (in inches)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

- 3 316 stainless steel
- 5 Inconel® 600

CALIBRATION – Standard limits

O/ LEIDIU/ LIIOIT	Standard minus
J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	🎞 – Dual T

- **E** Single E **EE** Dual E
- Special limits are available consult AST

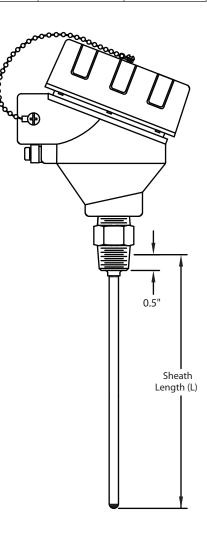
HOT JUNCTION

- **G** Grounded junction
- \boldsymbol{U} Ungrounded junction
- **E** Exposed junction

(Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order)

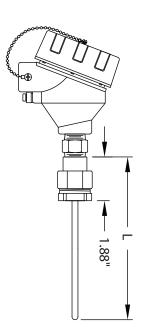
SHEATH LENGTH

L# - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)



AVAILABLE OPTIONS and MODIFICATIONS

TERMINAL HEAD OPTION						
Same specification	as standard head					
Option Code	Process Connection	Conduit Connection				
HD72	1/2"	1/2"				
ASSEMBLY OPTI	ONS					
Option Code	Description					
TAG1	Stainless steel tag and v	vire				
PC25	1/4" NPT process conne	ection				
PC75	3/4" NPT process conne	ection				
RB10	Replace terminal block v	vith customer supplied part				
RB11	Supply assembly with no	terminal block inside head				
CAL1	Calibration, NIST traceable calibration [specify point(s)]					
CRT1	Certificate of conforman	Certificate of conformance				
TRANSMITTERS	- For complete specs, see Transmitters section					
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C)					
TR12	4-20 mA, 2-wire transmitter, single input, non-isola output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.					
TR13	HART® / 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.					
UNION CONNEC	TOR (converts male connection)	ection to female)				
Option Code	Description					
UC20	Plated steel, 1/2" x 1/2	" NPT, explosion-proof rating				
Note: adding the union connector reduces the sensor's L length by 1.88" (see view). Adjust L dimension accordingly.						



UC20 Option

APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART° is a registered trademark of the HART Communication Foundation.



CONNECTION HEAD WITH SPRING-LOADED ASSEMBLY AND MOUNTING HARDWARE

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SENSOR TYPE	ASSEMBLY STYLE	CONNECTION	CONNECTION LENGTH	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	OPTIONS

SENSOR TYPE

MI – Mineral insulated thermocouple

ASSEMBLY STYLE

45 – **Sheath with cast aluminum head**; spring-loaded in head; head conforms to NEMA 4 requirements; 3/4" NPT conduit connection; ceramic terminal block; 1/2" NPT carbon steel process connection; gasketed screw cover with stainlesss steel chain; maximum head temperature 100°C

CONNECTION

H - Head only, no mounting hardware; 1/2" NPT (female) instrument connection
N - 1/2" NPT carbon steel nipple
NU - 1/2" NPT carbon steel nipple and union
NUN - 1/2" NPT carbon steel nipple, union and nipple
Add suffix "1S" for 304 stainless steel
Add suffix "2S" for 316 stainless steel
See chart below for restrictions

CONNECTION LENGTH

(e.g., 006 = 6 inch)

(See chart below for standard available lengths)

SHEATH DIAMETER (in inches)

- 4 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

- 3 316 stainless steel
- **5 –** Inconel® 600

CALIBRATION -	- Standard limits
---------------	-------------------

- J Single JJJ Dual JK Single KKK Dual K
- T Single T TT Dual T
- E Single E E Dual E

Special limits are available - consult AST

HOT JUNCTION

G - Grounded junction

 ${\boldsymbol{\mathsf{U}}}$ – Ungrounded junction

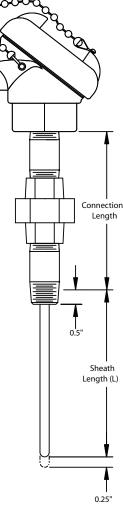
SHEATH LENGTH (Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order)

L# - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

OPTIONS – see back page

	STANDARD A	VAILABLE C	ONNECTION
	LENGTHS		
1			1

N	NU	NUN			
N/A	2.00	2.50			
0.50	2.50	3.00*			
1.00	3.00	4.00*			
1.50	3.50	5.00			
2.00	4.00	6.00*			
3.00	5.00	8.00			
4.00	6.00	10.00			
5.00	7.00	12.00			
6.00	8.00	14.00			
*NUN 2S OPTION AVAILABLE IN THESE LENGTHS ONLY.					
DIMENSIONS ARE GIVEN IN INCHES					





TC/45-04

1A

AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS				
Option Code	Description			
TAG1	Stainless steel tag and wire			
CAL1	NIST traceable calibration [specify point(s)]			
CRT1	Certificate of conformance			
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections			
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with 1/2" NPT conduit connections			

Head without ground screw	Head with internal ground screw	Process Connection	Conduit Connection	
Cast aluminum, s	crew cover with cha	in, NEMA 4		
HD10	HD11	1/2"	1/2"	
Std.	HD13	1/2"	3/4"	
Epoxy-coated aluminum, screw cover with chain, NEMA 4X				
HD50	HD51	1/2"	1/2"	
HD52	HD53	1/2"	3/4"	
Cast iron, screw o	over with chain, NE	MA 4		
HD20	HD21	1/2"	1/2"	
HD22	HD23	1/2"	3/4"	
316 stainless stee	el, screw cover with o	chain, NEMA 4X		
HD40	HD41	1/2"	3/4"	

Notes:

1. See Accessories for additional information

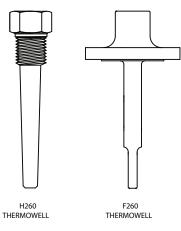
2. For former Style 46, use option HD20

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.

THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.



APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.



APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

MI48NUNX WITH LEADWIRE

SPRING-LOADED PROCESS MOUNTING HARDWARE WITH OPTIONAL TERMINAL HEAD

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection.

SENSOR TYPE	ASSEMBLY STYLE	CONNECTION TYPE AND MATERIAL	CONN. LENGTH	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE

MI - Mineral insulated thermocouple

ASSEMBLY STYLE

48 - Sheath with spring-loaded hex connector and connection hardware; head as option

CONNECTION TYPE AND MATERIAL			
Code	Union Type	Union Material	Lower Nipple Material
NU	Ordinary location	Carbon steel	None
NUS	Ordinary location	Stainless steel	None
NUX	Explosion-proof	Electroplated steel	None
NUN	Ordinary location	Carbon steel	Carbon steel
NUNS	Ordinary location	Stainless steel	Stainless steel
NUNX	Explosion-proof	Electroplated steel	Carbon steel
NUNXS	Explosion-proof	Electroplated steel	Stainless steel

CONNECTION LENGTH (For NU, NUX, NUS, use 002.5) ### (e.g., 006 = 6 inch) (See chart for available standard lengths)

SHEATH DIAMETER (in inches)

4 - 1/8" (0.125)
6 – 3/16" (0.188)
7 – 1/4" (0.250)
9 – 3/8" (0.375)

SHEATH MATERIAL

- 3 316 stainless steel
- 5 Inconel® 600

CALIBRATION - Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	🎞 – Dual T
E – Single E	EE – Dual E

Special limits are available – consult AST

HOT JUNCTION

G – Grounded junction

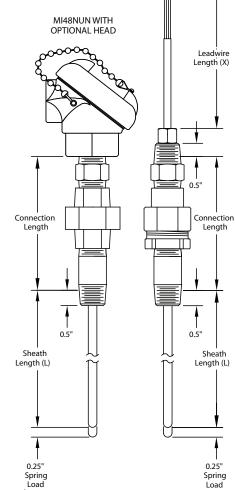
 \boldsymbol{U} – Ungrounded junction

SHEATH LENGTH (Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order) L# - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

LEADWIRE LENGTH

X# – (e.g., X3 = 3 inch length; X3 is standard if specifying optional head)

STANDARD AVAILABLE CONNECTION LENGTHS FOR NUN CONNECTIONS
3.00
3.50
4.00
4.50
5.00
6.00
7.00
8.00
9.00
DIMENSIONS ARE GIVEN IN INCHES



ASSEMBLY OPTIONS	
Option Code	Description
TAG1	Stainless steel tag and wire
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
RB10	Replace terminal block with customer supplied part
RB11	Supply assembly with no terminal block inside head
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with 1/2" NPT conduit connections
WIRING CONNECTIO	N OPTIONS
Option Code	Description
WC76	#6 spade terminals, plated copper
WC70	#10 spade terminals, plated copper
WC84	1/4" push-on insulated terminals, plated copper
WC90	#10 ring terminals
WC98	#8 ring terminals
TRANSMITTERS - for	complete specs, see Transmitters section
TR11	4-20 mA, 2-wire; single input; isolated output; specify range, units of measure (e.g., 0-200°C) and terminal head with *. See Accessories section for additional information.
TR12	4-20 mA, 2-wire transmitter, single input, non- isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.

THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.

AVAILABLE OPTIONS and MODIFICATIONS

NEMA 4 OR 4X	FERMINAL HEAD	OPTIONS					
Head without	Head with	Proc	855	Conduit			
ground screw	internal ground screw Connection			Connection			
Cast aluminum, so	rew cover with cha	in, NEMA	4				
HD10*	HD11*	1/2"		1/2"			
HD12*	HD13*	1/2"		3/4"			
Epoxy-coated alur	xy-coated aluminum, screw cover with chain, NEMA 4X						
HD50*	HD51*		1/2"				
HD52*	HD53*	1/2"		3/4"			
Cast iron, screw co	over with chain, NE	MA 4					
HD20*	HD21*	1/2"		1/2"			
HD22*	HD23*	1/2"		3/4"			
316 stainless stee	, screw cover with o	chain, NEN	1A 4X	<u> </u>			
HD40*	HD41*	1/2"		3/4"			
White polypropyle	ne, screw cover wit	h chain, N	EMA 4				
HD30	N/A	1/2"		3/4"			
Black polypropyle	ne, screw cover with	ı chain, NE	MA 4	<u>I</u>			
HD31	N/A	1/2"		3/4"			
Nylon, screw cove	r	1		<u>I</u>			
HD32	N/A	1/2"		1/2"			
EXPLOSION-PRO	OF TERMINAL H	EAD OPTI	ONS				
Option Code	Process Connecti	on	Conduit	t Connection			
ceramic terminal b	crew cover with cha block; FM/CSA app 5 E, F, G; internal gro	roved for C	Class I Div				
HD70*	1/2"		1/2"				
HD71*	1/2"		3/4"				
Stainless steel (sa	me specs as HD70	/71)	!				
HD74*	1/2"		1/2"				
HD75*	1/2"		3/4"				
Epoxy-coated (san	ne specs as HD70/	71)					
HD80*	1/2"		1/2"				
HD81*	1/2"		3/4"				
Cast aluminum; ATEX approved for EEx d IIC; screw cover with chain; silicone rubber o-ring gasket; ceramic terminal block; rated for NEMA 4X, IP66 to IP68; internal and external ground screws							
HD72*	1/2"		1/2"				
HD73*	1/2"		3/4"				
	ormerly Style 60); s I for Class I Div. 1, (
HD60	1/2"		1/2"				
HD61	1/2"		3/4"				

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART $^\circ$ is a registered trademark of the HART Communication Foundation.



APPLIED SENSOR TECHNOLOGIES



NEMA 4 CONNECTION HEAD WITH FLEXIBLE ARMOR CABLE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	ARMOR LENGTH	OPTIONS

SENSOR TYPE

MI – Mineral insulated thermocouple

ASSEMBLY STYLE*

65 – **Cast aluminum head with flexible 0.250" stainless steel armor cable**; head conforms to NEMA 4 requirements; 3/4" NPT conduit connection; ceramic terminal block; gasketed screw cover with stainless steel chain; fiberglass leadwire and jacket

65P - PVC coated armor, Teflon insulated conductors

65T - Teflon coated armor, Teflon insulated conductors

SHEATH DIAMETER (in inches)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- **9** 3/8 (0.375)

SHEATH MATERIAL

- 3 316 stainless steel
- $\mathbf{5}$ Inconel® 600

CALIBRATION - Standard limits

- J Single J
 JJ Dual J

 K Single K
 KK Dual K
- \mathbf{T} Single T \mathbf{T} Dual T
- **E** Single E **EE** Dual E

Special limits are available – consult AST

HOT JUNCTION

- G Grounded junction
- **U** Ungrounded junction

SHEATH LENGTH (Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order)

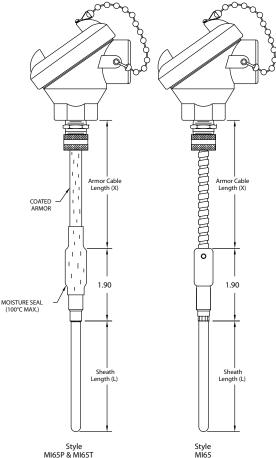
L# – Specify overall length of sheath (e.g., L12 = 12" from tip to transition)

ARMOR LENGTH

X# – Specify overall length of flexible armor (e.g., X72 = 72" from terminal head to transition)

OPTIONS – see back page

* NOTE: Transition on Style 65 standardly rated for 500°F/260°C. Styles 65P & 65T rated to 212°F/100°C. For 900°F rating on Style 65, see option HT10.



ASSEMBLY OPT	IONS						
Option Code	Description	Description					
TAG1	Stainless steel t	Stainless steel tag and wire					
B90-	90° bend in sh B90-6)	90° bend in sheath (specify length from tip in inches e.g., B90-6)					
B45-	45° bend in sh B45-6)	eath (specify length from	n tip in inches e.g.,				
CAL1	NIST traceable	calibration [specify poir	nt(s)]				
CRT1	Certificate of co	onformance					
HT10	High temperatu only)	re (900°F) transition (a	available on MI65				
RB10	Replace termina	al block with customer s	supplied part.				
RB11	Supply assembl	y with no terminal bloc	k inside head.				
WC20	5 5	and for 0.187 - 0.312 di with 1/2" NPT conduit					
WC21		and for 0.125 - 0.187 di with 1/2" NPT conduit					
TRANSMITTER	S – For complete spe	ecs, see Transmitters sec	tion				
TR11	specify range, u	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200°C) and optional terminal head with *.					
TR12		e transmitter, single inp range and units of mea ead with *.					
TR13		nA, 2-wire transmitter, s range and units of mea ead with *.					
COMPRESSION	FITTINGS						
Option Code	NPT	Material	Ferrule				
CF10	1/8"	Stainless steel	Stainless steel				
CF11	1/8"	Stainless steel	Teflon®				
CF12	1/8"	Brass	Brass				
CF20	1/4"	Stainless steel	Stainless steel				
CF21	1/4"	Stainless steel	Teflon®				
CF22	1/4"	Brass	Brass				
CF30	1/2"	Stainless steel	Stainless steel				
CF31	1/2"	Stainless steel	Teflon®				
CF32	1/2"	Brass	Brass				

AVAILABLE OPTIONS and MODIFICATIONS

NEMA 4 OR 4X TERMINAL HEAD OPTIONS							
Head without ground screw	Head with internal ground screw	Process Connection	Conduit Connection				
Cast aluminum, se	crew cover with cha	in, NEMA 4					
HD10*	HD10* HD11*		1/2"				
Std.*	HD13*	1/2"	3/4"				
Epoxy-coated alu	ninum, screw cover	with chain, NEMA	4X				
HD50*	HD51*	1/2"	1/2"				
HD52*	HD53*	1/2"	3/4"				
Cast iron, screw co	over with chain, NE	MA 4					
HD20*	HD21*	1/2"	1/2"				
HD22*	HD23*	1/2"	3/4"				
316 stainless stee	l, screw cover with o	chain, NEMA 4X					
HD40*	HD41*	1/2"	3/4"				
White polypropyle	ene, screw cover wit	h chain, NEMA 4					
HD30	N/A	1/2"	3/4"				
Black polypropyle	ne, screw cover with	n chain, NEMA 4					
HD31	N/A	1/2"	3/4"				
Nylon, screw cove	r						
HD32	N/A	1/2"	1/2"				
*can be used with	n transmitters	*					

Notes:

1. See Accessories for additional information.

WELD PADS	
WP00	Horizontal pad/flat
WP10	1" nominal pipe size
WP15	1.5" nominal pipe size
WP20	2" nominal pipe size
WP25	2.5" nominal pipe size
WP30	3" nominal pipe size
WP35	3.5" nominal pipe size
WP40	4.0" nominal pipe size



APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.

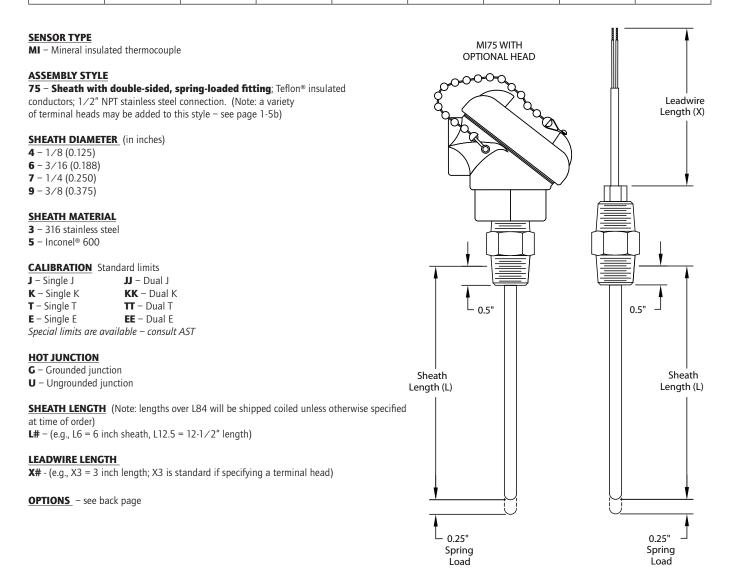


DOUBLE-SIDED, SPRING-LOADED PROCESS MOUNTING WITH TERMINAL HEAD OPTIONS

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	LEADWIRE LENGTH	OPTION



AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIC	DNS
Option Code	Description
TAG1	Stainless steel tag and wire
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
RB10	Replace terminal block with customer supplied part
RB11	Supply assembly with no terminal block inside head
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with 1/2" NPT conduit connections
WIRING CONNEC	TION OPTIONS
Option Code	Description
WC76	#6 spade terminals, plated copper
WC70	#10 spade terminals, plated copper
WC84	1/4" push-on insulated terminals, plated copper
WC90	#10 ring terminals
WC98	#8 ring terminals
TRANSMITTERS -	- For complete specs, see Transmitters section
TR11	4-20 mA, 2-wire; single input; isolated output; specify range, units of measure (e.g., 0-200°C) and terminal head with *.
TR12	4-20 mA, 2-wire transmitter, single input, non- isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.
TR13	HART [®] / 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.

THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.

Head without ground screw	Head with internal ground	Proce Connec		Conduit Connection
Cast aluminum a	screw			
	crew cover with cha	IN, NEMA 4		1/2"
HD10*	HD11*			
HD12*	HD13*	1/2"		3/4"
	minum, screw cover		NEMA	
HD50*	HD51*			1/2"
HD52*	HD53*	1/2"		3/4"
Cast iron, screw c	over with chain, NE	MA 4		
HD20*	HD21*	1/2"		1/2"
HD22*	HD23*	1/2"		3/4"
316 stainless stee	el, screw cover with o	chain, NEM	4 4X	
HD40*	HD41 *	1/2"		3/4"
White polypropyle	ene, screw cover wit	h chain, NE	MA 4	
HD30	N/A	1/2"		3/4"
Black polypropyle	ne, screw cover with	n chain, NEI	MA 4	
HD31	N/A			3/4"
Nylon, screw cove	er			
HD32	N/A	1/2"		1/2"
EXPLOSION-PR				
EVILLOJIUNT N	OOF LEKMINAL H	EAD OPTIC	DNS	
Option Code	Process Connecti			t Connection
Option Code Cast aluminum, s ceramic terminal	1	on in; o-ring ga roved for Cl	Conduit asket rat	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal	Process Connecti crew cover with cha block; FM/CSA app	on in; o-ring ga roved for Cl	Conduit asket rat	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal D; Class II, Group	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro	on in; o-ring ga roved for Cl	Conduit asket rat ass I Div	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71*	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2"	on in; o-ring ga roved for Cl ound screw	Conduit asket rat ass I Div	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71*	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" 1/2"	on in; o-ring ga roved for Cl ound screw	Conduit asket rat ass I Div	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" 1/2" me spec as HD70/	on in; o-ring ga roved for Cl ound screw	Conduit asket rat ass I Div 1/2" 3/4"	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75*	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gru 1/2" 1/2" me spec as HD70/ 1/2"	on in; o-ring ga roved for Cl ound screw 71)	Conduit asket rat lass I Div 1/2" 3/4" 1/2"	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75*	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" 1/2" me spec as HD70/ 1/2" 1/2"	on in; o-ring ga roved for Cl ound screw 71)	Conduit asket rat lass I Div 1/2" 3/4" 1/2"	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75* Epoxy-coated (sa	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" 1/2" me spec as HD70/7 1/2" ne spec as HD70/7	on in; o-ring ga roved for Cl ound screw 71)	Conduit asket rat ass I Div 1/2" 3/4" 1/2" 3/4"	ed to 100°C;
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75* Epoxy-coated (sa HD80* HD80* HD81* Cast aluminum; <i>A</i> silicone rubber o-	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" me spec as HD70/ 1/2" me spec as HD70/7 1/2"	on in; o-ring ga roved for Cl ound screw 71) 71) Ex d IIC; scr terminal bl	Conduit asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove lock; rate	ed to 100°C; 1, Groups B, C,
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75* Epoxy-coated (sa HD80* HD81* Cast aluminum; <i>A</i> silicone rubber o-	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" 1/2" me spec as HD70/ 1/2" 1/2" me spec as HD70/7 1/2" 1/2" TL/2"	on in; o-ring ga roved for Cl ound screw 71) 71) Ex d IIC; scr terminal bl	Conduit asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove lock; rate	ed to 100°C; 1, Groups B, C,
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75* Epoxy-coated (sat HD80* HD81* Cast aluminum; <i>A</i> silicone rubber o- IP66 to IP68; inte	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" 1/2" me spec as HD70/7 1/2" 1/2" 1/2" 1/2" TEX approved for E ring gasket; ceramic ernal and external g	on in; o-ring ga roved for Cl ound screw 71) 71) Ex d IIC; scr terminal bl	Conduit asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove lock; ratu s	ed to 100°C; 1, Groups B, C,
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75* Epoxy-coated (sa HD80* HD81* Cast aluminum; <i>A</i> silicone rubber o- IP66 to IP68; inte HD72* HD73* Cast aluminum (f	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" me spec as HD70/ 1/2" 1/2" me spec as HD70/7 1/2" 1/2" TLX approved for E tring gasket; ceramic ernal and external g	on in; o-ring ga roved for Cl ound screw 71) 71) Ex d IIC; scr- terminal bl round screw crew cover;	Conduit asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove lock; rate /s 1/2" 3/4" plastic t	ed to 100°C; /. 1, Groups B, C,
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75* Epoxy-coated (sa HD80* HD80* HD81* Cast aluminum; <i>A</i> silicone rubber o- IP66 to IP68; inte HD72* HD73* Cast aluminum (F UL/CSA approve	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gro 1/2" 1/2" me spec as HD70/7 1/2" 1/2" TZX approved for E ring gasket; ceramic ernal and external g 1/2" 1/2" TZX approved for E	on in; o-ring ga roved for Cl ound screw 71) 71) Ex d IIC; scr- terminal bl round screw crew cover;	Conduit asket rat ass I Div 1/2" 3/4" 1/2" 3/4" 1/2" 3/4" ew cove lock; rate /s 1/2" 3/4" plastic t	ed to 100°C; /. 1, Groups B, C,
Option Code Cast aluminum, s ceramic terminal D; Class II, Group HD70* HD71* Stainless steel (sa HD74* HD75* Epoxy-coated (sa HD80* HD81* Cast aluminum; <i>A</i> silicone rubber o- IP66 to IP68; inte HD72* HD73* Cast aluminum (F UL/CSA approve and G.	Process Connecti crew cover with cha block; FM/CSA app s E, F, G; internal gra 1/2" 1/2" me spec as HD70/ 1/2" 1/2" 1/2" 1/2" TEX approved for E ring gasket; ceramic rrnal and external g 1/2" 1/2" cormerly Style 60); s	on in; o-ring ga roved for Cl ound screw 71) 71) Ex d IIC; scr- terminal bl round screw crew cover;	Conduit asket rat ass I Div 3/4" 1/2" 3/4" 1/2" 3/4" ew cove ock; rato /s 1/2" 3/4" plastic t d D; Cla	ed to 100°C; /. 1, Groups B, C,



APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART $^{\circ}$ is a registered trademark of the HART Communication Foundation.

EXPLOSION-PROOF CONNECTION HEAD WITH SPRING-LOADED ASSEMBLY AND MOUNTING HARDWARE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	CONNECTION	CONNECTION LENGTH	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	OPTIONS

SENSOR TYPE

MI - Mineral insulated thermocouple

ASSEMBLY STYLE

77 - Sheath with cast aluminum head; spring-loaded in head; CSA/FM approved head for Class I, Division 1, Groups B, C, D; Class II, Groups E, F, G; screw cover with chain and gasketed o-ring; designed NEMA 4; ceramic terminal block; 1/2" NPT conduit and process connections.

CONNECTION

H - Head only, no mounting hardware; 1/2" NPT (female) instrument connection

N - 1/2" NPT carbon steel nipple

NU - 1/2" NPT carbon steel nipple and plated steel explosion-proof union

NUN - 1/2" NPT carbon steel nipples and plated steel explosion-proof union Add suffix "1S" for 304 stainless steel nipples

CONNECTION LENGTH

(e.g., 006 = 6 inch) (See chart below for standard available lengths)

SHEATH DIAMETER

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9 3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

CALIBRATION - Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	TT – Dual T
E – Single E	EE – Dual E
Special limits an	e available – consult AST

HOT JUNCTION

G - Grounded junction

U – Ungrounded junction

SHEATH LENGTH: (Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order) L# - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

OPTIONS - see back page

roved head for keted o-ring; c n		A A A A A A A A A A A A A A A A A A A			
STANDARD / LENGTHS	AVAILABLE CO	NNECTION] [Connectior Length
Ν	NU	NUN		╧═╧╡	
N/A	2.00	2.50	1 L	╠══╢	
0.50	2.50	3.00*	1		
1.00	3.00	4.00*	1	= -	11
1.50	3.50	5.00	1	₩.	┰ ┦
2.00	4.00	6.00*]		T 0.5"
3.00	5.00	8.00]		0.5
4.00	6.00	10.00]		 Sheath
5.00	7.00	12.00]		Length (L)
6.00	8.00	14.00	1		
*NUN 2S OF THESE LENG	TION AVAILA THS ONLY.	BLE IN]		
DIMENSION	5 ARE GIVEN I	N INCHES		μ	
	time of early)	_	0	A

. nection

0 25" Spring

Load

AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS			
Option Codes	Description		
TAG1	Stainless steel tag and wire		
CAL1	NIST traceable calibration [specify point(s)]		
CRT1 Certificate of conformance			
TRANSMITTERS			
See Style 48 for availabl	e transmitters		

EXPLOSION-PROOF	TERMINAL HEAD OPTIO	NS			
Option Code	otion Code Process Connection Conduit Connection				
Cast aluminum; screw cover with chain; o-ring gasket; ceramic terminal block; FM/CSA approved for Class I Div. 1, Groups B, C and D; Class II Groups E, F and G (Gasket rated to 100°C exposure); internal ground screw					
HD71	1/2" 3/4"				
Same as above, except epoxy-coated					
HD80	80 1/2" 1/2"				
HD81 1/2" 3/4"					

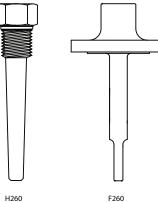
Note: See Accessories section for outline drawings and additional specs.

THERMOWELLS & PROTECTION TUBES

For a compete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.



THERMOWELL

F260 THERMOWELL

APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.



EXPLOSION-PROOF CONNECTION HEAD WITH WELDED NPT PROCESS CONNECTION

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	OPTIONS

SENSOR TYPE

MI – Mineral insulated thermocouple

ASSEMBLY STYLE

78 - Sheath with cast aluminum head and 1/2" NPT welded stainless steel

process connection; head CSA/FM approved for Class I, Division 1, Groups B, C, D; Class II, Groups E, F, G; screw cover with chain and gasketed o-ring, meets NEMA 4; ceramic terminal block; 1/2" NPT conduit connection (Note: for spring-loaded fitting, see Style 75 and add optional head).

SHEATH DIAMETER (in inches)

- **4** 1/8 (0.125)
- **6** 3/16 (0.188)
- 7 1/4 (0.250)
- **9** 3/8 (0.375)

SHEATH MATERIAL

2 - 310 stainless steel (available on diameters 6 & 7, with K or KK calibration)

- 3 316 stainless steel
- **5** Inconel[®] 600

CALIBRATION – Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	TT – Dual T
E – Single E	EE – Dual E

Special limits are available – consult AST

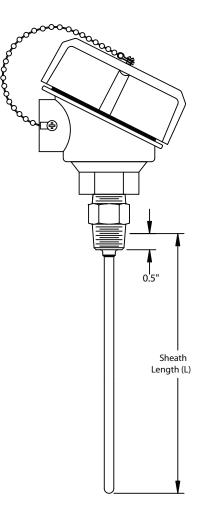
HOT JUNCTION

- ${\boldsymbol{\mathsf{G}}}$ Grounded junction
- $\boldsymbol{\mathsf{U}}$ Ungrounded junction
- **E** Exposed junction

(Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order)

SHEATH LENGTH

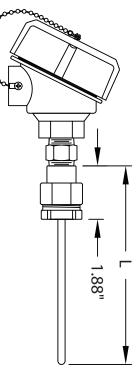
L# – (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)



AVAILABLE OPTIONS and MODIFICATIONS

EXPLOSION-PRO	OOF TERMINAL HEAD OPTION	S			
Option Code	Process Connection Conduit Connection				
sure); ceramic terr	crew cover with chain; o-ring gask ninal block; FM/CSA approved fo E, F and G; internal ground screw	r Class I Div. 1, Groups B, C and			
HD71	1/2" 3/4"				
Stainless steel (same specs as HD71)					
HD74	1/2" 1/2"				
HD75	1/2" 3/4"				
Epoxy-coated (san	ne specs as HD71)				
HD80	1/2" 1/2"				
HD81	HD81 1/2" 3/4"				

Note: See Accessories section for additional specs.



UC20 Option

ASSEMBLY OPTIONS	
Option Code	Description
TAG1	Stainless steel tag and wire
PC25	1/4" NPT process connection
PC75	3/4" NPT process connection
RB10	Replace terminal block with customer supplied part
RB11	Supply assembly with no terminal block inside head
CAL1	Calibration, NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
TRANSMITTERS - For c	complete specs, see Transmitters section
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., $0-200^{\circ}C$)
TR12	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.
TR13	HART [®] / 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.
UNION CONNECTOR (converts male connection to female)
Option Code	Description
UC20	Plated steel, 1/2" x 1/2" NPT, explosion-proof rating
Note: adding the union of Adjust L dimension accord	connector reduces the sensor's L length by 1.88" (see view). rdingly.

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.



NEMA 4 CONNECTION HEAD WITH TUNGSTEN CARBIDE TIP FOR ABRASIVE APPLICATIONS

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	CALIBRATION	HOT JUNCTION	LENGTH	OPTIONS

SENSOR TYPE

GP – General purpose thermocouple

ASSEMBLY STYLE

82 – **Tungsten Carbide tip**; carbon steel nipple and aluminum head; for use in high abrasion applications such as asphalt and cement; head conforms to NEMA 4 requirements; 3/4" conduit connection, ceramic terminal block; gasketed screw cover with stainless steel chain (Note: nipple is not sealed against the media, cannot be pressurized and must be mounted vertically or at an angle to prevent material from entering head)

CALIBRATION – Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
E – Single E	EE - Dual E
T – Single T	TT – Dual T

HOT JUNCTION

 ${\boldsymbol{\mathsf{G}}}$ – Grounded junction

U - Ungrounded junction

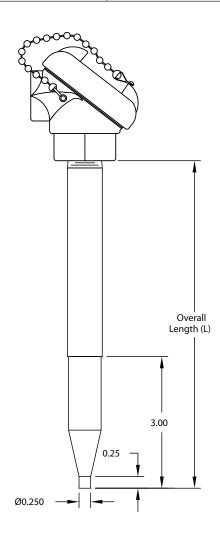
LENGTH

L# - Specify overall length of nipple and tip (e.g., L12 = approximately 12" from tip to head)

Standard lengths:

L9

L12 Other lengths available - consult AST



AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTION	NS		
Option Code	Description		
TAG1	Stainless steel tag and wire		
CAL1	NIST traceable calibration [specify point(s)]		
CRT1	Certificate of conformance		
RB10	Replace terminal block with customer supplied part		
RB11	Supply assembly with no terminal block inside head		
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with $1/2''$ NPT conduit connections		
WC21	Wiring cable gland for $0.125 - 0.187$ diameter cables, for terminal heads with $1/2''$ NPT conduit connections		
TRANSMITTERS -	For complete specs, see Transmitters section		
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C)		
TR12	4-20 mA, 2-wire transmitter, single input, non- isolated output; specify range and units of measure (e.g., 0-200°C)		
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C)		

NEMA 4 OR 4X TERMINAL HEAD OPTIONS					
Head without ground screw	internal ground		Conduit Connection		
Cast aluminum, se	crew cover with cha	in, NEMA 4			
HD10	HD11	1/2"	1/2"		
Std.	HD13	1/2"	3/4"		
Epoxy-coated aluminum, screw cover with chain, NEMA 4X					
HD50	HD51	1/2"	1/2"		
HD52	HD53	1/2"	3/4"		
Cast iron, screw c	over with chain, NE	MA 4			
HD20	HD21	1/2"	1/2"		
HD22	ID22 HD23		3/4"		
316 stainless steel, screw cover with chain, NEMA 4X					
HD40	HD41 1/2" 3/4"				

Notes:

1. See Accessories for additional information

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.



Note: Many non-standard options, including additional sheath diameters and materials, may also be available - consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.



NOBLE METAL THERMOCOUPLE WITH TERMINAL HEAD AND PROTECTION TUBE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	STYLE	PROTECTION TUBE CONFIGURATION	CALIBRATION	WIRE GAUGE	BEAD MATERIAL	PRIMARY TUBE LENGTH	OPTIONS

SENSOR TYPE

BTC - Beaded construction

STYLE

81N – **Noble metal element with primary protection tube only**; threaded connection between head and tube; NEMA 4 aluminum terminal head and ceramic terminal block; 3/4" NPT conduit connection; gasketed screw cover with stainless steel chain

PROTECTION TUBE CONFIGURATION

(e.g., **00A6** = $3/8^{\circ}$ O.D. tube with 6" nipple and $1/2^{\circ}$ NPT connection. See page 1-8b for available combinations of OD and thread size) <u>Protection tube diameter</u>

0 - 3/8" O.D. **1** - 1/2" O.D. **2** - 11/16" O.D. **3** - 3/4" O.D. Process thread size and material 316 stainless steel Carbon Steel 0 - 1/2" NPT 3 - 1/2" NPT **1** - 3/4" NPT **4** - 3/4" NPT 5 – 1" NPT **2** – 1" NPT Protection tube material A - Alumina (98.8% aluminum oxide) M – Mullite (not recommended over 1200°C) Connection Length ("CL") 1 - hex fitting only

– length of nipple

CALIBRATION

Single junction
R – Platinum and Platinum/13% Rhodium
S – Platinum and Platinum/10% Rhodium
B – Platinum/6% Rhodium and Platinum/30% Rhodium

WIRE GAUGE

24 - 24 AWG

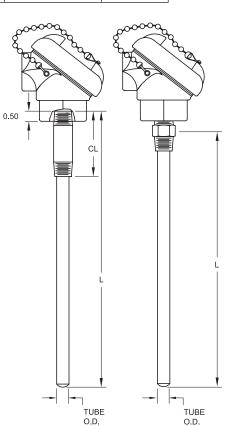
BEAD MATERIAL

A - Alumina beads (0.125" OD for single junction, 0.188" for dual)

PROTECTION TUBE LENGTH

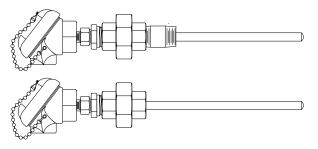
L# – (e.g., L12 = 12" protection tube length)

OPTIONS – see back page



Dual junctions RR

- SS BB
- **Note**: union fitting or union with nipple can be added to this style (consult AST for part numbers and availabilities)

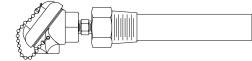


STYLE 81N

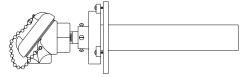
ASSEMBLY OPTIONS	
Option Code	Description
TAG1	Stainless steel tag and wire
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
RB10	Replace terminal block with customer supplied part
RB11	Supply assembly with no terminal block inside head
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with $1/2"$ NPT conduit connections
WC21	Wiring cable gland for $0.125 \cdot 0.187$ diameter cables, for terminal heads with $1/2"$ NPT conduit connections

For additional Noble Metal Thermocouple styles, see:

Style 81B - Secondary tube with mounting bushing



Style 81F - Secondary tube with slip flange mounting



Style 51 - Replacement Sensor



TERMINAL HEAD OPTIONS

NEMA 4 OR 4X	TERMINAL HEAD	OPTIONS				
Head without ground screw	Head with internal ground screw	Process Connection	Conduit Connection			
Cast aluminum, s	Cast aluminum, screw cover with chain, NEMA 4					
HD10*	HD11*	1/2"	1/2"			
Std.*	HD13*	1/2"	3/4"			
Epoxy-coated alu	minum, screw cover	with chain, NEMA	4X			
HD50*	HD51*	1/2"	1/2"			
HD52*	HD53*	1/2"	3/4"			
Cast iron, screw c	over with chain, NE	MA 4				
HD20*	HD21*	1/2"	1/2"			
HD22*	HD23*	1/2"	3/4"			
316 stainless stee	el, screw cover with o	chain, NEMA 4X				
HD40*	HD41*	1/2"	3/4"			
White polypropyl	ene, screw cover wit	h chain, NEMA 4	<u>.</u>			
HD30	N/A	1/2"	3/4"			
Black polypropyle	ene, screw cover with	n chain, NEMA 4				
HD31	N/A	1/2"	3/4"			
Nylon, screw cove	er					
HD32	N/A	1/2"	1/2"			
*can be used wit	h transmitters					
TRANSMITTERS	– For complete spe	cs, see Transmitters	section			
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200°C) and optional terminal head with *.					
TR12	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.					
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, iso- lated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.					

Notes:

1. Not all materials and process thread sizes are compatible with all tubing O.D.'s. Use the chart below as a guide for the possible combinations.

PROCESS THREAD (NPT)

		Carbon steel			316 Stainless		
	CODE	0 (1/2")	1 (3/4")	2 (1")	3 (1/2")	4 (3/4")	5 (1")
	0 (3/8")	Yes			Yes		
0.D	1 (1/2")	Yes	Yes		Yes	Yes	
TUBE	2 (11/16")		Yes			Yes	
F	3 (3/4")		Yes	Yes		Yes	Yes

2. Applied Sensor Technologies recommends alumina protection tubes when using platinum thermocouples. Mullite, although less expensive when compared to alumina, can contaminate the platinum, causing drift.

3. In many cases platinum thermocouples can be recycled, thereby reducing the long-term overall cost. Please contact Applied Sensor Technologies for further information.

4. Applied Sensor Technologies offers many other temperatures sensor designs and technologies, including base metal thermocouples, RTDs, thermistors and Integrated Circuit chips, along with a full line of accessory items such as thermowells, transmitters, etc. Please visit our website or contact us for further information.

APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART[®] is a registered trademark of the HART Communication Foundation.



NOBLE METAL THERMOCOUPLE WITH SECONDARY PROTECTION TUBE & BUSHING

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	STYLE	SECONDARY TUBE CONFIGURATION	CALIBRATION	WIRE GAUGE	BEAD MATERIAL	SECONDARY TUBE LENGTH	OPTIONS

SENSOR TYPE

BTC - Beaded construction

STYLE

81B – **Noble metal element with inner and outer protection tubes**; threaded bushing process attachment; NEMA 4 aluminum terminal head and ceramic terminal block; 3/4" NPT conduit connection; gasketed screw cover with stainless steel chain

SECONDARY TUBE CONFIGURATION

(e.g., **9C5A** = 1.75" O.D. silicon carbide protection tube with 2" NPT carbon steel bushing. See page 1-9b for available combinations of materials and sizes) Outer protection tube diameter

Outer protection tube diameter		,
	7 - 1-1/4" O.D.	
4 - 7/8" O.D.		
5 – 1″ O.D.	9 - 1-3/4" O.D.	
6 – 1-1/10" O.D.		
Outer protection tube material		
C – Silicon Carbide, oxi	ide bonded*	H – Hexalloy®
S – Sialon®		L – LT1
* Other grades of silico	on carbide available up	on request. Consult AST.
Bushing thread and material		
Carbon Steel	316 Stainless steel	
2 – 1" NPT	6 – 1″ NPT	
3 – 1-1/4" NPT	7 – 1-1/4" NPT	
4 – 1-1/2 NPT	8 - 1-1/2" NPT	
5 – 2" NPT	9 – 2" NPT	
Inner protection tube material		
A – Alumina (98.8% a	luminum oxide)	
M – Mullite (not recom	mended over 1200°C)	



Single junction

Single junction
R – Platinum and Platinum/13% Rhodium
S – Platinum and Platinum/10% Rhodium
B – Platinum/6% Rhodium and Platinum/30% Rhodium

WIRE GAUGE

24 – 24 AWG

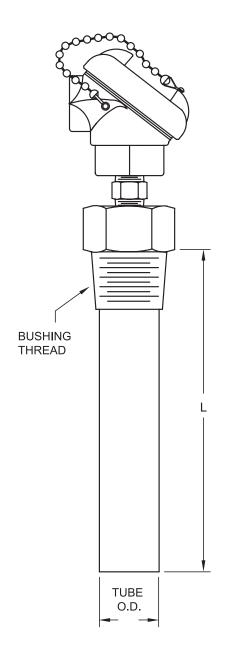
BEAD MATERIAL

A - Alumina beads (0.125" OD for single junction, 0.188" for dual)

SECONDARY TUBE LENGTH

L# – (e.g., L12 = 12" outer protection tube length)

OPTIONS – see back page



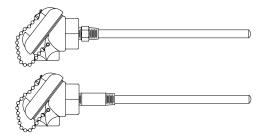
Dual junctions

RR SS BB

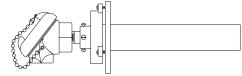
ASSEMBLY OPTIONS	ASSEMBLY OPTIONS					
Option Code	Description					
TAG1	Stainless steel tag and wire					
CAL1	NIST traceable calibration [specify point(s)]					
CRT1	Certificate of conformance					
RB10	Replace terminal block with customer supplied part					
RB11	Supply assembly with no terminal block inside head					
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with $1/2''$ NPT conduit connections					
WC21	Wiring cable gland for $0.125 - 0.187$ diameter cables, for terminal heads with $1/2"$ NPT conduit connections					

For additional Noble Metal Thermocouple styles, see:

Style 81N – Single, primary protection tube only



Style 81F - Secondary tube with slip flange mounting





Notes:

1. Not all materials and process thread sizes are compatible with all tubing O.D.'s. Use the chart below as a guide for the possible combinations. For each combination of thread and O.D., available materials are noted - Silicon Carbide (C), Sialon® (S), Hexalloy® (H) and LT1 (L).

STYLE 81B

TERMINAL HEAD OPTIONS

NEMA 4	4 OR 4X TE	RMINAL HEAD OPT	IONS			
	without nd screw	Head with internal ground screw	Process Connection	Conduit Connection		
Cast alu	minum, scre	w cover with chain, NI	EMA 4			
HD10*		HD11*	1/2"	1/2"		
Std.*		HD13*	1/2"	3/4"		
Ероху-со	oated alumi	num, screw cover with	chain, NEMA 4X	•		
HD50*		HD51 *	1/2"	1/2"		
HD52*		HD53*	1/2"	3/4"		
Cast iror	n, screw cove	er with chain, NEMA 4				
HD20*		HD21*	1/2"	1/2"		
HD22*		HD23*	1/2"	3/4"		
316 stai	nless steel, s	crew cover with chain	NEMA 4X			
HD40*		HD41 *	1/2"	3/4"		
White p	olypropylene	e, screw cover with cha	in, NEMA 4			
HD30		N/A	1/2"	3/4"		
Black po	lypropylene	, screw cover with cha	in, NEMA 4			
HD31		N/A	1/2"	3/4"		
Nylon, s	crew cover					
HD32		N/A	1/2"	1/2"		
*can be	used with t	ransmitters				
TRANS	MITTERS	– For complete spe	cs, see Transmitters	section		
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200°C) and optional terminal head with *.					
TR12	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.					
TR13	output;	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.				

PROCESS THREAD (NPT)

			CARBON	N STEEL			316 ST/	AINLESS	
OUTER	CODE	2 (1")	3 (1-1/4")	4 (1-1/2")	5 (2")	6 (1")	7 (1-1/4")	8 (1-1/2")	9 (2")
TUBE O.D.	3 (3/4")	Н	Н	Н	Н	Н	Н	Н	Н
	4 (7/8")	L,S	L,S	L,S	L,S	L,S	L,S	L,S	L,S
	5 (1")		Н	Н	Н		Н	Н	Н
	6 (1-1/10")		S	S	S		S	S	S
	7 (1-1/4")			Н	Н			Н	Н
	8 (1-1/2")			Н	Н			Н	Н
	9 (1-3/4")				С				С

2. Applied Sensor Technologies recommends alumina protection tubes when using platinum thermocouples. Mullite, although less expensive when compared to alumina, can contaminate the platinum, causing drift.

3. In many cases platinum thermocouples can be recycled, thereby reducing the long-term overall cost. Please contact Applied Sensor Technologies for further information.

4. Applied Sensor Technologies offers many other temperatures sensor designs and technologies, including base metal thermocouples, RTDs, thermistors and Integrated Circuit chips, along with a full line of accessory items such as thermowells, transmitters, etc. Please visit our website or contact us for further information.

APPLIED SENSOR TECHNOLOGIES	Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.
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NOBLE METAL THERMOCOUPLE WITH SECONDARY PROTECTION TUBE & MOUNTING COLLAR

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	STYLE	PROTECTION TUBE CONFIGURATION	CALIBRATION	WIRE GAUGE	BEAD MATERIAL	OUTER PROTECTION TUBE LENGTH	OPTIONS

Dual junctions

RR SS

BB

SENSOR TYPE

BTC – Beaded construction

STYLE

81C - Noble metal element with primary and secondary protection tubes;

mounting collar process attachment; NEMA 4 aluminum terminal head and ceramic terminal block; 3/4'' NPT conduit connection; gasketed screw cover with stainless steel chain

PROTECTION TUBE CONFIGURATION

(e.g., **9CA** = 1.75'' O.D. silicon carbide protection tube with collar and alumina inner protection tube) <u>Outer protection tube diameter</u> **9** - 1-3/4'' O.D.

Outer protection tube material

- **C** Silicon carbide, oxide bonded*
- * Other grades of silicon carbide available upon request. Consult AST.

Inner protection tube material

A – Alumina (98.8% aluminum oxide)

M - Mullite (not recommended over 1200°C)

CALIBRATION

Single junction

R – Platinum and Platinum/13% Rhodium	
S – Platinum and Platinum / 10% Rhodium	

B – Platinum/6% Rhodium and Platinum/30% Rhodium

WIRE GAUGE

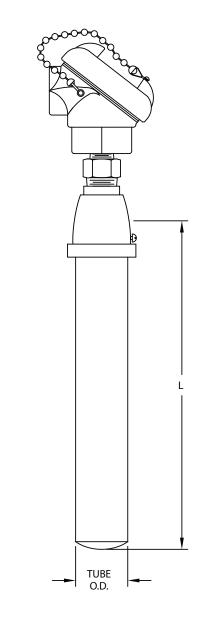
24 – 24 AWG

BEAD MATERIAL

A – Alumina beads (0.125" OD for single junction, 0.188" for dual)

OUTER PROTECTION TUBE LENGTH

L# - (e.g., L12 = 12" outer protection tube length)

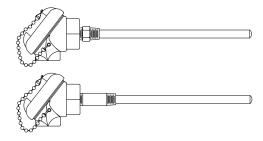


STYLE 81C

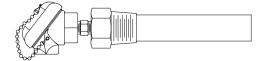
ASSEMBLY OPTIONS			
Option Code	Description		
TAG1	Stainless steel tag and wire		
CAL1	NIST traceable calibration [specify point(s)]		
CRT1	Certificate of conformance		
RB10	Replace terminal block with customer supplied part		
RB11	Supply assembly with no terminal block inside head		
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with $1/2"$ NPT conduit connections		
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with $1/2"$ NPT conduit connections		
HW10	Split flange for mounting		

For additional Noble Metal Thermocouple styles, see:

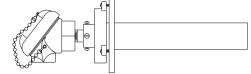
Style 81N - Single, primary protection tube only



Style 81B - Secondary tube with mounting bushing



Style 81F - Secondary tube with mounting flange

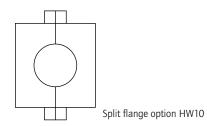


Style 51 - Replacement Sensor



TERMINAL HEAD OPTIONS

NEMA	4 OR 4X	TERMINAL HEAD	OPTIONS		
Head without ground screw		Head with internal ground screw	Process Connection	Conduit Connection	
Cast al	uminum, s	crew cover with cha	in, NEMA 4		
HD10*		HD11*	1/2"	1/2"	
Std.*		HD13*	1/2"	3/4"	
Epoxy-	coated alu	minum, screw cover	with chain, NEMA	4X	
HD50*	r	HD51*	1/2"	1/2"	
HD52*	r	HD53*	1/2"	3/4"	
Cast iro	on, screw c	over with chain, NE	MA 4		
HD20*	r	HD21*	1/2"	1/2"	
HD22*	r	HD23*	1/2"	3/4"	
316 sta	inless stee	l, screw cover with o	chain, NEMA 4X		
HD40*		HD41*	1/2"	3/4"	
White	polypropyl	ene, screw cover wit	h chain, NEMA 4		
HD30		N/A	1/2"	3/4"	
Black p	olypropyle	ene, screw cover witl	n chain, NEMA 4		
HD31		N/A	1/2"	3/4"	
Nylon,	screw cove	er	1		
HD32		N/A	1/2"	1/2"	
*can b	e used wit	h transmitters	1		
TRANS	SMITTERS	– For complete spe	ecs, see Transmitters	section	
TR11		A, 2-wire transmitten nits of measure (e.g th *.			
TR12	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.				
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.				



Notes:

- 1. Applied Sensor Technologies recommends alumina protection tubes when using platinum thermocouples. Mullite, although less expensive when compared to alumina, can contaminate the platinum, causing drift.
- 2. In many cases platinum thermocouples can be recycled, thereby reducing the long-term overall cost. Please contact Applied Sensor Technologies for further information.
- 3. Applied Sensor Technologies offers many other temperatures sensor designs and technologies, including base metal thermocouples, RTDs, thermistors and Integrated Circuit chips, along with a full line of accessory items such as thermowells, transmitters, etc. Please visit our website or contact us for further information.

APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.

Fax: 617 926-8411



NOBLE METAL THERMOCOUPLE WITH SECONDARY PROTECTION TUBE & MOUNTING FLANGE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	STYLE	PROTECTION TUBE CONFIGURATION	CALIBRATION	WIRE GAUGE	BEAD MATERIAL	OUTER PROTECTION TUBE LENGTH	OPTIONS

RR SS BB

SENSOR TYPE

BTC - Beaded construction

STYLE

81F – **Noble metal element with primary and secondary protection tubes**; mounting flange process attachment; NEMA 4 aluminum terminal head and ceramic terminal block; 3/4" NPT conduit connection; gasketed screw cover with stainless steel chain

PROTECTION TUBE CONFIGURATION

(e.g., **9C5A** = 1.75" O.D. silicon carbide protection tube with 4-7/8" mounting flange and alumina inner protection tube) <u>Outer protection tube diameter</u> **9** - 1-3/4" O.D. <u>Outer protection tube material</u> **C** - Silicon carbide, oxide bonded* * Other grades of silicon carbide available upon request. Consult AST. <u>Flange size</u> **5** - 4-7/8" O.D. <u>Inner protection tube material</u> **A** - Alumina (98.8% aluminum oxide) **M** - Mullite (not recommended over 1200°C) <u>CALIBRATION</u> Single junction **Dual junctions**

5
R – Platinum and Platinum/13% Rhodium
S – Platinum and Platinum/10% Rhodium
B – Platinum/6% Rhodium and Platinum/30% Rhodium

WIRE GAUGE

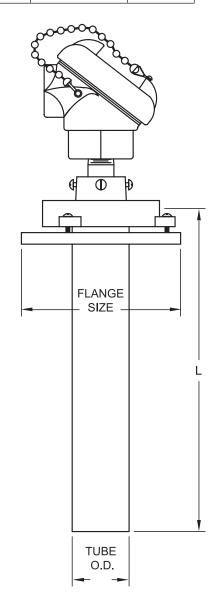
24 - 24 AWU

BEAD MATERIAL

A - Alumina beads (0.125" OD for single junction, 0.188" for dual)

OUTER PROTECTION TUBE LENGTH

L# – (e.g., L12 = 12" outer protection tube length)

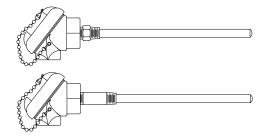


STYLE 81F

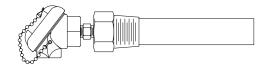
ASSEMBLY OPTIONS				
Option Code	Description			
TAG1	Stainless steel tag and wire			
CAL1	NIST traceable calibration [specify point(s)]			
CRT1	Certificate of conformance			
RB10	Replace terminal block with customer supplied part			
RB11	Supply assembly with no terminal block inside head			
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with $1/2$ " NPT conduit connections			
WC21	Wiring cable gland for $0.125 \cdot 0.187$ diameter cables, for terminal heads with $1/2$ " NPT conduit connections			

For additional Noble Metal Thermocouple styles, see:

Style 81N - Single, primary protection tube only



Style 81B - Secondary tube with mounting bushing



Style 51 - Replacement Sensor



NEMA	4 OR 4X	TERMINAL HEAD	OPTIONS			
Head without ground screw		Head with internal ground screw	Process Connection	Conduit Connection		
Cast al	uminum, s	crew cover with cha	in, NEMA 4			
HD10*	f	HD11*	1/2"	1/2"		
Std.*		HD13*	1/2"	3/4"		
Epoxy-	coated alu	ninum, screw cover	with chain, NEMA	4X		
HD50*	ł	HD51*	1/2"	1/2"		
HD52*	ł	HD53*	1/2"	3/4"		
Cast iro	on, screw c	over with chain, NE	MA 4			
HD20*	٢	HD21*	1/2"	1/2"		
HD22*	ł	HD23*	1/2"	3/4"		
316 sta	ainless stee	l, screw cover with o	chain, NEMA 4X	_ ļ		
HD40*	ł	HD41*	1/2"	3/4"		
White	polypropyle	ene, screw cover wit	h chain, NEMA 4			
HD30		N/A	1/2"	3/4"		
Black p	olypropyle	ne, screw cover witl	n chain, NEMA 4			
HD31		N/A	1/2"	3/4"		
Nylon,	screw cove	r	1			
HD32		N/A	1/2"	1/2"		
*can b	e used witl	n transmitters	1	_ ļ		
TRAN	SMITTERS	- For complete spe	ecs, see Transmitte	rs section		
TR11		A, 2-wire transmitten nits of measure (e.g th *.				
TR12	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.					
TR13	output;	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.				

Notes:

- 1. Applied Sensor Technologies recommends alumina protection tubes when using platinum thermocouples. Mullite, although less expensive when compared to alumina, can contaminate the platinum, causing drift.
- 2. In many cases platinum thermocouples can be recycled, thereby reducing the long-term overall cost. Please contact Applied Sensor Technologies for further information.
- 3. Applied Sensor Technologies offers many other temperatures sensor designs and technologies, including base metal thermocouples, RTDs, thermistors and Integrated Circuit chips, along with a full line of accessory items such as thermowells, transmitters, etc. Please visit our website or contact us for further information.



UE APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

Note: Many non-standard options, including additional sheath diameters and materials, may also be available - consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.

TC/81F-04



CONNECTION HEAD WITH BEADED THERMOCOUPLE AND MOUNTING HARDWARE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	CONNECTION	CONNECTION LENGTH	WIRE GAUGE	BEAD SHAPE	CALIBRATION	HOT JUNCTION	INSULATOR MATERIAL	BEAD LENGTH	OPTIONS

SENSOR TYPE

BTC – Beaded thermocouple

ASSEMBLY STYLE

80 - Sheath with cast aluminum head and beaded base-metal thermocouple; head

conforms to NEMA 4 requirements; 3/4" NPT conduit connection; ceramic terminal block; 1/2" NPT carbon steel process connection; gasketed screw cover with stainlesss steel chain; maximum head temperature 100°C

CONNECTION

- H Head only, no mounting hardware; 1/2" NPT (female) instrument connection
- **N** 1/2" NPT carbon steel nipple

NU – 1/2" NPT carbon steel nipple and union

NUN – 1/2" NPT carbon steel nipple, union and nipple

Add suffix "1S" for 304 stainless steel

Add suffix "**2S**" for 316 stainless steel See chart below for restrictions

CONNECTION LENGTH

(e.g., 006 = 6 inch)

(See chart below for standard available lengths)

WIRE GAUGE

14 - 0.064" diameter

08 - 0.128" diameter (K & KK calibrations only)

BEAD SHAPE

R – Round

CALIBRATION	 Standard limits
J – Single J	JJ – Dual J

K – Single K	KK – Dual K
N Shigic K	KK Duark

HOT JUNCTION

- $\boldsymbol{\mathsf{U}}$ Underground junction
- $\boldsymbol{\mathsf{E}}$ Exposed junction
- **TE –** Twisted exposed

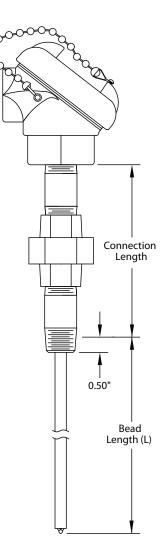
INSULATOR MATERIAL

M – Mullite

BEAD LENGTH (96" maximum)

L# – (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

Ν	NU	NUN
N/A	2.00	2.50
0.50	2.50	3.00*
1.00	3.00	4.00*
1.50	3.50	5.00
2.00	4.00	6.00*
3.00	5.00	8.00
4.00	6.00	10.00
5.00	7.00	12.00
6.00	8.00	14.00



AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIC	DNS
Option Code	Description
TAG1	Stainless steel tag and wire
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with 1/2" NPT conduit connections

NEMA 4 OR 4X TERMINAL HEAD OPTIONS							
Head without ground screw	Head with internal ground screw	Process Connection	Conduit Connection				
Cast aluminum, screw cover with chain, NEMA 4							
HD10	HD11	1/2"	1/2"				
Std.	HD13	1/2"	3/4"				
Epoxy-coated aluminum, screw cover with chain, NEMA 4X							
HD50	HD51	1/2"	1/2"				
HD52 HD53		1/2"	3/4"				
Cast iron, screw co	over with chain, NE	MA 4					
HD20	HD21	1/2"	1/2"				
HD22	HD23	1/2"	3/4"				
316 stainless stee	l, screw cover with o	hain, NEMA 4X	-				
HD40	HD41	1/2"	3/4"				

Notes:

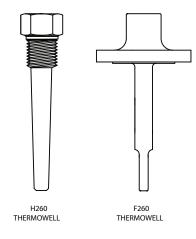
1. See Accessories for additional information

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.

THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.



REPLACEMENT ELEMENT – see Style 50

Style 50 - Beaded replacement for base-metal thermocouple

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APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.



THERMOCOUPLE/STYLE 50

BEADED REPLACEMENT ELEMENT FOR BASE-METAL THERMOCOUPLES

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	WIRE GAUGE	BEAD SHAPE	CALIBRATION	HOT JUNCTION	INSULATOR MATERIAL	BEAD LENGTH	LEADWIRE LENGTH

SENSOR TYPE

BTC – Beaded thermocouple

ASSEMBLY STYLE

50 - Replacement element for beaded base-metal thermocouple styles (such as Style 80)

WIRE GAUGE

08 - 0.128" diameter (K and KK calibrations only) 14 - 0.064" diameter

BEAD SHAPE

R - Round

CALIBRATION

J – Single J

K – Single K

HOT JUNCTION

U – Ungrounded junction

E - Exposed junction

TE - Twisted, exposed junction (single calibration only)

JJ – Dual J

KK – Dual K

INSULATOR MATERIAL

M - Mullite

BEAD LENGTH (length of insulator + junction)

L# - (e.g., L12=12" insulator, including junction end)

LEADWIRE EXTENSION LENGTH (length of wires at cold end)

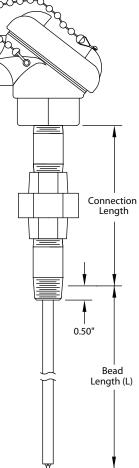
X# - (e.g., X3=3" leadwire extension)





Applied Sensor Technologies offers a wide variety of contructions using the Style 50 element. Many are based on the common Style 80 shown at the right. Many others are available to meet your requirements.

Give us a call!



APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.

http://www.appliedsensortech.com



BEADED REPLACEMENT ELEMENT FOR NOBLE-METAL THERMOCOUPLES

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	WIRE GAUGE	BEAD SHAPE	CALIBRATION	HOT JUNCTION	INSULATOR MATERIAL	BEAD LENGTH	LEADWIRE LENGTH

SENSOR TYPE

BTC - Beaded thermocouple

ASSEMBLY STYLE

51 - Replacement element for beaded noble-metal thermocouple styles (such as Style 81)

WIRE GAUGE

24 - 0.020" diameter

BEAD SHAPE

R – Round

CALIBRATION

R –	Single R	RR – Dual R
S –	Sinale S	SS – Dual S

-	Single S		Duurb
B -	Single B	BB -	Dual B

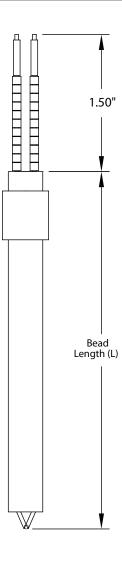
HOT JUNCTION

E - Exposed junction

INSULATOR MATERIAL

A – Alumina

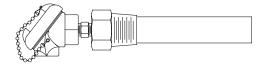
BEAD LENGTH (length of insulator + junction) **L#** – (e.g., L12=12" insulator, including junction end)



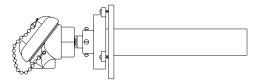


For additional Noble Metal Thermocouple styles, see:

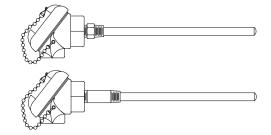
Style 81B – Secondary tube with mounting bushing



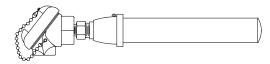
Style 81F – Secondary tube with mounting flange



Style 81N - Single, primary protection tube only



Style 81C - Secondary tube with mounting collar





Applied Sensor Technologies offers a wide variety of contructions using the Style 51 element. Some

of the more common Styles are listed at the right. Many others are available to meet your

requirements.

Give us a call!

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.

180 Dexter Avenue, P.O. Box 9143, Watertown, MA 02471-9143 USA Telephone: 617 923-6966 Fax: 617 926-8411 http://www.appliedsensortech.com



SHEATH WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE*

 SENSOR TYPE* CP - General purpose thermocouple MI - Mineral insulated thermocouple ASSEMBLY STYLE O2 - Sheath with leadwire; fiberglass insulated conductors; fiberglass jacket O4 - Sheath with leadwire; fiberglass insulated conductors; fiberglass jacket; stainless steel overbraid overall 28 - Sheath with Teflon® insulated conductors; Teflon® jacketed cable SHEATH DIAMETER (in inches) 4 - 1/8 (0.125) 6 - 3/16 (0.188) 7 - 1/4 (0.250) 9 - 3/8 (0.375) SHEATH MATERIAL 3 - 316 stainless steel 5 - Inconel® 600 (MI only) 	Leadwire Length (X)	Leadwire Length (X)
CALIBRATION - Standard limits J - Single J JJ - Dual J K - Single K KK - Dual K T - Single T TT - Dual T E - Single E EE - Dual E Special limits are available - consult AST Dual junction not available with all GP Thermocouples in sheath diameter 4 and GP04 diameter 6 HOT JUNCTION G - Grounded junction U - Ungrounded junction E - Exposed junction SHEATH LENGTH (Note: maximum L=96" for GP; for MI, lengths over L84 will be shipped coiled unless otherwise specified) L# - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length) LEADWIRE LENGTH X# - (e.g., X72 = 72 inch length) OPTIONS - see back page	2 3/8" 2 3/8" Sheath Length (L)	Sheath Length (L)
<u></u> F-30	MI Type	GP Type

*Note: GP thermocouples, manufactured using hollow tubing and wire, tend to be lower cost than MI, but cannot be bent in the field and are standardly designed for sensing temperatures below 500°F. MI thermocouples are more rugged than GP due to compacted magnesium-oxide powder insulation, can be bent in the field, and are appropriate for the temperature range of the sensor and sheath.

STYLES 02, 04, 28

AVAILABLE OPTIONS	and MODIFICATIONS
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	WIRING CONN	ECTION	OPTIONS			
	WC76		#6 spade terminals, plated copper			
	WC70		#10 spade terminals, plated copper			
n	WC84		1/4" push-	on insulated termi	nals, plated copper	
	WC90		#10 ring te	rminals		
n	WC98		#8 ring ter	minals		
		For plug	, gs and jacks,	see Styles 05, 07, 6	59.	
	COMPRESSION	I FITTIN	IGS (for dian	neters 4, 6, 7)		
ard	Option Code	NPT		Material	Ferrule	
)°C)	CF10	1/8'	1	Stainless steel	Stainless steel	
	CF11	1/8'	1	Stainless steel	Teflon®	
	CF12	1/8'	1	Brass	Brass	
	CF20	1/4'	1	Stainless steel	Stainless steel	
	CF21	1/4'	1	Stainless steel	Teflon®	
	CF22	1/4'	1	Brass	Brass	
	CF30	1/2'	1	Stainless steel	Stainless steel	
	CF31	1/2'	1	Stainless steel	Teflon®	
	CF32	1/2'	1	Brass	Brass	
	WELD PADS					
	WP00	Horiz	zontal pad∕f	lat		
	WP10	1″ n	ominal pipe s	size		
	WP15	1.5″	nominal pipe	e size		
	WP20	2″ n	ominal pipe s	size		
	WP25	2.5″	nominal pip	e size		
	WP30	3″ n	ominal pipe s	size		
	WP35	3.5″	nominal pip	e size		

EXTENSION WIRE

WP40

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.

4" nominal pipe size

ASSEMBLY OPTIONS	
Option Code	Description
TAG1	Stainless steel tag and wire
В90-	90° bend in sheath (specify length from tip in inches e.g., B90–6)
B45-	45° bend in sheath (specify length from tip in inches e.g., B45-6)
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
HT10	High temperature (900°F) transition. (Standard transition on Styles 02 and 04 is 500°F/260°C)

APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.



APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

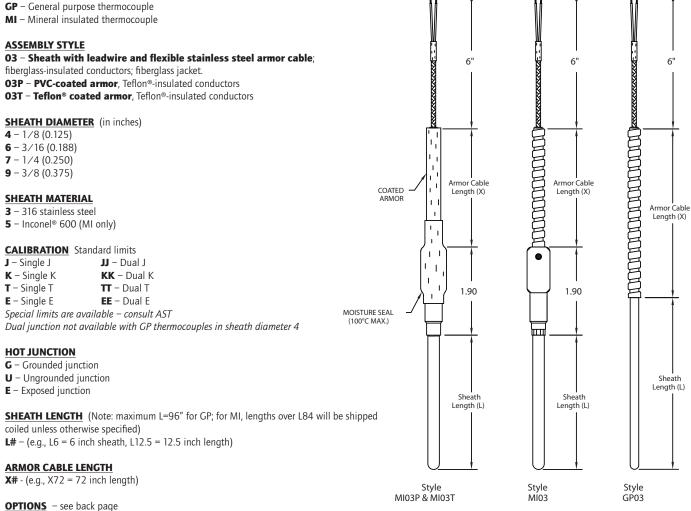
SHEATH WITH LEADWIRE AND ARMOR

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	ARMOR CABLE LENGTH	OPTIONS

SENSOR TYPE*



*Note: GP thermocouples, manufactured using hollow tubing and wire, tend to be lower cost than MI, but cannot be bent in the field and are standardly designed for sensing temperatures below 500°F. MI thermocouples are more rugged than GP due to compacted magnesium-oxide powder insulation, can be bent in the field, and are appropriate for the temperature range of the sensor and sheath.

1C

Option Code		Description				
TAG1		Stainless steel tag and wire				
B90-		90° bend in inches e.g.,	n sheath (specify ler B90-6)	ngth from tip in		
B45-		45° bend in inches e.g.,	n sheath (specify ler B45-6)	ngth from tip in		
CAL1		NIST tracea	ble calibration [spe	cify point(s)]		
CRT1		Certificate o	of conformance			
HT10		5 1	erature (900°F) tran ated 500°F/260°C	· ·		
COMPRESSION	FITTIN	IGS				
Option Code	NPT		Material	Ferrule		
CF10	1/8	n	Stainless steel	Stainless steel		
CF11	1/8	n	Stainless steel	Teflon®		
CF12	1/8	n	Brass	Brass		
CF20	1/4	"	Stainless steel	Stainless steel		
CF21	1/4	"	Stainless steel	Teflon®		
CF22	1/4	"	Brass	Brass		
CF30	1/2	n	Stainless steel	Stainless steel		
CF31	1/2	n	Stainless steel	Teflon®		
CF32	1/2	n	Brass	Brass		
LEADWIRE AN	D ARM	OR OPTIONS	5	·		
BA50 Bayonet cap on armor, no spring, GP styles only (formerly Style 25)						
Note: For assemb	oly with	sheath, armo	or and terminal head	d, see Style 65.		
SPRING-LOADE	ED FITT	INGS				
Stainless steel, n	on-seale	ed, for sensor	diameters 6, 7 & 9			
Option Code	D	escription	escription			
HF50 1.		1/2" x 1/2"				
	-		or diameters 6 and aximum pressure 15	7. O-ring is Buna N, psi.		
HF51 1/2" x 1/2"						

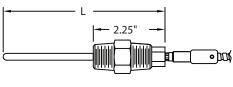
2. Fitting position is adjustable in the field.

AVAILABLE OPTIONS and MODIFICATIONS

WIRING CONNECTION	OPTIONS
WC76	#6 spade terminals, plated copper
WC70	#10 spade terminals, plated copper
WC84	1/4" push-on insulated terminals, plated copper
WC90	#10 ring terminals
WC98	#8 ring terminals
assemblies. Jack option	lote: plug is designed to be attached to sensor $s - for customer wiring - should only be specified luded. Cable clamp is included for both plug and$
РЈ10	Standard plug, rated to 177°C (350°F)
РЈ20	Standard jack, rated to 177°C (350°F)
РЈЗО	Miniature plug, rated to 177°C (350°F)
PJ40	Miniature jack, rated to 177°C (350°F)
PJ50	High temp. plug, rated to 260°C (500°F)
РЈ60	High temp. jack, rated to 260°C (500°F)
BX CONNECTORS	
WC40	1/2"
WC50	3/4"
WELD PADS	
WP00	Horizontal pad/flat
WP10	1" nominal pipe size
WP15	1.5" nominal pipe size
WP20	2" nominal pipe size
WP25	2.5" nominal pipe size
WP30	3" nominal pipe size
WP35	3.5" nominal pipe size

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.



HF50 Option



APPLIED SENSOR TECHNOLOGIES



SHEATH WITH LEADWIRE AND PLUG

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE*

GP – General purpose thermocouple

MI - Mineral insulated thermocouple

ASSEMBLY STYLE

05 - Sheath with leadwire; standard male plug; fiberglass insulated conductors; fiberglass jacket

07 - Sheath with leadwire; stainless steel overbraid; standard male plug; fiberglass insulated conductors; fiberglass jacket

69 - Sheath with leadwire; miniature plug; fiberglass insulated conductors; fiberglass jacket

SHEATH DIAMETER (in inches)

- 4 1/8 (0.125)
- 6-3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

- 3 316 stainless steel
- 5 Inconel® 600 (MI only)

CALIBRATION - Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	TT – Dual T
E – Single E	EE – Dual E
Special limits are	available – consult AST

Dual junctions not available with all GP Thermocouples in sheath diameter 4 and GP07 diameter 6

HOT JUNCTION

- **G** Grounded junction
- **U** Ungrounded junction
- E Exposed junction

SHEATH LENGTH (Note: maximum L=96" for GP; for MI, lengths over L84 will be shipped coiled unless otherwise specified)

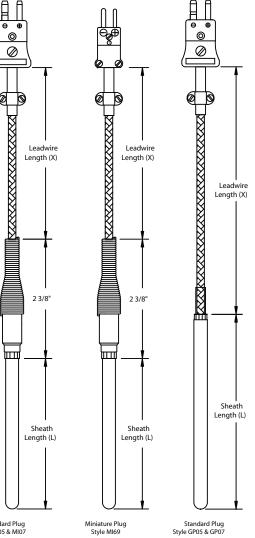
L# - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

LEADWIRE LENGTH X# - (e.g., X72 = 72 inch length)

OPTIONS – see back page



*Note: GP thermocouples, manufactured using hollow tubing and wire, tend to be lower cost than MI, but cannot be bent in the field and are standarly designed for sensing temperatures below 500°F. MI thermocouples are more rugged than GP due to compacted magnesium-oxide powder insulation, can be bent in the field, and are appropriate for the temperature range of the sensor and sheath.



AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIC	NS .
Option Code	Description
TAG1	Stainless steel tag and wire
B90-	90° bend in sheath (specify length from tip in inches e.g., B90-6)
B45-	45° bend in sheath (specify length from tip in inches e.g., B45-6)
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
HT10	High temperature (900°F) transition. (Standard transition rated 500°F/260°C)

PLUG AND JACK OPTIONS (Note: plug is designed to be attached to sensor assemblies. Jack options – for customer wiring – should only be specified if plug option is also included. Cable clamp is included for both plug and jack options.)

РЈ20	Standard jack, rated to 177°C (350°F)
РЈ40	Miniature jack, rated to 177°C (350°F)
РЈ50	High temp. standard plug, rated to 260°C (500°F)
РЈбО	High temp. standard jack, rated to 260°C (500°F)

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.

COMPRESSION FITTINGS (for diameters 4, 6, 7)						
Option Code	NPT	Material	Ferrule			
CF10	1/8"	Stainless steel	Stainless steel			
CF11	1/8"	Stainless steel	Teflon®			
CF12	1/8"	Brass	Brass			
CF20	1/4"	Stainless steel	Stainless steel			
CF21	1/4"	Stainless steel	Teflon®			
CF22	1/4"	Brass	Brass			
CF30	1/2"	Stainless steel	Stainless steel			
CF31	1/2"	Stainless steel	Teflon®			
CF32	1/2"	Brass	Brass			
WELD PADS	WELD PADS					
WP00	Horizontal pad/flat					
WP10	1" nominal pipe size					
WP15	1.5" nominal pipe	e size				
WP20	2" nominal pipe size					
WP25	2.5" nominal pipe size					
WP30	3" nominal pipe size					
WP35	3.5" nominal pipe size					
WP40	4" nominal pipe size					

APPLIED SENSOR TECHNOLOGIES



SHEATH WITH MALE PLUG

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	OPTIONS

SENSOR TYPE*

GP – General purpose thermocouple

MI – Mineral insulated thermocouple

ASSEMBLY STYLE

14 – **Sheath with standard male plug**; maximum termination temperature 177°C (350°F) **74** – **Sheath with miniature male plug**; maximum sheath diameter 3/16″ OD; maximum termination temperature 177°C (350°F)

SHEATH DIAMETER (in inches)

- 3 1/16 (0.063) (Style MI 74 only)
- 4 1/8 (0.125)
- **6** 3/16 (0.188)
- 7 1/4 (0.250) (Style 14 only)

SHEATH MATERIAL

- **3** 316 stainless steel
- 5 Inconel[®] 600 (MI only)

CALIBRATION - Standard limits

- J Single J
- K Single K
- T Single T
- **E** Single E
- Special limits are available consult AST

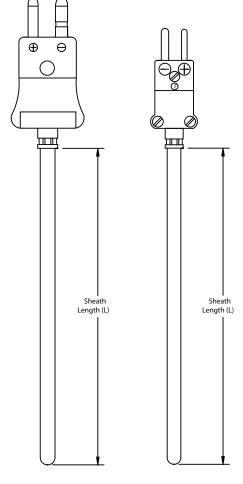
HOT JUNCTION

- **G** Grounded junction
- **U** Ungrounded junction
- E Exposed junction

SHEATH LENGTH (Note: maximum L=96" for GP; for MI, lengths over L84 will be shipped coiled unless otherwise specified) **L#** – (e.g., L6 = 6" sheath, L12.5 = 12.5" length)

OPTIONS – see back page

*Note: GP thermocouples, manufactured using hollow tubing and wire, tend to be lower cost than MI, but cannot be bent in the field and are standardly designed for sensing temperatures below 500°F. MI thermocouples are more rugged than GP due to compacted magnesium-oxide powder insulation, can be bent in the field, and are appropriate for the temperature range of the sensor and sheath.



Style 74

Style 14

STYLES 14 & 74

AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS					
Option Code	Description				
TAG1	Stainless steel tag and wire				
CAL1	NIST traceable calibration [specify point(s)]				
CRT1	Certificate of conformance				
PLUGS AND JACKS					
РЈ20	Standard jack, rated to 177°C (350°F) (Style 14 only)				
РЈ40	Miniature jack, rated to 177°C (350°F) (Style 74 only)				

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.

COMPRESSION	COMPRESSION FITTINGS (for diameters 4, 6, 7)					
Option Code	NPT	Material	Ferrule			
CF10	1/8"	Stainless steel	Stainless steel			
CF11	1/8"	Stainless steel	Teflon®			
CF12	1/8"	Brass	Brass			
CF20	1/4"	Stainless steel	Stainless steel			
CF21	1/4"	Stainless steel	Teflon®			
CF22	1/4"	Brass	Brass			
CF30	1/2"	Stainless steel	Stainless steel			
CF31	1/2"	Stainless steel	Teflon®			
CF32	1/2"	Brass	Brass			





Leadwire

Length (X)

SHEATH WITH WELDED PROCESS MOUNTING

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE

MI - Mineral insulated thermocouple

ASSEMBLY STYLE

23P - Sheath with single-sided process mounting; fiberglass insulated conductors; fiberglass jacket; 1/2" NPT stainless steel connection with leadwire 231 - Sheath with single-sided instrument mounting; fiberglass insulated conductors; fiberglass jacket; 1/2" NPT stainless steel connection with leadwire 24 - Sheath with double-sided hex fitting; fiberglass insulated conductors and jacket; 1/2" NPT stainless steel connection with leadwire

SHEATH DIAMETER (in inches)

- **4** 1/8 (0.125)
- 6-3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

5 - Inconel® 600

CALIBRATION - Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	🎞 – Dual T
E – Single E	EE – Dual E

Special limits are available - consult AST

HOT JUNCTION

G – Grounded junction

U – Ungrounded junction

E – Exposed junction

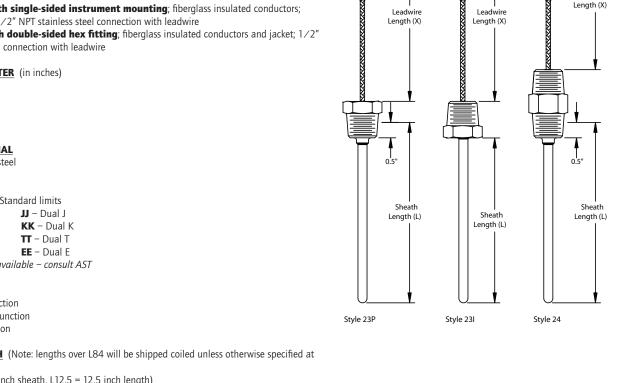
SHEATH LENGTH (Note: lengths over L84 will be shipped coiled unless otherwise specified at time of order)

L# - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

LEADWIRE LENGTH

X# - (e.g., X72 = 72 inch length)

OPTIONS – see back page



Leadwire

Length (X)

Leadwire Length (X)

AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS	
Option Code	Description
TAG1	Stainless steel tag and wire
B90-	90° bend in sheath [specify length from tip in inches e.g., B90-6)
B45-	45° bend in sheath (specify length from tip in inches e.g., B45-6)
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
HT10	High temperature (900°F) transition. (Standard transition rated 500°F/260°C)

WIRING CONN	IECTION OPTIONS
Option Code	Description
WC76	#6 spade terminals, plated copper
WC70	#10 spade terminals, plated copper
WC84	1/4" push-on insulated terminals, plated copper
WC90	#10 ring terminals
WC98	#8 ring terminals
assemblies. Jac	ACKS (Note: plug is designed to be attached to sensor k options – for customer wiring – should only be specified also included. Cable clamp is included for both plug and
PJ10	Standard plug, rated to 177°C (350°F)
PJ20	Standard jack, rated to 177°C (350°F)
PJ30	Miniature plug, rated to 177°C (350°F)
PJ40	Miniature jack, rated to 177°C (350°F)
PJ50	High temp. standard plug, rated to 260° C (500° F)
PJ60	High temp. standard jack, rated to 260°C (500°F)
WELD PADS (S	ityle 23I only)
WP00	Horizontal pad/flat
WP10	1" nominal pipe size
WP15	1.5" nominal pipe size
WP20	2" nominal pipe size
WP25	2.5" nominal pipe size
WP30	3" nominal pipe size
WP35	3.5" nominal pipe size
WP40	4" nominal pipe size

APPLIED SENSOR TECHNOLOGIES



APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

WASHER WITH LEADWIRE AND ARMOR

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	WASHER SIZE	MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	ARMOR CABLE LENGTH	OPTIONS

SENSOR TYPE*

GP – General purpose thermocouple

MI - Mineral insulated thermocouple

ASSEMBLY STYLE

32 - Washer with leadwire; fiberglass insulated conductors; fiberglass jacket; armor cable; stainless steel washer thickness 1/4" (0.250); sheath diameter 0.188" only

WASHER SIZE (in inches)							
FOR BOLT SIZE	ID	OD					
6 – 3/16 (0.188)	0.193	0.375					
7 – 1/4 (0.250)	0.255	0.500					
9 - 3/8 (0.375)	0.380	0.750					
10 – 1/2 (0.500)	0.510	1.000					

WASHER AND SHEATH MATERIAL

3 - 316 stainless steel

CALIBRATION Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	TT – Dual T
E – Single E	EE – Dual E

Special limits are available - consult AST

HOT JUNCTION

G – Grounded junction

U – Ungrounded junction

SHEATH LENGTH (Note: maximum L=96" for GP; for MI, lengths over L84 will be shipped coiled unless otherwiese specified)

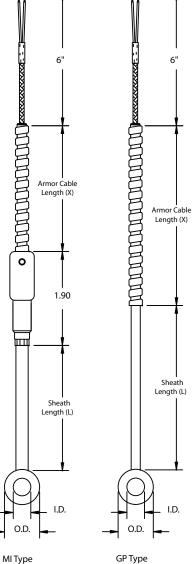
L# - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

ARMOR CABLE LENGTH

X# - (e.g., X72 = 72 inch length)

OPTIONS – see back page

*Note: GP thermocouples, manufactured using hollow tubing and wire, tend to be lower cost than MI, but cannot be bent in the field and are standardly designed for sensing temperatures below 500°F. MI thermocouples are more rugged than GP due to compacted magnesium-oxide powder insulation, can be bent in the field, and are appropriate for the temperature range of the sensor and sheath.



GP Type

STYLE 32

AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS	
Option Code	Description
TAG1	Stainless steel tag and wire
B90-	90° bend in sheath [specify length from tip in inches e.g., B90-6)
B45-	45° bend in sheath (specify length from tip in inches e.g., B45-6)
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
HT10	High temperature (900°F) transition. (Standard transition rated 500°F/260°C)

WIRING CONNECTION OPTIONS						
Option Code	Description					
WC76	#6 spade terminals, plated copper					
WC70	#10 spade terminals, plated copper					
WC84	1/4" push-on insulated terminals, plated copper					
WC90 #10 ring terminals						
WC98 #8 ring terminals						
PLUGS AND JACKS (Note: plug is designed to be attached to sensor assemblies. Jack options – for customer wiring – should only be specified if plug option is also included. Cable clamp is included for both plug and jack options.)						
PJ10 Standard plug, rated to 177°C (350°F)						
PJ20 Standard jack, rated to 177°C (350°F)						
PJ30	Miniature plug, rated to 177°C (350°F)					
PJ40	Miniature jack, rated to 177°C (350°F)					
PJ50	High temp. plug, rated to 260°C (500°F)					
PJ60	High temp. jack, rated to 260°C (500°F)					
BX CONNECTOR	S					
WC40	1/2"					
WC50	3/4"					

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.

APPLIED SENSOR TECHNOLOGIES



APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

CUTABLE SHEATH WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE

GP – General purpose thermocouple

ASSEMBLY STYLE

38 – **Field cutable sheath length with leadwire**; fiberglass insulated conductors; fiberglass jacket; stainless steel overbraid; (cannot be shortened to less than 4")

SHEATH DIAMETER (in inches)

6 – 3/16 (0.188)

7 – 1/4 (0.250)

SHEATH MATERIAL

3 - 316 stainless steel

CALIBRATION - Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	🎞 – Dual T
E – Single E	EE – Dual E

Special limits are available- consult AST

HOT JUNCTION

G – Grounded junction

$\boldsymbol{\mathsf{U}}-\mathsf{Ungrounded\ junction}$

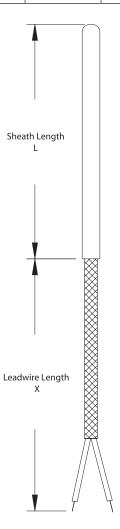
SHEATH LENGTH (Maximum L=96") **L#** – (e.g., L24 = 24 inch sheath)

LEADWIRE LENGTH

X# - (e.g., X72 = 72 inch length)

OPTION

TAG1 – stainless steel tag and wire







EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.

Many additional components are available in our Sensor Box program, including spring-loaded fittings and plugs and jacks.

The Sensor Box allows you to build sensor assemblies on-site, saving time and expense. See the Sensor Box literature for further details.



APPLIED SENSOR TECHNOLOGIES



APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

MOUNTING LUG WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	LUG HOLE SIZE	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE

GP – General purpose thermocouple

ASSEMBLY STYLE

41F – **Stainless steel mounting lug with fiberglass leadwire**; diameter 0.312" only; 500°F max. **41T** – **Stainless steel mounting lug with Teflon**® **leadwire**; diameter 0.312" only; 400°F max.

LUG HOLE SIZE - diameter of hole (in inches)

- **6** 3/16 (0.188)
- **7** 1/4 (0.250)
- 9 3/8 (0.375)

CALIBRATION - Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	🎞 – Dual T
E – Single E	EE – Dual E

HOT JUNCTION

G – Grounded junction

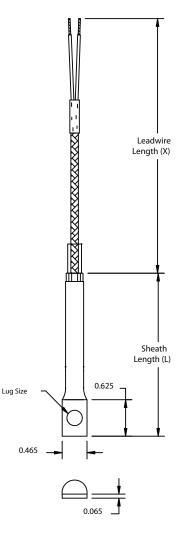
 \boldsymbol{U} – Ungrounded junction

SHEATH LENGTH (Minimum L=1.75"; maximum L=96") L# - (e.g., L6 = 6 inch sheath)

LEADWIRE LENGTH

X# - (e.g., X72 = 72 inch length)

OPTIONS – see back page



AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTION	S	W
Option Code	Description	Op
TAG1	Stainless steel tag and wire	W
CAL1	NIST traceable calibration [specify point(s)]	W
CRT1	Certificate of conformance	W

WIRING CONNECTION OPTIONS						
Option Code	Description					
WC76	#6 spade terminals, plated copper					
WC70	#10 spade terminals, plated copper					
WC84	1/4" push-on insulated terminals, plated copper					
WC90 #10 ring terminals						
WC98 #8 ring terminals						
P120	Standard plug, rated to 177°C (350°F)					
	Standard jack, rated to 177°C (350°F)					
PJ30	Miniature plug, rated to 177°C (350°F)					
PJ40	Miniature jack, rated to 177°C (350°F)					
PJ50 High temp. standard plug, rated to 260°C (500°F)						
	PJ60 High temp. standard jack, rated to 260°C (500°F)					

EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.

APPLIED SENSOR TECHNOLOGIES



SPRING LOADED BAYONET FITTING WITH ARMOR

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	CALIBRATION	HOT JUNCTION	SHEATH LENGTH	ARMOR CABLE LENGTH	OPTIONS

SENSOR TYPE*

GP – General purpose thermocouple

MI - Mineral insulated thermocouple

ASSEMBLY STYLE

71 – **Sheath with stainless steel armor**; fiberglass insulated conductors; fiberglass jacket; spring-loaded bayonet cap; (use with Bayonet Adapter- see options on page 1-16b)

SHEATH DIAMETER (in inches)

6 - 3/16 (0.188)

SHEATH MATERIAL

3 - 316 stainless steel

CALIBRATION - Standard limits

J – Single J	JJ – Dual J
K – Single K	KK – Dual K
T – Single T	🎞 – Dual T

E – Single E **EE** – Dual E

HOT JUNCTION

- **G** Grounded junction
- \boldsymbol{U} Ungrounded junction

SHEATH LENGTH (Note: maximum L=96" for GP; for MI, lengths over L84 will be shipped coiled unless otherwise specified)

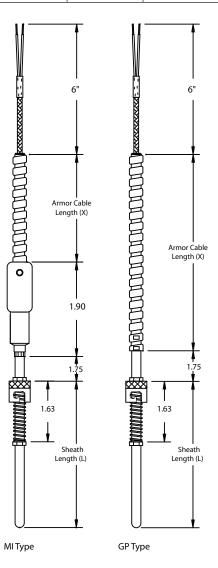
L# – (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

ARMOR CABLE LENGTH

X# - (e.g., X72 = 72 inch length)

OPTIONS – see back page

*Note: GP thermocouples, manufactured using hollow tubing and wire, tend to be lower cost than MI, but cannot be bent in the field and are standardly designed for sensing temperatures below 500°F. MI thermocouples are more rugged than GP due to compacted magnesium-oxide powder insulation, can be bent in the field, and are appropriate for the temperature range of the sensor and sheath.



STYLE 71

AVAILABLE OPTIONS and MODIFICATIONS

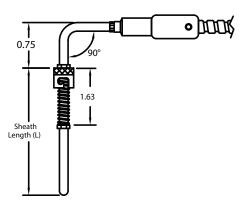
ASSEMBLY OPTIONS						
Option Code	Description					
TAG1	Stainless steel tag and wire					
BD90	90° bend in sheath, 3/4" from back end of cap Formerly Style 35					
BD45	45°bend in sheath, 3/4" from back end of cap Formerly Style 70					
CAL1	NIST traceable calibration	NIST traceable calibration [specify point(s)]				
CRT1	Certificate of conformance					
HT10	High temperature (900°F) transition. (Standard transition rated 500°F/260°C)					
BAYONET ADAPTERS (PLATED STEEL)						
Option Code	Thread Size	Length (L)				
BA20	1/8" - 27 NPT	7/8"				
BA22	1/8" - 27 NPT	1-1/2"				
BA24	1/8" - 27 NPT	2-1/2"				
PIPE CLAMP AND BAY	ONET ADAPTERS					
Option Code	Band Diameter	Adapter Length (I)				
BA30	11/16" to 1-1/4"	2"				
BA31	1-1/16" to 2"	2"				
BA32	2-1/16" to 3"	2"				
BA33	3-5/16" to 4-1/4"	2"				
BA34	4-1/8" to 5"	2"				

WIRING CONNECTION OPTIONS						
Option Code	Description					
WC76	#6 spade terminals, plated copper					
WC70	#10 spade terminals, plated copper					
WC84	1/4" push-on insulated terminals, plated copper					
WC90	#10 ring terminals					
WC98	#8 ring terminals					
PLUGS AND JACKS (Note: plug is designed to be attached to sensor assemblies. Jack options – for customer wiring – should only be specified if plug option is also included. Cable clamp is included for both plug and jack options.)						
PJ10	Standard plug, rated to 177°C (350°F)					
PJ20	Standard jack, rated to 177°C (350°F)					
	Standard Jack, rated to 177 C (550 T)					
PJ30	Miniature plug, rated to 177°C (350°F)					
РЈЗО	Miniature plug, rated to 177°C (350°F)					
PJ30 PJ40	Miniature plug, rated to 177°C (350°F) Miniature jack, rated to 177°C (350°F) High temp. standard plug, rated to 260°C					
PJ30 PJ40 PJ50	Miniature plug, rated to 177°C (350°F) Miniature jack, rated to 177°C (350°F) High temp. standard plug, rated to 260°C (500°F) High temp. standard jack, rated to 260°C					
PJ30 PJ40 PJ50 PJ60	Miniature plug, rated to 177°C (350°F) Miniature jack, rated to 177°C (350°F) High temp. standard plug, rated to 260°C (500°F) High temp. standard jack, rated to 260°C					

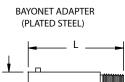
EXTENSION WIRE

A selection of extension-grade thermocouple wire is available to connect the sensor to its input device. Consult Accessories section.



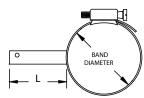


Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.





PIPE CLAMP WITH BAYONET ADAPTER



(Note: sheath "L" length should be 1/2" longer than adaptor "L" length.)

APPLIED SENSOR TECHNOLOGIES



NEMA 4 CONNECTION HEAD WITH WELDED PROCESS CONNECTION

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR	ASSEMBLY	SHEATH	SHEATH	TEMPERATURE	SHEATH	OPTIONS
TYPE	STYLE	DIAMETER	MATERIAL	RANGE	LENGTH	

SENSOR TYPE (See page 2-1b for optional elements)

RTP1 – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction (For dual element, add prefix "D", e.g., DRTP1)

ASSEMBLY STYLE

15 – **Sheath with cast aluminum head and 1/2" NPT welded stainless steel process connection**; head conforms to NEMA 4 requirements; 3/4" NPT conduit connection; ceramic terminal block; gasketed screw cover with stainless steel chain

SHEATH DIAMETER (in inches) (see below for restrictions)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- **7** 1/4 (0.250)
- **9** 3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

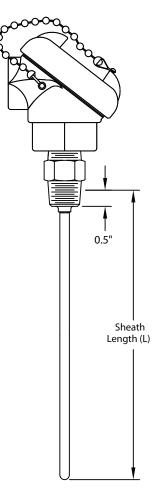
TEMPERATURE RANGE - Minimum and maximum operating temperatures

- **1** -45 to 260°C (-50 to 500°F)
- 2 -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- **4** -200 to 260°C (-328 to 500°F)

SHEATH LENGTH (for lengths greater than L=36", consult AST) L# - (e.g., L6 = 6 inch sheath)

OPTIONS – see back page

Smallest	Smallest Diameter Sheath Available By Sensor Type and Temperature Range						
	SINGLE						
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16
3	3/16			3/16	3/16		
4	1/8			1/8	3/16		
			DL	JAL			
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA
1	3/16	3/16	3/16	3/16			
2	1/4	1/4	1/4	3/16			
3	1/4			1/4			
4	3/16			3/16			



STYLE 15

OPTIONAL ELEMENTS

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.

-		
Option Code	Accuracy (at 0°C)	Construction
RTP1 (std.)	±0.12%	3-wire
RTP1A	±0.06%	3-wire
RTP1AA	±0.01%	3-wire
RTP6	±0.12%	2-wire
RTP7	±0.12%	4-wire
RTP7A	±0.06%	4-wire
RTP7AA	±0.01%	4-wire

Notes:

1.

For dual element, add prefix "D" (e.g., DRTP6) Additional materials, curves and resistance values are available - see 2. Capabilities brochure.

ASSEMBLY OPTIONS

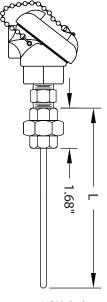
ASSEMBLE OPTIONS				
Option Code	Description			
TAG1	Stainless steel tag and wire			
CAL1	NIST traceable calibration [specify point(s)]			
CRT1	Certificate of conformance			
PC25	1/4" NPT process connection			
PC75	3/4" NPT process connection			
RB10	Replace terminal block with customer supplied part			
RB11	Supply assembly with no terminal block inside head			
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections			
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with 1/2" NPT conduit connections			
TRANSMITTERS - For	r complete specs, see Transmitters section			
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200°C) and optional terminal head with *.			
TR12	4-20 mA, 2-wire transmitter, single input, non- isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.			
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.			
UNION CONNECTOR	(converts male connection to female)			
Option Code	Description			
UC10	Stainless steel, 1/2" x 1/2" NPT, ordinary location			
Note: adding the union connector reduces the sensor's L length by 1.68" (see view). Adjust L dimension accordingly.				

AVAILABLE OPTIONS and MODIFICATIONS

NEMA 4 OR 4X TERMINAL HEAD OPTIONS					
Head without ground screw	Head with internal ground screw	Process Connection	Conduit Connection		
Cast aluminum, se	crew cover with cha	in, NEMA 4			
HD10*	HD11*	1/2"	1/2"		
Std.*	HD13*	1/2"	3/4"		
Epoxy-coated alur	ninum, screw cover	with chain, NEMA	4X		
HD50*	HD51*	1/2"	1/2"		
HD52*	HD53*	1/2"	3/4"		
Cast iron, screw co	over with chain, NE	MA 4			
HD20*	HD21*	1/2"	1/2"		
HD22*	HD23*	1/2"	3/4"		
316 stainless stee	l, screw cover with o	chain, NEMA 4X			
HD40*	HD41*	1/2"	3/4"		
White polypropyle	ene, screw cover wit	h chain, NEMA 4			
HD30	N/A	1/2"	3/4"		
Black polypropylene, screw cover with chain, NEMA 4					
HD31	N/A	1/2"	3/4"		
Nylon, screw cover					
HD32	N/A	1/2"	1/2"		
*can be used with transmitters					

Notes:

- 1. See Accessories for additional information
- 2. For former Style 16, use option HD20
- 3. For former Style 29, use option HD32



UC10 Option



APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART $^\circ$ is a registered trademark of the HART Communication Foundation.



CONNECTION HEAD WITH WELDED HEX FITTING

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	OPTIONS

SENSOR TYPE (See page 2-5b for optional elements) **RTP1** – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction (For dual element, add prefix "D"- e.g., DRTP1)

ASSEMBLY STYLE

21 – **Sheath with head**; for use as ambient sensor or with compression fitting for process mounting. See page 2-5b for head options.

SHEATH DIAMETER (in inches) (see below for restrictions)

- **4** 1/8 (0.125)
- 6-3/16 (0.188)
- 7 1/4 (0.250)
- **9** 3/8 (0.375)

SHEATH MATERIAL

3 – 316 stainless steel

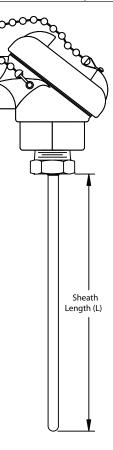
TEMPERATURE RANGE - Minimum and maximum operating temperatures

- **1** -45 to 260°C (-50 to 500°F)
- 2 -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- **4** -200 to 260°C (-328 to 500°F)

SHEATH LENGTH (for lengths greater than L=36", consult AST) **L#** – (e.g., L6 = 6" sheath)

OPTIONS – see back page

Smallest	Smallest Diameter Sheath Available By Sensor Type and Temperature Range						
			SIN	GLE			
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16
3	3/16			3/16	3/16		
4	1/8			1/8	3/16		
			DL	JAL			
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA
1	3/16	3/16	3/16	3/16			
2	1/4	1/4	1/4	3/16			
3	1/4			1/4			
4	3/16			3/16			





OPTIONAL ELEMENTS

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.					
Option Code	Accuracy (at 0°C)	Construction			
RTP1 (std.)	±0.12%	3-wire			
RTP1A	±0.06%	3-wire			
RTP1AA	±0.01%	3-wire			
RTP6	±0.12%	2-wire			
RTP7	±0.12%	4-wire			
RTP7A	±0.06%	4-wire			
RTP7AA	±0.01%	4-wire			

Notes:

For dual element, add prefix "D" (e.g., DRTP6) 1.

Additional materials, curves and resitance values are available - see Capabilities brochure. 2.

2. Additional materials, curves and resitance values are available - see Capabilities brochure.					
ASSEMBLY OPTIO	NS				
Option Code		Description			
TAG1		Stainless steel tag and wire			
B90-		90° bend in shea	th [specify length from tip	in inches e.g., B90-6)	
B45-		45° bend in shea	th (specify length from tip	in inches e.g., B45-6)	
CAL1		NIST traceable ca	libration [specify point(s)]		
CRT1		Certificate of conf	formance		
RB10		Replace terminal	block with customer suppli	ed part	
RB11		Supply assembly v	with no terminal block insid	le head	
WC20			d for 0.187 - 0.312 diamete NPT conduit connections	er cables, for terminal	
WC21			d for 0.125 - 0.187 diamet NPT conduit connections	er cables, for terminal	
TRANSMITTERS -	for comp	olete specs, see Tran	smitters section		
TR11			single input, isolated outpu D-200°C) and optional hea		
TR12		4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with $*$.			
TR13		HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with $*$.			
COMPRESSION FI	TTINGS	(for diameters 4, 6	i, 7)		
Option Code	NP	Г	Material	Ferrule	
CF10	1/8	3"	Stainless steel	Stainless steel	
CF11	1/8	3″	Stainless steel	Teflon®	
CF12	1/8	3″	Brass	Brass	
CF20	1/4	1″	Stainless steel	Stainless steel	
CF21	1/4	1″	Stainless steel	Teflon®	
CF22	1/4	1″	Brass	Brass	
CF30	1/2	2"	Stainless steel	Stainless steel	
CF31	1/2	2"	Stainless steel	Teflon®	
CF32	1/2	2"	Brass	Brass	
WELD PADS					
Option Code		Radius To Fit Pipe			
WPOO		Horizontal pad/flat			
WP10		1" nominal pipe size			
WP15		1.5" nominal pipe	e size		
WP20		2" nominal pipe s	size		
WP25		2.5" nominal pipe	e size		
WP30		3" nominal pipe s	size		
WP35		3.5" nominal pipe	e size		
<u> </u>					

STYLE 21

AVAILABLE OPTIONS and MODIFICATIONS

NEMA 4 OR 4X TE	RMINAL HEAD OPTI	ONS		
Head without ground screw	Head with internal ground screw		ocess nection	Conduit Connection
Cast aluminum, scre	w cover with chain, NE	MA 4		
HD10*	HD11*	1/2"		1/2"
Std.*	HD13*	1/2″		3/4"
Epoxy-coated alumir	um, screw cover with	chain, NE	MA 4X	
HD50*	HD51 *	1/2"		1/2"
HD52*	HD53*	1/2"		3/4"
Cast iron, screw cove	er with chain, NEMA 4			
HD20*	HD21*	1/2"		1/2"
HD22*	HD23*	1/2"		3/4"
316 stainless steel, s	crew cover with chain,	NEMA 42	x	
HD40*	HD41*	1/2"		3/4"
	, screw cover with cha		4	
НДЗО	N/A	1/2"		3/4"
	, screw cover with chai	., 2	1	571
HD31	N/A	1/2"	4	3/4"
-	N/ A	172		5/4
Nylon, screw cover		1 (2)		1. (2)
HD32	N/A	1/2"		1/2"
	F TERMINAL HEAD	OPTIONS		
Option Code	Process Connection		Conduit Cor	
	w cover with chain; o-r CSA approved for Clas nd screw	5 5		
HD70*	1/2"		1/2"	
HD71*	1/2"		3/4"	
Stainless steel (same	specs as HD70/71)			
HD74*	1/2"		1/2"	
HD75*	1/2"		3/4"	
Epoxy-coated (same	specs as HD70/71)			
HD80*	1/2"		1/2"	
HD81*	1/2"		3/4"	
Cast aluminum; ATEX approved for EEx d IIC; screw cover with chain; silicone rubber o-ring gasket; ceramic terminal block; rated for NEMA 4X, IP66 to IP68; internal and external ground screws				
HD72*	1/2"		1/2"	
HD73*	1/2"		3/4"	
Cast aluminum (formerly Style 60); screw cover; plastic terminal block; UL/CSA approved for Class I Div. 1, Groups C and D; Class II Groups E, F and G.				
HD60	1/2"		1/2"	
HD61	1/2"		3/4"	
*can be used with transmitters				

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.



APPLIED SENSOR TECHNOLOGIES

4" nominal pipe size 180 Dexter Avenue, P.O. Box 9143, Watertown, MA 02471-9143

WP40

USA Telephone: 617 923-6966



ATEX APPROVED CONNECTION HEAD WITH WELDED PROCESS CONNECTION

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR	ASSEMBLY	SHEATH	SHEATH	TEMPERATURE	SHEATH	OPTIONS
TYPE	STYLE	DIAMETER	MATERIAL	RANGE	LENGTH	

SENSOR TYPE (See page 2-3b for optional elements) **RTP1** – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction (For dual element, add prefix "D" - e.g., DRTP1)

ASSEMBLY STYLE

22 - Sheath with cast aluminum head and 1/2" NPT welded stainless

steel process connection; head ATEX approved for EEx d IIC; IP66 to 68; screw cover with chain and gasketed o-ring; meets NEMA 4X; ceramic terminal block; 3/4" NPT conduit connection; internal and external ground screws (Note: For spring-loaded fitting, see Style 75 and add optional head).

SHEATH DIAMETER (in inches) (see below for restrictions)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- **7** 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

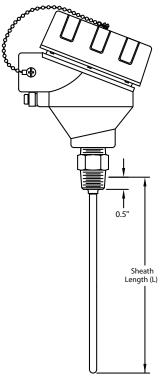
TEMPERATURE RANGE - Minimum and maximum operating temperatures

- **1** -45 to 260°C (-50 to 500°F)
- **2** -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- 4 -200 to 260°C (-328 to 500°F)

SHEATH LENGTH (for lengths greater than L=36", consult AST) L# – (e.g., L6 = 6 inch sheath)

OPTIONS – see back page

Smallest Diameter Sheath Available By Sensor Type and Temperature Range							
			SIN	GLE			
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16
3	3/16			3/16	3/16		
4	1/8			1/8	3/16		
			DL	JAL			
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA
1	3/16	3/16	3/16	3/16			
2	1/4	1/4	1/4	3/16			
3	1/4			1/4			
4	3/16			3/16			



56 Fax: 617 926-8411

OPTIONAL ELEMENTS

RTDs are standardly platinum,	100-ohm,	DIN-curve elements with a 0.00385
alpha.		

Option Code	Accuracy (at 0°C)	Construction
RTP1 (std.)	±0.12%	3-wire
RTP1A	±0.06%	3-wire
RTP1AA	±0.01%	3-wire
RTP6	±0.12%	2-wire
RTP7	±0.12%	4-wire
RTP7A	±0.06%	4-wire
RTP7AA	±0.01%	4-wire

Notes:

1. For dual element, add prefix "D" (e.g., DRTP6)

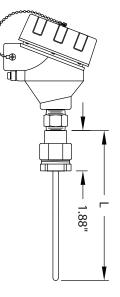
Additional materials, curves and resistance values are available - see 2. Capabilities brochure.

ASSEMBLY OPTIONS

ASSEMBLY OPTIONS	
Option Code	Description
TAG1	Stainless steel tag and wire
PC25	1/4" NPT process connection
PC75	3/4" NPT process connection
RB10	Replace terminal block with customer supplied part
RB11	Supply assembly with no terminal block inside head
CAL1	Calibration, NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
TRANSMITTERS - For	complete specs, see Transmitters section
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C)
TR12	4-20 mA, 2-wire transmitter, single input, non- isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.
UNION CONNECTOR (converts male connection to female)
Option Code	Description
UC20	Plated steel, 1/2" x 1/2" NPT, explosion-proof rating
Note: adding the union view). Adjust L dimension	connector reduces the sensor's L length by 1.88" (see on accordingly.

AVAILABLE OPTIONS and MODIFICATIONS

EXPLOSION-PROOF TERMINAL HEAD OPTIONS				
Option Code	Process Connection	Conduit Connection		
Same specifications as standard				
HD72	1/2"	1/2"		



UC20 Option



APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.



NEMA 4 CONNECTION HEAD WITH SPRING-LOADED ASSEMBLY AND MOUNTING HARDWARE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	CONNECTION	CONNECTION LENGTH	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	OPTIONS

SENSOR TYPE (See page 2-2b for optional elements) **RTP1** – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction (For dual element, add prefix "D"- e.g., DRTP1)

ASSEMBLY STYLE

45 – **Sheath with cast aluminum head; spring-loaded in head**; conforms to NEMA 4 requirements; 3/4" NPT conduit connection; ceramic terminal block; 1/2" NPT process connection; gasketed screw cover with stainless steel chain

CONNECTION

H – Head only; 1/2" NPT (female) instrument connection
N – 1/2" NPT carbon steel nipple only
NU – 1/2" NPT carbon steel nipple and union
NUN – 1/2" NPT carbon steel nipple, union and nipple Add suffix "15" for 304 stainless steel
Add suffix "25" for 316 stainless steel
See chart below for restrictions

CONNECTION LENGTH

- (e.g., 006 = 6 inch)
See chart below for standard available lengths

SHEATH DIAMETER (in inches) (see below for restrictions)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

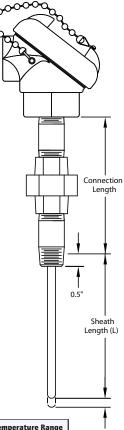
TEMPERATURE RANGE - Minimum and maximum operating temperatures

- **1** -45 to 260°C (-50 to 500°F)
- 2 -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- **4** -200 to 260°C (-328 to 500°F)

SHEATH LENGTH (for lengths greater than L=36", consult AST) L# - (e.g., L6 = 6 inch sheath)

OPTIONS – see back page

	rd availab Tion lengt			
Ν	NU	NUN		
N/A	2.00	2.50		
0.50	2.50	3.00 *		
1.00	3.00	4.00 *		
1.50	3.50	5.00		
2.00	4.00	6.00 *		
3.00	5.00	8.00		
4.00	6.00	10.00		
5.00	7.00	12.00		
6.00	8.00	14.00		
* NUN 25 OPTION AVAILABLE IN THESE LENGTHS ONLY.				
DIMENS	SIONS ARE GIV IN INCHES	EN		



Smallest	Diameter	r Sheath A	vailable B	y Sensor 1	ype and T	emperatu	re Range
			SIN	GLE			
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA
1	1/8	1/8	1/8	1/8	3/16	3/16	. 3/16
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16
3	3/16			3/16	3/16		
4	1/8			1/8	3/16		
			DL	JAL			
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA
1	3/16	3/16	3/16	3/16			
2	1/4	1/4	1/4	3/16			
3	1/4			1/4			
4	3/16			3/16			



USA Telephone: 617 923-6966

Fax: 617 926-8411

http://www.appliedsensortech.com

OPTIONAL ELEMENTS

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.

Option Code	Accuracy (at 0°C)	Construction
RTP1 (std.)	±0.12%	3-wire
RTP1A	±0.06%	3-wire
RTP1AA	±0.01%	3-wire
RTP6	±0.12%	2-wire
RTP7	±0.12%	4-wire
RTP7A	±0.06%	4-wire
RTP7AA	±0.01%	4-wire

Notes:

1. For dual element, add prefix "D" (e.g., DRTP6)

2. Additional materials, curves and resistance values are available - see Capabilities brochure.

ASSEMBLY OPTIONS

Option Code	Description		
TAG1	Stainless steel tag and wire		
CAL1	NIST traceable calibration [specify point(s)]		
CRT1	Certificate of conformance		
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections		
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with 1/2" NPT conduit connections		
Transmitters: see Style 48			

AVAILABLE OPTIONS and MODIFICATIONS

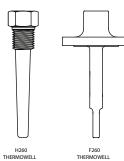
NEMA 4 OR 4X	TERMINAL HEAD	OPTIONS		
Head without ground screw	Head with internal ground screw	Process Connection	Conduit Connection	
Cast aluminum, s	crew cover with cha	in, NEMA 4	~ 	
HD10	HD11	1/2"	1/2"	
Std.	HD13	1/2"	3/4"	
Epoxy-coated alu	ninum, screw cover	with chain, NEMA	4X	
HD50	HD51	1/2"	1/2"	
HD52	HD53	1/2"	3/4"	
Cast iron, screw c	over with chain, NE	MA 4		
HD20	HD21	1/2"	1/2"	
HD22	HD23	1/2"	3/4"	
316 stainless steel, screw cover with chain, NEMA 4X				
HD40	HD41	1/2"	3/4"	

Note:

1. For former Style 46, use option HD20

THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.



Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements.

APPLIED SENSOR TECHNOLOGIES

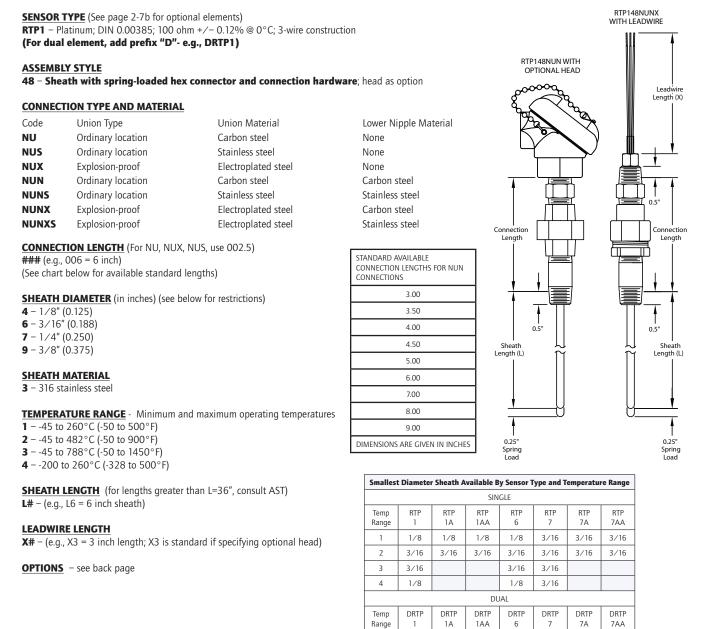


SPRING-LOADED PROCESS MOUNTING HARDWARE WITH OPTIONAL TERMINAL HEAD

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection.

SENSOR	ASSEMBLY	CONNECTION TYPE	CONNECTION	SHEATH	SHEATH	TEMPERATURE	SHEATH	LEADWIRE	OPTIONS
TYPE	STYLE	AND MATERIAL	LENGTH	DIAMETER	MATERIAL	RANGE	LENGTH	LENGTH	



USA Telephone: 617 923-6966

1

2

3

3/16

1/4

1/4

3/16

3/16

1/4

3/16

1/4

3/16

3/16

1/4

3/16

OPTIONAL ELEMENTS

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.				
Option Code	Accuracy (at 0°C)	Construction		
RTP1 (std.)	±0.12%	3-wire		
RTP1A	±0.06%	3-wire		
RTP1AA	±0.01%	3-wire		
RTP6	±0.12%	2-wire		
RTP7	±-0.12%	4-wire		
RTP7A	±0.06%	4-wire		
RTP7AA	±0.01%	4-wire		

Notes:

For dual element, add prefix "D" (e.g., DRTP6) 1.

2. Additional materials, curves and resistance values are available - see Capabilities brochure.

ASSEMBLY O	PTIONS
Option Code	Description
TAG1	Stainless steel tag and wire
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
RB10	Replace terminal block with customer supplied part
RB11	Supply assembly with no terminal block inside head
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with $1/2^{"}$ NPT conduit connections
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with $1/2^{\prime\prime}$ NPT conduit connections
WIRING CON	NECTION OPTIONS
Option Code	Description
WC76	#6 spade terminals, plated copper
WC70	#10 spade terminals, plated copper
WC84	1/4" push-on insulated terminals, plated copper
WC90	#10 ring terminals
WC98	#8 ring terminals
TRANSMITTE	RS - for complete specs, see Transmitters section
TR11	4-20 mA, 2-wire; single input; isolated output; specify range, units of measure (e.g., 0-200°C) and terminal head with *. See Accessories section for additional information.
TR12	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., $0-200$ °C) and terminal head with *.
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.

THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.

STYLE 48

AVAILABLE OPTIONS and MODIFICATIONS

NEMA 4 OR 4X TE	RMINAL HEAD OPT	IONS		1
Head without ground screw	Head with internal ground screw	Proces Connect		Conduit Connection
Cast aluminum, scre	w cover with chain, NI	EMA 4		
HD10*	HD11*	1/2"		1/2"
HD12*	HD13*	1/2"		3/4"
Epoxy-coated alumi	num, screw cover with	chain, NEMA	4X	
HD50*	HD51*	1/2"		1/2"
HD52*	HD53*	1/2"		3/4"
Cast iron, screw cov	er with chain, NEMA 4			
HD20*	HD21*	1/2"		1/2"
HD22*	HD23*	1/2"		3/4"
316 stainless steel, s	screw cover with chain,	NEMA 4X		1
HD40*	HD41*	1/2"		3/4"
White polypropylen	e, screw cover with cha	in, NEMA 4		<u>I</u>
HD30	N/A	1/2"		3/4"
Black polypropylene	, screw cover with chai	in, NEMA 4		
HD31	N/A	1/2"		3/4"
Nylon, screw cover				
HD32	N/A	1/2"		1/2"
EXPLOSION-PROC	F TERMINAL HEAD	OPTIONS		
Option Code	Process Connection		Conduit	Connection
	ew cover with chain; o- CSA approved for Clas and screw			
HD70*	1/2"		1/2"	
HD71*	1/2"		3/4"	
Stainless steel (sam	e specs as HD70/HD7	'1)		
HD74*	1/2"		1/2"	
HD75*	1/2"		3/4"	
1075	172			
	specs as HD70/HD7	1)		
		1)	1/2"	
Epoxy-coated (same	specs as HD70/HD7	1)	1	
Epoxy-coated (same HD80* HD81* Cast aluminum; ATE	specs as HD70/HD7 1/2" 1/2" X approved for EEx d lic terminal block; rated	IC; screw cove	1/2" 3/4" er with ch	
Epoxy-coated (same HD80* HD81* Cast aluminum; ATE o-ring gasket; ceram	specs as HD70/HD7 1/2" 1/2" X approved for EEx d lic terminal block; rated	IC; screw cove	1/2" 3/4" er with ch	
Epoxy-coated (same HD80* HD81* Cast aluminum; ATE o-ring gasket; ceram external ground scre	specs as HD70/HD7 1/2" 1/2" X approved for EEx d lic terminal block; rated	IC; screw cove	1/2" 3/4" er with ch X, IP66 t	
Epoxy-coated (same HD80* HD81* Cast aluminum; ATE o-ring gasket; ceram external ground scre HD72* HD73* Cast aluminum (For	specs as HD70/HD7 1/2" 1/2" X approved for EEx d l ic terminal block; rated ws 1/2"	IC; screw cove d for NEMA 4	1/2" 3/4" er with ck X, IP66 t 1/2" 3/4" terminal	o IP68; internal and
Epoxy-coated (same HD80* HD81* Cast aluminum; ATE o-ring gasket; ceram external ground scre HD72* HD73* Cast aluminum (For	specs as HD70/HD7 1/2" 1/2" X approved for EEx d l tic terminal block; rated ws 1/2" 1/2" 1/2" merly Style 60); screw	IC; screw cove d for NEMA 4	1/2" 3/4" er with ck X, IP66 t 1/2" 3/4" terminal	o IP68; internal and

Note: See Accessories section for outline drawings and additional specs.

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Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART $^\circ$ is a registered trademark of the HART Communication Foundation.



NEMA 4 CONNECTION HEAD WITH FLEXIBLE ARMOR CABLE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER		TEMPERATURE RANGE	SHEATH LENGTH	ARMOR LENGTH	OPTIONS

SENSOR TYPE

RTP1 - Platinum; DIN 0.00385; 100 ohm ± 0.12% @ 0°C; 3-wire construction (For dual element, add prefix "D," e.g., DRTP1) **ASSEMBLY STYLE** 65 - Cast aluminum head with flexible 0.250" stainless steel armor cable; head conforms to NEMA 4 requirements; 3/4" NPT conduit connection; ceramic terminal block; gasketed screw cover with stainless steel chain; Teflon® insulated conductors 65P - PVC coated armor 65T - Teflon[®] coated armor SHEATH DIAMETER (in inches) Armor Cable Length (X) Armor Cable Length (X) **4** - 1/8 (0.125) COATED Armor Cable Length (X) 6 - 3/16 (0.188) 7 - 1/4 (0.250) 9-3/8 (0.375) 0 **SHEATH MATERIAL** 1.90 1.90 3 - 316 stainless steel MOISTURE SEAL (100°C MAX.) ш **TEMPERATURE RANGE** – Minimum and maximum operating temperatures 1 - -45 to 260°C (-50 to 500°F) Sheath Length (L) 2 - -45 to 482°C (-50 to 900°F) Sheath Length (L) Sheath Length (L) 3 - -45 to 788°C (-50 to 1450°F) **4** - -200 to 260°C (-328 to 500°C) **SHEATH LENGTH** (For lengths greater than L=36", consult AST) Style RT65 Style RT65 Style Temperature Range: 1 L# - Specify overall length of sheath (e.g., L12 = 12" from tip to transition) RT65P & RT65T Temperature Range: 2,3,4

ARMOR LENGTH

X# – Specify overall length of flexible armor (e.g., X72 = 72" from terminal head to transition)

OPTIONS – see back page

Smallest Diameter Sheath Available By Sensor Type and Temperature Range								
	SINGLE							
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA	
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16	
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16	
3	3/16			3/16	3/16			
4	1/8			1/8	3/16			
			DL	JAL				
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA	
1	3/16	3/16	3/16	3/16				
2	1/4	1/4	1/4	3/16				
3	1/4			1/4				
4	3/16			3/16				

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2A

http://www.appliedsensortech.com

RTDs are standardly p	olatinum, 100-ohm, DIN	I-curve elements with a 0.0	0385 alpha.		
Option Code	Accuracy (at 0°	C) Construction			
RTP1 (std.)	±0.12%	3-wire			
RTP1A	±0.06%	3-wire			
RTP1AA	±0.01%	3-wire			
RTP6	±0.12%	2-wire			
RTP7	±0.12%	4-wire			
RTP7A	±0.06%	4-wire			
RTP7AA	±0.01%	4-wire			
ASSEMBLY OPTIC	ONS				
Option Code	Description				
TAG1	Stainless stee	l tag and wire			
CAL1	NIST traceabl	e calibration [specify po	int(s)]		
CRT1	Certificate of				
B45-	45° bend in s B45-6)	heath (specify length fr	om tip in inches e.g.		
В90-	90° bend in s B90-6)	heath (specify length fr	om tip in inches e.g.		
RB10	Replace termi	nal block with custome	supplied part.		
RB11		bly with no terminal blo			
WC20	Wiring cable of	gland for 0.187 - 0.312 Is with 1/2" NPT condu	diameter cables, for		
WC21		gland for 0.125 - 0.187 Is with 1/2" NPT condu			
TRANSMITTERS -	- For complete specs	see Transmitters sectio	n		
TR11		ire transmitter, single in			
		specify range, units of measure (e.g., 0-200°C) and optional terminal head with *.			
TR12	output; specif	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.			
TR13	isolated output) mA, 2-wire transmitter ut; specify range and un I terminal head with *.			
WELD PADS	· ·				
WP00	Horizontal pa	d∕flat			
WP10	1" nominal pi	pe size			
WP15	1.5" nominal	pipe size			
WP20	2" nominal pi				
WP25	2.5" nominal	•			
WP30	3" nominal pi				
WP35	3.5" nominal				
WP40	4.0" nominal				
COMPRESSION F		אואר אוגר			
	NPT	Material	Ferrule		
Option Code					
CF10	1/8"	Stainless steel	Stainless steel		
CF11	1/8"	Stainless steel	Teflon®		
CF12	1/8"	Brass	Brass		
CF20	1/4"	Stainless steel	Stainless steel		
CF21	1/4"	Stainless steel	Teflon®		
CF22	1/4"	Brass	Brass		
CF30	1/2"	Stainless steel	Stainless steel		
CF31	1/2"	Stainless steel	Teflon®		

STYLE 65

AVAILABLE OPTIONS and MODIFICATIONS

NEMA 4 OR 4X	TERMINAL HEAD	OPTIONS		
Head without ground screw	Head with internal ground screw	Process Connection	Conduit Connection	
Cast aluminum, so	crew cover with cha	in, NEMA 4		
HD10*	HD11*	1/2"	1/2"	
Std.*	HD13*	1/2"	3/4"	
Epoxy-coated alur	ninum, screw cover	with chain, NEMA	4X	
HD50*	HD51*	1/2"	1/2"	
HD52*	HD53*	1/2"	3/4"	
Cast iron, screw co	over with chain, NE	MA 4		
HD20*	HD21*	1/2"	1/2"	
HD22*	HD23*	1/2"	3/4"	
316 stainless stee	l, screw cover with o	chain, NEMA 4X		
HD40*	HD41*	1/2"	3/4"	
White polypropyle	ene, screw cover wit	h chain, NEMA 4		
HD30	N/A	1/2"	3/4"	
Black polypropyle	ne, screw cover witl	n chain, NEMA 4		
HD31	N/A	1/2"	3/4"	
Nylon, screw cove	r	1	1	
HD32	N/A	1/2"	1/2"	
*can be used with	n transmitters	1	1	
ARMOR OPTION	IS			
BA50	Bayonet cap on armour (Style 65, temperature range 1 only)			

Notes:

1. See Accessories for additional information.



APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available - consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.

180 Dexter Avenue, P.O. Box 9143, Watertown, MA 02471-9143

Fax: 617 926-8411 http://www.appliedsensortech.com



DOUBLE-SIDED, SPRING-LOADED PROCESS MOUNTING WITH TERMINAL HEAD OPTIONS

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE (See page 2-6b for optional elements)

RTP1 – Platinum; DIN 0.00385; 100 ohm $+/-0.12\% @ 0^{\circ}C$; 3-wire construction (For dual element, add prefix "D"- e.g., DRTP1)

ASSEMBLY STYLE

75 – **Sheath with double-sided, spring-loaded fitting**; Teflon® insulated conductors; 1/2" NPT stainless steel connection. (Note: a variety of terminal heads may be added to this style – see page 2-6b)

SHEATH DIAMETER (in inches) (see below for restrictions)

- **4** 1/8 (0.125)
- 6-3/16 (0.188)
- **7** 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

TEMPERATURE RANGE - Minimum and maximum operating temperatures

- **1** -45 to 260°C (-50 to 500°F)
- **2** -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- **4** -200 to 260°C (-328 to 500°F)

SHEATH LENGTH (for lengths greater than L=36", consult AST)

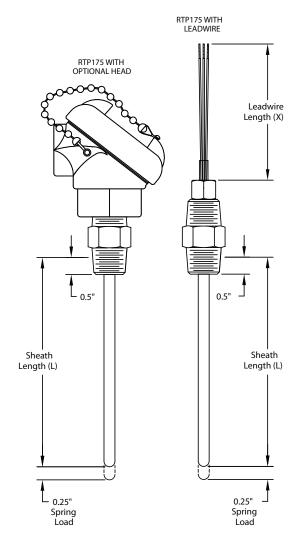
L# – (e.g., L6 = 6 inch sheath)

LEADWIRE LENGTH

X# – (e.g., X3=3 inch length; X3 is standard if specifying a terminal head)

OPTIONS – see back page

Smallest Diameter Sheath Available By Sensor Type and Temperature Range								
	SINGLE							
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA	
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16	
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16	
3	3/16			3/16	3/16			
4	1/8			1/8	3/16			
			DL	JAL				
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA	
1	3/16	3/16	3/16	3/16				
2	1/4	1/4	1/4	3/16				
3	1/4			1/4				
4	3/16			3/16				



OPTIONAL ELEMENTS

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.						
Option Code	Accuracy (at 0°C)	Construction				
RTP1 (std.)	±0.12%	3-wire				
RTP1A	±0.06%	3-wire				
RTP1AA	±0.01%	3-wire				
RTP6	±0.12%	2-wire				
RTP7	±0.12%	4-wire				
RTP7A	±0.06%	4-wire				
RTP7AA	±0.01%	4-wire				

Notes:

1. For dual element, add prefix "D" (e.g., DRTP6)

2. Additional materials, curves and resistance values are available - see Capabilities brochure.

ASSEMBLY OPTION	vs
Option Code	Description
TAG1	Stainless steel tag and wire
CAL1	NIST traceable calibration [specify point(s)]
CRT1	Certificate of conformance
RB10	Replace terminal block with customer supplied part
RB11	Supply assembly with no terminal block inside head
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with $1/2$ " NPT conduit connections
WIRING CONNECT	ION OPTIONS
Option Code	Description
WC76	#6 spade terminals, plated copper
WC70	#10 spade terminals, plated copper
WC84	1/4" push-on insulated terminals, plated copper
WC90	#10 ring terminals
WC98	#8 ring terminals
TRANSMITTERS	
TR11	4-20 mA, 2-wire; single input; isolated output; specify range, units of measure (e.g., 0-200°C) and terminal head with *. See Accessories section for additional information

sories section for additional information. TR12 4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with * TR13 HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *

THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.

STYLE 75

AVAILABLE OPTIONS and MODIFICATIONS

Head without	Head with internal	Proce	ess	Conduit	
ground screw	ground screw	Conne	ction	Connection	
Cast aluminum, scre	w cover with chain, NI	EMA 4			
HD10*	HD11*	1/2"		1/2"	
HD12*	HD13*	1/2"		3/4"	
Epoxy-coated alumi	num, screw cover with	chain, NEMA	A 4X		
HD50*	HD51*	1/2″		1/2"	
HD52*	HD53*	1/2″		3/4"	
Cast iron, screw cov	er with chain, NEMA 4	~			
HD20*	HD21*	1/2"		1/2"	
HD22*	HD23*	1/2"		3/4"	
316 stainless steel, s	screw cover with chain,	NEMA 4X			
HD40*	HD41*	1/2"		3/4"	
White polypropylene	e, screw cover with cha	in, NEMA 4			
HD30	N/A	1/2"		3/4"	
Black polypropylene	, screw cover with chai	n, NEMA 4		ļ	
HD31	N/A	1/2"		3/4"	
Nylon, screw cover	1			1	
HD32	N/A	1/2"		1/2"	
EXPLOSION-PROO	F TERMINAL HEAD	OPTIONS		I	
Option Code	Process Connecti	on	Conduit	Connection	
	w cover with chain; o- CSA approved for Clas Ind screw				
HD70*	1/2"		1/2"		
HD71*	1/2"		3/4"		
Stainless steel (same	e spec as HD70/HD71)			
HD74*	1/2"		1/2"	1/2"	
HD75*	1/2"		3/4"		
Epoxy-coated (same	spec as HD70/HD71)			
HD80*	1/2"		1/2"		
HD81*	1/2"		3/4"		
	EX approved for EEx d l nic terminal block; rated news				
external ground scre			1/2"		
external ground scree HD72*	1/2"				
5	1/2" 1/2"		3/4"		
HD72* HD73* Cast aluminum (forr			terminal		
HD72* HD73* Cast aluminum (forr	1/2" merly Style 60); screw o		terminal		



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Note: Many non-standard options, including additional sheath diameters and materials, may also be available - consult AST for specific requirements. HART[®] is a registered trademark of the HART Communication Foundation.

EXPLOSION-PROOF CONNECTION HEAD WITH SPRING-LOADED ASSEMBLY AND MOUNTING HARDWARE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	CONNECTION	CONNECTION LENGTH	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	OPTIONS

SENSOR TYPE (See page 2-4b for optional elements) **RTP1** – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction (For dual element, add prefix "D"- e.g., DRTP1)

ASSEMBLY STYLE

77 – **Sheath with cast aluminum head**; spring-loaded in head; head CSA/FM approved for Class I, Division I, Groups B, C, D; Class II, Groups E, F, G, including union; screw cover with chain and gasketed o-ring. Ceramic terminal block; 1/2" NPT conduit and process connections

CONNECTION

H – Head only; 1/2" NPT (female) instrument connection
N – 1/2" NPT carbon steel nipple only
NU – 1/2" NPT carbon steel nipple and plated steel union
NUN – 1/2" NPT carbon steel nipples and plated steel union Add suffix "15" for 304 stainless steel nipples

CONNECTION LENGTH

- (e.g., 006=6 inch) See chart below for standard available lengths.

SHEATH DIAMETER (in inches) (see below for restrictions)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9 3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

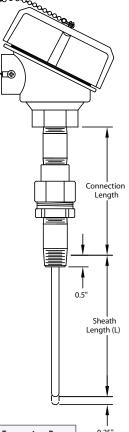
TEMPERATURE RANGE - Minimum and maximum operating temperatures

- **1** -45 to 260°C (-50 to 500°F)
- 2 -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- 4 -200 to 260°C (-328 to 500°F)

SHEATH LENGTH (for lengths greater than L=36", consult AST) L# - (e.g., L6 = 6 inch sheath)

OPTIONS – see back page

STANDARD AVAILABLE CONNECTION LENGTHS							
Ν	NU	NUN					
N/A	2.00	2.50					
0.50	2.50	3.00*					
1.00	3.00	4.00*					
1.50	3.50	5.00					
2.00	4.00	6.00*					
3.00	5.00	8.00					
4.00	6.00	10.00					
5.00	7.00	12.00					
6.00	8.00	14.00					
*NUN 2S OPTION AVAILABLE IN THESE LENGTHS ONLY.							
DIMENSIONS ARE GIVEN IN INCHES							



Smallest	Smallest Diameter Sheath Available By Sensor Type and Temperature Range							
SINGLE								
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA	
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16	
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16	
3	3/16			3/16	3/16			
4	1/8			1/8	3/16			
			DL	JAL				
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA	
1	3/16	3/16	3/16	3/16				
2	1/4	1/4	1/4	3/16				
3	1/4			1/4				
4	3/16			3/16				

USA Telephone: 617 923-6966 2A Fax: 617 926-8411

http://www.appliedsensortech.com

STYLE 77

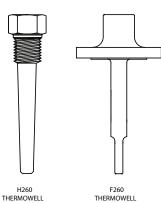
AVAILABLE OPTIONS and MODIFICATIONS

EXPLOSION-PROOF TERMINAL HEAD OPTIONS						
Option Code Process Connection Conduit Connection						
Cast aluminum; screw cover with chain; o-ring gasket; ceramic terminal block; FM/CSA approved for Class I Div. 1, Groups B, C and D; Class II Groups E, F and G (Gasket rated to 100°C exposure); internal ground screw						
HD71 1/2" 3/4"						
Same as above, except epoxy-coated						
HD80	1/2"	1/2"				
HD81	1/2"	3/4"				

Note: See Accessories section for outline drawings and additional specs.

THERMOWELLS & PROTECTION TUBES

For a compete offering of metal, ceramic and composite material thermowells and protection tubes, please see the Thermowell and Protection Tube sections.



OPTIONAL ELEMENTS

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.

Option Code	Accuracy (at 0°C)	Construction
RTP1 (std.)	±0.12%	3-wire
RTP1A	±0.06%	3-wire
RTP1AA	±0.01%	3-wire
RTP6	±0.12%	2-wire
RTP7	±0.12%	4-wire
RTP7A	±0.06%	4-wire
RTP7AA	±0.01%	4-wire

Notes:

- 1. For dual element, add prefix "D" (e.g., DRTP6)
- 2. Additional materials, curves and resistance values are available see Capabilities brochure.

ASSEMBLY OPTIONS				
Option Codes	Description			
TAG1	Stainless steel tag and wire			
CAL1	NIST traceable calibration [specify point(s)]			
CRT1	Certificate of conformance			
TRANSMITTERS				
See Style 48 for available transmitters				

APPLIED SENSOR TECHNOLOGIES



EXPLOSION-PROOF CONNECTION HEAD WITH WELDED PROCESS CONNECTION

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR	ASSEMBLY	SHEATH	SHEATH	TEMPERATURE	SHEATH	OPTIONS
TYPE	STYLE	DIAMETER	MATERIAL	RANGE	LENGTH	

SENSOR TYPE (See page 2-3b for optional elements)

RTP1 – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction (For dual element, add prefix "D" - e.g., DRTP1)

ASSEMBLY STYLE

78 – **Sheath with cast aluminum head** and 1/2" NPT welded stainless steel process connection; head CSA/ FM approved for Class I, Division I, Groups B, C, D; Class II, Groups E, F, G; screw cover with chain and gasketed o-ring; meets NEMA 4; ceramic terminal block; 1/2" NPT conduit connection

SHEATH DIAMETER (in inches) (see below for restrictions)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

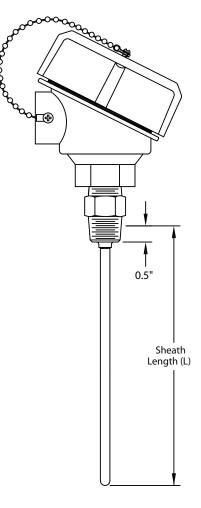
3 – 316 stainless steel

- TEMPERATURE RANGE Minimum and maximum operating temperatures
- **1** -45 to 260°C (-50 to 500°F)
- **2** -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- **4** -200 to 260°C (-328 to 500°F)

SHEATH LENGTH (for lengths greater than L=36", consult AST) L# - (e.g., L6 = 6 inch sheath)

OPTIONS – see back page

Smallest Diameter Sheath Available By Sensor Type and Temperature Range								
	SINGLE							
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA	
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16	
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16	
3	3/16			3/16	3/16			
4	1/8			1/8	3/16			
			DL	JAL				
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA	
1	3/16	3/16	3/16	3/16				
2	1/4	1/4	1/4	3/16				
3	1/4			1/4				
4	3/16			3/16				



STYLE 78

OPTIONAL ELEMENTS

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.

Option Code	Accuracy (at 0°C)	Construction
RTP1 (std.)	±0.12%	3-wire
RTP1A	±0.06%	3-wire
RTP1AA	±0.01%	3-wire
RTP6	±0.12%	2-wire
RTP7	±0.12%	4-wire
RTP7A	±0.06%	4-wire
RTP7AA	±0.01%	4-wire

Notes:

1.

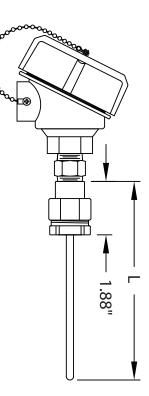
For dual element, add prefix "D" (e.g., DRTP6) Additional materials, curves and resistance values are available - see 2. Capabilities brochure.

ASSEMBLY OPTIONS				
Option Code	Description			
TAG1	Stainless steel tag and wire			
PC25	1/4" NPT process connection			
PC75	3/4" NPT process connection			
RB10	Replace terminal block with customer supplied part			
RB11	Supply assembly with no terminal block inside head			
CAL1	Calibration, NIST traceable calibration [specify point(s)]			
CRT1	Certificate of conformance			
TRANSMITTERS - For	complete specs, see Transmitters section			
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C)			
TR12	4-20 mA, 2-wire transmitter, single input, non- isolated ouput; specify range and units of measure (e.g., 0-200°C) and terminal head with *.			
TR13	HART®/ 4-20 mA, 2-wire transmitter, single input, isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.			
UNION CONNECTOR (converts male connection to female)				
Option Code	Description			
UC20	Plated steel, 1/2" x 1/2" NPT, explosion-proof rating			
Note: adding the union view). Adjust L dimension	connector reduces the sensor's L length by 1.88" (see on accordingly.			

AVAILABLE OPTIONS and MODIFICATIONS

EXPLOSION-PROOF TERMINAL HEAD OPTIONS						
Option Code	Process Connection	Conduit Connection				
Cast aluminum; screw cover with chain; o-ring gasket (Gasket rated to 100°C exposure); ceramic terminal block; FM/CSA approved for Class I Div. 1, Groups B, C and D; Class II Groups E, F and G; internal ground screw.						
HD71	1/2"	3/4"				
Stainless steel (same specs as HD71)						
HD74	1/2" 1/2"					
HD75	1/2"	3/4"				
Epoxy-coated (same specs as HD71)						
HD80	1/2"	1/2"				
HD81	1/2"	3/4"				

Note: See Accessories section for additional specs.



UC20 Option



APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART® is a registered trademark of the HART communication foundation.



SANITARY PROCESS CONNECTION WITH TERMINAL HEAD

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR	ASSEMBLY	CAP	CAP	SHEATH	SHEATH	TEMPERATURE	SHEATH	OPTIONS
TYPE	STYLE	SIZE	STYLE	DIAMETER	MATERIAL	RANGE	LENGTH	

SENSOR TYPE (See page 2-8b for optional elements)

RTP1 – Platinum; DIN 0.00385; 100 ohm +/-0.12% @ 0°C; 3-wire construction (For dual element, add prefix "D"- e.g., DRTP1)

ASSEMBLY STYLE

33 - Sheath with sanitary process connection and white polypropylene

head; 3/4'' NPT conduit connection; ceramic terminal block; maximum termination temperature 104 °C (220 °F)

CAP SIZE

A – 0.50*	E – 2.00
B - 0.75*	F – 2.50
C – 1.00	G – 3.00
D – 1.50	H – 4.00
*Available in cap	style C only

CAP STYLE

- **A** 16 A Tri Clamp® cap
- C 16AMP Tri Clamp® cap

SHEATH DIAMETER

- 6 3/16 (0.188)
- **7** 1/4 (0.250)

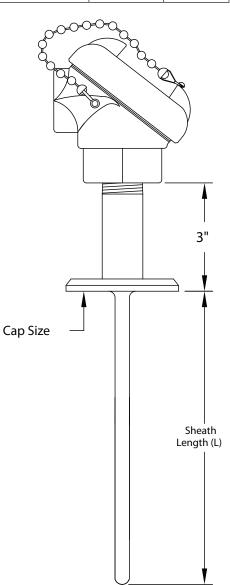
SHEATH MATERIAL

3 - 316 stainless steel

TEMPERATURE RANGE - Minimum and maximum operating temperatures **1** - -45 to 200°C (-50 to 400°F)

<u>SHEATH LENGTH</u> (for lengths greater than L=36", consult AST) **L#** – (e.g., L6 = 6 inch sheath)

OPTIONS – see back page



Tri Clamp® is a registered trademark of Alfa-Laval, Inc.

STYLE 33

AVAILABLE OPTIONS and MODIFICATIONS

OPTIONAL ELEMENTS				
RTDs are standardly plat alpha.	inum, 100-ohm, DIN-curve e	elements with a 0.00385		
Option Code	Accuracy (at 0°C)	Construction		
RTP1 (std.)	±0.12%	3-wire		
RTP1A	±0.06% 3-wire			
RTP1AA	±0.01% 3-wire			
	ndd prefix "D" (e.g., DRTP1) Is, curves and resistance valu Ire.	ues are available - see		
ASSEMBLY OPTIONS				
Option Code	Description			
TAG1	Stainless steel tag and wire			
CAL1	NIST traceable calibration [specify point(s)]			
CRT1	Certificate of conformance			
RB10	Replace terminal block with	n customer supplied part		
RB11	Supply assembly with no te	erminal block inside head		
WC20	Wiring cable gland for 0.187 \cdot 0.312 diameter cables, for terminal heads with 1/2" NPT conduit connections			
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables, for terminal heads with 1/2" NPT conduit connections			
TRANSMITTERS				
TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200°C) and head with *.			
TR12	4-20 mA, 2-wire transmitter, single input, non- isolated output; specify range and units of measure (e.g., 0-200°C) and terminal head with *.			
TR13	HART®/ 4-20 mA, 2-wire t isolated output; specify ran (e.g., 0-200°C) and termine	ge and units of measure		

NEMA 4 OR 4X	TERMINAL HEAD OP	TIONS	
Head without ground screw	Head with internal ground screw	Process Connection	Conduit Connection
Cast aluminum, so	crew cover with chain, I	NEMA 4 (Formerly S	Style 67)
HD10*	HD11*	1/2"	1/2"
HD12*	HD13*	1/2"	3/4"
Epoxy-coated alur	minum, screw cover wit	h chain, NEMA 4X	
HD50*	HD51*	1/2"	1/2"
HD52*	HD53*	1/2"	3/4"
316 stainless stee	l, screw cover with chai	n, NEMA 4X	
HD40*	HD41*	1/2"	3/4"
Black polypropyle	ne, screw cover with ch	ain, NEMA 4	
HD31	N/A	1/2"	3/4"
*can be used with	n TR11 transmitter		

APPLIED SENSOR TECHNOLOGIES

Note: Many non-standard options, including additional sheath diameters and materials, may also be available – consult AST for specific requirements. HART® is a registered trademark of the HART Communication Foundation.



APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

SANITARY CONNECTION WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	CAP SIZE	CAP STYLE	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE (See page 2-9b for optional elements)

RTP1 - Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction

ASSEMBLY STYLE

58 - Sheath with leadwire; sanitary process connection; Teflon® insulated

conductors; Teflon® jacketed cable

CAP SIZE (in inches)

A – 0.50*	E - 2.00
B - 0.75*	F – 2.50
C – 1.00	G – 3.00
D – 1.50	H – 4.00
*Available in Cap	Style C only.

CAP STYLE

- A 16 A Tri Clamp® cap
- C 16AMP Tri Clamp® cap

SHEATH DIAMETER (in inches)

- 6 3/16 (0.188)
- 7 1/4 (0.250)

SHEATH MATERIAL

3 - 316 stainless steel

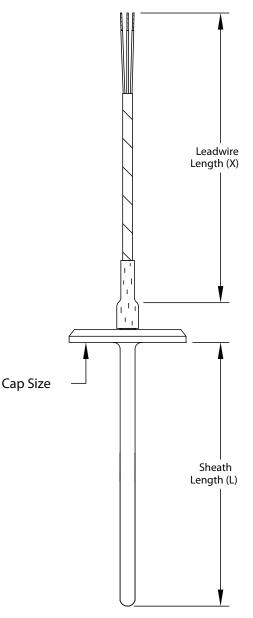
TEMPERATURE RANGE - Minimum and maximum operating temperatures **1** - -45 to 200°C (-50 to 400°F)

SHEATH LENGTH (for lengths greater than L=36", consult AST) L# – (e.g., L6 = 6 inch sheath)

LEADWIRE LENGTH

X# – (e.g., X72 = 72 inch length)

OPTIONS – see back page



Teflon® is a registered trademark of DuPont Tri Clamp® is a registered trademark of Alfa-Laval, Inc.

USA Telephone: 617 923-6966

STYLE 58

AVAILABLE OPTIONS and MODIFICATIONS

OPTIONAL ELEMENTS		
RTDs are standardly plat alpha.	inum, 100-ohm, DIN-curve	elements with a 0.00385
Option Code	Accuracy (at 0°C)	Construction
RTP1 (std.)	±0.12%	3-wire
RTP1A	±0.06%	3-wire
RTP1AA	±0.01%	3-wire

Note: additional materials, curves and resistance values are available - see Capabilities brochure.

ASSEMBLY OPTIONS

Option Code	Description
TAG1	Stainless steel tag and wire
CAL1	NIST traceable calibration [specify points]
CRT1	Certificate of conformance

WIRING CONI	WIRING CONNECTION OPTIONS			
Option Code	Description			
WC76	#6 spade terminals, plated copper			
WC70	#10 spade terminals, plated copper			
WC84	1/4" push-on insulated terminals, plated copper			
WC90	#10 ring terminal			
WC98	#8 ring terminal			



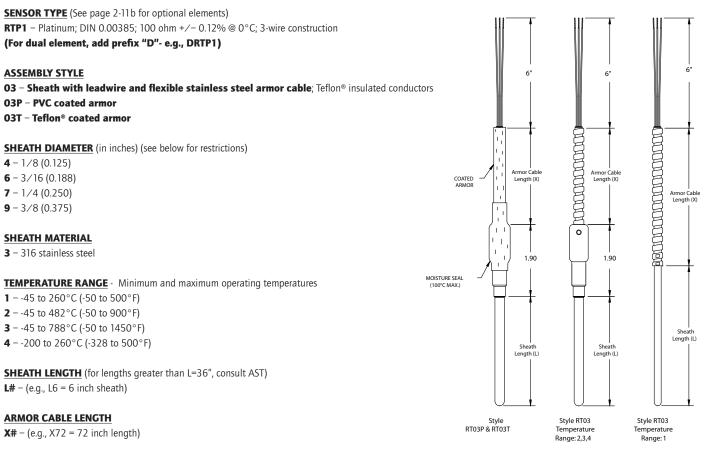


SHEATH WITH LEADWIRE AND ARMOR CABLE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS



Jee back page	OPTIONS	 see back page 	
---------------	----------------	-----------------------------------	--

Range 1A 1AA 6 7 7A 7AA 1 1/8 1/8 1/8 3/16 3/16 1 1/8 3/16 2 3/16 3/16 3/16 3/16 3/16 3/16 3/16 3 3/16 3/16 3/16 4 1/8 1/8 3/16 DUAL Temp DRTP DRTP DRTP DRTP DRTP DRTP DRTP Range 1A 1AA 6 7 7A 7AA 1 3/16 3/16 3/16 3/16 1/41/41/42 1/4 1/4 1/4 3/16 3/8 3/8 3/8 3 1/41/41/44 3/16 3/16 1/4

RTP

Smallest Diameter Sheath Available By Sensor Type and Temperature Range
SINGLE

RTP

RTP

RTP

Teflon® is a registered trademark of DuPont

RTP

Temp

RTP

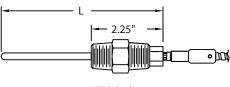
RTP

STYLE 03

AVAILABLE OPTIONS AND MODIFICATIONS

Option Code	NP	-	Material	Ferrule		
CF10	1/8	3"	Stainless steel	Stainless steel		
CF11	1/8	3"	Stainless steel	Teflon®		
CF12	1/8	3"	Brass	Brass		
CF20	1/4	1″	Stainless steel	Stainless steel		
CF21	1/4	1″	Stainless steel	Teflon®		
CF22	1/4	1″	Brass	Brass		
CF30	1/2	2"	Stainless steel	Stainless steel		
CF31	1/2	2"	Stainless steel	Teflon®		
CF32	1/2	2"	Brass	Brass		
WIRING CONN	ECTION		S	-		
Option Code		Descriptio	on			
WC76		#6 spade terminals				
WC70		#10 spade terminals, plated copper				
WC84		1/4" push-on insulated terminals, plated copper				
WC90		#10 ring terminals				
WC98		#8 ring terminals				
BX CONNECTO	RS					
WC40		1/2"				
WC50		3/4"				
Note: for assemb	ly with	sheath, an	mor and terminal h	nead, see Style 66.		
SPRING-LOAD	D FIT	INGS				
Stainless steel, n	on-seal	ed, for sens	or diameters 6, 7	& 9		
Option Code Desci			Description			
HF50		1/2" x 1/2"				
			nsor diameters 6 a C). Maximum press	and 7. O-ring is Bun sure 15 psi.		
HF51		1/2″ x 1,	/2"			
Notes: 1. Fitting red spring-load	uces eff l into a	ective sens 9" well, th	or L length by 2.2! e sensor should be	5" (e.g., to properly specified with		

2. Fitting position is adjustable in the field.



HF50 Option



OPTIONAL ELEMENTS

alpha. Option Code

RTP1 (std.)

RTP1A

RTP1AA

RTP6

RTP7

RTP7A

RTP7AA

Notes:

1.

2.

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385

Construction

3-wire

3-wire 3-wire

2-wire

4-wire

4-wire

4-wire

Accuracy (at 0°C)

±0.12%

±0.06%

±0.01%

±0.12%

±0.12%

±0.06%

±0.01%

Additional materials, curves and resistance values are available - see

Description

point(s)]

Style 25

(350°F)

(350°F)

PLUGS AND JACKS (2 and 3-wire construction only. Note: plug is designed to be attached to sensor assemblies. Jack options – for customer wiring – should only be specified if plug option is also included. Cable clamp is

Stainless steel tag and wire

Certificate of conformance

NIST traceable calibration [specify

45° bend in sheath (specify length from tip in inches e.g., B45-6)

90° bend in sheath (specify length from tip in inches e.g., B90-6)

Bayonet cap on armor (Style 03, temperature range 1 only) – formerly

Standard plug, rated to 177°C

Standard jack, rated to 177°C

Horizontal pad/flat

1" nominal pipe size

1.5" nominal pipe size

2" nominal pipe size

2.5" nominal pipe size

3" nominal pipe size

3.5" nominal pipe size

4" nominal pipe size

For dual element, add prefix "D" (e.g., DRTP6)

Capabilities brochure.

ASSEMBLY OPTIONS

Option Code

TAG1

CAL1

CRT1

B45-

B90-

BA50

PJ10

PJ20

WP00

WP10

WP15

WP20

WP25

WP30

WP35

WP40

WELD PADS

ARMOR OPTIONS

included for both plug and jack options.)

APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

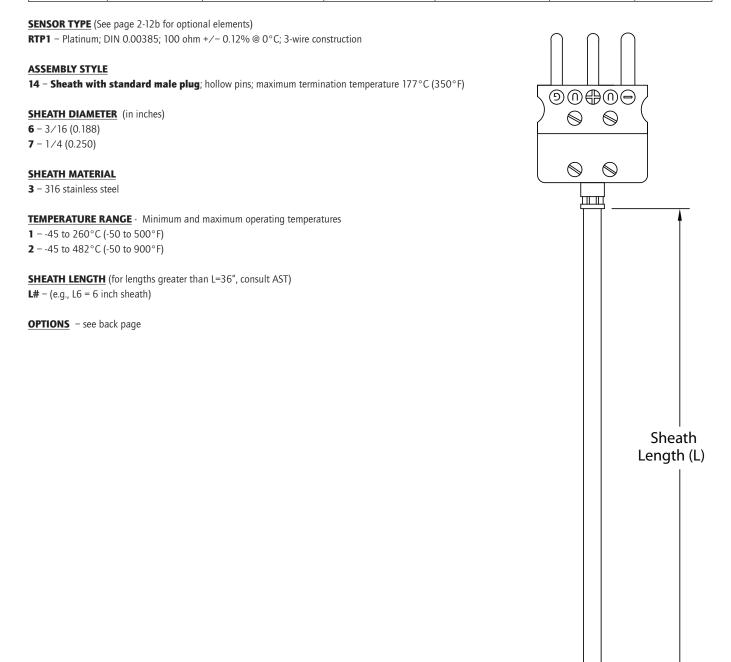


SHEATH WITH MALE PLUG

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR	ASSEMBLY	SHEATH	SHEATH	TEMPERATURE	SHEATH	OPTIONS
TYPE	STYLE	DIAMETER	MATERIAL	RANGE	LENGTH	



STYLE 14

AVAILABLE OPTIONS and MODIFICATIONS

OPTIONAL ELEMENTS RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha. Option Code Accuracy (at 0°C) Construction RTP1 (std.) ±0.12% 3-wire RTP1A ±0.06% 3-wire RTP1AA ±0.01% 3-wire Note: additional materials, curves and resistance values are available - see Capabilities brochure. **ASSEMBLY OPTIONS** Option Code Description TAG1 Stainless steel tag and wire CAL1 NIST traceable calibration [specify point(s)] CRT1 Certificate of conformance PJ20 Standard jack included

COMPRESSION	COMPRESSION FITTINGS					
Option Code	NPT	Material	Ferrule			
CF10	1/8"	Stainless steel	Stainless steel			
CF11	1/8″	Stainless steel	Teflon®			
CF12	1/8"	Brass	Brass			
CF20	1/4"	Stainless steel	Stainless steel			
CF21	1/4"	Stainless steel	Teflon®			
CF22	1/4"	Brass	Brass			
CF30	1/2"	Stainless steel	Stainless steel			
CF31	1/2"	Stainless steel	Teflon®			
CF32	1/2"	Brass	Brass			

APPLIED SENSOR TECHNOLOGIES



Leadwire Length (X)

Sheath

Length (L)

Style 28,

Range 1

SHEATH WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

Leadwire Length (X)

2 3/8

Sheath Length (L)

Style 20,

Range 3

Leadwire Length (X)

Sheath

Length (L)

Style 20,

Ranges 1,2,4

 SENSOR TYPE (See page 2-10b for optional elements)

 RTP1 – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction

 (For dual element, add prefix "D"- e.g., DRTP1)

ASSEMBLY STYLE

20 - Sheath with leadwire; Teflon® insulated conductors; no jacket

28 - Sheath with Teflon® jacketed cable; Teflon® insulated conductors

SHEATH DIAMETER (in inches) (see below for restrictions)

- 4 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

TEMPERATURE RANGE - Minimum and maximum operating temperatures

- 1 -45 to 260°C (-50 to 500°F)
- 2 -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- 4 -200 to 260°C (-328 to 500°F)

<u>SHEATH LENGTH</u> (for lengths greater than L=36", consult AST) **L#** – (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

LEADWIRE LENGTH

X# - (e.g., X72 = 72 inch length)

OPTIONS – see back page

Smalles	mallest Diameter Sheath Available By Sensor Type and Temperature Range					Smalles	t Diamete	r Sheath A	vailable B	y Sensor 1	Type and T	Temperatu	ire Range		
			Style 20, Style	SINGLE						S	tyle 28, SI	NGLE ON	LY		
Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA	Temp Range	RTP 1	RTP 1A	RTP 1AA	RTP 6	RTP 7	RTP 7A	RTP 7AA
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16	1	1/8	1/8	1/8				
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16	2	3/16	3/16	3/16				
3	3/16			3/16	3/16			3	3/16						
4	1/8			1/8	3/16			4	1/8						
			Style 20,	DUAL											
Temp Range	DRTP 1	DRTP 1A	DRTP 1AA	DRTP 6	DRTP 7	DRTP 7A	DRTP 7AA								
1	3/16	3/16	3/16	3/16	1/4	1/4	1/4								
2	1/4	1/4	1/4	3/16	3/8	3/8	3/8								
3	1/4			1/4	1/4										T (1
4	3/16			3/16	1/4										Teflon

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Leadwire

Length (X)

2 3/8'

Sheath

Length (L)

Style 28,

Ranges 2.3.4

STYLES 20 & 28

AVAILABLE OPTIONS and MODIFICATIONS

OPTIONAL ELEME	NTS				
RTDs are standardly alpha.	platinum, 100-ohm, DIN-cur	ve elements with a 0.00385			
Option Code	Accuracy (at 0°C)	Construction			
RTP1 (std.)	±0.12%	3-wire			
RTP1A	±0.06%	3-wire			
RTP1AA	±0.01%	3-wire			
RTP6	±0.12%	2-wire			
RTP7	±0.12%	4-wire			
RTP7A	±0.06%	4-wire			
RTP7AA	±0.01%	4-wire			
2. Additional ma Capabilities b					
ASSEMBLY OPTIO					
Option Code		Description			
TAG1	Stainless steel tag and				
CAL1	NIST traceable calibrati				
CRT1	Certificate of conformat				
B45-	45° bend in sheath (sp e.g., B45-6 [minimum le	ecify length from tip in inches ength = 3"])			
B90-	90° bend in sheath (sp e.g., B90-6 [minimum le	ecify length from tip in inches ength = 3"])			
WIRING CONNECT	TION OPTIONS				
Option Code	Description				
WC76	#6 spade terminals, pla	ted copper			
WC70	#10 spade terminals, pl	ated copper			
WC84	1/4" push-on insulated	terminals, plated copper			
WC90	#10 ring terminals				
WC98	#8 ring terminals				
PLUGS AND JACKS (For 2 and 3 wire constructions only. Note: plug is designed to be attached to sensor assemblies. Jack options – for customer wiring – should only be specified if plug option is also included. Cable clamp is included for both plug and jack options.)					
РЈ10	Standard plug, rated to	177°C (350°F)			
		Standard jack, rated to 177°C (350°F)			
PJ20	Standard jack, rated to	177°C (350°F)			

COMPRESSION	COMPRESSION FITTINGS (for diameters 4, 6, 7)					
Option Code	NPT	Material	Ferrule			
CF10	1/8″	Stainless steel	Stainless steel			
CF11	1/8″	Stainless steel	Teflon®			
CF12	1/8″	Brass	Brass			
CF20	1/4"	Stainless steel	Stainless steel			
CF21	1/4"	Stainless steel	Teflon®			
CF22	1/4"	Brass	Brass			
CF30	1/2"	Stainless steel	Stainless steel			
CF31	1/2"	Stainless steel	Teflon®			
CF32	1/2"	Brass	Brass			

APPLIED SENSOR TECHNOLOGIES



SHEATH WITH WELDED PROCESS MOUNTING

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS

SENSOR TYPE (See page 2-15b for optional elements) **RTP1** – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction **(For dual element, add prefix "D"- e.g., DRTP1)**

ASSEMBLY STYLE

23I - Sheath with single sided instrument mounting; Teflon® insulated conductors; 1/2" NPT stainless steel connection with leadwire
 23P - Sheath with single sided process mounting; Teflon® insulated

conductors; 1/2'' NPT stainless steel connection with leadwire

24 – **Sheath with double-sided mounting**; Teflon® insulated conductors; 1/2" NPT stainless steel connection

SHEATH DIAMETER (in inches) (see below for restrictions)

- **4** 1/8 (0.125)
- 6 3/16 (0.188)
- 7 1/4 (0.250)
- 9-3/8 (0.375)

SHEATH MATERIAL

3 - 316 stainless steel

TEMPERATURE RANGE - Minimum and maximum operating temperatures

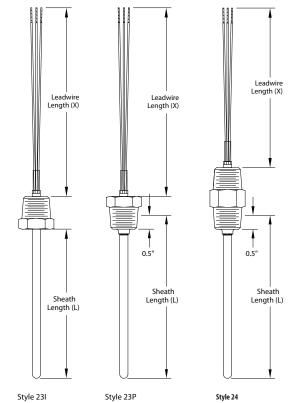
- **1** -45 to 260°C (-50 to 500°F)
- 2 -45 to 482°C (-50 to 900°F)
- **3** -45 to 788°C (-50 to 1450°F)
- **4** -200 to 260°C (-328 to 500°F)

<u>SHEATH LENGTH</u> (for lengths greater than L=36", consult AST) **L#** – (e.g., L6 = 6 inch sheath)

LEADWIRE LENGTH

X# – (e.g., X72 = 72 inch length)

OPTIONS – see back page



				y Sensor 1		-	
			SIN	GLE			,
Temp	RTP	RTP	RTP	RTP	RTP	RTP	RTP
Range	1	1A	1AA	6	7	7A	7AA
1	1/8	1/8	1/8	1/8	3/16	3/16	3/16
2	3/16	3/16	3/16	3/16	3/16	3/16	3/16
3	3/16			3/16	3/16		
4	1/8			1/8	3/16		
			DL	JAL			
Temp	DRTP	DRTP	DRTP	DRTP	DRTP	DRTP	DRT
Range	1	1A	1AA	6	7	7A	7AA
1	3/16	3/16	3/16	3/16	1/4	1/4	1/4
2	1/4	1/4	1/4	3/16	3/8	3/8	3/8
3	1/4			1/4	1/4		
4	3/16			3/16	1/4		

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2C

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STYLES 23I, 23P & 24

AVAILABLE OPTIONS and MODIFICATIONS

OPTIONAL ELEMENTS

RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.

Option Code	Accuracy (at 0°C)	Construction
RTP1 (std.)	±0.12%	3-wire
RTP1A	±0.06%	3-wire
RTP1AA	±0.01%	3-wire
RTP6	±0.12%	2-wire
RTP7	±0.12%	4-wire
RTP7A	±0.06%	4-wire
RTP7AA	±0.01%	4-wire

Notes:

For dual element, add prefix "D" (e.g., DRTP6) 1.

Additional materials, curves and resistance values are available - see 2. Capabilities brochure.

	 DI	v	0	DTI	0	 c

ASSEMBLY OPTIONS				
Option Code	Description			
TAG1	Stainless steel tag and wire			
CAL1	NIST traceable calibration [specify point(s)]			
CRT1	Certificate of conformance			
B45-	45° bend in sheath (specify length from tip in inches e.g., B45-6)			
B90- 90° bend in sheath (specify length from tip in inches e.g., B90-6)				
For sp	oring-loaded design, see Style 75			
For terminal heads, see Styles 15 and 21				
WIRING CONNECTION	OPTIONS			
Option Code	Description			
WC76	#6 spade terminals, plated copper			
WC70	#10 spade terminals, plated copper			
WC84	1/4" push-on insulated terminals, plated copper			
WC90	#10 ring terminals			
WC98	#8 ring terminals			
Note: plug is designed to customer wiring – should	vailable on 23P only, 2 and 3 wire constructions only. o be attached to sensor assemblies. Jack options – for d only be specified if plug option is also included. for both plug and jack options.)			
РЈ10	Standard plug, rated to 177°C (350°F)			
РЈ20	Standard jack, rated to 177°C (350°F)			

WELD PADS (Sty	rle 231 only)		
WPOO	Horizontal pad/flat		
WP10	1" nominal pipe size		
WP15	1.5" nominal pipe size		
WP20	2" nominal pipe size		
WP25	2.5" nominal pipe size		
WP30	3" nominal pipe size		
WP35	3.5" nominal pipe size		
WP40	4" nominal pipe size		



APPLIED SENSOR TECHNOLOGIES



WASHER STYLE WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR	ASSEMBLY	WASHER	WASHER	TEMPERATURE	SHEATH	LEADWIRE	OPTIONS
TYPE	STYLE	SIZE	MATERIAL	RANGE	LENGTH	LENGTH	

SENSOR TYPE (See page 2-16b for optional elements)

RTP1 – Platinum; DIN 0.00385; 100 ohm +/- 0.12% @ 0°C; 3-wire construction

(For dual element, add prefix "D"- e.g., DRTP1) (see page 2-16b for restrictions)

ASSEMBLY STYLE

32 – **Washer with leadwire**; Teflon® insulated conductors; armor cable; washer thickness 3/16" (0.188"); Sheath diameter 0.188" only

WASHER SIZE (in inches)	Washer		
	ID	OD	
6 -3/16 (0.188)	0.193	0.375	
7 – 1/4 (0.250)	0.255	0.500	
9 -3/8 (0.375)	0.380	0.750	
10 - 1/2 (0.500)	0.510	1.000	

WASHER MATERIAL

3 - stainless steel

TEMPERATURE RANGE - Minimum and maximum operating temperatures

1 – -45 to 260°C (-50 to 500°F)

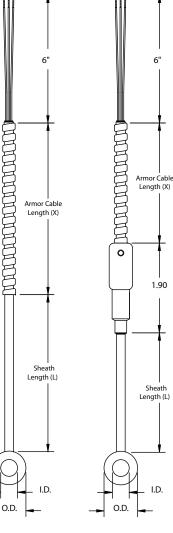
2 – -45 to 482°C (-50 to 900°F)

<u>SHEATH LENGTH</u> (for lengths greater than L=36", consult AST) **L#** – (e.g., L6 = 6 inch sheath)

LEADWIRE LENGTH

X# – (e.g., X6 = 6 inch length)

OPTIONS – see back page



Temperature Range: 1 Temperature Range: 2

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AVAILABLE OPTIONS and MODIFICATIONS

OPTIONAL ELEMENTS						
RTDs are standardly pla alpha.	tinum, 100-ohm, DIN-curve	elements with a 0.00385				
Option Code	Accuracy (at 0°C)	Construction				
RTP1 (std.)	±0.12%	3-wire				
RTP1A	±0.06%	3-wire				
RTP1AA	±0.01%	3-wire				
RTP6	±0.12%	2-wire				
RTP7	±0.12%	4-wire				
RTP7A	±0.06%	4-wire				
RTP7AA	±0.01%	4-wire				
 Notes: For dual element, add prefix "D" (e.g., DRTP6). Dual available on range 1 only, with 2 and 3-wire constructions only (1,1A, 1AA, 6). Additional materials, curves and resistance values are available - see Capabilities brochure. 						
ASSEMBLY OPTIONS						
Option Code	Description					
TAG1	Stainless steel tag and wir	е				
CAL1	NIST traceable calibration	[specify point(s)]				
CRT1	Certificate of conformance	2				
B45-	45° bend in sheath (speci inches e.g., B45-6)	fy length from tip in				
В90-	90° bend in sheath (speci inches e.g., B90-6)	fy length from tip in				
WIRING CONNECTION	OPTIONS					
Option Code	Description					
WC76	#6 spade terminals, plated	l copper				
WC70	#10 spade terminals, plate	ed copper				
WC84	1/4" push-on insulated te	rminals, plated copper				
WC90	#10 ring terminals					
WC98	#8 ring terminals					
blies. Jack options – for	lote: plug is designed to be customer wiring – should o able clamp is included for bo	nly be specified if plug op-				
РЈ10	Standard plug, rated to 177°C (350°F)					
РЈ20	Standard jack, rated to 17	7°C (350°F)				
BX CONNECTORS						
WC40	1/2"					
WC50	3/4"					



APPLIED SENSOR TECHNOLOGIES

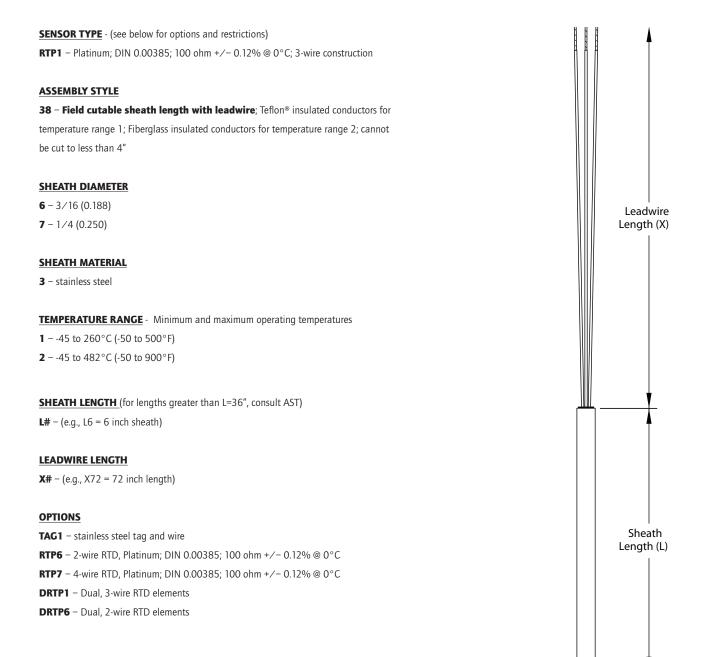


CUTABLE SHEATH WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR	ASSEMBLY	SHEATH	SHEATH	TEMPERATURE	SHEATH	LEADWIRE
TYPE	STYLE	DIAMETER	MATERIAL	RANGE	LENGTH	LENGTH



Style 38



Many additional components are available in our Sensor Box program, including spring-loaded fittings and plugs and jacks.

The Sensor Box allows you to build sensor assemblies on-site, saving time and expense. See the Sensor Box literature for further details.

APPLIED SENSOR TECHNOLOGIES

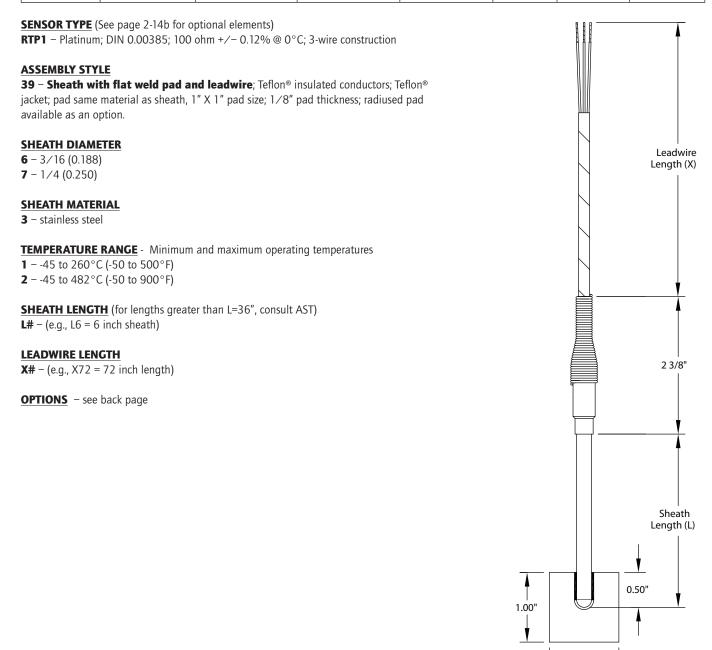


WELD PAD WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS



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-1.00" →

OPTIONAL ELEMENTS RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha. Construction Option Code Accuracy (at 0°C) RTP1 (std.) ±0.12% 3-wire RTP1A ±0.06% 3-wire RTP1AA ±0.01% 3-wire Note: additional materials, curves and resistance values are available - see Capabilities brochure. **ASSEMBLY OPTIONS** Option Code Description TAG1 Stainless steel tag and wire CAL1 NIST traceable calibration [specify point(s)] CRT1 Certificate of conformance B45-45° bend in sheath (specify length from tip in inches e.g., B45-6) B90- 90° bend in sheath (specify length from tip in inches e.g., B90-6) WIRING CONNECTION OPTIONS Option Code Description WC76 #6 spade terminals, plated copper #10 spade terminals, plated copper WC70 WC84 1/4" push-on insulated terminals, plated copper WC90 #10 ring terminals WC98 #8 ring terminals PLUGS AND JACKS (Note: plug is designed to be attached to sensor assemblies. Jack options - for customer wiring - should only be specified if plug option is also included. Cable clamp is included for both plug and jack options.) PJ10 Standard plug, rated to 177°C (350°F) PJ20 Standard jack, rated to 177°C (350°F)

AVAILABLE OPTIONS and MODIFICATIONS

WELD PADS Pads are normally supplied flat. For matching a pipe radius, use the codes below:				
WP15	1.5" nominal pipe size			
WP20	2" nominal pipe size			
WP25	2.5" nominal pipe size			
WP30	3" nominal pipe size			
WP35	3.5" nominal pipe size			
WP40 4" nominal pipe size				

APPLIED SENSOR TECHNOLOGIES

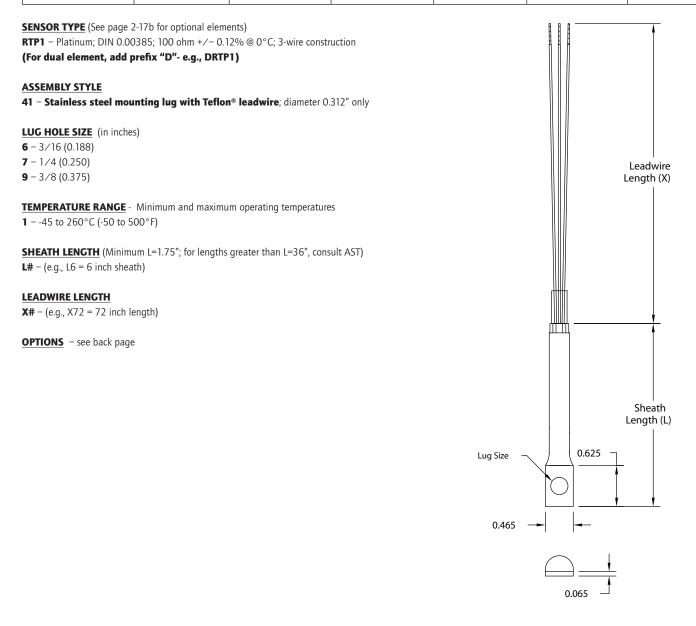


MOUNTING LUG WITH LEADWIRE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	LUG HOLE SIZE	TEMPERATURE RANGE	SHEATH LENGTH	LEADWIRE LENGTH	OPTIONS



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AVAILABLE OPTIONS and MODIFICATIONS

OPTIONAL ELEMENTS							
RTDs are standardly platinum, 100-ohm, DIN-curve elements with a 0.00385 alpha.							
Option Code	Accuracy (at 0°C)	Construction					
RTP1 (std.)	±0.12%	3-wire					
RTP6	±0.12%	2-wire					
RTP7	±0.12%	4-wire					
 Notes: For dual element, add prefix "D" (e.g., DRTP6) Additional materials, curves and resistance values are available - see Capabilities brochure. 							
ASSEMBLY OPTIONS							
Option Code	Description						
TAG1	Stainless steel tag and wire						
CAL1	NIST traceable calibration [specify point(s)]						
CRT1	Certificate of conformance						
WIRING CONNECTION	OPTIONS						
Option Code	Description						
WC76	#6 spade terminals, plat	ted copper					
WC70	#10 spade terminals, pl	ated copper					
WC84	1/4" push-on insulated	terminals, plated copper					
WC90	#10 ring terminals						
WC98	#8 ring terminals						
blies. Jack options - for	customer wiring – should	e attached to sensor assem- l only be specified if plug op- both plug and jack options.)					
РЈ10	Standard plug, rated to 177°C (350°F)						
PJ20 Standard jack, rated to 177°C (350°F)							

APPLIED SENSOR TECHNOLOGIES

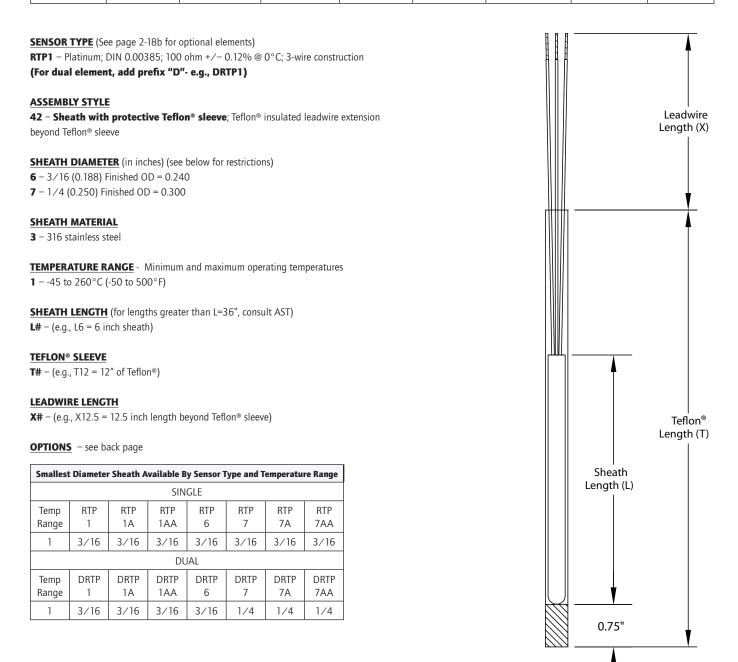


SHEATH WITH LEADWIRE AND PROTECTIVE TEFLON® SLEEVE

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

SENSOR TYPE	ASSEMBLY STYLE	SHEATH DIAMETER	SHEATH MATERIAL	TEMPERATURE RANGE	SHEATH LENGTH	TEFLON [®] SLEEVE	LEADWIRE LENGTH	OPTIONS



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AVAILABLE OPTIONS and MODIFICATIONS

OPTIONAL ELEMENTS	5							
RTDs are standardly pla alpha.	· · · · · · · · · · · · · · · · · · ·							
Option Code	Accuracy (at 0°C)	Construction						
RTP1 (std.)	±0.12%	3-wire						
RTP1A	±0.06%	3-wire						
RTP1AA	±0.01%	3-wire						
RTP6	±0.12%	2-wire						
RTP7	±0.12%	4-wire						
RTP7A	±0.06%	4-wire						
RTP7AA	±0.01%	4-wire						
 Notes: For dual element, add prefix "D" (e.g., DRTP6) Additional materials, curves and resistance values are available - see Capabilities brochure. 								
ASSEMBLY OPTIONS	1							
Option Code	Description							
TAG1	Stainless steel tag and v	vire						
CAL1	NIST traceable calibration	on [specify point(s)]						
CRT1	Certificate of conformar	ice						
B45-	45° bend in sheath (spe inches e.g., B45-6)	ecify length from tip in						
B90-	90° bend in sheath (spe inches e.g., B90-6)	ecify length from tip in						
WIRING CONNECTIO	N OPTIONS							
Option Code	Description							
WC76	#6 spade terminals, pla	ted copper						
WC70	#10 spade terminals, pl	ated copper						
WC84	1/4" push-on insulated	1/4" push-on insulated terminals, plated copper						
WC90	#10 ring terminals	#10 ring terminals						
WC98	#8 ring terminals							
blies. Jack options - fo	r customer wiring – should	e attached to sensor assem- l only be specified if plug op- both plug and jack options.)						
РЈ10	Standard plug, rated to 177°C (350°F)							
PJ20	Standard jack, rated to 177°C (350°F)							





HEAT TRACING RTD SENSORS WITH FIXED (NON-REPLACEABLE) ELEMENTS

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!



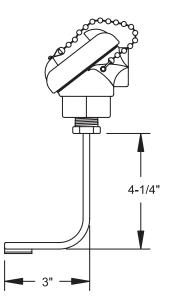
ASSEMBLY STYLE

T1441 – Heat trace RTD with fixed, non-replaceable element; cast aluminum head with ceramic terminal block and 1/2" NPT conduit connection; head conforms to NEMA 4 requirements; sheath is stainless steel with 90° bend, 0.250" O.D. with pad for mounting to pipe.

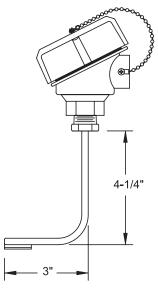
T1441X - Similar to T1441, except explosion-proof terminal head; approved for Class 1, Div. 1, Groups C & D.

NOTES:

- TEMPERATURE RANGE minimum and maximum operating temperatures -18 to 371°C (-0 to 700°F)
- SHEATH LENGTH 4–1/4" length from pipe to fitting standard (consult AST for additional lengths)
- **ELEMENT** 3-wire, platinum RTD, Class B, 100 ohms at 0°C (±0.12%); DIN 0.00385







T1441X

APPLIED SENSOR TECHNOLOGIES



HEAT TRACING RTD SENSORS WITH REPLACEABLE ELEMENTS

How to build a part number:

To order an Applied Sensor Technologies temperature sensor, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

STYLE	TRANSFER PAD

ASSEMBLY STYLE

T1804 – Heat trace RTD with replaceable element; cast aluminum head with ceramic terminal block and 1/2" NPT conduit connection; head conforms to NEMA 4 requirements; sheath is stainless steel with 90° bend, 0.375" O.D. with pad for mounting to pipe. **T1804X** – Similar to T1804, except explosion-proof terminal head and sealed pad; head approved for Class 1, Div. 1, Groups C & D.

T1844 – Similar to T1804, except terminal head is polycarbonate; conforms to NEMA 4X requirements; 6 knock-outs for wiring.

T1855 – Similar to T1804, except dual three-wire RTD elements; cast iron head with epoxy coating conforms to NEMA 4X requirements.

HEAT TRANSFER PAD CURVE (to fit nominal pipe size)

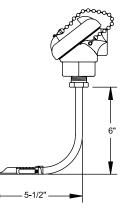
- **F** Flat pad **5** – 0.50" **7** – 0.75" **10** – 1"
- **15** 1.5"
- **20** 2"
- **30** 3″
- **40** 4"
- **60** 6"
- **80** 8″

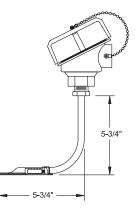
NOTES:

- TEMPERATURE RANGE minimum and maximum operating temperatures -45 to 482°C (-50 to 900°F)
- SHEATH LENGTH 5-3/4" or 6" length from pipe to fitting standard (consult AST for additional lengths)
- **ELEMENT** 3-wire, platinum RTD, Class B, 100 ohms at 0°C (±0.12%); DIN 0.00385

REPLACEMENT RTD SUBASSEMBLIES:

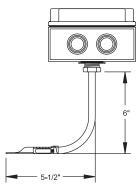
T1805 – for T1804 and T1844 (single element) **T1805D** – for T1855 (dual element) **T2588** – for T1804X (single element)





T1804/T1855

T1804X



T1844

APPLIED SENSOR TECHNOLOGIES



APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

THERMOWELL/STYLES H,S

BAR STOCK, NPT CONNECTION, NO LAG

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

PROCESS CONNECTION	STYLE	BORE	WELL LENGTH	WELL MATERIAL	OPTIONS

PROCESS CONNECTION (P)

- **1** 1/2" NPT
- **2** 3/4" NPT
- **3** 1" NPT
- 5 1-1/2" NPT

STYLE

 \boldsymbol{S} – Stepped stem (0.260" bore only; for straight stem, see Options) \boldsymbol{H} – Tapered stem

BORE

- 260 0.260" bore
- 385 0.385" bore

WELL LENGTH (in inches)*

- L# Specify length of thermowell (e.g., L4=4")
- Standard lengths:
 - L4 L=4"; U=2.5"
 L6 L=6"; U=4.5"

 L9 L=9"; U=7.5"
 L12 L=12"; U=10.5"

 L15 L=15"; U=13.5"
 L18 L=18"; U=16.5"

 L24 L=24"; U=22.5"
 L18 L=18"; U=16.5"

Specify other (L = U + 1.5'')

WELL MATERIAL

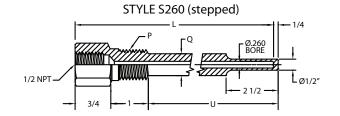
)

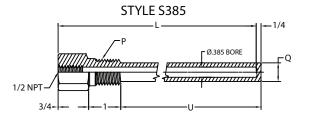
OPTIONS

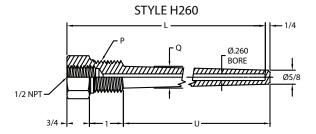
- **TW01** Stainless steel cap and chain assembly
- TWO2 Brass cap and chain assembly
- TAG2 Stamped tag #
- STRT Straight stem
- MTR1 Material Test Report
- WFC1 Wake Frequency Calculation

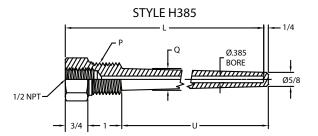
Root Diameter (Q)

Process Connection =	1/2" NPT	3/4" NPT	1" NPT	1-1/2" NPT
S260 and S385	.63″	.75″	.88″	.88″
H260 and H385	.63″	.88″	1.06″	1.63″









(*) Thermowells with an overall length of 42" or less are machined from SOLID BAR STOCK. Thermowells with an overall length greater than 42" are constructed using a welded design and are available in straight, stepped or tapered design. However, for tapered only the last 16" are tapered.

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BAR STOCK, NPT CONNECTION WITH LAG

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

C	PROCESS ONNECTION	S	TYLE	BORE	WELL LENGTH	LAG EXTENSION	WELL MATERIAL	OPTIONS
	SS CONNECT	ON (P)						
	2" NPT							
	4" NPT						STYLE SL260	
	NPT					P٦	L	1/4
	/2" NPT							
YLE								/
			-	ension (for straight stem	1, see Options) 1/2 NP	▫╱╘═╛╘┛╹		ή Lø
	IPT connection,	tapered ste	m, with lag ex	tension				2 1/2
RE						T+3/4	– 1 –– I –– U –	
	0.260" bore							
	0.385" bore						STYLE HL260	
	LENGTH (in inc							
	pecify length of		(e.g., L9=9")			created been		- Ø.260 BORE
St	andard lengths							
		U	=				······································	and a second
	Length (L) =	If T = 2"	If T = 3"		1/2 NI		•••••••	
L6	6″	2.5″	1.5″			T+3/4	-1 U -	
L9	9"	5.5″	4.5″					
12	12"	8.5"	7.5"					
15	15"	11.5"	10.5"				STYLE SL385	
-	-						L	
18	18"	14.5″	13.5″				∠ ^P _Ø.3	85 BORE
24	24"	20.5″	19.5″					
-	other (L = U+T-				1/2 N			
	XTENSION (in		TO 0	、	1/2 1	''⁻ ├──┤ ├─ Г		
: – SI	pecify length of		g., 12 = 2" lag)		T+3/4	-1	
		T3 – 3″				1		I
	Specify oth	er						
	MATERIAL							
	304 stainless s			stainless steel			STYLE HL385	
-	310 stainless st		400 – Mone				L	
	316 stainless st	eel	CS – Carbor				Γ [°] Γ	Ø.385 BORE
C – I	Inconel 600®		F11 – F11 ca	arbon steel (forged)			Minning p	
1 -	321 stainless st	eel		arbon steel (forged)			<u> </u>	Ø
UM	– Aluminum		F91 – F91 c	arbon steel (forged)	1/2 N	┍т┛┝━┛	·····	
\ST	 Hastelloy C[®] 		A20 – Alloy	20		T+3/4	-1	
'NМ	– Titanium		BRASS – Br	ass				
тіо	NS							
/01	– Stainless stee	l cap and cl	nain assembly					
02	– Brass cap and	d chain asse	mbly					
G2 ·	- Stamped tag	#						
RT -	- Straight stem					(*) Thermowells with an	overall length of 42" of	or less are machined
rr1	– Material Test	Report				from SOLID BAR STOCK		
: С1	– Wake Frequer	ncy Calculat	ion			than 42" are constructed	d using a welded desig	n and are available
ot D	iameter (Q)					straight, stepped or tap	ered design. However,	for tapered only the
			-	1" NPT 1-1/2" NF		16" are tapered.		

Process Connection =	1/2" NPT	3/4" NPT	1" NPT	1-1/2" NPT
SL260 and SL385	.63″	.75″	.88″	.88″
HL260 and HL385	.68″	.88″	1.06″	1.63″

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BAR STOCK, NPT CONNECTION, LIMITED SPACE

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

PROCESS CONNECTION	STYLE	BORE	WELL MATERIAL	OPTIONS

PROCESS CONNECTION (P)

- 1 1/2" NPT 2 - 3/4" NPT
- 3 1" NPT

STYLE

LS - Limited space, straight stem

BORE

260 - 0.260" bore 385 - 0.385" bore

WELL MATERIAL

316L - 316L stainless steel ---- 304 stainless steel 310 - 310 stainless steel 400 - Monel 400® 316 - 316 stainless steel CS - Carbon steel INC - Inconel 600® 321 - 321 stainless steel ALUM – Aluminum HAST - Hastelloy C® A20 - Alloy 20 **TTNM** – Titanium BRASS - Brass

OPTIONS

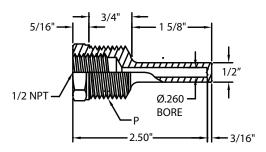
- TW01 Stainless steel cap and chain assembly
- TWO2 Brass cap and chain assembly

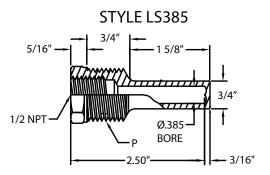
TAG2 - Stamped tag

MTR1 - Material Test Report

F11 - F11 carbon steel (forged) F22 - F22 carbon steel (forged) F91 - F91 carbon steel (forged)

STYLE LS260





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THERMOWELL/STYLES F, FH

BAR STOCK, FLANGE CONNECTION

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

STYLE	BORE	INSERTION LENGTH	WELL & FLANGE MATERIAL	FLANGE SIZE	FLANGE RATING	FLANGE TYPE	OPTIONS

STYLE

 \mathbf{F} – Flanged connection, stepped stem (for straight stem, see Options) \mathbf{FH} – Flanged connection, tapered stem

BORE

260 - 0.260" bore

385 - 0.385" bore

INSERTION LENGTH (in inches)*

U# – Specify length below the flange (e.g., U4 = 4") Standard lengths:

 U4 - U=4"; L=6"
 U7 - U=7"; L=9"

 U10 - U=10"; L=12"
 U13 - U=13"; L=15"

 U16 - U=16"; L=18"
 U22 - U=22"; L=24"

 Specify other (L = U + 2")
 Comparison of the state of the stat

1.5 - 1.5" flange

300 - 300# rating

900/1500 - 900/1500# rating

3 - 3" flange

WELL AND FLANGE MATERIAL

310 – 310 stainless steel **316** – 316 stainless steel

321 - 321 stainless steel

INC - Inconel 600®

ALUM - Aluminum

HAST – Hastelloy C[®] **TTNM** – Titanium

316L – 316L stainless steel
400 - Monel 400®
CS – Carbon steel
F11 – F11 carbon steel (forged)
F22 - F22 carbon steel (forged)
F91 - F91 carbon steel (forged)
A20 – Alloy 20
BRASS – Brass

FLANGE SIZE

1 – 1" flange **2** – 2" flange **4** – 4" flange

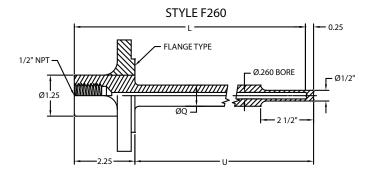
FLANGE RATING

150 – 150# rating **600** – 600# rating

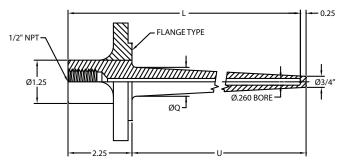
FLANGE TYPE RF – Welded, raised face (standard) FF – Welded, flat face RTJ – Ring type joint

OPTIONS

TWO1 – Stainless steel cap and chain assembly TWO2 – Brass cap and chain assembly TAG2 – Stamped tag # STRT – Straight stem MTR1 – Material Test Report WFC1 – Wake Frequency Calculation TFLN – Teflon sleeve or coating



STYLE FH260



	Root Diameter (Q)
F260	0.75″
F385	0.75″
FH260 & 385	1" flange = .88" 1.5" flange = 1.06" All others = 1.25"

(*) Thermowells with an overall length of 42" or less are machined from SOLID BAR STOCK. Thermowells with an overall length greater than 42" are constructed using a welded design and are available in straight, stepped or tapered design. However, for tapered only the last 16" are tapered.

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BAR STOCK, SOCKET-WELD CONNECTION, NO LAG

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

PROCESS CONNECTION	STYLE	BORE	WELL LENGTH	Well Material	OPTIONS

PROCESS CONNECTION (P)

2 - 3/4" pipe (OD = 1.05")

3 - 1" pipe (OD = 1.315")

5 - 1-1/2" pipe (OD = 1.90")

STYLE

SW - Socket-weld connection, stepped stem, no lag (for straight stem, see Options)

SWH - Socket-weld connection, tapered stem, no lag

BORE

260 - 0.260" bore

385 - 0.385" bore

WELL LENGTH (in inches)*

L# – Specify length of thermowell (e.g., L4 = 4'')

Standard lengths:

L4 - L=4"; U=2.5" L6 - L=6"; U=4.5" L9 - L=9"; U=7.5" L12 - L=12"; U=10.5" L18 - L=18"; U=16.5" L15 - L=15"; U=13.5" L24 - L=24"; U=22.5"

Specify other (L = U+1.5'')

WELL MATERIAL

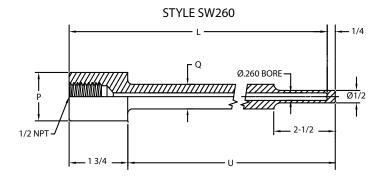
304 stainless steel	316L – 316L stainless steel
310 - 310 stainless steel	400 – Monel 400®
316 – 316 stainless steel	CS – Carbon steel
INC – Inconel 600®	F11 - F11 carbon steel (forged)
321 – 321 stainless steel	F22 – F22 carbon steel (forged)
ALUM – Aluminum	F91 - F91 carbon steel (forged)
HAST – Hastelloy C®	A20 – Alloy 20
TTNM – Titanium	BRASS – Brass

OPTIONS

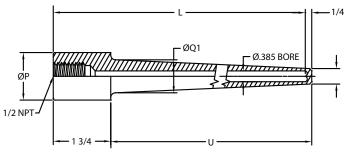
- TW01 Stainless steel cap and chain assembly
- TWO2 Brass cap and chain assembly
- TAG2 Stamped tag #
- STRT Straight stem
- MTR1 Material Test Report
- WFC1 Wake Frequency Calculations

Root Diameter (Q)

Process Connection =	3/4″ pipe	1" pipe	1.5" pipe
SW260 & 385	.75″	.88″	1.13″
SWH260 & 385	.75″	1.00″	1.25″
SWH Tip Diameter	.63″	.75″	.75″







(*) Thermowells with an overall length of 42" or less are machined from SOLID BAR STOCK. Thermowells with an overall length greater than 42" are constructed using a welded design and are available in straight, stepped or tapered design. However, for tapered only the last 16" are tapered.

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BAR STOCK, SOCKET-WELD CONNECTION WITH LAG

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

PROCESS CONNECTION	STYLE	BORE	WELL LENGTH	LAG EXTENSION	WELL MATERIAL	OPTIONS	
PROCESS CONNECTION (P)							

PROCESS CONNECTION (P)

2 – 3/4" pipe (OD = 1.05")

3 – 1" pipe (OD = 1.315")

5 – 1-1/2" pipe (OD = 1.90")

STYLE

SWL - Socket-weld connection, stepped stem, with lag (for straight stem, see Options)

SWLH – Socket-weld connection, tapered stem, with lag

BORE

260 – 0.260" bore

385 – 0.385" bore

WELL LENGTH (in inches)*

L# – Specify length of thermowell (e.g., L9 = 9") Standard lengths:

		U =		
	Length (L) =	lf T = 2"	If T = 3"	
L6	6″	2.5″	1.5″	
L9	9″	5.5″	4.5″	
L12	12″	8.5″	7.5″	
L15	15″	11.5" 10.5"		
L18	18″	14.5″	13.5″	
L24	24"	20.5″	19.5″	

Specify other (L = U+T+1.5'')

LAG EXTENSION (in inches)

T2 – 2″

T# – Specify length of lagging (e.g., T2=2" lag)

WELL MATERIAL

304 stainless steel	316L – 316L stainless steel
310 – 310 stainless steel	400 – Monel 400®
316 – 316 stainless steel	CS – Carbon steel
INC – Inconel 600®	F11 - F11 carbon steel (forged)
321 – 321 stainless steel	F22 – F22 carbon steel (forged)
ALUM – Aluminum	F91 – F91 carbon steel (forged)
HAST – Hastelloy C®	A20 – Alloy 20
TTNM – Titanium	BRASS – Brass

OPTIONS

TW01 – Stainless steel cap and chain assembly

TWO2 – Brass cap and chain assembly

MTR1 - Material Test Report

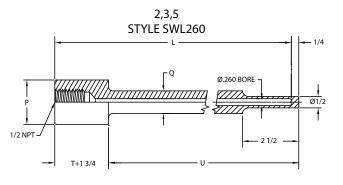
TAG2 - Stamped tag #

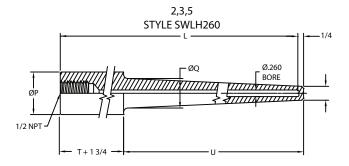
WFC1 - Wake Frequency Calculations

STRT – Straight stem

Root Diameter (Q)

Process Connection =	3/4″ pipe	1" pipe	1.5" pipe
SWL260 & 385	.75″	.88″	1.25″
SWLH260 & 385	.75″	1.00″	1.25″
SWLH Tip Diameter	.63″	.75″	.75″





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BAR STOCK, WELD-IN CONNECTION, NO LAG

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

PROCESS CONNECTION	STYLE	BORE	WELL LENGTH	WELL MATERIAL	OPTIONS

øр

75

1/2" NPT

PROCESS CONNECTION (P)

2 – 3/4" pipe (OD = 1.05")

3 – 1" pipe (OD = 1.315")

5 - 1-1/2" pipe (OD = 1.90")

STYLE

WIH – Weld-in, tapered stem, no lag

BORE

260 – 0.260" bore **385** – 0.385" bore

WELL MATERIAL

310 - 310 stainless steel

316 - 316 stainless steel

321 - 321 stainless steel

INC - Inconel 600®

ALUM - Aluminum

HAST - Hastelloy C®

TAG2 – Stamped tag # MTR1 – Material Test Report WFC1 – Wake Frequency Calculations

TTNM – Titanium

OPTIONS

WELL LENGTH (in inches)*

L# – Specify length of thermowell (e.g., L4 = 4'')

TW01 – Stainless steel cap and chain assembly **TW02** – Brass cap and chain assembly

Standard lengths:

 $\begin{array}{c} \textbf{L4} - \textbf{L}=4"; \ \textbf{U}=2.5" & \textbf{L6} - \textbf{L}=6"; \ \textbf{U}=4.5" \\ \textbf{L9} - \textbf{L}=9"; \ \textbf{U}=7.5" & \textbf{L12} - \textbf{L}=12"; \ \textbf{U}=10.5" \\ \textbf{L15} - \textbf{L}=15"; \ \textbf{U}=13.5" & \textbf{L18} - \textbf{L}18"; \ \textbf{U}16.5" \\ \textbf{L24} - \textbf{L}=24"; \ \textbf{U}=22.5" \\ \end{array}$ Specify other (L = U+1.5")

316L - 316L stainless steel

F11 - F11 carbon steel (forged)

F22 - F22 carbon steel (forged)

F91 - F91 carbon steel (forged)

400 - Monel 400®

CS – Carbon steel

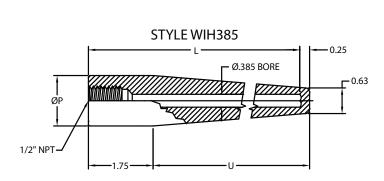
A20 - Alloy 20

BRASS - Brass



-0.25

0.63



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BAR STOCK, WELD-IN CONNECTION WITH LAG

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

PROCESS CONNECTION	STYLE	BORE	WELL LENGTH	LAG EXTENSION	WELL MATERIAL	OPTIONS

ØF

1.75 + T

1/2" NPT

PROCESS CONNECTION (P)

- **2** 3/4" pipe (OD = 1.05")
- **3** 1" pipe (OD = 1.315")
- **5** 1-1/2" pipe (OD = 1.90")

STYLE

WIHL - Weld-in, tapered stem with lag extension

BORE

260 - 0.260" bore

385 - 0.385" bore

WELL LENGTH (in inches)*

L# – Specify length of thermowell (e.g., L9 = 9") Standard lengths:

		U =			
	Length (L) =	If T = 2"	If T = 3"		
L6	6″	2.5″	1.5″		
L9	9"	5.5″	4.5″		
L12	12″	8.5″	7.5″		
L15	15″	11.5″	10.5″		
L18	18″	14.5″	13.5″		
L24	24″	20.5″	19.5″		

Specify other (L = U+T+1.5'')

LAG EXTENSION (in inches)

T# - Specify length of lagging (e.g., T2=2" lag)

T3 – 3″

T2 – 2"

WELL MATERIAL

304 stainless steel	316L – 316L stainless steel
310 – 310 stainless steel	400 - Monel 400®
316 – 316 stainless steel	CS – Carbon steel
INC – Inconel 600®	F11 – F11 carbon steel (forged)
321 – 321 stainless steel	F22 - F22 carbon steel (forged)
ALUM – Aluminum	F91 – F91 carbon steel (forged)
HAST – Hastelloy C®	A20 – Alloy 20
TTNM – Titanium	BRASS – Brass

Specify other

OPTIONS

- **TW01** Stainless steel cap and chain assembly
- TWO2 Brass cap and chain assembly
- TAG2 Stamped tag #
- MTR1 Material Test Report
- WFC1 Wake Frequency Calculations



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BAR STOCK, VAN STONE FLANGE CONNECTION

How to build a part number:

To order an Applied Sensor Technologies thermowell, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

PROCESS CONNECTION	STYLE	BORE	INSERTION LENGTH	WELL MATERIAL	FLANGE MATERIAL	FLANGE RATING	OPTIONS

PROCESS CONNECTION (P)

3 – 1" pipe (OD = 1.315", R = 2")

5 - 1-1/2" pipe (OD = 1.90", R = 2-7/8")

STYLE

VS - Van Stone Flange, straight stem with step

BORE

260 - 0.260" bore (Q = 3/4") **385** - 0.385" bore (Q = 7/8")

INSERTION LENGTH (in inches)*

U# – Specify length below the flange (e.g., U4 = 4") Standard lengths:

WELL MATERIAL

– – – – 304 stainless steel	316L – 316L stainless steel
310 - 310 stainless steel	400 – Monel 400®
316 – 316 stainless steel	CS – Carbon steel
INC – Inconel 600®	F11 – F11 carbon steel (forged)
321 – 321 stainless steel	F22 – F22 carbon steel (forged)
ALUM – Aluminum	F91 – F91 carbon steel (forged)
HAST – Hastelloy C®	A20 – Alloy 20
TTNM – Titanium	BRASS – Brass

FLANGE MATERIAL

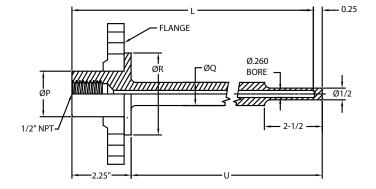
304 – 304 stainless steel **316** – 316 stainless steel

FLANGE RATING

 - 150# rating - 300# rating - 600# rating **900/1500** - 900/1500# rating

OPTIONS

TWO1 – Stainless steel cap and chain assembly TWO2 – Brass cap and chain assembly TAG2 – Stamped tag # MTR1 – Material Test Report WFC1 – Wake Frequency Calculations TFLN – Teflon coating



STYLE VS260

(*) Thermowells with an overall length of 42" or less are machined from SOLID BAR STOCK. Thermowells with an overall length greater than 42" are constructed using a welded design and are available in straight, stepped or tapered design. However, for tapered only the last 16" are tapered.

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TW/VS-02

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CERAMIC TUBE, NO MOUNTING FITTING

How to build a part number:

To order an Applied Sensor Technologies protection tube, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

STYLE	TUBE DIAMETER	TUBE MATERIAL	LENGTH

STYLE

CT1 - Ceramic protection tube, no mounting fitting

TUBE DIAMETER

O.D.

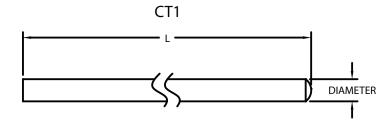
- **0** 0.375"
- **1** 0.5"
- **2** 0.688"
- **3** 0.75"
- **4** 0.875"
- **5** 1″
- **6** 1.1"
- **7** 1.25"
- **8** 1.5"
- **9** 1.75"

TUBE MATERIAL

- A Alumina
- $\boldsymbol{\mathsf{M}}$ Mullite not recommended for noble metal thermocouples
- H Hexalloy
- L LT-1
- $\boldsymbol{S}-\mathsf{Sialon}$
- $\boldsymbol{\mathsf{C}}$ Silicon carbide, oxide bonded

LENGTH (in inches)

L# - Specify length (e.g., L6 = 6" overall length)





CERAMIC TUBE, WITH MOUNTING FITTING OR NIPPLE

How to build a part number:

To order an Applied Sensor Technologies protection tube, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

STYLE	TUBE DIAMETER	TUBE MATERIAL	INSTRUMENT CONNECTION	PROCESS CONNECTION	CONNECTION MATERIAL	CONNECTION LENGTH	LENGTH

STYLE

- CT2 Ceramic protection tube with threaded hex fitting
- **CT3** Ceramic protection tube with pipe nipple

TUBE DIAMETER

O.D.

- **0** 0.375"
- 1 0.5"
- **2** 0.688"
- **3** 0.75"
- **4** 0.875"
- 5 1"
- **7** 1.25"

TUBE MATERIAL

A – Alumina

- $\boldsymbol{\mathsf{M}}$ Mullite not recommended for noble metal thermocouples
- H Hexalloy
- L LT-1

INSTRUMENT CONNECTION*

- **0** 1/2" NPT
- 1 3/4" NPT
- **2** 1″ NPT
- **3** 1-1/4" NPT

PROCESS CONNECTION*

- **0** 1/2" NPT
- **1** 3/4" NPT
- **2** 1" NPT
- **3** 1-1/4" NPT

CONNECTION MATERIAL

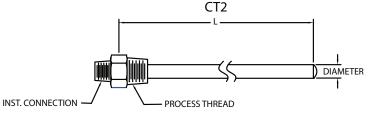
- **Y** 304 stainless steel
- W 316 stainless steel
- G Carbon steel

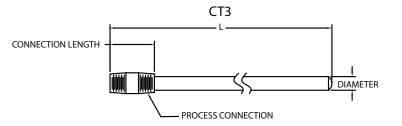
CONNECTION LENGTH

- 1 CT2 only (hex fitting length)
- **#** CT3 only (length of nipple in inches; e.g., 6 = 6" nipple)
- LENGTH (in inches)

L# – Specify length (For CT2, U is approximately L – 1"; for CT3, U is approximately L – the nipple length)

*Note: For CT3, Instrument and Process Connection sizes must be the same.





3



METAL TUBE, PLAIN OR WITH MOUNTING BUSHING

How to build a part number:

To order an Applied Sensor Technologies protection tube, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

STYLE	PIPE SIZE/ INSTRUMENT CONNECTION	PIPE SCHEDULE	PIPE & BUSHING MATERIAL	BUSHING SIZE	OVERALL LENGTH	INSERTION LENGTH

STYLE

MT1 – Metal protection tube, threaded, no bushing **MT2** – Metal protection tube, threaded, with bushing

PIPE SIZE/INSTRUMENT CONNECTION

Pipe Size

Connection

- **1** 1/2" pipe (0.840" dia.) 1/2" NPT **2** – 3/4" pipe (1.050" dia.) 3/4" NPT
- **3** 1" pipe (1.315" dia.) 1" NPT

PIPE SCHEDULE

- **40** Schedule 40
- **80** Schedule 80
- 160 Schedule 160

PIPE AND BUSHING MATERIAL

304 – 304 stainless steel **310** – 310 stainless steel **316** – 316 stainless steel **316L** – 316L stainless steel **321** – 321 stainless steel **A20** – Alloy 20 **INC** – Inconel 600® **400** – Monel 400®

BUSHING SIZE

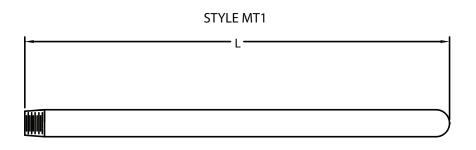
- **1** 1/2" NPT
- **2** 3/4" NPT
- **3** 1" NPT
- **4** 1-1/4" NPT
- **5** 1-1/2" NPT **7** – 2" NPT

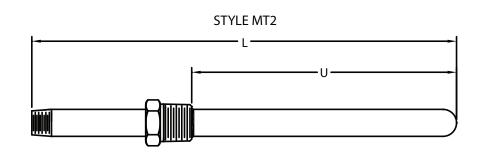
OVERALL LENGTH (in inches)

L# – Specify overall length of tube (e.g., L24 = 24'' long tube)

INSERTION LENGTH (MT2 only, in inches)

U# – Specify length below bushing connection (e.g., U6 = 6" below thread)





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APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

METAL TUBE WITH MOUNTING FLANGE

How to build a part number:

To order an Applied Sensor Technologies protection tube, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

3

STYLE	PIPE SIZE/ INSTRUMENT CONNECTION	PIPE SCHEDULE	PIPE & FLANGE MATERIAL	FLANGE SIZE	FLANGE RATING	FLANGE TYPE	OVERALL LENGTH	INSERTION LENGTH

STYLE

MT4 - Metal protection tube, threaded, with flange

PIPE SIZE/INSTRUMENT CONNECTION

Pipe Size

Connection **1** – 1/2" pipe (0.840" dia.) 1/2" NPT **2** – 3/4" pipe (1.050" dia.) 3/4" NPT

1" NPT

3 – 1" pipe (1.315" dia.)

PIPE SCHEDULE

- 40 Schedule 40
- 80 Schedule 80
- 160 Schedule 160

PIPE AND FLANGE MATERIAL

- 304 304 stainless steel 310 - 310 stainless steel 316 - 316 stainless steel 316L - 316L stainless steel
- 321 321 stainless steel
- A20 Alloy 20
- INC Inconel 600®
- 400 Monel 400®

FLANGE SIZE

- 1 1" flange
- 1.5 1.5" flange
- 2 2" flange
- 3 3" flange
- **4** 4" flange

FLANGE RATING

150 - 150# flange rating 300 - 300# flange rating 600 - 600# flange rating 900/1500 - 900/1500# flange rating

FLANGE TYPE

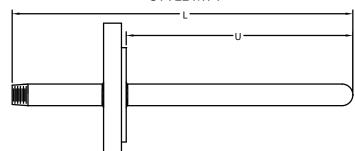
- RF Raised face
- **FF** Flat face
- RTJ Ring type joint

OVERALL LENGTH (in inches)

L# – Specify overall length of tube (e.g., L24 = 24" long tube)

INSERTION LENGTH (in inches) **U#** – Specify length below flange (e.g., U6 = 6" below flange) Inconel® and Monel® are registered trademarks of Special Metals Corp. Hastelloy® is a registered trademark of Haynes Int'l.

STYLE MT4





SPECIAL SECONDARY (OUTER) TUBE WITH MOUNTING BUSHING

How to build a part number:

To order an Applied Sensor Technologies protection tube, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

STYLE	TUBE DIAMETER	TUBE MATERIAL	INSTRUMENT CONNECTION	PROCESS CONNECTION	BUSHING MATERIAL	OVERALL LENGTH

STYLE

PT2 – Outer protection tube, with bushing, to be used with inner ceramic protection tube (Style CT2 or CT3)

TUBE DIAMETER

- **3** 3/4" O.D.
- **4** 7/8" O.D.
- **5** 1″ O.D.
- **6** 1-1/10" O.D.
- **7** 1-1/4" O.D.
- **8** 1-1/2" O.D.
- **9** 1-3/4" O.D.

TUBE MATERIAL

- **C** Silicon carbide, oxide bonded
- **S** Sialon
- H Hexalloy
- L LT1 metal ceramic

INSTRUMENT CONNECTION

- **0** 1/2" NPT
- 1 3/4" NPT

PROCESS CONNECTION

- **2** 1" NPT
- **3** 1-1/4" NPT
- **4** 1-1/2 NPT
- **5** 2″ NPT

BUSHING MATERIAL

- G Carbon steel
- W 316 stainless steel

OVERALL LENGTH (in inches)

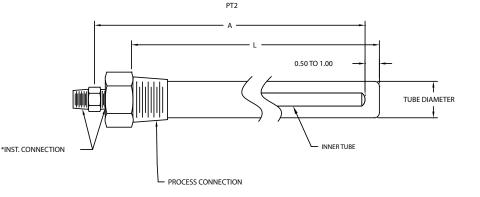
L# – Specify length of tube

including threads

(e.g., L24=24" long tube)

PROCESS THREAD (NPT)

	CODE	2 (1")	3 (1-1/4")	4 (1-1/2")	5 (2")
	3 (3/4")	Н	Н	Н	Н
0.D.	4 (7/8")	L,S	L,S	L,S	L,S
BE	5 (1")		Н	Н	Н
OUTER TUBE O.D.	6 (1-1/10")		S	S	S
FDO	7 (1-1/4")			Н	Н
•	8 (1-1/2")			Н	Н
	9 (1-3/4")				С



Use CT2/CT3 spec sheet to specify inner protection tube, using appropriate O.D. from chart below:					
OUTER TUBE O.D. INNER TUBE O.D.					
3/4" .375"					
7/8" .375"					
1" .375"					
1.10"	.375″				
1-1/4"	.688″				
1-1/2"	1-1/2" .688"				
1-3/4" .75"					
Note: to match inner tube length to outer, inner length (A) = outer tube length (L) + $0.75''$					

Notes:

1. Not all materials and process thread sizes are compatible with all tubing O.D.'s. Use the chart below as a guide for the possible combinations. For each combination of thread and O.D., available materials are noted – Silicon Carbide (C), Sialon® (S), Hexalloy® (H) and LT1 (L).

2. Applied Sensor Technologies recommends alumina protection tubes when using platinum thermocouples. Mullite, although less expensive when compared to alumina, can contaminate the platinum, causing drift.

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SPECIAL SECONDARY (OUTER) TUBE WITH MOUNTING FLANGE

How to build a part number:

To order an Applied Sensor Technologies protection tube, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

STYLE	TUBE DIAMETER	TUBE MATERIAL	SLIP FLANGE SIZE	OVERALL LENGTH

STYLE

PT3 – Outer protection tube, with 4-7/8'' mounting flange for mounting, to be used with inner ceramic protection tube (Style CT2 or CT3)

TUBE DIAMETER

9 - 1-3/4" O.D.

TUBE MATERIAL

C – Silicon carbide, oxide bonded

SLIP FLANGE SIZE

5-4-7/8"

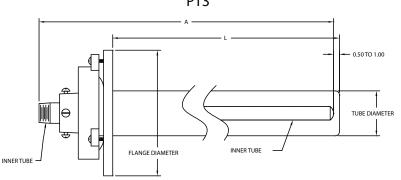
OVERALL LENGTH (in inches)

L# – Specify length of tube below flange

(e.g., L24=24" long tube)

Notes – when inner protection tube is required:

- Use CT2/CT3 spec sheet to specify inner tube.
 Style should be CT3 with a 3/4" diameter to match up with 1-3/4" outer tube.
- Minimum nipple length should be 4" in order to extend past the collar.
- 4. Length of inner tube (A) should be equal to outer tube length (L) + 2.5".
- Applied Sensor Technologies recommends alumina inner protection tubes when using platinum thermocouples. Mullite, although less expensive when compared to alumina, can contaminate the platinum, causing drift.



PT3



4-20 MA OUTPUT, ISOLATED

How to build a part number:

To order an Applied Sensor Technologies transmitter, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

TRANSMITTER TYPE	INPUT	RANGE	UNITS OF MEASURE	OPTION

TRANSMITTER TYPE*

UNI5-S - Isolated transmitter with single 4-20mA output for terminal head mounting

UNI5-S

- INPUT J – J type thermocouple K – K type thermocouple E – E type thermocouple T – T type thermocouple Pt100 – 100-ohm platinum RTD Pt250 – 250-ohm platinum RTD Pt500 – 500-ohm platinum RTD
- R R type thermocouple

 S S type thermocouple

 B B type thermocouple

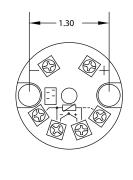
 Ni100 100-ohm nickel RTD

 Ni500 500-ohm nickel RTD

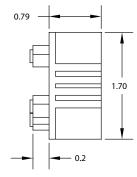
 Ni1000 1000-ohm nickel RTD

 Cu10 10-ohm copper RTD

 Cu100 100-ohm copper RTD



.



RANGE (specify minimum and maximum values, e.g., 0-100)* # – Minimum Range Value (temperature value that equals 4 mA)

- Maximum Range Value (temperature value that equals 20 mA)

UNITS OF MEASURE

Specify °F or °C

OPTION

DS01 – Downscale open circuit detection

Specifications

specifications		*Available sensor range	*Available sensor ranges and limitations				
Isolation (I/O):	500 VAC galvanic	Sensor Type	Min. Temp.	Max. Temp.	Min. Span		
Supply Voltage:	5-40 VDC, polarity protected	JT/C	-200°C	1200°C	50°C		
Sensor Lead Resistance:	RTD: 500 ohms max.	K T/C	-270°C	1370°C	50°C		
	T/C: 10,000 ohms max. Effect: 0.005°C/ohm	ET/C	-270°C	1000°C	50°C		
Maximum Load:	$R_{max} = (V_{supply} - 5V)/20 \text{ mA}$	TT/C	-270°C	400°C	50°C		
Stability:	Zero drift: 0.02°C/°C	R or S T/C	-60°C	1760°C	250°C		
	Span drift: 0.02°C∕°C	B T/C	0°C	1820°C	600°C		
Ambient Temperature:	-40 to + 85°C	Pt100, Pt250, Pt500,	-200°C	850°C	25°C		
Housing:	Epoxy-coated zinc alloy	and Pt1000 RTD					
Start-Up Time:	5 seconds	Ni100, Ni500 and	-60°C	250°C	25°C		
Warm-Up Time:	2 minutes	Ni1000 RTD	_				
Open Circuit Detection:	Upscale standard	Cu10 and Cu100 RTD	-200°C	250°C	25°C		

Note: when used as an option in combination with a temperature sensor assembly, use option code **TR11** at end of assembly part #.



4-20 MA OUTPUT, ISOLATED

How to build a part number:

To order an Applied Sensor Technologies transmitter, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

TRANSMITTER TYPE	INPUT	RANGE	UNITS OF MEASURE	OPTION

TRANSMITTER TYPE*

UNI5-I - Isolated transmitter with single 4-20mA output for terminal head mounting

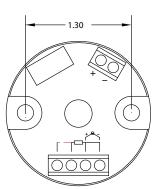
INPUT

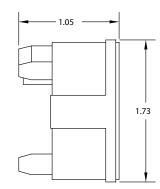
- J J type thermocouple
- $\boldsymbol{\mathsf{K}}$ K type thermocouple
- $\boldsymbol{\mathsf{E}}$ E type thermocouple
- ${\boldsymbol{\mathsf{T}}}$ T type thermocouple

Pt100 – 100-ohm platinum RTD

Pt1000 - 1000-ohm platinum RTD

R - R type thermocouple
S - S type thermocouple
B - B type thermocouple
Ni100 - 100-ohm nickel RTD
Ni1000 - 1000-ohm nickel RTD





RANGE (specify minimum and maximum values, e.g., 0-100)*

- Minimum Range Value (temperature value that equals 4 mA)

- Maximum Range Value (temperature value that equals 20 mA)

UNITS OF MEASURE

Specify °F or °C

OPTION

DS01 – Downscale open circuit detection

Specifications

Input:	Thermocouple or 3-wire/4-wire RTD	*Available sensor ranges and limitations				
Isolation (I/O):	1500 VAC galvanic	Sensor Type	Min. Temp.	Max. Temp.	Min. Span	
Supply Voltage:	6.5-36 VDC, polarity protected	JT/C	-200°C	1000°C	2 mV	
Output:	4-20 mA or 20-4 mA	K T/C	-200°C	1350°C	2 mV	
Sensor Lead Resistance:	RTD: 25 ohms max./wire	ET/C	-200°C	1000°C	2 mV	
	T/C: 500 ohms max.	TT/C	-200°C	400°C	2 mV	
Maximum Load:	$R_{max} = (V_{supply} - 6.5) / 0.022$	R or S T/C	-50°C	1760°C	2 mV	
Linearity:	RTD ± 0.1% of span TC ± 0.2% of span	B T/C	0°C	1820°C	2 mV	
Stability:	0.01°C/°C	Pt100 RTD	-200°C	1000°C	10°C	
Ambient Temperature:	-40 to + 85°C	Pt1000 RTD	-200°C	200°C	10°C	
Housing:	PC/ABS	Ni100 RTD	-60°C	250°C	10°C	
Open Circuit Detection:	Upscale standard	Ni1000 RTD	-100°C	150°C	10°C	

Note: when used as an option in combination with a temperature sensor assembly, use option code **TR14** at end of assembly part #.

UNI5-I



APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

4-20 MA/HART® OUTPUT, ISOLATED

How to build a part number:

To order an Applied Sensor Technologies transmitter, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

TRANSMITTER TYPE	INPUT	RANGE	UNITS OF MEASURE	OPTION

TRANSMITTER TYPE

UNI5-H - Isolated transmitter with single 4-20mA/HART® output for terminal head mounting

INPUT

J – J type thermocouple K – K type thermocouple E – E type thermocouple T – T type thermocouple Pt100 – 100-ohm platinum RTD Pt250 – 250-ohm platinum RTD Pt500 – 500-ohm platinum RTD
 R - R type thermocouple

 S - S type thermocouple

 B - B type thermocouple

 Ni100 - 100-ohm nickel RTD

 Ni500 - 500-ohm nickel RTD

 Ni1000 - 1000-ohm nickel RTD

 Cu10 - 10-ohm copper RTD

 Cu100 - 100-ohm copper RTD

RANGE (specify minimum and maximum values, e.g., 0-100)*

- # Minimum Range Value (temperature value that equals 4 mA)
- # Maximum Range Value (temperature value that equals 20 mA)

UNITS OF MEASURE

Specify °F or °C

OPTION

DS01 – Downscale open circuit detection

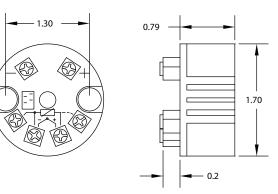
Specifications

Input:	Thermocouple or 3-wire/4-wire RTD	
Isolation (I/O):	500 VDC	
Supply Voltage:	10-40 VDC, polarity protected	*Av
Output:	4-20mA or 20-4 mA	Sen
Digital Output:	HART [®] protocol	J T/
Sensor Lead Resistance:	RTD: 500 ohms max.	K T.
	T/C: 10,000 ohms max. Effect: 0.001°C/ohm	E T/
		T T/
Maximum Load:	$R_{max} = (V_{supply} - 10)/20 \text{ mA}$	Ro
Stability:	Zero drift = 0.02°C/°C Span drift = 0.01°C/°C	B T/
Ambient Temperature:	-40 to + 85°C	Pt1 and
Start-Up Time	5 sec.	Ni1
Warm-Up Time	5 min.	Ni1
Housing:	Epoxy-coated zinc alloy	Cu1
Open Circuit Detection:	Upscale standard	L

*Available sensor ranges and limitations					
Sensor Type	Min. Temp.	Max. Temp.	Min. Span		
JT/C	-200°C	1200°C	50°C		
K T/C	-270°C	1370°C	50°C		
ET/C	-270°C	1000°C	50°C		
TT/C	-270°C	400°C	50°C		
R or S T/C	-60°C	1760°C	250°C		
B T/C	0°C	1820°C	600°C		
Pt100, Pt250, Pt500 and Pt1000 RTD	-200°C	850°C	25°C		
Ni100, Ni, 500 and Ni1000 RTD	-60°C	250°C	25°C		
Cu10 and Cu100 RTD	-200°C	250°C	25°C		

Note: when used as an option in combination with a temperature sensor assembly, use option code TR13 at end of assembly part #.

UNI5-H





APPLIED SENSOR TECHNOLOGIES A Division of UNITED ELECTRIC CONTROLS

4-20 MA OUTPUT, NON-ISOLATED

How to build a part number:

To order an Applied Sensor Technologies transmitter, select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Don't see exactly what you need? Give us a call!

TRANSMITTER TYPE	INPUT	RANGE	UNITS OF MEASURE	OPTION

TRANSMITTER TYPE

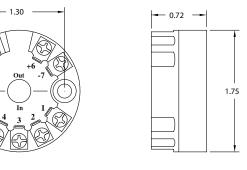
 $\ensuremath{\text{TC2}}$ – Non-isolated transmitter with thermocouple input and single 4-20 mA output for terminal head mounting

RTD2 – Non-isolated transmitter with RTD input and single 4-20 mA output for terminal head mounting

INPUT

- J J type thermocouple K – K type thermocouple E – E type thermocouple T – T type thermocouple Pt100 – 100-ohm platinum RTD Pt500 – 500-ohm platinum RTD Pt1000 – 1000-ohm platinum RTD
- R R type thermocouple
 S S type thermocouple
 B B type thermocouple
 Ni100 100-ohm nickel RTD
 Ni1000 1000-ohm nickel RTD
 Cu10 10-ohm copper RTD
 Ni120 120-ohm nickel RTD

RTD2 AND TC2



RANGE (specify minimum and maximum values, e.g., 0-100)*

- Minimum Range Value (temperature value that equals 4 mA)

- Maximum Range Value (temperature value that equals 20 mA)

UNITS OF MEASURE

Specify °F or °C

OPTION

DS01 - Downscale open circuit and short circuit detection

Specifications

Input:	Thermocouple or 3-wire/4-wire RTD
Supply Voltage:	8-32 VDC, polarity protected
Maximum Load:	$R_{max} = (V_{supply} - 8V) / 0.022$
Linearity:	RTD ± 0.1% of span TC ± -0.2% of span
Stability:	0.01°C/°C
Output:	4-20 mA temperature linearized
Ambient Temperature:	-40 to + 85°C
Housing:	PC/ABS
Open Circuit Detection:	Upscale standard

*Available sensor ranges and limitations

Sensor Type	Min. Temp.	Max. Temp.	Min. Span	
J T/C	-200°C	1000°C	2 mV	
K T/C	-200°C	1350°C	2 mV	
E T/C	-200°C	1000°C	2 mV	
TT/C	-200°C	400°C	2 mV	
R or S T/C	-50°C	1750°C	2 mV	
B T/C	0°C	1800°C	2 mV	
Pt100 RTD	-200°C	1000°C	10°C	
Pt1000 RTD	-200°C	200°C	10°C	
Ni100 RTD	-60°C	250°C	10°C	
Ni120 RTD	-70°C	300°C	10°C	
Ni1000 RTD	-100°C	150°C	10°C	
Cu10 RTD	-200°C	260°C	100°C	

Note: when used as an option in combination with a temperature sensor assembly, use option code **TR12** at end of assembly part #.

NEMA 4 & 4X REPLACEMENT HEADS AND TERMINAL BLOCKS

CAST ALUMINUM - gasketed screw cover

NEMA 4 with gasketed screw cover and stainless steel chain; 4-post ceramic terminal block included. For epoxy-coated, NEMA 4X, add suffix-E to part#. (e.g., PH01E)

Ordering Code	Process Conn.	Conduit Conn.
PH01	1/2"	1/2"
PH02	1/2"	3/4"
PH03	3/4"	3/4"

CAST IRON - NEMA 4, gasketed screw cover

NEMA 4 with gasketed screw cover and stainless steel chain; 4-post ceramic terminal block included. For epoxy-coated, NEMA 4X, add suffix-E to part #. (e.g., PH04E)

Ordering Code	Process Conn.	Conduit Conn.
PH04	1/2"	1/2"
PH05	1/2"	3/4"
PH06	3/4"	3/4"

CAST ALUMINUM - flip-top cover

NEMA 4 with flip-top cover and latching closure, 4-post ceramic terminal block included.

Ordering Code	Process Conn.	Conduit Conn.
PH45	1/2"	3/4"

316 STAINLESS STEEL - NEMA 4X, gasketed screw cover

NEMA 4X with gasketed screw cover and stainless steel chain; 4-post ceramic terminal block included.

Ordering Code	Process Conn.	Conduit Conn.
PH47	1/2"	3/4"

BLACK POLYPROPYLENE - NEMA 4, gasketed screw cover

NEMA 4 with gasketed screw cover, 4-post ceramic terminal block included.

Ordering Code	Process Conn.	Conduit Conn.
PH23	1/2"	3/4"

WHITE POLYPROPYLENE - NEMA 4, gasketed screw cover

NEMA 4 with gasketed screw cover and stainless steel chain; 4-post ceramic terminal block included.

Ordering Code	Process Conn.	Conduit Conn.
PH24	1/2"	3/4"

NYLON - NEMA 4, gasketed screw cover

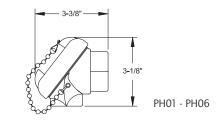
Gasketed screw cover, 4-post ceramic terminal block included.

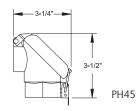
Ordering Code	Process Conn.	Conduit Conn.
PH26	1/2"	1/2"

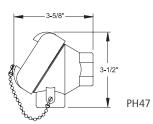
CERAMIC TERMINAL BLOCK REPLACEMENTS

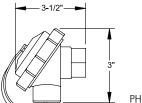
For NEMA 4 heads, brass terminals

Ordering Code	No. of Terminals	Max. Wire Size
PH39	2	8 AWG.
PH40	3	8 AWG.
PH41	4	8 AWG.
PH42	6	14 AWG.

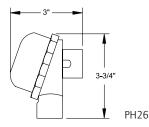


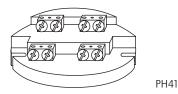












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APPLIED SENSOR TECHNOLOGIES ACCESSORIES/EXPLOSION-PROOF **TERMINAL HEADS**

EXPLOSION-PROOF REPLACEMENT HEADS AND TERMINAL BLOCKS

CAST ALUMINUM - FM/CSA approved

FM/CSA approved for Class I, Div. 1, Groups B, C, D; Class II, Groups E, F, G; gasketed screw cover and stainless steel chain; 6-post ceramic terminal block included. For epoxy-coated, add suffix-E to part #. (e.g., PH50E)

Ordering Code	Process Conn.	Conduit Conn.
PH50	1/2"	1/2"
PH51	1/2"	3/4"
PH52	3/4"	3/4"

STAINLESS STEEL - FM/CSA approved

FM/CSA approved for Class I, Div. 1, Groups B, C, D; Class II, Groups E, F, G; gasketed screw cover and stainless steel chain; 6-post ceramic terminal block included.

Ordering Code	Process Conn.	Conduit Conn.
PH56	1/2"	1/2"
PH57	1/2"	3/4"

CAST ALUMINUM - ATEX approved

ATEX approved for EEx d IIC, gasketed screw cover and stainless steel chain; 3-post ceramic terminal block included.

Ordering Code	Process Conn.	Conduit Conn.
PH53	1/2"	3/4"

CAST ALUMINUM - UL/CSA approved

UL/CSA approved for Class I, Div. 1, Groups C, D; Class II, Groups E, F, G; screw cover; 4-post plastic terminal strip included. For epoxy-coated, add suffix-E to part #. (e.g., PH17E)

Ordering Code	Process Conn.	Conduit Conn.
PH17	1/2"	1/2"
PH18	1/2"	3/4"
PH19	3/4"	3/4"

PLASTIC TERMINAL STRIP REPLACEMENTS

For explosion-proof heads (PH17-PH22), brass terminals

Ordering Code	No. of Terminals	Length of Strip
PH43-4	4	2.16"
PH43-6	6	2.91"

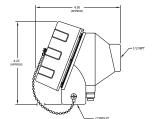
CERAMIC TERMINAL BLOCK REPLACEMENTS

For explosion-proof heads (PH50-PH52), brass terminals

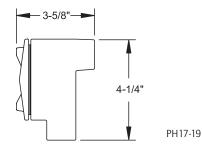
Ordering Code	No. of Terminals	Max. Wire Size
PH48	3	8 AWG.
PH49	6	14 AWG.

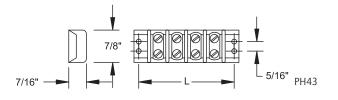


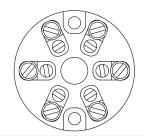
PH50-52. PH56-57



PH53







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PH49

ACCESSORIES/ **CONNECTION COMPONENTS**

PARTS TO CONNECT TO WIRING OR THE PROCESS

COMPRESSION FITTINGS				
For 1/8" diameter sheath				
Part Number	NPT	Body/Nut	Ferrule	
PF38	1/8"	304 stst	304 stst	
PF39	1/8"	304 stst	Teflon®	
PF40	1/4"	304 stst	304 stst	
PF41	1/4"	304 stst	Teflon®	
For 3/16" dia	meter sheath			
PF52	1/8"	304 stst	304 stst	
PF53	1/8"	304 stst	Teflon®	
PF54	1/8"	Brass	Brass	
PF55	1/4"	304 stst	304 stst	
PF56	1/4"	304 stst	Teflon®	
PF59	1/2"	304 stst	304 stst	
PF60	1/2"	304 stst	Teflon®	
For 1/4" diam	eter sheath			
PF63	1/8"	304 stst	304 stst	
PF65	1/4"	304 stst	304 stst	
PF66	1/4"	304 stst	Teflon®	
PF67	1/4"	Teflon®	Teflon®	
PF68	1/4"	Brass	Brass	
PF73	1/2"	304 stst	304 stst	
PF74	1/2"	304 stst	Teflon®	
PF75	1/2"	Brass	Brass	
PF76	1/2"	Teflon®	Teflon®	

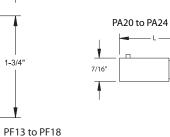
PF38 to PF75

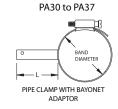
0.45" 1

PLUGS AND JACKS		
(Note: specif	y J, K, E or T calibration. e.g., PT05-J)	
PT05	Standard plug, rated to 177°C (350°F)	
РТО6	Standard jack, rated to 177°C (350°F)	
PT07	High Temp. plug, rated to 260° (500°F)	
PT08	High Temp. jack, rated to 260° (500°F)	
РТ09	Miniature plug, rated to 177°C (350°F)	
PT10	Miniature jack, rated to 177°C (350°F)	
PA9	Rubber boot for use with PT05/PT06	
PA10	Cable clamp for PT05 to PT08	
PA11	Neoprene bushing for use with PA10 to prevent wire abrasion	



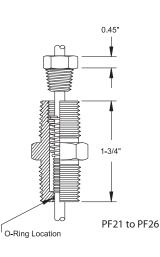






BAYONET ADAPTERS (PLATED STEEL)			
Part Number	Thread Size	Length (L)	
PA20	1/8" – 27 NPT	7/8"	
PA21	1/8" – 27 NPT	1″	
PA22	1/8" - 27 NPT	1-1/2"	
PA23	1/8" - 27 NPT	2"	
PA24	1/8" – 27 NPT	2-1/2"	
PIPE CL	AMP AND BAYONI	ET ADAPTERS	
Part Number	Band Diameter	Adapter Length (L)	
PA30	1-1/4" to 2-1/4"	1"	
PA31	1-1/4" to 2-1/4"	2"	
PA32	2-1/4" to 3-1/4"	1"	
PA33	2-1/4" to 3-1/4"	2"	
PA34	3-1/4" to 4-1/4"	1″	
PA35	3-1/4" to 4-1/4"	2"	
PA36	4-1/4" to 5"	1"	
PA37	4-1/4" to 5"	2"	

SPRING-LOADED FITTINGS				
Standard, Non	Standard, Non-sealed			
Part Number	Process Conn.	Conduit Conn.	Sensor Diameter	
PF13	1/2" NPT	1/2" NPT	3/16″	
PF14	1/2" NPT	1/2" NPT	1/4"	
PF17	3/4" NPT	3/4" NPT	3/16″	
PF18	3/4" NPT	3/4" NPT	1/4"	
O-Ring Sealed	O-Ring Sealed*			
PF21	1/2" NPT	1/2" NPT	3/16″	
PF22	1/2" NPT	1/2" NPT	1/4"	
PF25	3/4" NPT	3/4" NPT	3/16″	
PF26	3/4" NPT	3/4" NPT	1/4"	
Notes: 1. Maximum pressure rating 15 psi 2. Buna N O-ring rated for -23 to 93 °C (-10 to 200 °F)				



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THERMOCOUPLE AND EXTENSION-GRADE WIRE

THERMOCOUPLE GRADE WIRE

Used to either fabricate thermocouples by creating a junction in one end of the wire pair, or as extension wire between the thermocouple and the measuring device. The conditions of measurement determine the type of thermocouple wire and insulation that should be used. Temperature range, wire gauge, environment, protection, insulation requirements, response and service life should all be considered.

THERMOCOUPLE EXTENSION WIRE

Has approximately the same thermoelectric characteristics as thermocouple grade wire, but its purpose is only to carry the signal, not to measure temperature. Thermocouple extension wire is usually lower in cost.

Insulation Characteristics			
Description (individual conductors/overall)	Temperature Limits	Moisture Resistance	Abrasion Resistance
Teflon®/Teflon® FEP	204°C (400°F)	Excellent	Excellent
Teflon® / Teflon® TFE or PFA Tape	260°C (500°F)	Excellent	Excellent
Fiberglass/Fiberglass	482°C (900°F)	Fair	Fair
Fiberglass (Filaflex®)/Fiberglass (Filaflex®) High Temp	760°C (1400°F)	Fair	Fair

Calibration	Part Number		
	TC Grade, Stranded Wire	TC Grade, Solid Wire	Extension Grade, Stranded
Teflon [®] / Teflon [®] FEP insulated, 20 Gaug	e		
Туре Ј	20JST58	20JS58	20JXST58
Туре К	20KST58	20KS58	20KXST58
Туре Т	20TST58	20TS58	20TXST58
Туре Е	20EST58	20ES58	20EXST58
Teflon [®] / Teflon [®] TFE Tape insulated, 20	Gauge		
Туре Ј	20JST60	20JS60	20JXST60
Туре К	20KST60	20KS60	20KXST60
Туре Т	20TST60	20TS60	20TXST60
Туре Е	20EST60	20ES60	20EXST60
Fiberglass/Fiberglass insulated, 20 Gau	ıge		
Туре Ј	20JST57	20JS57	20JXST57
Туре К	20KST57	20KS57	20KXST57
Туре Т	20TST57	20TS57	20TXST57
Туре Е	20EST57	20ES57	20EXST57
Fiberglass (Filaflex®)/Fiberglass (Filafle	ex®) insulated, 20 Gauge		
Туре Ј	20JST70	20JS70	20JXST70
Туре К	20KST70	20KS70	20KXST70
Туре Т	20TST70	20TS70	20TXST70
Туре Е	20EST70	20ES70	20EXST70
Fiberglass (Filaflex®)⁄ Fiberglass (Filafl	ex®) insulated, stainless steel overbraid	l, 20 Gauge	
Туре Ј	20JST71	20JS71	20JXST71
Туре К	20KST71	20KS71	20KXST71
Туре Т	20TST71	20TS71	20TXST71
Туре Е	20EST71	20ES71	20EXST71

Teflon® is a registered trademark of E.I. DuPont

Filaflex® is a registered trademark of PMC Corporation

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