

# Thermocouple

## NEMA 4 Terminal Head

United Electric Controls is  
ISO 9001:2015 certified



AST-WPTHERM 01

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**TERMINAL HEAD WITH WELDED NPT PROCESS CONNECTION**

**How to build a part number:**

Select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Consult UE-AST for custom solutions.

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 - 0.125
- 6 - 0.188
- 7 - 0.250
- 9 - 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 UE-AST*

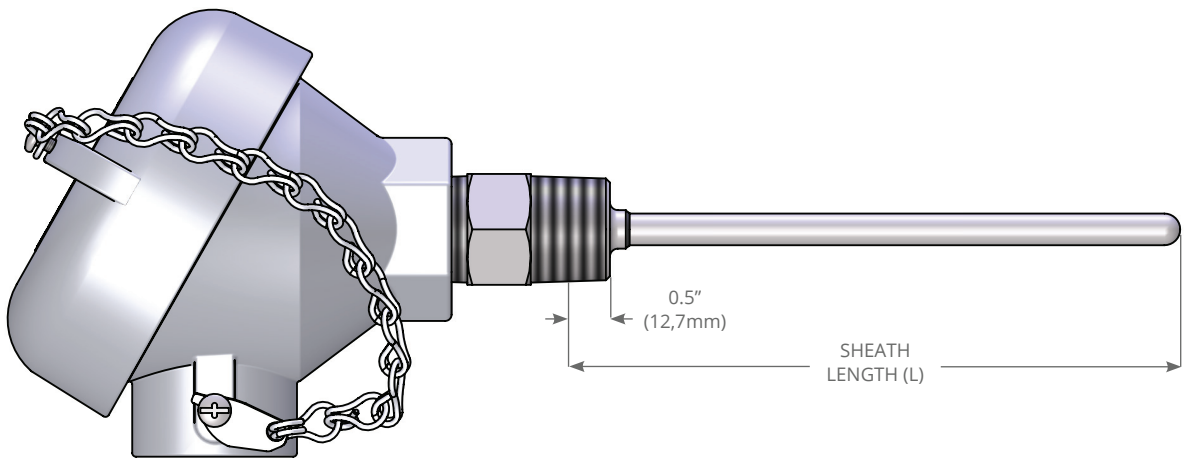
**HOT JUNCTION**

- 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" sheath, L12.5 = 12.5" length)

**OPTIONS** - see page 4



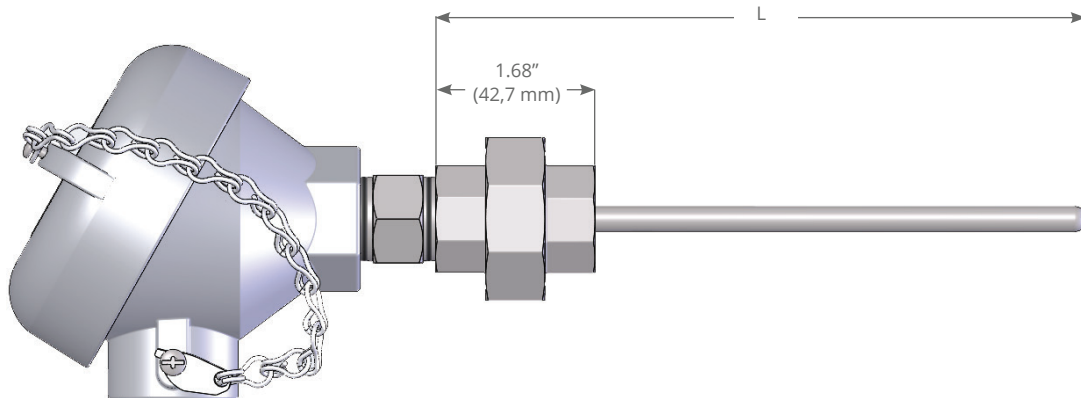
## AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS	
OPTION CODE	DESCRIPTION
<b>TAG1</b>	Stainless steel tag and wire
<b>PC25</b>	1/4" NPT process connection
<b>PC75</b>	3/4" NPT process connection
<b>CAL1</b>	NIST traceable calibration, specify point(s)
<b>CRT1</b>	Certificate of conformance
<b>WC20</b>	Wiring cable gland for 0.187 - 0.312 diameter cables for terminal head with 1/2" NPT conduit connection
<b>WC21</b>	Wiring cable gland for 0.125 - 0.187 diameter cables for terminal head with 1/2" NPT conduit connection
TRANSMITTERS – For complete specs, see Transmitters section	
<b>TR11</b>	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UNIS-S)</b>
<b>TR12</b>	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style TC2, RTD2)</b>
<b>TR13</b>	HART® 4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UNIS-H)</b>
UNION CONNECTOR (CONVERTS MALE CONNECTION TO FEMALE)	
OPTION CODE	DESCRIPTION
<b>UC10</b>	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.

NEMA 4 OR 4X TERMINAL HEAD			
HEAD WITHOUT GROUND SCREW	HEAD WITH INTERNAL GROUND SCREW	PROCESS CONNECTION	CONDUIT CONNECTION
CAST ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD10*</b>	<b>HD11*</b>	1/2"	1/2"
<b>Std.*</b>	<b>HD13*</b>	1/2"	3/4"
EPOXY-COATED ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD50*</b>	<b>HD51*</b>	1/2"	1/2"
<b>HD52*</b>	<b>HD53*</b>	1/2"	3/4"
CAST IRON, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD20*</b>	<b>HD21*</b>	1/2"	1/2"
<b>HD22*</b>	<b>HD23*</b>	1/2"	3/4"
316 STAINLESS STEEL, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD40*</b>	<b>HD41*</b>	1/2"	3/4"
WHITE POLYPROPYLENE, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD30</b>	N/A	1/2"	3/4"
BLACK POLYPROPYLENE, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD31</b>	N/A	1/2"	3/4"
NYLON, SCREW COVER			
<b>HD32</b>	N/A	1/2"	1/2"

\*can be used with transmitters



**UC10 Option**

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

**TERMINAL HEAD WITH WELDED HEX FITTING**

**How to build a part number:**

Select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Consult UE-AST for custom solutions.

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 6 for other head options.

**SHEATH DIAMETER** (in inches)

- 4 - 0.125
- 6 - 0.188
- 7 - 0.250
- 9 - 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                    **TT** - Dual T
  - E** - Single E                    **EE** - Dual E
- Special limits are available - consult UE-AST

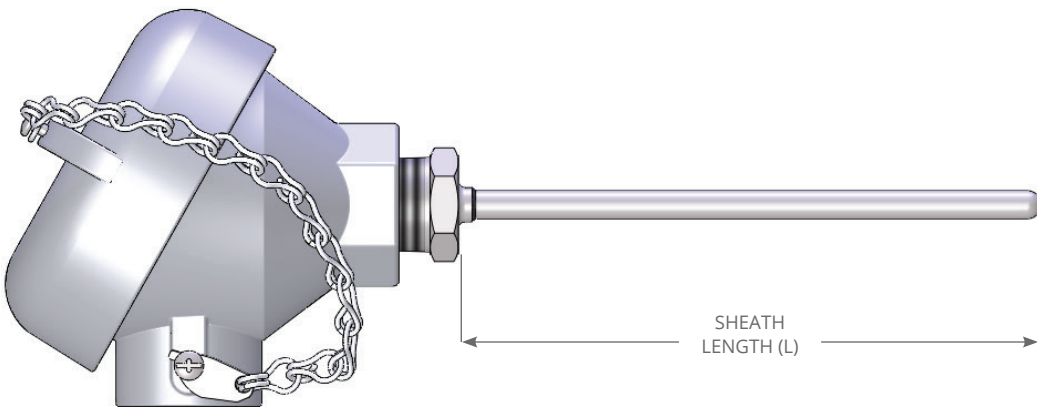
**HOT JUNCTION**

- 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" sheath, L12.5 = 12.5" length)

**OPTIONS** - see page 6



# STYLE 21

## ASSEMBLY OPTIONS

OPTION CODE	DESCRIPTION
TAG1	Stainless steel tag and wire
B45-	45° bend in sheath (specify length from tip in inches e.g., B45-6 [minimum length = 3"])
B90-	90° bend in sheath (specify length from tip in inches e.g., B90-6 [minimum length = 3"])
CAL1	NIST traceable calibration, specify point(s)
CRT1	Certificate of conformance
WC20	Wiring cable gland for 0.187 - 0.312 diameter cables for terminal head with 1/2" NPT conduit connection
WC21	Wiring cable gland for 0.125 - 0.187 diameter cables for terminal head with 1/2" NPT conduit connection

## 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

## TRANSMITTERS OPTIONS

TR11	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UNI5-S)</b>
TR12	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style TC2, RTD2)</b>
TR13	HART® 4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UNI5-H)</b>

For complete specifications, see datasheet AST-TEMP-TRANSMITTER.

## WELD PADS OPTIONS

WP00	Horizontal pad/flat
FOR MATCHING PIPE RADIUS	
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

## AVAILABLE OPTIONS and MODIFICATIONS

### NEMA 4 OR 4X TERMINAL HEAD

HEAD WITHOUT GROUND SCREW	HEAD WITH INTERNAL GROUND SCREW	PROCESS CONNECTION	CONDUIT CONNECTION
CAST ALUMINUM, SCREW COVER WITH CHAIN			
HD10*	HD11*	1/2"	1/2"
Std.*	HD13*	1/2"	3/4"
EPOXY-COATED, CAST ALUMINUM, NEMA 4X			
HD50*	HD51*	1/2"	1/2"
HD52*	HD53*	1/2"	3/4"
CAST IRON, SCREW COVER WITH CHAIN			
HD20*	HD21*	1/2"	1/2"
HD22*	HD23*	1/2"	3/4"
316 STAINLESS STEEL, SCREW COVER; NEMA 4X			
HD40*	HD41*	1/2"	3/4"
POLYPROPYLENE, WHITE, SCREW COVER			
HD30	N/A	1/2"	3/4"
POLYPROPYLENE, BLACK SCREW COVER			
HD31	N/A	1/2"	3/4"
NYLON, SCREW COVER			
HD32	N/A	1/2"	1/2"

\*can be used with transmitters

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



**TERMINAL HEAD WITH SPRING-LOADED ASSEMBLY AND MOUNTING HARDWARE**

**How to build a part number:**

Select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Consult UE-AST for custom solutions.

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 stainless 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 Table 1 for standard available lengths)

**SHEATH DIAMETER** (in inches)

**4** - 0.125

**6** - 0.188

**7** - 0.250

**9** - 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

**TT** - Dual T

**E** - Single E

**EE** - Dual E

*Special limits are available - consult UE-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)

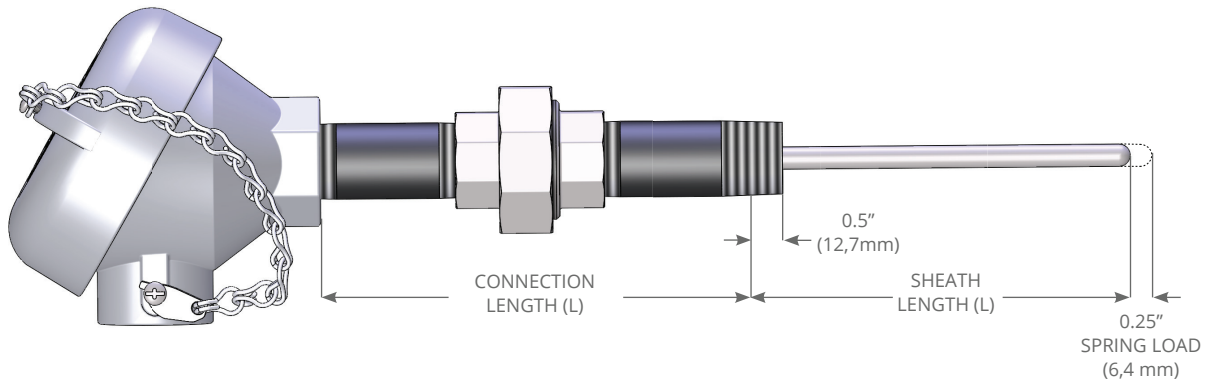
**L#** - (e.g., L6 = 6 inch sheath, L12.5 = 12.5 inch length)

**OPTIONS** - see page 8

STANDARD AVAILABLE CONNECTION LENGTHS (IN)		
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.

**Table 1**



## AVAILABLE OPTIONS and MODIFICATIONS

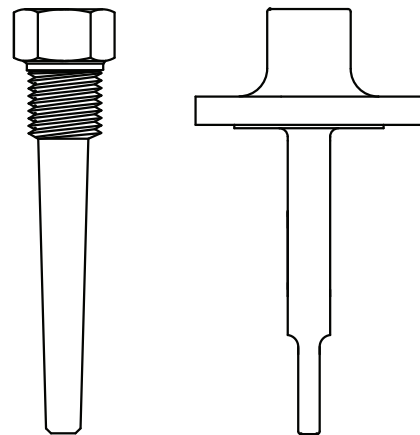
ASSEMBLY OPTIONS	
OPTION CODE	DESCRIPTION
<b>TAG1</b>	Stainless steel tag and wire
<b>CAL1</b>	NIST traceable calibration, specify point(s)
<b>CRT1</b>	Certificate of conformance
<b>WC20</b>	Wiring cable gland for 0.187 - 0.312 diameter cables for terminal head with 1/2" NPT conduit connection
<b>WC21</b>	Wiring cable gland for 0.125 - 0.187 diameter cables for terminal head with 1/2" NPT conduit connection

NEMA 4 OR 4X TERMINAL HEAD			
HEAD WITHOUT GROUND SCREW	HEAD WITH INTERNAL GROUND SCREW	PROCESS CONNECTION	CONDUIT CONNECTION
CAST ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD10</b>	<b>HD11</b>	1/2"	1/2"
<b>Std.</b>	<b>HD13</b>	1/2"	3/4"
EPOXY-COATED ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD50</b>	<b>HD51</b>	1/2"	1/2"
<b>HD52</b>	<b>HD53</b>	1/2"	3/4"
CAST IRON, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD20</b>	<b>HD21</b>	1/2"	1/2"
<b>HD22</b>	<b>HD23</b>	1/2"	3/4"
316 STAINLESS STEEL, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD40</b>	<b>HD41</b>	1/2"	3/4"

### THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the following datasheets:

- AST-THERMOWELLS
- AST-PROTECTB



EXAMPLES:  
**H260 THERMOWELL**      **F260 THERMOWELL**

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

**SPRING-LOADED PROCESS MOUNTING HARDWARE WITH OPTIONAL TERMINAL HEAD**

**How to build a part number:**

Select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Consult UE-AST for custom solutions.

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
<b>NU</b>	Ordinary location	Carbon steel	None
<b>NUS</b>	Ordinary location	Stainless steel	None
<b>NUN</b>	Ordinary location	Carbon steel	Carbon steel
<b>NUNS</b>	Ordinary location	Stainless steel	Stainless steel

**CONNECTION LENGTH** (For NU, NUS, use 002.5)

### (e.g., 006 = 6 inch)

(See Table 1 for available standard lengths)

**SHEATH DIAMETER** (in inches)

**4** - 0.125

**6** - 0.188

**7** - 0.250

**9** - 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      **TT** - Dual T

**E** - Single E      **EE** - Dual E

*Special limits are available - consult UE-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)

**LEADWIRE LENGTH**

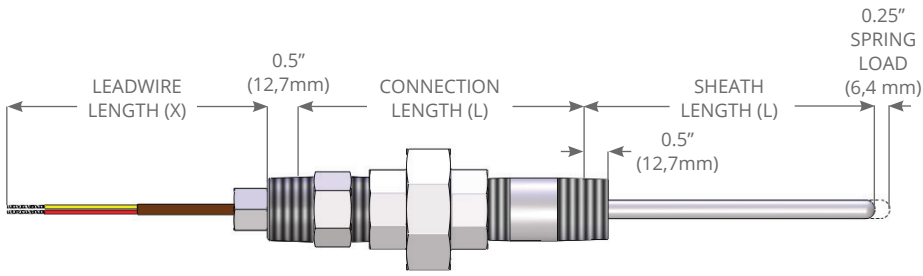
**X#** - (e.g., X3 = 3 inch length; X3 is standard if specifying optional head)

**OPTIONS** - see page 10

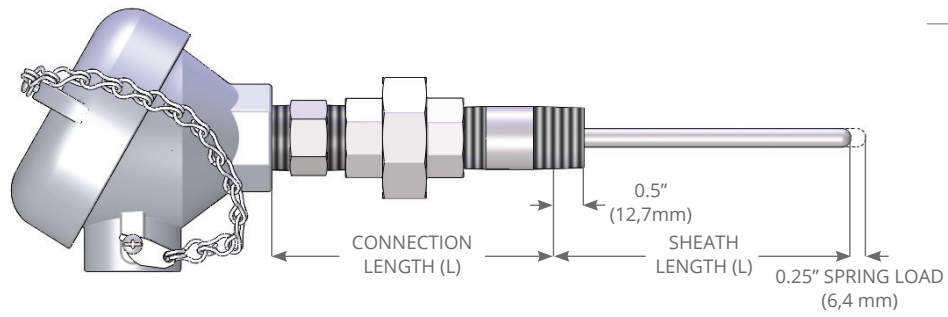
**STANDARD AVAILABLE CONNECTION LENGTHS FOR NUN CONNECTIONS (INCHES)**

3.00
3.50
4.00
4.50
5.00
6.00
7.00
8.00
9.00

**MI48NUN WITH LEADWIRE**



**MI48NUN WITH OPTIONAL HEAD**



**Table 1**

# STYLE 48

## AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS	
OPTION CODE	DESCRIPTION
<b>TAG1</b>	Stainless steel tag and wire
<b>CAL1</b>	NIST traceable calibration, specify point(s)
<b>CRT1</b>	Certificate of conformance
<b>WC20</b>	Wiring cable gland for 0.187 - 0.312 diameter cables for terminal head with 1/2" NPT conduit connection
<b>WC21</b>	Wiring cable gland for 0.125 - 0.187 diameter cables for terminal head with 1/2" NPT conduit connection
WIRING CONNECTION OPTIONS	
OPTION CODE	DESCRIPTION
<b>WC76</b>	#6 spade terminals, plated copper
<b>WC70</b>	#10 spade terminals, plated copper
<b>WC84</b>	1/4" push-on insulated terminals, plated copper
<b>WC90</b>	#10 ring terminals
<b>WC98</b>	#8 ring terminals
TRANSMITTERS OPTIONS	
<b>TR11</b>	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UN15-S)</b>
<b>TR12</b>	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style TC2, RTD2)</b>
<b>TR13</b>	HART® 4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UN15-H)</b>

For complete specifications, see datasheet AST-TEMP-TRANSMITTER.

### THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the following datasheets:

- AST-THERMOWELLS
- AST-PROTECTB

NEMA 4 OR 4X TERMINAL HEAD			
HEAD WITHOUT GROUND SCREW	HEAD WITH INTERNAL GROUND SCREW	PROCESS CONNECTION	CONDUIT CONNECTION
CAST ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD10*</b>	<b>HD11*</b>	1/2"	1/2"
<b>HD12*</b>	<b>HD13*</b>	1/2"	3/4"
EPOXY-COATED ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD50*</b>	<b>HD51*</b>	1/2"	1/2"
<b>HD52*</b>	<b>HD53*</b>	1/2"	3/4"
CAST IRON, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD20*</b>	<b>HD21*</b>	1/2"	1/2"
<b>HD22*</b>	<b>HD23*</b>	1/2"	3/4"
316 STAINLESS STEEL, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD40*</b>	<b>HD41*</b>	1/2"	3/4"
WHITE POLYPROPYLENE, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD30</b>	N/A	1/2"	3/4"
BLACK POLYPROPYLENE, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD31</b>	N/A	1/2"	3/4"
NYLON, SCREW COVER			
<b>HD32</b>	N/A	1/2"	1/2"

\*can be used with transmitters

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



**NEMA 4 TERMINAL HEAD WITH FLEXIBLE ARMOR CABLE**

**How to build a part number:**

Select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Consult UE-AST for custom solutions.

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 - 0.125
- 6 - 0.188
- 7 - 0.250
- 9 - 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      **TT** - Dual T
- E** - Single E      **EE** - Dual E

Special limits are available - consult UE-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)

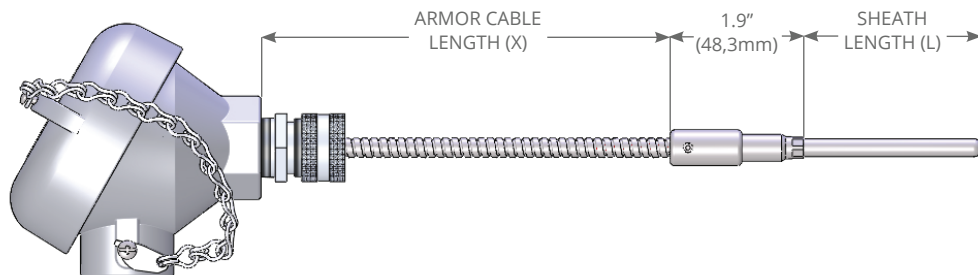
**ARMOR LENGTH**

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

**OPTIONS** - see page 12

\* **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.

**MI65**



**STYLE MI65P & MI65T**



## AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS	
OPTION CODE	DESCRIPTION
<b>TAG1</b>	Stainless steel tag and wire
<b>B45-</b>	45° bend in sheath (specify length from tip in inches e.g., B45-6 [minimum length = 3"])
<b>B90-</b>	90° bend in sheath (specify length from tip in inches e.g., B90-6) [minimum length = 3"])
<b>CAL1</b>	NIST traceable calibration, specify point(s)
<b>CRT1</b>	Certificate of conformance
<b>HT10</b>	High temperature (900 °F) transition (available on MI65 only)
<b>WC20</b>	Wiring cable gland for 0.187 - 0.312 diameter cables for terminal head with 1/2" NPT conduit connection
<b>WC21</b>	Wiring cable gland for 0.125 - 0.187 diameter cables for terminal head with 1/2" NPT conduit connection

TRANSMITTERS – FOR COMPLETE SPECS, SEE TRANSMITTERS SECTION	
<b>TR11</b>	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UNIS-S)</b>
<b>TR12</b>	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style TC2, RTD2)</b>
<b>TR13</b>	HART® 4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UNIS-H)</b>

For complete specifications, see datasheet AST-TEMP-TRANSMITTER.

COMPRESSION FITTINGS (FOR DIAMETERS 4, 6, 7)			
OPTION CODE	NPT	MATERIAL	FERRULE
<b>CF10</b>	1/8"	Stainless steel	Stainless steel
<b>CF11</b>	1/8"	Stainless steel	Teflon®
<b>CF12</b>	1/8"	Brass	Brass
<b>CF20</b>	1/4"	Stainless steel	Stainless steel
<b>CF21</b>	1/4"	Stainless steel	Teflon®
<b>CF22</b>	1/4"	Brass	Brass
<b>CF30</b>	1/2"	Stainless steel	Stainless steel
<b>CF31</b>	1/2"	Stainless steel	Teflon®
<b>CF32</b>	1/2"	Brass	Brass

NEMA 4 OR 4X TERMINAL HEAD			
HEAD WITHOUT GROUND SCREW	HEAD WITH INTERNAL GROUND SCREW	PROCESS CONNECTION	CONDUIT CONNECTION
CAST ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD10*</b>	<b>HD11*</b>	1/2"	1/2"
<b>Std.*</b>	<b>HD13*</b>	1/2"	3/4"
EPOXY-COATED ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD50*</b>	<b>HD51*</b>	1/2"	1/2"
<b>HD52*</b>	<b>HD53*</b>	1/2"	3/4"
CAST IRON, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD20*</b>	<b>HD21*</b>	1/2"	1/2"
<b>HD22*</b>	<b>HD23*</b>	1/2"	3/4"
316 STAINLESS STEEL, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD40*</b>	<b>HD41*</b>	1/2"	3/4"
WHITE POLYPROPYLENE, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD30</b>	N/A	1/2"	3/4"
BLACK POLYPROPYLENE, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD31</b>	N/A	1/2"	3/4"
NYLON, SCREW COVER			
<b>HD32</b>	N/A	1/2"	1/2"

\*can be used with transmitters

WELD PADS OPTIONS	
<b>WP00</b>	Horizontal pad/flat
FOR MATCHING PIPE RADIUS	
<b>WP10</b>	1" nominal pipe size
<b>WP15</b>	1.5" nominal pipe size
<b>WP20</b>	2" nominal pipe size
<b>WP25</b>	2.5" nominal pipe size
<b>WP30</b>	3" nominal pipe size
<b>WP35</b>	3.5" nominal pipe size
<b>WP40</b>	4.0" nominal pipe size

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

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

**How to build a part number:**

Select the requirements for the categories listed below and fill in the corresponding boxes with your selection. Consult UE-AST for custom solutions!

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

**SENSOR TYPE**

**MI** - Mineral insulated thermocouple

**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 Style 83 for explosion-proof version.

**SHEATH DIAMETER** (in inches)

- 4 - 0.125
- 6 - 0.188
- 7 - 0.250
- 9 - 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      **TT** - Dual T
- E** - Single E      **EE** - Dual E

*Special limits are available - consult UE-AST*

**HOT JUNCTION**

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

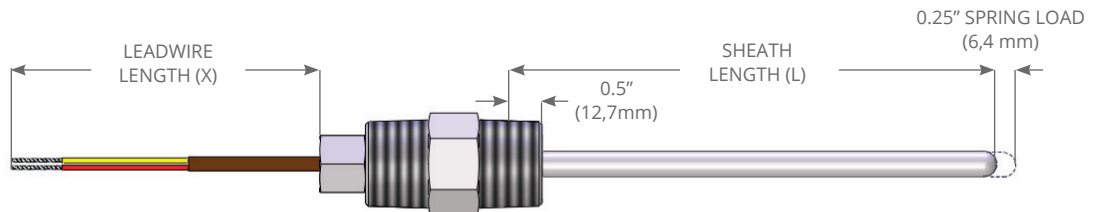
**SHEATH LENGTH** (**Note:** lengths over L84 will be shipped coiled unless otherwise specified at time of order)

**L#** - (e.g., L6 = 6 inch sheath, L12.5 = 12-1/2" length)

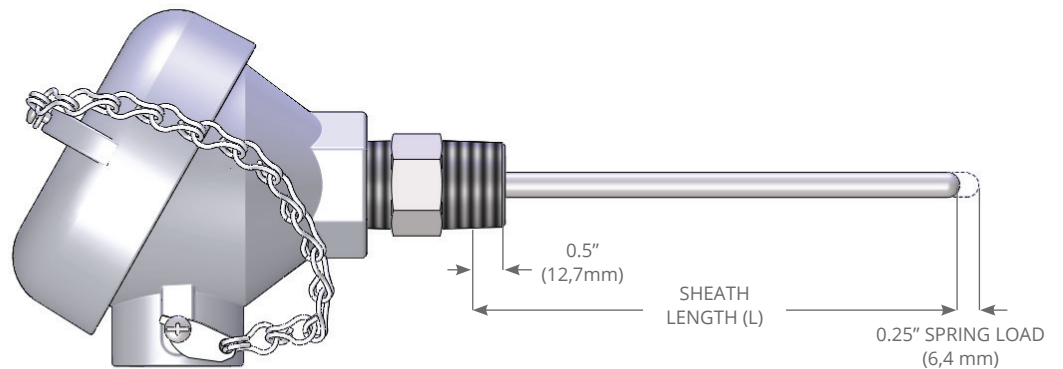
**LEADWIRE LENGTH**

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

**OPTIONS** - see page 14



**MI75 WITH OPTIONAL HEAD**



## AVAILABLE OPTIONS and MODIFICATIONS

ASSEMBLY OPTIONS	
OPTION CODE	DESCRIPTION
<b>TAG1</b>	Stainless steel tag and wire
<b>CAL1</b>	NIST traceable calibration, specify point(s)
<b>CRT1</b>	Certificate of conformance
<b>WC20</b>	Wiring cable gland for 0.187 - 0.312 diameter cables for terminal head with 1/2" NPT conduit connection
<b>WC21</b>	Wiring cable gland for 0.125 - 0.187 diameter cables for terminal head with 1/2" NPT conduit connection
WIRING CONNECTION OPTIONS	
OPTION CODE	DESCRIPTION
<b>WC76</b>	#6 spade terminals, plated copper
<b>WC70</b>	#10 spade terminals, plated copper
<b>WC84</b>	1/4" push-on insulated terminals, plated copper
<b>WC90</b>	#10 ring terminals
<b>WC98</b>	#8 ring terminals
TRANSMITTERS OPTIONS	
<b>TR11</b>	4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UN15-S)</b>
<b>TR12</b>	4-20 mA, 2-wire transmitter, single input, non-isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style TC2, RTD2)</b>
<b>TR13</b>	HART® 4-20 mA, 2-wire transmitter, single input, isolated output; specify range, units of measure (e.g., 0-200 °C) and terminal head options codes marked *. <b>(Transmitter Style UN15-H)</b>

For complete specifications, see datasheet AST-TEMP-TRANSMITTER.

### THERMOWELLS & PROTECTION TUBES

For a complete offering of metal, ceramic and composite material thermowells and protection tubes, please see the following datasheets:

- AST-THERMOWELLS
- AST-PROTECTB

NEMA 4 OR 4X TERMINAL HEAD			
HEAD WITHOUT GROUND SCREW	HEAD WITH INTERNAL GROUND SCREW	PROCESS CONNECTION	CONDUIT CONNECTION
CAST ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD10*</b>	<b>HD11*</b>	1/2"	1/2"
<b>HD12*</b>	<b>HD13*</b>	1/2"	3/4"
EPOXY-COATED ALUMINUM, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD50*</b>	<b>HD51*</b>	1/2"	1/2"
<b>HD52*</b>	<b>HD53*</b>	1/2"	3/4"
CAST IRON, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD20*</b>	<b>HD21*</b>	1/2"	1/2"
<b>HD22*</b>	<b>HD23*</b>	1/2"	3/4"
316 STAINLESS STEEL, SCREW COVER WITH CHAIN, NEMA 4X			
<b>HD40*</b>	<b>HD41*</b>	1/2"	3/4"
WHITE POLYPROPYLENE, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD30</b>	N/A	1/2"	3/4"
BLACK POLYPROPYLENE, SCREW COVER WITH CHAIN, NEMA 4			
<b>HD31</b>	N/A	1/2"	3/4"
NYLON, SCREW COVER			
<b>HD32</b>	N/A	1/2"	1/2"

\*can be used with transmitters

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

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