Thermocouples for the Plastics Industry
OUR SPECIALTY

Wika is a specialized company dedicated to the supply of control and automation equipment. Whether we supply standard products or a turnkey system, we are dedicated to supply new and innovative quality products and systems.

THERMOCOUPLE SENSORS

Our thermocouple product line meets ASTM:E230 and ANSI MC96.1 specifications. They are manufactured in accordance with the ISO-9002 Quality Assurance Program. WIKA SENSORS carry a large variety of thermocouples with same day shipment. Should you require a custom product, WIKA SENSORS will design and supply sensors to meet your application.

Properties of Thermocouples

Thermocouple sensors are used throughout the industry for their robust construction and consistent measurements of temperature. A thermocouple consists of two dissimilar metal wires fused together at the point where the temperature is to be measured. The thermocouple produces a millivolt signal which increases with a temperature rise.

Calibration

Type J and type K thermocouples are used extensively throughout the plastic industry. Material and colour designations are in accordance with ANSI MC96.1 industry standards. Type J and type K thermocouples have an accuracy of 2.2°C or .75% of actual reading which ever is greater. Special limits of error thermocouples are available for applications where an accuracy of 1.1°C or .4% of reading is required.

Polarity

Type J thermocouples are made with iron (+) and constantan (-) conductors. The polarity of the leads are colour coded as (+) white and (-) red on the insulation. Type K thermocouples are made with chromel (+) and alumel (-) conductors. The polarity of the leads are colour coded as (+) yellow and (-) red on the insulation.

Measuring Junction

The thermocouple junction can be fabricated as grounded or ungrounded. Thermocouples with grounded junctions have the element wires joined to the sheath during the manufacturing process. This method of manufacturing is the most common. Thermocouples with ungrounded junctions have the element wires electrically isolated from the metal sheath. Ungrounded junctions are specified for special applications where electrical noise or special electrical grounding considerations are required.
Adjustable Bayonet

ORDER CODE:
A15A1

“B” DIMENSION
(Length in Inches)
TERMINATION TYPE
THERMOCOUPLE CALIBRATION
(Specify)
JUNCTION TYPE
G = Grounded
U = Ungrounded

ORDER CODE:
A15A2

“B” DIMENSION
(Length in Inches)
TERMINATION TYPE
THERMOCOUPLE CALIBRATION
(Specify)
JUNCTION TYPE
G = Grounded
U = Ungrounded

TERMINATIONS

TYPE1
PLUG
*FOR SPADE LUGS USE CODE ‘3SL’

TYPE 2
JACK

TYPE 3
BARE END

TYPE 4
PLUG WITH CABLE CLAMP

TYPE 5
JACK WITH CABLE CLAMP

SENSOR DIA. 3/16" NOMINAL
SENSOR LENGTH 1/4"
2 1/2"

STAINLESS STEEL FLEX ARMOUR FIBERGLASS LEADS

STAINLESS STEEL BRAIDED FIBERGLASS LEADS

SENSOR DIA. 3/16" NOMINAL
SENSOR LENGTH 1/4"
2 1/2"
Fixed Bayonet

ORDER CODE:
A15B1

“A” DIMENSION (Length in Inches)
“B” DIMENSION (Length in Inches)
TERMINATION TYPE
THERMOCOUPLE CALIBRATION (Specify)
JUNCTION TYPE
G = Grounded
U = Ungrounded

ORDER CODE:
A15B2

“A” DIMENSION (Length in Inches)
“B” DIMENSION (Length in Inches)
TERMINATION TYPE
THERMOCOUPLE CALIBRATION (Specify)
JUNCTION TYPE
G = Grounded
U = Ungrounded

ORDER CODE:
A15B3

“A” DIMENSION (Length in Inches)
“B” DIMENSION (Length in Inches)
TERMINATION TYPE
THERMOCOUPLE CALIBRATION (Specify)
JUNCTION TYPE
G = Grounded
U = Ungrounded

TERMINATIONS

TYPE1
TYPE 2
TYPE 3
TYPE 4
TYPE 5

PLUG
JACK
BARE END
PLUG WITH CABLE CLAMP
JACK WITH CABLE CLAMP

*FOR SPADE LUGS USE CODE ‘3SL’.

November, 2001
Adjustable Compression

ORDER CODE:
A15C1

“A” DIMENSION (Length in Inches)

“B” DIMENSION (Length in Inches)

TERMINATION TYPE

THERMOCOUPLE CALIBRATION (Specify)

PROCESS FITTING – S = Stainless Steel
B = Brass

JUNCTION TYPE
G = Grounded
U = Ungrounded

ORDER CODE:
A15C2

“A” DIMENSION (Length in Inches)

“B” DIMENSION (Length in Inches)

TERMINATION TYPE

THERMOCOUPLE CALIBRATION (Specify)

PROCESS FITTING – S = Stainless Steel
B = Brass

JUNCTION TYPE
G = Grounded
U = Ungrounded

ORDER CODE:
A15C3

“A” DIMENSION (Length in Inches)

“B” DIMENSION (Length in Inches)

TERMINATION TYPE

THERMOCOUPLE CALIBRATION (Specify)

PROCESS FITTING – S = Stainless Steel
B = Brass

JUNCTION TYPE
G = Grounded
U = Ungrounded

SENSOR DIA.
3/16” NOMINAL

STAINLESS STEEL FLEX ARMOUR
FIBERGLASS LEADS

“B”-DIM
2 1/2”

1/8”-27 NPT

“A”-DIM

1/8”-27 NPT

STAINLESS STEEL FLEX ARMOUR
FIBERGLASS LEADS

“B”-DIM
2 1/2”

1/8”-27 NPT

STAINLESS STEEL FLEX ARMOUR
FIBERGLASS LEADS

“B”-DIM
2 1/2”

1/8”-27 NPT

STAINLESS STEEL FLEX ARMOUR
FIBERGLASS LEADS

“B”-DIM
2 1/2”

1/8”-27 NPT

SENSOR DIA.
3/16” NOMINAL

TERMINATIONS

TYPE 1
PLUG
FOR SPADE LUGS USE CODE ‘3SL’

TYPE 2
JACK

TYPE 3
BARE END

TYPE 4
PLUG WITH CABLE CLAMP

TYPE 5
JACK WITH CABLE CLAMP

November, 2001
Under the Band Thermocouple

ORDER CODE: A15D1

“B” DIMENSION (Length in Inches)
TERMINATION TYPE
THERMOCOUPLE CALIBRATION (Specify)
JUNCTION TYPE
G = Grounded

Hot Runner Thermocouple

ORDER CODE: A15D2

“A” DIMENSION (Length in Inches)
“B” DIMENSION (Length in Inches)
SENSOR OD (Diameter in Millimetres)
TERMINATION TYPE
THERMOCOUPLE CALIBRATION (Specify)
JUNCTION TYPE
G = Grounded
U = Ungrounded

TERMINATIONS

TYPE 1
PLUG

TYPE 2
JACK

TYPE 3
BARE END

TYPE 4
PLUG WITH CABLE CLAMP

TYPE 5
JACK WITH CABLE CLAMP

*FOR SPADE LUGS USE CODE ‘3SL’.
Ring Lug Thermocouple

ORDER CODE: A15E1

“B” DIMENSION (Length in Inches)

TERMINATION TYPE

THERMOCOUPLE CALIBRATION (Specify)

JUNCTION TYPE
G = Grounded

Gasket Thermocouple

ORDER CODE: A15E2

“B” DIMENSION (Length in Inches)

TERMINATION TYPE

THERMOCOUPLE CALIBRATION (Specify)

JUNCTION TYPE
G = Grounded

TERMINATIONS

TYPE 1
- PLUG
- JACK
*FOR SPADE LUGS USE CODE ‘3SL’.

TYPE 2
- BARE END

TYPE 3
- PLUG WITH CABLE CLAMP

TYPE 4
- JACK WITH CABLE CLAMP

November, 2001
Manifold Thermocouple

ORDER CODE: A15F1

“B” DIMENSION (Length in Inches)

TERMINATION TYPE

THERMOCOUPLE CALIBRATION (Specify)

JUNCTION TYPE
G = Grounded
U = Ungrounded

Nozzle Thermocouple

ORDER CODE: A15F2

“B” DIMENSION (Length in Inches)

NOZZLE THREAD
1/4” – 28 UNF
M 6
M 8

TERMINATION TYPE

THERMOCOUPLE CALIBRATION (Specify)

JUNCTION TYPE
G = Grounded
U = Ungrounded

TERMINATIONS

TYPE 1
PLUG

TYPE 2
JACK

TYPE 3
BARE END

TYPE 4
PLUG WITH CABLE CLAMP

TYPE 5
JACK WITH CABLE CLAMP

*FOR SPADE LUGS USE CODE ‘3SL’.

November, 2001
Melt Bolt Thermocouple

ORDER CODE: A15G1

"A" DIMENSION (3, 4 or 6 Inches)
"B" DIMENSION (Length in Inches)
TIP DESIGN
TERMINATION TYPE (See Page F15)
THERMOCOUPLE CALIBRATION (Specify)
JUNCTION TYPE
G = Grounded
U = Ungrounded

SENSOR DIA. 1/8" NOMINAL
1/2"-20 NF
STAINLESS STEEL FLEX ARMOUR FIBERGLASS LEADS
1 3/16" NOMINAL THREAD LENGTH
NOTES: "A" DIMENSIONS AVAILABLE IN 3", 4" & 6" LENGTHS.

Adjustable Melt Bolt Thermocouple

ORDER CODE: A15G2

"A" DIMENSION (3, 4 or 6 Inches)
"B" DIMENSION (Length in Inches)
TERMINATION TYPE (See Page F15)
THERMOCOUPLE CALIBRATION (Specify)
JUNCTION TYPE
G = Grounded
U = Ungrounded

SENSOR DIA. 1/8" NOMINAL
1/2"-20 NF
ADJUSTABLE FITTING
STAINLESS STEEL METAL SHeathed THERMOCOUPLE
2 3/16" NOMINAL THREAD LENGTH
NOTES: "A" DIMENSIONS AVAILABLE IN 3", 4" & 6" LENGTHS.

TIP DESIGN OPTIONS

TIP DESIGN 1

TIP DESIGN 2

TIP DESIGN 3

TIP DESIGN 4

November, 2001
Blank Melt Bolt

ORDER CODE: A15H1

"A" DIMENSION (Length in Inches)
STANDARD BOLT LENGTHS 3", 4" and 6"

Lead Extension

ORDER CODE: A15H2

"L" DIMENSION (Length in Inches)
"A" TERMINATION TYPE
"B" TERMINATION TYPE
THERMOCOUPLE CALIBRATION (Specify)

TERMINATIONS

TYPE 1
PLUG
*FOR SPADE LUGS USE CODE ‘3SL’.

TYPE 2
JACK

TYPE 3
BARE END

TYPE 4
PLUG WITH CABLE CLAMP

TYPE 5
JACK WITH CABLE CLAMP

November, 2001
Accessories

**Connector Plug**
STANDARD SIZE (SOLID PINS)
ORDER CODE: 1055
SPECIFY CALIBRATION

**Connector Jack**
STANDARD SIZE
ORDER CODE: 1015
SPECIFY CALIBRATION

**Connector Mini Plug**
ORDER CODE: 1260
SPECIFY CALIBRATION

**Connector Mini Jack**
ORDER CODE: 1210
SPECIFY CALIBRATION

**2-Pole Panel Jack**
ORDER CODE: 1031
SPECIFY CALIBRATION

**Cable/Wire Clamp**
FOR MODEL 1065 JACK OR 1015 PLUG
ORDER CODE: 1080

**Multi Strip Panel**
STRIP PANELS ARE AVAILABLE IN 2-12 CIRCUITS
ORDER CODE: 1032
NUMBER OF CIRCUITS
SPECIFY CALIBRATION
ORIENTATION
H = Horizontal
V = Vertical

November, 2001
## Step 1:
<table>
<thead>
<tr>
<th>Code</th>
<th>Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE-</td>
<td>Bare End</td>
</tr>
<tr>
<td>SM-</td>
<td>Standard Male Plug</td>
</tr>
<tr>
<td>SF-</td>
<td>Standard Female Jack</td>
</tr>
<tr>
<td>HSM-</td>
<td>High Temp Standard Male Plug</td>
</tr>
<tr>
<td>HSF-</td>
<td>High Temp Standard Female Jack</td>
</tr>
<tr>
<td>MM-</td>
<td>Mini Male Plug</td>
</tr>
<tr>
<td>MF-</td>
<td>Mini Female Jack</td>
</tr>
<tr>
<td>HMM-</td>
<td>High Temp Mini Male Plug</td>
</tr>
<tr>
<td>HMF-</td>
<td>High Temp Mini Female Jack</td>
</tr>
<tr>
<td>SPL-</td>
<td>Spade Lugs (uncompensated)</td>
</tr>
<tr>
<td>SP-</td>
<td>Special (specify)</td>
</tr>
</tbody>
</table>

## Step 2:
<table>
<thead>
<tr>
<th>Code</th>
<th>Lead Insulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-</td>
<td>Fiberglass (482°C*)</td>
</tr>
<tr>
<td>P-</td>
<td>Polyvinyl Chloride (PVC) (105°C*)</td>
</tr>
<tr>
<td>T-</td>
<td>Teflon (204°C*)</td>
</tr>
<tr>
<td>AF-</td>
<td>Armoured Fiberglass (482°C)</td>
</tr>
<tr>
<td>AP-</td>
<td>Armoured Polyvinyl Chloride (105°C*)</td>
</tr>
<tr>
<td>AT-</td>
<td>Armoured Teflon (204°C*)</td>
</tr>
<tr>
<td>TAF-</td>
<td>Teflon Coated Armour over Fiberglass (204°C*)</td>
</tr>
<tr>
<td>TAT-</td>
<td>Teflon Coated Armour over Teflon (204°C*)</td>
</tr>
<tr>
<td>PAP-</td>
<td>PVC Coated Armour over PVC (105°C*)</td>
</tr>
<tr>
<td>SSP-</td>
<td>Braided SS over Fiberglass (482°C*)</td>
</tr>
<tr>
<td>SST-</td>
<td>Braided SS over Polyvinyl Chloride (105°C*)</td>
</tr>
<tr>
<td>SP-</td>
<td>Special (specify)</td>
</tr>
<tr>
<td>X-</td>
<td>No Leadwire Required</td>
</tr>
</tbody>
</table>

*Maximum Temperature Rating

## Step 3:
Leadwire Length in inches

## Step 4:
<table>
<thead>
<tr>
<th>Code</th>
<th>Process Fitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>FX-</td>
<td>Fixed</td>
</tr>
<tr>
<td>AS-</td>
<td>Adjustable (Stainless steel ferrule)</td>
</tr>
<tr>
<td>AT-</td>
<td>Adjustable (Teflon ferrule)</td>
</tr>
<tr>
<td>SL-</td>
<td>Spring Loaded Fitting Available in 1/2” NPT or 3/4” NPT for 3/16”, 1/4” &amp; 6mm Sensors Only</td>
</tr>
<tr>
<td>SP-</td>
<td>Special (specify)</td>
</tr>
<tr>
<td>X-</td>
<td>No Fitting Required</td>
</tr>
</tbody>
</table>

Sensor Length
Step 5:

<table>
<thead>
<tr>
<th>Code</th>
<th>Fitting Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-</td>
<td>1/16&quot; NPT</td>
</tr>
<tr>
<td>18-</td>
<td>1/8&quot; NPT</td>
</tr>
<tr>
<td>14-</td>
<td>1/4&quot; NPT</td>
</tr>
<tr>
<td>12-</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>34-</td>
<td>3/4&quot; NPT</td>
</tr>
<tr>
<td>X-</td>
<td>No Fitting Required</td>
</tr>
<tr>
<td>SP-</td>
<td>Special (specify)</td>
</tr>
</tbody>
</table>

Step 6:

<table>
<thead>
<tr>
<th>Code</th>
<th>Sheath Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>316 SS</td>
</tr>
<tr>
<td>P</td>
<td>304 SS</td>
</tr>
<tr>
<td>J</td>
<td>Inconel 600</td>
</tr>
<tr>
<td>Q</td>
<td>310 SS</td>
</tr>
<tr>
<td>SP-</td>
<td>Special (specify)</td>
</tr>
</tbody>
</table>

Step 7:

<table>
<thead>
<tr>
<th>Code</th>
<th>Sensor Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>1/100 inch (.010)</td>
</tr>
<tr>
<td>02</td>
<td>1/50 inch (.020)</td>
</tr>
<tr>
<td>04</td>
<td>1/25 inch (.040)</td>
</tr>
<tr>
<td>16</td>
<td>1/16 inch (.063)</td>
</tr>
<tr>
<td>18</td>
<td>1/8 inch (.125)</td>
</tr>
<tr>
<td>36</td>
<td>3/16 inch (.188)</td>
</tr>
<tr>
<td>14</td>
<td>1/4 inch (.250)</td>
</tr>
<tr>
<td>38</td>
<td>3/8 inch (.375)</td>
</tr>
<tr>
<td>12</td>
<td>1/2 inch (.500)</td>
</tr>
<tr>
<td>SP-</td>
<td>Special (specify)</td>
</tr>
</tbody>
</table>

Step 9:

<table>
<thead>
<tr>
<th>Code</th>
<th>Thermocouple Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>Iron - Constantan</td>
</tr>
<tr>
<td>K</td>
<td>Chromel - Alumel</td>
</tr>
<tr>
<td>T</td>
<td>Copper - Constantan</td>
</tr>
<tr>
<td>E</td>
<td>Chromel - Constantan</td>
</tr>
<tr>
<td>N</td>
<td>Nicrosil - Nisil</td>
</tr>
<tr>
<td></td>
<td>For Special Limits add suffix - SL, eg. JSL, KSL.</td>
</tr>
</tbody>
</table>

Step 10:

<table>
<thead>
<tr>
<th>Code</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBN</td>
<td>90° Bend, specify &quot;Y&quot;</td>
</tr>
<tr>
<td>SR</td>
<td>Strain Relief Spring (not available with armour)</td>
</tr>
<tr>
<td>RC</td>
<td>Retractable Cord (not available with armour)</td>
</tr>
<tr>
<td>ILT</td>
<td>Inline Transition (3/16&quot; OD and up)</td>
</tr>
</tbody>
</table>

How to Order

Select the appropriate symbol from each of the tables listed.
# Thermocouple Adapters

## Bayonnet Adapters

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Thread</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>A15L– 1</td>
<td>1/8&quot; NPT</td>
<td>7/8&quot;</td>
</tr>
<tr>
<td>A15L– 2</td>
<td>3/8&quot;-24 UNF</td>
<td>7/8&quot;</td>
</tr>
<tr>
<td>A15L– 3</td>
<td>1/8&quot; NPT</td>
<td>1&quot;</td>
</tr>
<tr>
<td>A15L– 4</td>
<td>M12 x 1.5</td>
<td>1&quot;</td>
</tr>
<tr>
<td>A15L– 5</td>
<td>3/8&quot;-16 UNF</td>
<td>1&quot;</td>
</tr>
<tr>
<td>A15L– 6</td>
<td>M12 x 1.75</td>
<td>1 1/4&quot;</td>
</tr>
<tr>
<td>A15L– 7</td>
<td>1/8&quot; NPT</td>
<td>1 1/4&quot;</td>
</tr>
<tr>
<td>A15L– 8</td>
<td>3/8&quot;-24 UNF</td>
<td>1 1/4&quot;</td>
</tr>
<tr>
<td>A15L– 9</td>
<td>1/8&quot; NPT</td>
<td>1 3/8&quot;</td>
</tr>
<tr>
<td>A15L– 10</td>
<td>3/8&quot;-24 UNF</td>
<td>1 3/8&quot;</td>
</tr>
<tr>
<td>A15L– 11</td>
<td>3/8&quot;-16 UNC</td>
<td>1 3/8&quot;</td>
</tr>
<tr>
<td>A15L– 12</td>
<td>1/8&quot; NPT</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>A15L– 13</td>
<td>3/8&quot;-24 UNF</td>
<td>1 1/2&quot;</td>
</tr>
<tr>
<td>A15L– 14</td>
<td>1/8&quot; NPT</td>
<td>1 3/4&quot;</td>
</tr>
</tbody>
</table>

## S.I.-to-Imperial Adapters

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Metric Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>A15L– 40</td>
<td>M10 x 1.5</td>
</tr>
<tr>
<td>A15L– 41</td>
<td>M12 x 1</td>
</tr>
<tr>
<td>A15L– 42</td>
<td>M12 x 1.5</td>
</tr>
<tr>
<td>A15L– 43</td>
<td>M14 x 1.5</td>
</tr>
<tr>
<td>A15L– 44</td>
<td>M14 x 2</td>
</tr>
</tbody>
</table>
Lead Wire

<table>
<thead>
<tr>
<th>Ordering Code</th>
<th>Length in feet (or metres)</th>
<th>ANSI Code</th>
<th>Insulation Code</th>
<th>Wire Gauge</th>
<th>Options (F-stranded wires)</th>
</tr>
</thead>
</table>

**FB/FB**
Fiberglass/Fiberglass
Offers good moisture and fair abrasion resistance. Colour coded fiberglass is double wrapped over each conductor and overall. This is impregnated with a silicone modified resin which is destroyed above 400°F. Useful to 480°C (900°F).

**FB/FBSS**
Fiberglass/Fiberglass with Stainless Steel Overbraid
Similar to above but with excellent abrasion resistance. Useful to 480°C (900°F).

**201PC/PC031**
PVC/PVC with Shield and Drain Wire
Offers excellent moisture and abrasion resistance as well as electrostatic and electromagnet protection. PVC is extruded over each conductor. A copper drain wire is added and these leads are twisted. Aluminum backed mylar tape is applied and PVC extruded overall. Useful from -25°C to +105°C (-15°F to +220°F).

**PC/PC**
PVC/PVC
Offers excellent moisture and abrasion resistance. Useful from -31°C to +105°C (-25°F to +220°F). Colour coded PVC is extruded over single conductors with PVC overall.

**TE/TE**
Teflon/Teflon FEP
Offers excellent moisture and very good abrasion resistance. Useful from -200°C to +204°C (-328°F to +400°F). Colour coded teflon is extruded over single conductors with teflon overall.

**CK/NK**
Kapton/Kapton
Offers excellent moisture and abrasion resistance. Useful from -265°C to +285°C (-450°F to +550°F). Kapton tape is wrapped and fused on each wire and overall.

For additional wire types contact factory.