‘C’ and ‘K’ Style Spring Loaded Sensors
Specifications

‘C’ Style
Spring Loaded, without Thermowell

Lead Wire Material/Configuration
• Fiberglass insulated/individual leads std

Lead Wire Termination
• Stripped std

‘LY’

Lead Wire Length
• 3.0 inches std

‘OAL’ Overall Length

‘X’ Sheath Length ± 0.125”

‘D’ Sheath Diameter
• 1/4 inch diameter std

‘K’ Style
Spring Loaded, without Thermowell

Lead Wire Material/Configuration
• Fiberglass insulated/individual leads std

Lead Wire Termination
• Stripped std

‘LY’

Lead Wire Length
• 3.0 inches std

‘OAL’ Overall Length

‘X’ Sheath Length ± 0.125”

‘D’ Sheath Diameter
• 1/4 inch diameter std

‘C’ and ‘K’ Style
Spring Loaded, with Thermowell

Connection Head
• Burns #9P shown
• ‘K’ style is only available with #3 and #5 heads

Extension
• Nipple shown
(See page 18)

‘N’ Extension Length

‘T’ Lag Length
• 0 inch standard
• 1.75” NOTE 1

‘U’ Immersion Length

‘A’ Bore Depth

0.25”

NOTE: All Dimensions in inches.

‘C’ Style Application
Assembly allows easy removal of the sensor through the connection head. No wrenches required.

‘K’ Style Application
Similar to the ‘C’ Style but with the addition of a 1/4 turn twist lock fitting for even easier removal of the sensor. Add longer leads and it makes calibration checks possible with no tools required. Works with #3 and #5 connection heads only.

NOTE 1: 1.75 inch length is used on threaded and socket weld thermowells; a 2.25 inch length is used with flanged wells
NOTE 2: When a ‘C’ style assembly is ordered with a transmitter the actual ‘N’, nominal extension length, will be 1/2” long than specified.
# Spring Loaded Sensors
## without Thermowell
### Ordering Information

#### Sensor Style
- **C**: Spring Loaded Sensor for Thermowell Applications
- **K**: Spring Loaded Sensor with Bayonet Fitting for Thermowell Applications, mates with #3 or #5 head only

#### Thermocouple Type
- **E**: Chromel/Constantan (leadwire code = purple+, red-)
- **J**: Iron/Constantan (leadwire code = white+, red-)
- **K**: Chromel/Alumel (leadwire code = yellow+, red-)
- **N**: Nicrosil/Nisil (leadwire code = orange+, red-)
- **T**: Copper/Constantan (leadwire code = blue+, red-)

<table>
<thead>
<tr>
<th>Sheath Material</th>
<th>Thermocouples</th>
</tr>
</thead>
<tbody>
<tr>
<td>316 SS</td>
<td>E, J, K, N, T</td>
</tr>
<tr>
<td>Inconel® 600</td>
<td>J, K, N, T</td>
</tr>
<tr>
<td>316 SS</td>
<td>T</td>
</tr>
</tbody>
</table>

#### Thermocouple Junction Configuration

<table>
<thead>
<tr>
<th>Connection Head (See NOTE 1)</th>
<th>Sensor/Head Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1C Cast Iron Head, 'C' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>2A Aluminum Head, 'C' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>2E Aluminum Head, Epoxy Coated, 'C' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>3A Aluminum Head with Water Proof Kit, 'K' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>3E Aluminum Head, Epoxy Coated with Water Proof Kit, 'K' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>5A Aluminum Head, 'K' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>5E Aluminum Head, Epoxy Coated, 'K' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>9P Polypropylene Head, White, 'C' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>14S Stainless Steel Head, 'C' style only</td>
<td>1/2&quot; NPT</td>
</tr>
<tr>
<td>N No Connection Head</td>
<td></td>
</tr>
</tbody>
</table>

#### Extension Type (See Illustrations - page 18)

<table>
<thead>
<tr>
<th>Extension Type</th>
<th>Standard N' Extension Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A Galvanized Nipple</td>
<td>3 inches</td>
</tr>
<tr>
<td>2A 304 SS Nipple</td>
<td>3 inches</td>
</tr>
<tr>
<td>3A 316 SS Nipple</td>
<td>3 inches</td>
</tr>
<tr>
<td>1B Galvanized Nipple Union Nipple</td>
<td>3 inches</td>
</tr>
<tr>
<td>2B 304 SS Nipple Union Nipple</td>
<td>3 inches</td>
</tr>
<tr>
<td>3B 316 SS Nipple Union Nipple</td>
<td>3 inches</td>
</tr>
<tr>
<td>N No Extension</td>
<td>0 inches</td>
</tr>
</tbody>
</table>

#### Sheath Length

<table>
<thead>
<tr>
<th>'X' Sheath Length (See NOTE 2)</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>035 3.5 inch (minimum length)</td>
<td>3 inches</td>
</tr>
<tr>
<td>060 6.0 inch</td>
<td>3 inches</td>
</tr>
<tr>
<td>090 9.0 inch</td>
<td>3 inches</td>
</tr>
<tr>
<td>120 12.0 inch</td>
<td>3 inches</td>
</tr>
<tr>
<td>150 15.0 inch</td>
<td>3 inches</td>
</tr>
<tr>
<td>180 18.0 inch</td>
<td>3 inches</td>
</tr>
<tr>
<td>XXX Specify 'X' Length in inches for X ≤ 99.9&quot;. XXXX for &gt; 99.9&quot; (150&quot;=1500)</td>
<td></td>
</tr>
</tbody>
</table>

#### Length Code Definitions and Equations for 'C' and 'K' Style Assemblies

<table>
<thead>
<tr>
<th>Length Code Definitions and Equations for 'C' and 'K' Style Assemblies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>'X' Sheath Length</strong></td>
</tr>
<tr>
<td><strong>'U' Immersion Length</strong></td>
</tr>
<tr>
<td><strong>'OAL' Overall Length</strong></td>
</tr>
<tr>
<td><strong>'N' Extension Length</strong></td>
</tr>
<tr>
<td><strong>'A' Well Bore Depth</strong></td>
</tr>
<tr>
<td><strong>'T' Well Lag Length</strong></td>
</tr>
</tbody>
</table>

#### Example Configuration

Burns No. 2A Aluminum Connection Head

- **'C' Style Sensor**
- **Thermowell**
- **Extension**
- **'X' Length**

---

**NOTE 1:** See our [Connection Head Supplement](#) for all available connection heads and full details.

**NOTE 2:** For sensor sheath lengths 'X' greater than 200 inches contact Burns Customer Service.

---

**FOR REFERENCE:**
- Thermocouple Specifications, page 4
- Common Options, pages 17 – 19
- Connection Head Descriptions, page 20
‘C’ and ‘K’ Style Spring Loaded Sensors with Thermowell

Ordering Information (1 of 2)

Sensor Style
- C: Spring Loaded Sensor for Thermowell Applications
- K: Spring Loaded Sensor with Bayonet Fitting

for Thermowell Applications, mates with #3 and #5 heads only

Thermocouple Type
- E: Chromel/Constantan (leadwire code = purple+, red-)
- J: Iron/Constantan (leadwire code = white+, red-)
- K: Chromel/Alumel (leadwire code = yellow+, red-)
- N: Nicrosil/Nisil (leadwire code = orange+, red-)
- T: Copper/Constantan (leadwire code = blue+, red-)

Sheath Material
- 316 SS
- Inconel® 600

Thermocouple Junction Configuration
- D: Single, Ungrounded
- E: Single, Grounded
- F: Duplex, Ungrounded
- G: Duplex, Grounded

Connection Head (See NOTE 1)
- 1C: Cast Iron Head, ‘C’ style only
- 2A: Aluminum Head, ‘C’ style only
- 2E: Aluminum Head, Epoxy Coated, ‘C’ style only
- 3A: Aluminum Head with Water Proof Kit, ‘K’ style only
- 3E: Aluminum Head, Epoxy Coated with Water Proof Kit, ‘K’ style only
- 5A: Aluminum Head, ‘K’ style only
- 5E: Aluminum Head, Epoxy Coated, ‘K’ style only
- 9P: Polypropylene Head, White, ‘C’ style only
- 14S: Stainless Steel Head, ‘C’ style only
- N: No Connection Head

Extension Type (See Illustrations - page 18)
- 1A: Galvanized Nipple
- 2A: 304 SS Nipple
- 3A: 316 SS Nipple
- 1B: Galvanized Nipple Union Nipple
- 2B: 304 SS Nipple Union Nipple
- 3B: 316 SS Nipple Union Nipple
- N: No Extension

Standard ‘N’ Extension Length
- 3 inches

‘U’ Immersion Length (See NOTE 2)
- 2.5 inch (minimum)
- 4.0 inch
- 4.5 inch
- 7.0 inch
- 7.5 inch
- 10.0 inch
- 10.5 inch
- 13.5 inch
- 16.0 inch
- UUU: Specify “U” Immersion Length in inches.

Example Configuration

NOTE 1: See our Connection Head Supplement for all available connection heads and full details.
NOTE 2: For Thermowells with bore depths (A) greater that 42 inches contact Burns Customer Service. Long length wells can be constructed from welded bar stock segments or from pipe. Specifics of the application must be verified to ensure the thermowell design meets your process needs.
‘C’ and ‘K’ Style Spring Loaded Sensors
with Thermowell
Ordering Information (2 of 2)

Thermowell Type (See NOTE 3)

Threaded Thermowells
TT2 Tapered Threaded, 1/2" NPT process threads
TT3 Tapered Threaded, 3/4" NPT process threads
TT4 Tapered Threaded, 1" NPT process threads
RT2 Reduced Tip Threaded, 1/2" NPT process threads
RT3 Reduced Tip Threaded, 3/4" NPT process threads
RT4 Reduced Tip Threaded, 1" NPT process threads
ST2 Straight Threaded, 1/2" NPT process threads
ST3 Straight Threaded, 3/4" NPT process threads
ST4 Straight Threaded, 1" NPT process threads

Socket Weld Thermowells
TW3 Tapered Welded, 3/4" pipe size
TW4 Tapered Welded, 1" pipe size
TW5 Tapered Welded, 1 1/4" pipe size
RW3 Reduced Tip Welded, 3/4" pipe size
RW4 Reduced Tip Welded, 1" pipe size
RW5 Reduced Tip Welded, 1 1/4" pipe size
SW3 Straight Welded, 3/4" pipe size
SW4 Straight Welded, 1" pipe size
SW5 Straight Welded, 1 1/4" pipe size

Flanged Thermowells
TF4A Tapered Flanged, 1.0" flange, 150 LB
TF6A Tapered Flanged, 1.5" flange, 150 LB
TF8A Tapered Flanged, 2.0" flange, 150 LB
TF4B Tapered Flanged, 1.0" flange, 300 LB
TF6B Tapered Flanged, 1.5" flange, 300 LB
TF8B Tapered Flanged, 2.0" flange, 300 LB
RF4A Reduced Tip Flanged, 1.0" flange, 150 LB
RF6A Reduced Tip Flanged, 1.5" flange, 150 LB
RF8A Reduced Tip Flanged, 2.0" flange, 150 LB
RF4B Reduced Tip Flanged, 1.0" flange, 300 LB
RF6B Reduced Tip Flanged, 1.5" flange, 300 LB
RF8B Reduced Tip Flanged, 2.0" flange, 300 LB
SF4A Straight Flanged, 1.0" flange, 150 LB
SF6A Straight Flanged, 1.5" flange, 150 LB
SF8A Straight Flanged, 2.0" flange, 150 LB
SF4B Straight Flanged, 1.0" flange, 300 LB
SF6B Straight Flanged, 1.5" flange, 300 LB
SF8B Straight Flanged, 2.0" flange, 300 LB

Sanitary Thermowells (1/2" NPT, 16 AMP Cap)
TS15 Tapered Sanitary, 1 1/2" Sanitary Cap
TS20 Tapered Sanitary, 2" Sanitary Cap
TS25 Tapered Sanitary, 2 1/2" Sanitary Cap
RS15 Reduced Tip Sanitary, 1 1/2" Sanitary Cap
RS20 Reduced Tip Sanitary, 2" Sanitary Cap
RS25 Reduced Tip Sanitary, 2 1/2" Sanitary Cap
SS15 Straight Sanitary, 1 1/2" Sanitary Cap
SS20 Straight Sanitary, 2" Sanitary Cap
SS25 Straight Sanitary, 2 1/2" Sanitary Cap

Thermowell Material
02 304 Stainless Steel
03 316 Stainless Steel
04 Carbon Steel
05 304L Stainless Steel
06 316L Stainless Steel
07 Hastelloy® C276
08 Chrome-Moly
09 Aluminum 6061 T6
10 Monel™
11 PTFE
12 Inconel® 600
13 Brass
14 Titanium

Basic Order Codes
(Leave Options blank if not required)

Explosion Proof
(NOTE 5)
Options
Transmitter

See pages 17–19

NOTE 3: See our Thermowell catalog or visit us on-line at burnsengineering.com for a full line of standard thermowell styles along with information on custom thermowells.

NOTE 4: For Thermowells with Bore Depths (‘A’) greater that 42 inches contact Burns Customer Service. Long length wells can be constructed from welded bar stock segments or from pipe. Specifics of the application must be verified to ensure the thermowell design meets your process needs.

NOTE 5: For FM explosion proof approved assembly, enter ‘/AFM’ code. See page 3 for ratings and drawing # 18938 for approved product structure details.