Thermocouple Extension and Compensating Cables

### Codes · Conductor Combinations · National and International Specifications

**Thermocouple Conductor Combination Type**

- **KX**
- **KCA**
- **KCB**
- **TX**
- **JX**
- **NX**
- **NC**
- **EX**
- **SCA**
- **SCB**
- **BC**
- **GC**
- **CC**
- **DC**

#### Extension and Compensating Cable Type

- **Extension Cables**
- **Compensating Cables**

#### International Colour Code to IEC 60584-3

- **British**
- **American**
- **German**
- **French**
- **Japanese**

#### Redundant National Colour Coding for Insulation of Thermocouple Extension and Compensating Cables

- **SC**
- **DC**

#### National and International Specifications

- **BS 1843**
- **JIS C1910-01**
- **ANSI/MC96.1**
- **FRENCH**
- **AMERICAN**
- **JAPANESE**
- **REDUNDANT NATIONAL COLOUR CODING**

#### Tolerance Values to IEC 60584-3 for extension and compensating cables when used at temperatures within the cable temperature range shown below.

<table>
<thead>
<tr>
<th>Tolerance Class</th>
<th>Cable Temperature Range °C</th>
<th>Measuring Junction Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>±20 μV (±0.5°C)</td>
<td>±20°C to ±30°C</td>
</tr>
<tr>
<td>2</td>
<td>±100 μV (±2.5°C)</td>
<td>±10°C to ±15°C</td>
</tr>
<tr>
<td>3</td>
<td>±30 μV (±0.5°C)</td>
<td>±10°C to ±15°C</td>
</tr>
<tr>
<td>4</td>
<td>±60 μV (±1.5°C)</td>
<td>±10°C to ±15°C</td>
</tr>
<tr>
<td>5</td>
<td>±120 μV (±3.0°C)</td>
<td>±10°C to ±15°C</td>
</tr>
</tbody>
</table>

#### Notes

- This is a page from our A3 Thermocouple Guide, please visit [click here](https://www.tc.co.uk) for use with Type D (Formerly W3) Thermocouples.
- This compensating cable is made from the same constituent elements as Type T thermocouples and is therefore generally preferred when connecting to a sensor.
- This compensating cable is made from Copper vs Copper conductors and should only be used where the ambient temperature of the interconnection point between the cable and its Type T sensor is below 100°C. If suitable to your requirements it can be applied where long lines are necessary.
- This compensating cable is made from the same constituent elements as Type J thermocouples. There is no compensating cable available for Type J, however the extension cable is relatively inexpensive.
- This compensating cable is made from the same constituent elements as Type N thermocouples. Although there is a designated compensating cable for Type N, it is not at present readily available.
- This compensating cable is made from the same constituent elements as Type K thermocouples. There is a designated compensating cable for Type K, however this is not readily available.
- Type SCB compensating cables are suitable for connecting to Type S thermocouples.
- Type SCA compensating cables are suitable for connecting to Type S thermocouples.
- Type RCA compensating cables are suitable for connecting to Type R thermocouples.
- Type S compensating cables are suitable for connecting to Type S thermocouples.
- Type SCB compensating cables are suitable for connecting to Type SC thermocouples.
- Type SCB compensating cables are suitable for connecting to Type SC thermocouples.
- Type SCB compensating cables are suitable for connecting to Type S thermocouples.
- Type SCB compensating cables are suitable for connecting to Type S thermocouples.

#### Extension and Compensating Cables

- Extension cables are manufactured from conductors having the same nominal composition as those of the corresponding thermocouple. They are designated by a letter “E” following the designation of the thermocouple, for example “JE”.

- Compensating cables are manufactured from conductors having a composition different from the corresponding thermocouple. They are designated by a letter “C” following the designation of the thermocouple, for example “XC”.

#### Conversion of Plus and Minus Signatures

- A plus or minus sign is used at the cable temperature range where the conductors of the thermocouple are not directly connected to the reference junction.

#### Extension and Compensating Cables are used for the electrical connection between the open ends of a thermocouple and the reference junction in those installations where the conductors of the thermocouple are not directly connected to the reference junction.

- *Trade Names*

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**Termoclave Conductor Combination (Formerly Code W3)**

**Termoclave Conductor Combination (Formerly Code W5)**

**Termoclave Conductor Combination (Formerly Code W2)**

**Termoclave Conductor Combination (Formerly Code W2)**

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**Extension Cables**

- Extension cables are manufactured from conductors having the same nominal composition as those of the corresponding thermocouple. They are designated by a letter “E” following the designation of the thermocouple, for example “JE”. They are:...

**Compensating Cables**

- Compensating cables are manufactured from conductors having a composition different from the corresponding thermocouple. They are designated by a letter “C” following the designation of the thermocouple, for example “XC”. They are:...

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