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GENERAL DESCRIPTION

OMEGA’s CO4-K Ultrafast Surface Foil Thermocouples have been designed and fabricated to work in harsh environments where response time characteristics for the process are required to be measured in the order of a few milliseconds.

The 0.002” Thermocouple Junction Foil Thickness provides for Low Mass & Thermal Inertia. Using such a delicate bare foil on the measurement surface could have resulted in a lot of installation losses. We protect the sensing junction with a polymer encapsulation to offer a flexible yet tough plug and play sensor - quick to install with accurate and repeatable measurements every time.

<table>
<thead>
<tr>
<th>Maximum Continuous</th>
<th>Temperature°C</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>600 hr</td>
<td>10 hr</td>
</tr>
<tr>
<td>260°C</td>
<td>315°C</td>
<td>370°C</td>
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<tr>
<td></td>
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<td>C04-K</td>
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</tbody>
</table>
2.1 Using Adhesives

1. *Ultrafast* Response Surface Foil Thermocouples can be bonded to most surfaces using OB Epoxy Adhesives 100, 101, and 200. Each epoxy has different temperature ratings, cure characteristics, and thermal conductivity factors. Refer to the Omega Temperature Measurement Handbook for more information on OB Epoxies.

2. When using epoxies, be sure that the surfaces to be bonded are clean. Use an appropriate solvent or detergent for cleaning.

3. For temperature above 500°F, use Omega CC High temperature Cement.

4. For applications under 260°C (500°F), use OB 200 Epoxy. OB 200 is a specially formulated epoxy with high thermal conductivity. To retain the fast speed of response, use a thin layer of adhesive.

2.2 Installation Tips.

The bonding process of the Ultrafast Surface Thermocouple to the measurement surface depends on a number of parameters like operating temperature, mounting surface, adhesive to be used etc. For optimum response time, all air gaps between sensor and measurement surface have to be eliminated so that the sensor polymer matrix is always in contact with the measurement surface.
**STEP I**: Polish the bonding site with a coarse sandpaper in a considerably wider area than the thermocouple film size. Remove paint, rust and plating with a grinder or sand blast. Then, polish with sandpaper.

**STEP II**: Using an absorbent cotton/ gauze dipped in a highly volatile solvent such as acetone, strongly wipe the bonding site in a single direction to remove oils and fats. Please Note reciprocated wiping does not clean the surface.

**STEP III**: Place the Ultrafast Thermocouple on the clean surface and anchor / clamp the leads downstream from the sensor measuring junction.

**STEP IV**: Spread the Adhesive / Cement Paste uniformly over CO4-K Thermocouple such that the sensor is sandwiched between the Adhesive and the measurement surface.
WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA’s WARRANTY adds an additional one (1) month grace period to the normal one (1) year product warranty to cover handling and shipping time. This ensures that OMEGA’s customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA’s Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA’s WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA’s control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

**OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written.** OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

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**CONDITIONS:** Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a “Basic Component” under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA’S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence. The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

- Purchase Order number under which the product was PURCHASED,
- Model and serial number of the product under warranty, and
- Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

- Purchase Order number to cover the COST of the repair,
- Model and serial number of the product, and
- Repair instructions and/or specific problems relative to the product.

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