

Thermocouple Adaptors for Quest M3 Roaster

**(NO FURTHER ORDERS WILL BE ACCEPTED
BUT SEE MAKING YOUR OWN ON PAGE 11)**

December 18, 2016

Two custom thermocouple adaptors are provided for the Quest M3 coffee roaster. One is designed to take the place of the supplied Celsius thermometer to measure bean temperature (BT).



This first pic shows a 1/8" thermocouple and the adaptor necessary to replace the thermometer. The pic below shows a similar 1/8" thermocouple placed through the threaded hole. This is made possible when one of the M4 allen head screws, which fixes the exhaust adaptor (bean loader chute) to the front of the roaster, is removed.



The larger BT adaptor is fitted with nylon ferrules so as to **NOT** swage into the thermocouple. The adaptor for MET is a precisely drilled M4 allen head bolt which does not require any ferrules.



Shown below is a pic of the **original** adaptor as supplied for the thermometer replacement:

The **latest** adaptor for this location is approximately 1" shorter and takes a shorter thermocouple.

The threads on the roaster end of the adaptor - M8 x 1.25 mm - which screw into the roaster exactly match those of the manufacturer's thermometer adaptor which you will remove. Note that the threaded length was **originally** designed to accept a stainless steel nut and lockwasher supplied with the adaptor to be affixed on the interior of the roaster. This nut and lockwasher may be difficult to install without further disassembly and should not be considered mandatory to the installation. The flat washer is optionally placed over the end which screws into the roaster to protect the stainless finish on the roaster.

Installation Steps – 1/8" Bean Temperature (BT) Probe:

Remove the thermometer and its adaptor as a unit (if possible) and set aside in a safe place.

Install the new thermocouple adaptor and attached silicone o-ring into the roaster and lightly snug up the large hex body such that one of the flats is horizontal. This permits maximum opening of the bean door.

Slide the thermocouple in place until the tip (inside the roaster) is about 1/8" away from the closest drum supporting strut. Rotate the drum by hand to **ENSURE** that any strut does not contact the thermocouple. The thermocouple should extend into the drum as far as possible **WITHOUT** contacting the strut. This should not be considered a trivial exercise.

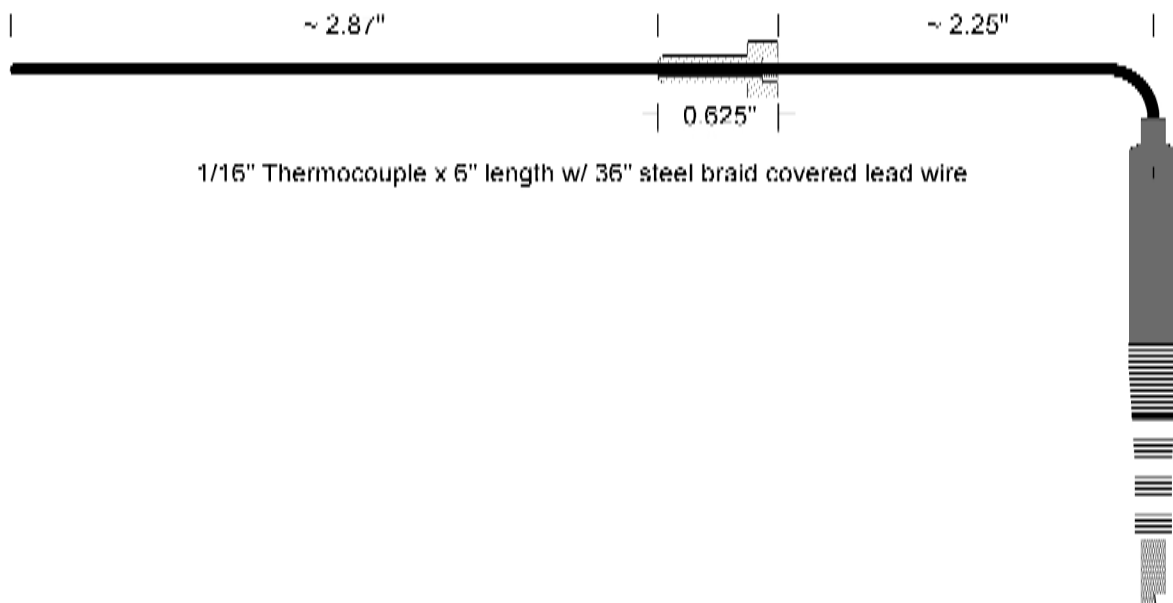
With the thermocouple properly positioned, apply a small dab of nail polish (or equivalent) to the thermocouple probe where it exits the 7/16" gland nut on the outside of the roaster. Snug up the 7/16" nut – maybe 1/2 turn past finger tight while orientating the thermocouple in the desired position.

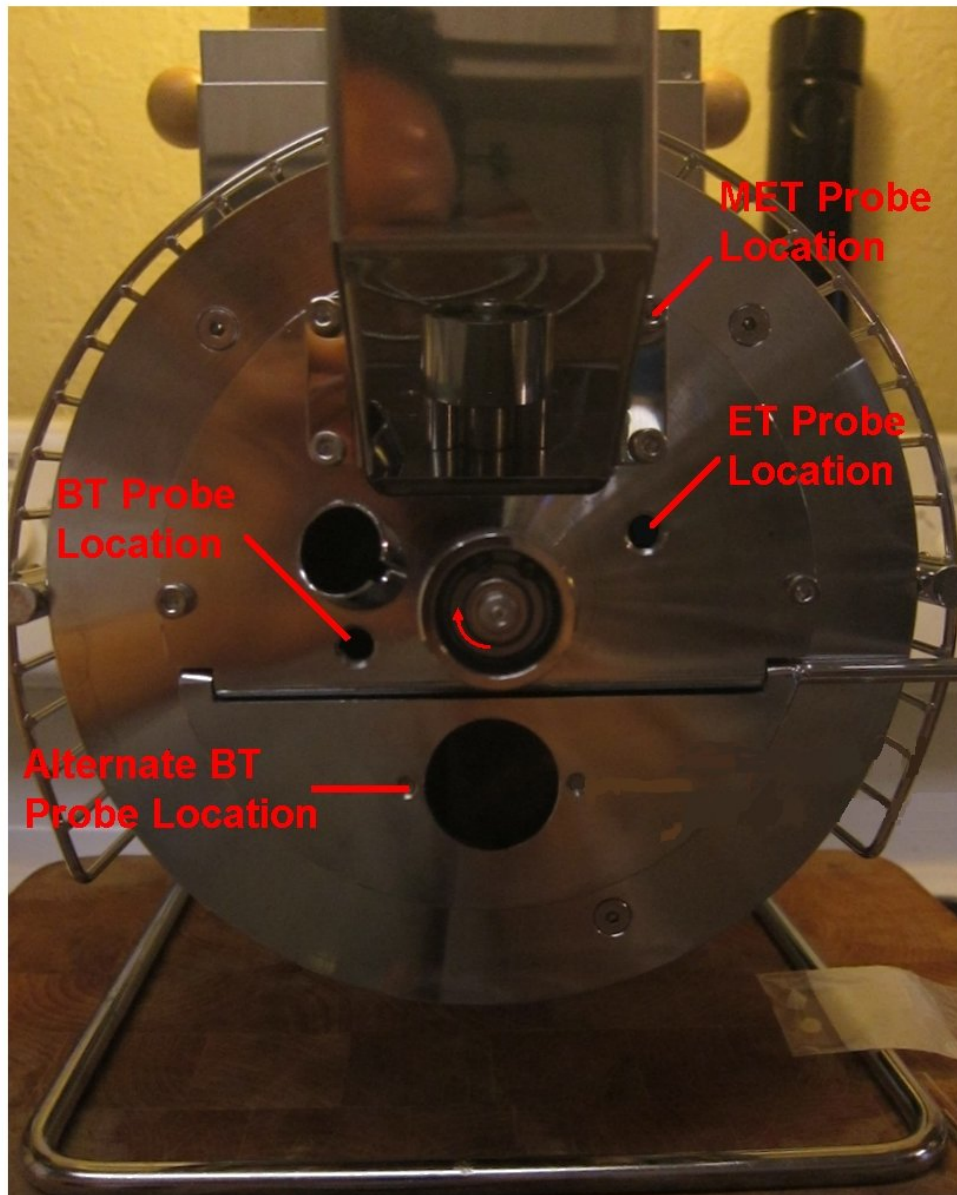
Now for the other probe which measures maximum environmental temperature (MET).

Installation Steps – 1/16" Maximum Environmental Temperature (MET) Probe:

It is easy enough to simply remove the M4 allen-head capscrew which is one of four small screws that secure the exhaust adaptor to the roaster and also (two of them) secure the bearing support structure to the roaster body. After removing this single allen capscrew, a 1/8" thermocouple could fit through the opening. A better alternative is to use (as a substitute) the supplied "custom" M4 x 12 mm bored-through screw. Because this custom screw is bored through ~ 0.065", it **SHOULD SIMPLY BE GENTLY SNUGGED UP** in the threaded hole and **NOT** tightened as the other three capscrews.

Insert the 1/16" thermocouple and the tip will sense the MET approximately halfway outside the rotating drum. The very small area where the thermocouple enters the capscrew can be sealed with any non-permanent sealing compound if the end user considers this a requirement.

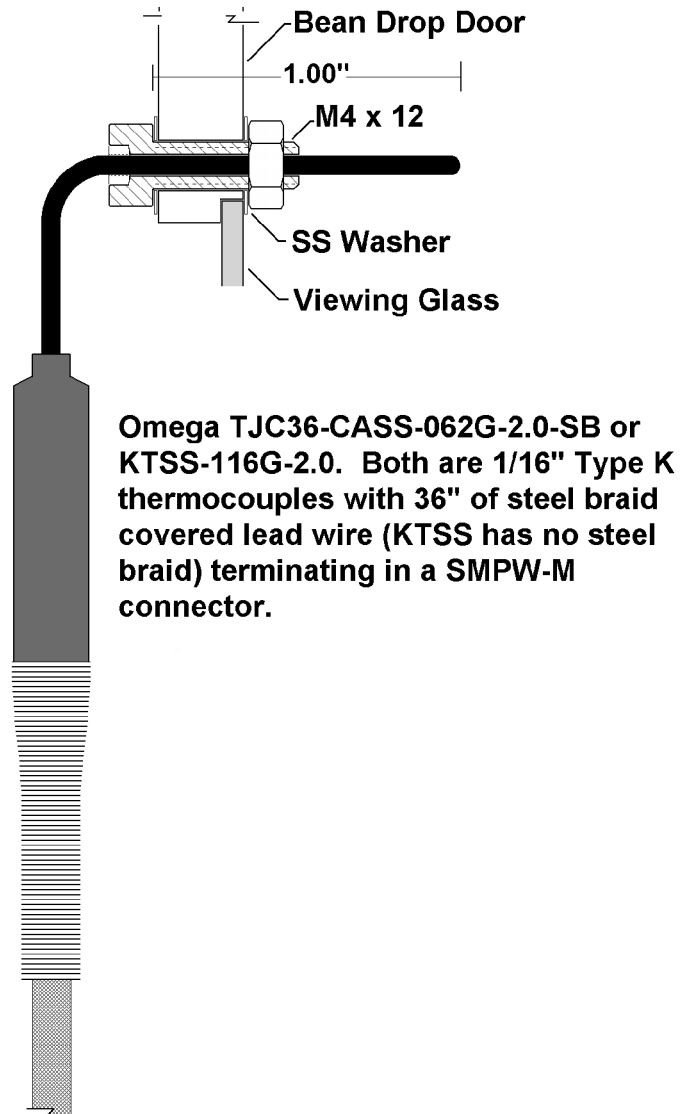




The above pic is that of the original Quest M3 roaster (up to May 2013 production) and shows the location of the various probes offered. The MET probe slides through a center-drilled stainless steel M4 allen head screw which replaces the existing M4 screw. The ET probe will slide through a custom adaptor (identical to the BT probe) which replaces the hex head screw found only on newer model Quest roasters. The BT probe slides through a custom adaptor.

The MET probe is a 1/16" thermocouple, 6" in length. The 6" length was chosen for two reasons – it is a standard length offered by Omega and that length positions the sensing region of the thermocouple approximately halfway down the **OUTSIDE** of the rotating drum. The ET and BT probes are 1/8" thermocouples as that provides for a rapid response and there is essentially no danger of being contacted by the drum support struts when installed properly.

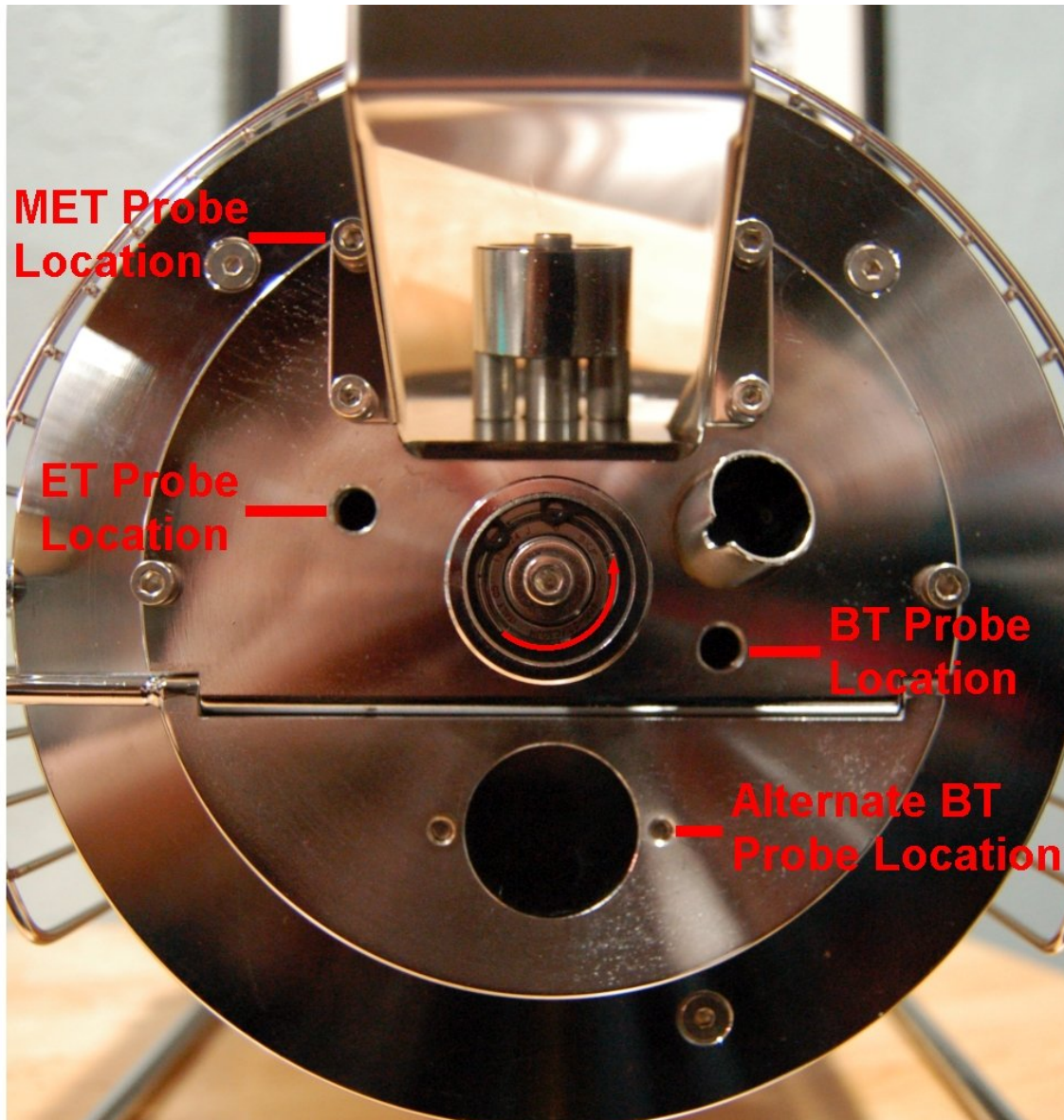
The alternate BT probe location is shown below.



This is a custom 2" long thermocouple, 1/16" in diameter, bent at a specific location such that the probe extends approximately 1" into the rotating drum as measured from the outside face of the bean drop door. This avoids any contact with the rotating drum's mixing vanes when the probe is fully inserted. The left M4 hole which serves to retain the viewing window should be used for clockwise rotation drums (prior to May 2013) and the right hole for counter-clockwise rotation drums (after May 2013).

From a non-roasters viewpoint, it looks as though it will do a great job with small to medium size roasts. Be a little cautious when tightening the M4 nuts (especially the one with the drilled hole) as the glass sits a little "proud" of the drop door and the supplied stainless steel washer and nut should be tightened enough such that the glass has little or no free play.

Tools recommended are a 3 mm allen wrench and a small 7 mm wrench for the nut.

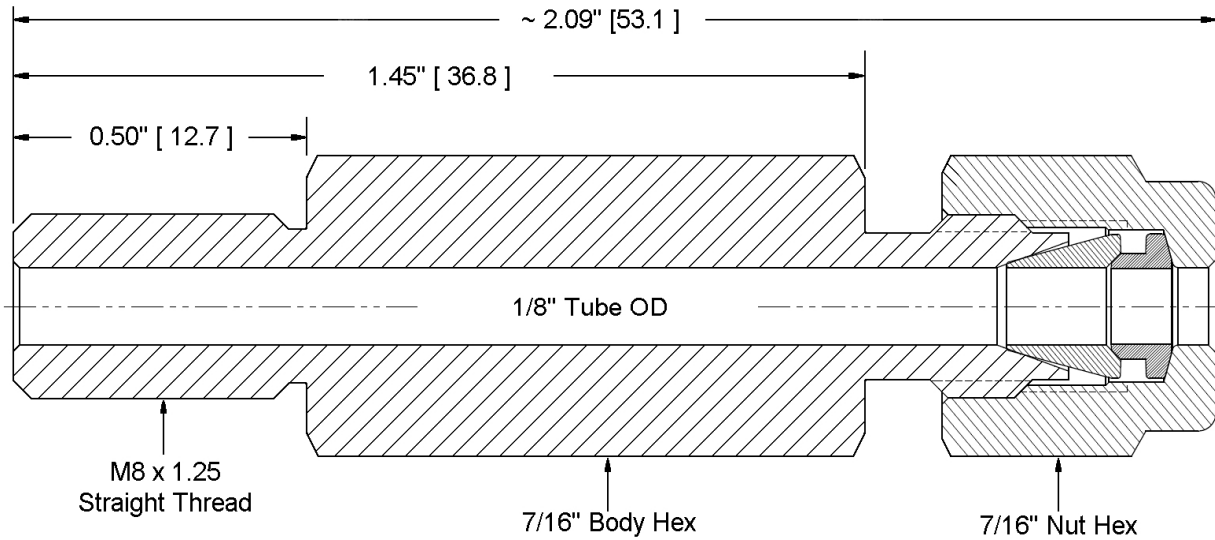


Quest M3 roasters produced (as manufactured in Taiwan) after May 2013 have the layout as shown above. The rotation of the drum is now counter-clockwise and the front of the roaster is a mirror horizontal image of previous production.

As received by the end user, a dial thermometer (in degrees C) is installed in the BT probe location and a stainless steel M8 capscrew is inserted in the ET probe location.



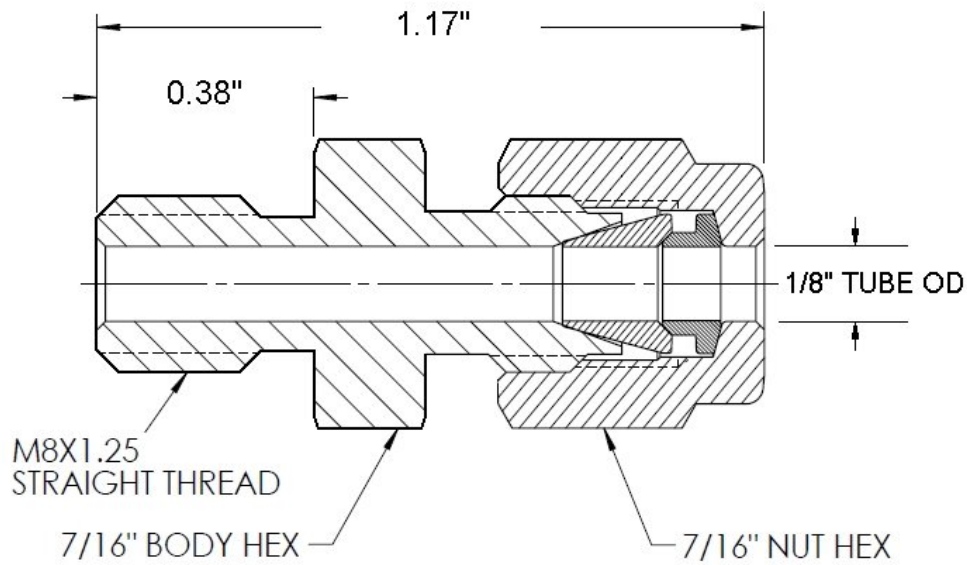
This pic shows a correct routing of the thermocouple cables for measuring BT and MET in the newest style of Quest roasters. When the MET is installed as shown, the sensing tip of the thermocouple is about halfway down the length of the roaster.



Thermocouple Adaptor for Roaster

ES
Silver Spring, MD
12/20/2010

The above is a sectional drawing of the larger original adaptor showing the orientation of the ferrules. Below is one of the latest adaptor which can be used for BT or ET with a 1/8" thermocouple.



Quest M3 Coffee Roaster - Parts List and Ordering Information

Item	Description and/or Comments	On-Hand	Kit Qty	Price
Thermocouple Adaptor Kit for Quest Roaster – Direct Replacement for stock thermometer	This allows one to measure and record BT or ET (newer models)	0	1	42.00
Silicone o-ring, AS568-010	Protects the roaster face		1	Included
Spare 1/8" Nylon Ferrule Set (front & rear)	NY-200-Set		1	Included
Thermocouple Adaptor for Quest Roasters – Replacement for M4 x 12 mm allen head screw	This allows one to measure and record MET <u>OR</u> BT in the alternate location (Alt BT)	0		12.00 14.00 (for Alt BT)
Thermocouples				
TJ36-CASS-18G-6.00-SB-SMPW-M (Quest M3 Roaster BT measurement)	36" length of 24 AWG wire covered with SS braid & SMPW male plug	0		62.50
TJ36-CASS-116G-6.00-SB-SMPW-M (Quest M3 Roaster MET measurement)	36" length of 24 AWG wire covered with SS braid & SMPW male plug	0		62.50
TJ36-CASS-116G-2.00-SB-SMPW-M (Quest M3 Roaster Alternate BT measurement)	36" length of 24 AWG wire covered with SS braid & SMPW male plug	0		62.50
TJ36-CASS-116G-2.00-SMPW-M (Quest M3 Roaster Alternate BT measurement)	36" length of 24 AWG wire & SMPW male plug	0		52.50
Female Connector Plug with 4" to 6" of appropriate SLE wire attached	SMPW-F w/ wire	0		12.00

Quest M3 Roaster Accessories - Ordering Info

Who am I buying these gizmos from?

Eric Svendson
1223 Woodside Pkwy
Silver Spring, MD 20910-1666
Phone 301-587-5033 (typically up until midnight EST – all seven days)

e-mail: erics@erols.com FTP Site: <http://users.rcn.com/erics/>

Please read and, perhaps, reread this document for the item(s) you intend to purchase. Many, if not all of the answers to questions which may come to mind are contained there. However, feel free to ask all the questions you want either via e-mail or phone.

Payment

I do accept PayPal and my PayPal email is my normal email - erics@erols.com . Please ensure that your PayPal address is where you want the package delivered or advise me well beforehand. For mailing outside of the US, your address should be in the format found on this website: <http://www.bitboost.com/ref/international-address-formats.html> .

Shipping

Shipping within the United States is normally via United States Postal Service (USPS) Priority Mail using the small flat rate box. The shipping charge is \$8.00 within the United States and delivery is typically **3 business days**.

Shipping outside of the United States is also via United States Postal Service (USPS) Priority Mail using the small flat rate box for which the charge is \$40 (\$31 for Canada). The quoted delivery time for USPS Priority Mail is **6-10 business days**.

This covers the time it takes to type the customs form(s) and post office line time. **Unfortunately, this service does not provide tracking once the package leaves the United States for either you or me.** However, the customs number will allow partial tracking here: <https://tools.usps.com/go/TrackConfirmAction.action> . Destination confirmation is available for the following countries according to the US Postal System: Australia, Belgium, Canada, Croatia, Estonia, Finland, Germany, Great Britain and Northern Ireland, Hungary, Israel, Latvia, Lithuania, Malaysia, Malta, Netherlands, New Zealand, Singapore, Spain, and Switzerland

Warranty

For the first 30 days – full refund of monies exclusive of postage will be made upon your request **AND** upon receipt of product(s). Thermocouples are warranted for 90 days. I wish I could make this longer but no warranty is offered to me by Omega.

Making Your Own Adaptors

BT or ET

The precisely machined adaptor for accepting a 1/8" diameter thermocouple is no longer available from me. However, you can produce your own using some available parts from McMaster-Carr. They sell "vented" stainless steel screws as the below pic shows. Their part number is 93235A351 and the size is M8 x1.25 x 16 mm.



As the vent diameter is only 2.0 mm so one would need to drill this out to 1/8" using special drills – McMaster-Carr part number 3069A16 which is a 1/8" heat-resistant cobalt steel jobbers drill bit. You should use some cutting oil or have a machinist do this for you.

MET or Alt BT

The precisely machined adaptor for accepting a 1/16" diameter thermocouple is no longer available from me. However, you can produce your own using some available parts from McMaster-Carr. They sell "vented" stainless steel screws as the below pic shows. Their part number is 93235A324 and the vent diameter is 1.00 mm. The size is M4 x 0.75 x 12 mm.



As the vent diameter is 1.0 mm, one would need to drill this out to 1/16" using special drills – McMaster-Carr part number 27995A511 which is a 1/16" heat-resistant cobalt steel jobbers drill bit. You should use some cutting oil or have a machinist do this for you.