

# Oven Tracker<sup>®</sup>

# TB4215

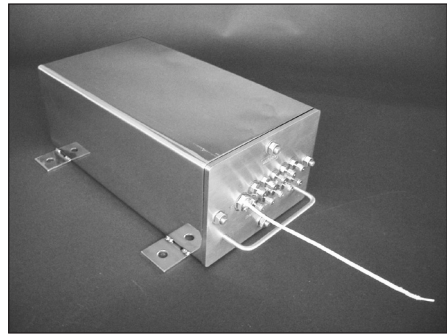
# RotoPaq Thermal Barrier

## USER GUIDE



**T**HE Datapaq<sup>®</sup> TB4215 RotoPaq thermal barrier is for use in rotomolding/slush applications where temperatures exceed 300°C/572°F and mold cooling is performed using a water shower. It carries IP67 rating.

Information on use of data logger, including telemetry etc., is not included in this guide. See the *Tpaq21 Data Logger User Manual*.



Confirm that the system's performance matches the expected temperature and duration of the process you will be using (see specification below). If in doubt, contact Datapaq for assistance.

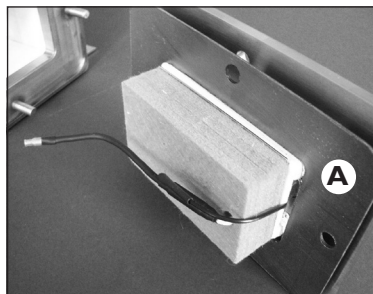
Before its first use in a temperature-profile run, the barrier's insulation must be thoroughly dried out as follows. Heat the barrier to the process temperature (350°C/662°F) and maintain this for 1 hr. This should be done with the barrier's front face-plate secured (see step 8, below) but without the data logger, heatsinks or thermocouple probes fitted. Allow the barrier to cool thoroughly before use.

<b>Temp °C</b>	100	150	200	300	400	450	500
<b>Temp °F</b>	212	302	392	572	752	842	932
<b>Duration in air</b>	18.5 hrs	10 hrs	6 hrs	3.75 hrs	1.75 hrs	1 hr	50 min
<b>Dimensions</b>	Height 130 mm 4.1 in.	Width 180 mm 5.9 in.	Length 365 mm 15.0 in.	Weight inc. heatsinks 12.25 kg 27 lb			
<b>Heatsink</b>	TBI001 × 2 (1 kg/2.2 lb each)						

# Installation

## 1 Fit face-plate seal

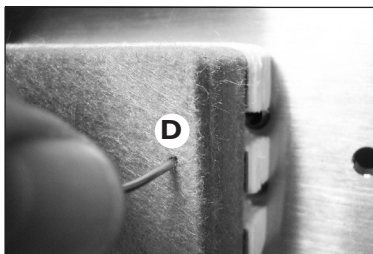
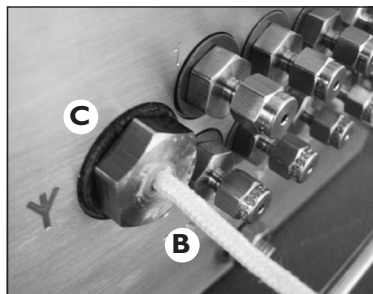
Fit graphite gasket (A) to the inside of the thermal barrier's face-plate, around the yellow insulation block. This provides a watertight seal once the face-plate is bolted down.



*The gasket distorts in use and must be replaced before every run to guarantee a good seal.*

## 2 Fit transmitting antenna

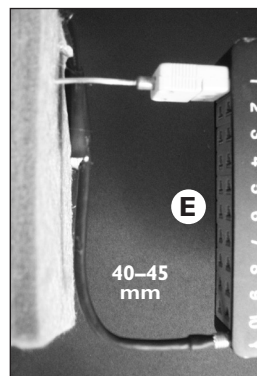
Check that the transmitting antenna (B) is secured to the outside of the face-plate and that the sealing washer (C) under its locknut is intact. Tighten with a spanner, or replace as necessary.



## 3 Install thermocouples

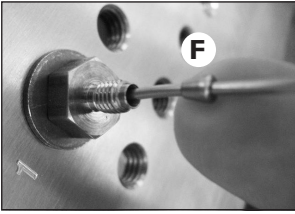
Feed each mineral-insulated thermocouple through the face-plate from the inside, pushing it through the appropriate small hole (D) in the yellow face-plate insulation block; the holes may be difficult to see. Very carefully bend the length of the thermocouple on

the inside of the face-plate so that its plug (E) can be inserted into the logger. When all thermocouples are approximately positioned, adjust them such that the distance between the yellow insulation block and the front face of the logger is 40–45 mm/1.6–1.8 inches.



## 4 Fit compression fittings

To every mineral-insulated thermocouple fit an olive (F), so that its cone sits in the thermocouple's face-plate compression fitting. Fit the screw cap and tighten with a spanner (G), taking care not to overtighten, as this may damage the thermocouple. If any thermocouples are not used, insert a blanking pin (SC0052) into the compression fitting, using an olive in the same way.



## 5 Reset logger

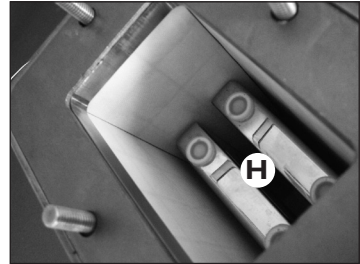
Reset the logger using Insight software (see the *Tpaq21 Data Logger User Manual*). The recommended trigger mode is 'Start Button'.



## 6 Check telemetry

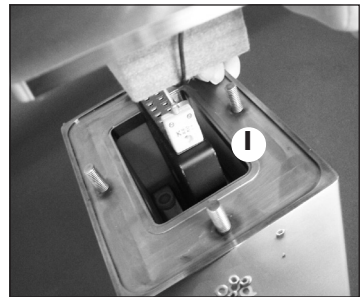
Check that the thermocouples are inserted correctly into the appropriate channels on the logger and that the transmitting antenna is connected to the antenna connection on the logger (E). Press the logger's green start button to initiate data collection and transmission. Confirm that the green LED is flashing at the sample interval and that a telemetry signal is being received by the Insight

software (select View > Real Time Tool). Experiment with receiver location and orientation to optimize signal strength and quality (see the *Tpaq21 Data Logger User Manual*), and confirm that all thermocouples are working correctly.



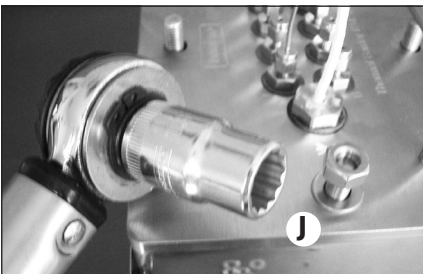
## 7 Load system into barrier

Stand the barrier upright so that its open end is uppermost. Insert both heatsinks (H), and carefully lower the logger in (I) so that it lies between the heatsinks.



## 8 Secure the face-plate

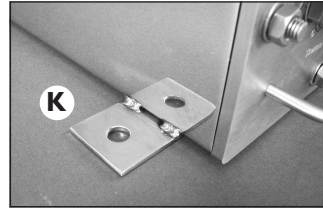
Secure the face-plate to the barrier using nuts and washers supplied (J). Tighten to finger tight, then evenly (using a torque wrench) to 20 Nm/15 lb ft.



## 9 Mount barrier on rotomold

The most appropriate mounting procedure will vary between applications. In general, mount and secure the barrier to a suitable position on the mold such that the probes can be trailed into and around the mold cavity. Ensure that the antenna does not interfere with the mold. Use M10 fixing

bolts in the barrier's mounting brackets (**K**) to fix it either to the frame or to a custom mounting plate. Check that the barrier is completely secure and that there can be no movement or vibration.



## 10 Final telemetry check before starting

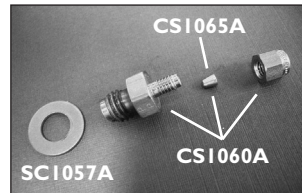
Repeat the check of signal strength for all thermocouples.

## Replacement of Probes

If a thermocouple needs to be replaced, cut it to allow its removal from the face-plate, and fit a new olive in the compression fitting. If the compression fitting itself is replaced, a new copper washer must also be used.

### SPARES – PART NUMBERS

TB4215A75	Graphite gasket for thermal barrier's face-plate
TX2080A	Transmitting antenna
TB4215A60	Transmitting antenna sealing washer
CS1060A	Face-plate compression fitting (body, olive, screw cap)
CS1065A	Olive for compression fitting
SCI057A	Copper washer for compression fitting
PA0710A (1 m/3.3 ft)	Mineral-insulated thermocouple type K, 1.5 mm/0.06 in.
PA0711A (2 m/6.6 ft)	
PA0712A (3 m/9.9 ft)	



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