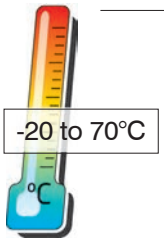



# Thermocouple Reference Unit
# Isorac Model 844

- Rack Mounted Ambient Referencing System
- Large Capacity
- Approved for Power Station Use

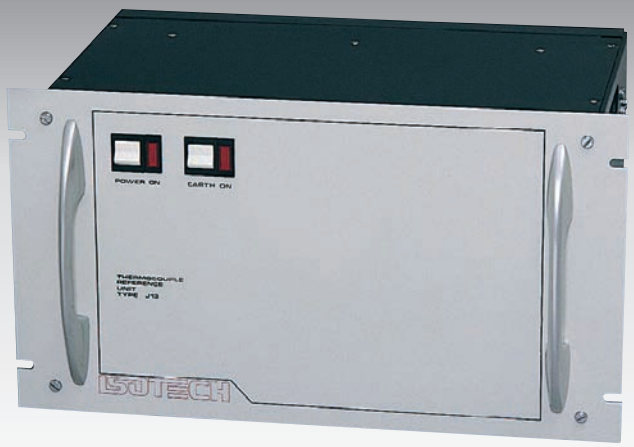
The function of this reference unit differs from other rack mounted systems in that the temperature of the metal block in which the thermocouple and copper leads are inserted actually varies with ambient temperature. A separate output signal is produced which is proportional to the difference between the environmental temperature and the actual reference temperature. The output signal can be fed directly into a computer/data logger to give accurate compensation over a large ambient range.

A thermal reservoir, heavily insulated, contains the reference junction probes.

The reservoir temperature slowly follows the ambient temperature; an electrical compensation device is thermally integrated with the reservoir and thus senses the reservoir temperature.

The device produces an output proportional to the difference between the reservoir temperature and the reference temperature (usually 0°C). This is the signal the computer/data logger uses to compensate for the temperature of the reference probes junctions.

The output signal can be in the form of a DC mV output, 4-20 mA or from a platinum resistance thermometer. Please discuss prior to order.




| **Model No.** | **844** |
|---|---|
| Reference Temperature | Effectively 0°C |
| Temperature Gradient | ±0.1°C between Junctions |
| Stability | ±0.05°C per 1000 Hours |
| Ambient Range | -20°C to +70°C |
| Accuracy | ±0.1°C per 15°C ambient span |
| Stabilisation Time | 10 mins |
| Thermocouple Capacity | 0 to 100 channels<br>double junction referencing |
| Power | 10 Watts typical<br>100-130 or 208-240 VAC 50/60Hz<br>Low level D.C.<br>Consumption 6VA typical<br>Passive Option Available |
| Dimensions<br>Up to 50 channels | Height 255mm<br>Width 483mm<br>Depth 312mm |
| Weight | 17.2kg |
| 50 to 100 channels | Height 309mm<br>Width 483mm<br>Depth 312mm |
| Weight | 20.4kg |

Numerous special versions are available and can be supplied either in their existing form or modified to customers requirements.

**How to order**
Model 844
Isoracs are normally uniquely specified for each order.

Please discuss your exact requirements with us before ordering.

***Note:***
*Rack Mounted Ambient Temperature Referencing System.*
*19" Rack Mounting.*
*Large capacity up to 100 Thermocouples.*
*Approved for Power Station Use.*

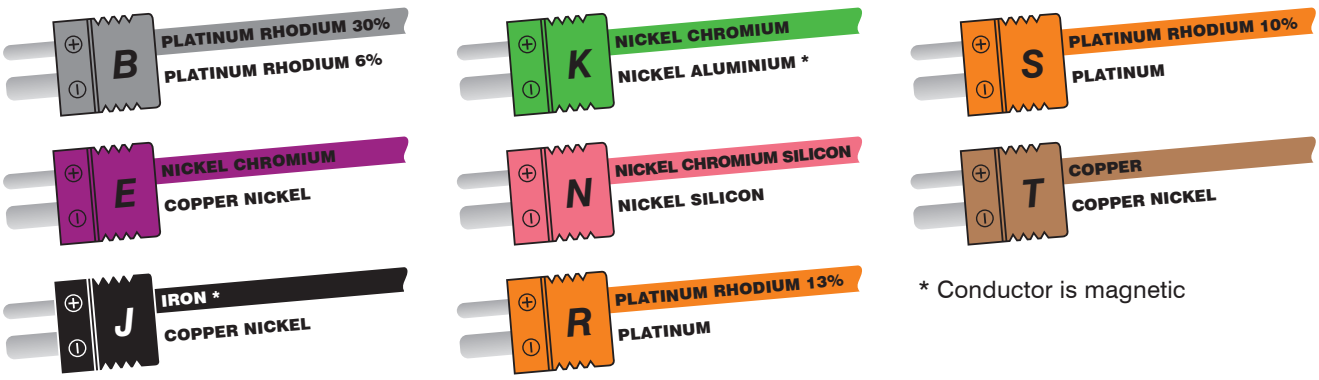
# Reference Chart

## Thermocouple Tolerances - IEC 60584 2013

| | | | | | |
|---|---|---|---|---|---|
| **B** | Class 1 | - | - | - | |
| | Class 2 | 600 | +1700°C: | ±0.0025 . t | or ±1.5°C |
| | Class 3 | 600 | +1700°C: | ±0.005 . t | or ±4.0°C |
| **E** | Class 1 | - 40 | +800°C: | ±0.004 . t | or ±1.5°C |
| | Class 2 | - 40 | +900°C: | ±0.0075 . t | or ±2.5°C |
| | Class 3 | - 200 | +40°C: | ±0.015 . t | or ±2.5°C |
| **J** | Class 1 | - 40 | +750°C: | ±0.004 . t | or ±1.5°C |
| | Class 2 | - 40 | +750°C: | ±0.0075 . t | or ±2.5°C |
| | Class 3 | - | - | - | |
| **K** | Class 1 | - 40 | +1000°C: | ±0.004 . t | or ±1.5°C |
| | Class 2 | - 40 | +1200°C: | ±0.0075 . t | or ±2.5°C |
| | Class 3 | - 200 | +40°C: | ±0.015 . t | or ±2.5°C |
| **N** | Class 1 | - 40 | +1000°C: | ±0.004 . t | or ±1.5°C |
| | Class 2 | - 40 | +1200°C: | ±0.0075 . t | or ±2.5°C |
| | Class 3 | - 200 | +40°C: | ±0.015 . t | or ±2.5°C |
| **R** | Class 1 | 0 | +1600°C: | ±1 for t<1100°C<br>±[1+ 0.003 x (t-1100)] for t>1100°C | |
| | Class 2 | 0 | +1600°C: | ±0.0025 . t | or ±1.5°C |
| **S** | Class 1 | 0 | +1600°C: | ±1 for t<1100°C<br>±[1+ 0.003 x (t-1100)] for t>1100°C | |
| | Class 2 | 0 | +1600°C: | ±0.0025 . t | or ±1.5°C |
| **T** | Class 1 | - 40 | +350°C: | ±0.004 . t | or ±0.5°C |
| | Class 2 | - 40 | +350°C: | ±0.0075 . t | or ±1.0°C |
| | Class 3 | - 200 | +40°C: | ±0.015 . t | or ±1.0°C |

t = temperature, degree Celsius, larger value applies

## Thermocouple Colour Coding - IEC 60584-3




* Conductor is magnetic