MODEL MM2030

THERMOCOUPLE THERMOMETER / SIMULATOR

FEATURES

A high accuracy instrument that will give you confidence in your other instruments.
The simulator was designed to simulate a known temperature as a cross-check on other instruments calibration accuracy.

***	°C / °F / °A switchable
***	mV measurement / simulation capability
***	Simulation mode for cross calibration checking
***	Very High accuracy measurement instrument
***	Resolution 0.1° to 1000° autoranging
***	Switchable thermocouple types K / T / J / R / N / E / S
***	Full retention of thermocouple type and temperature scale
***	User configurable Auto Swith Off capability
***	Overrange / Open circuit sensor indication
***	Low battery indication
***	Supplied complete with shock resistant holster
***	IP67 casing

The custom display is used to display the actual temperature the simulator is producing. When this coincides with the desired temperature the instrument is ready for use.

SPECIFICATIONS

ENVIRONMENTAL

AMBIENT OPERATING RANGE	:	-30 to 50 °C
STORAGE TEMPERATURE RANGE	:	-40 to 50 °C
HUMIDITY	:	0 to 70% R.H.

ELECTRICAL

MEASUREMENT / SIMULATE RANGES	:	mV	-10 to 60 mV
		K	-200 to 1372 °C
		T	-200 to 400 °C
		J	-200 to 1200 °C
		R	0 to 1767 °C
		N	-200 to 1200 °C
		E	-200 to 1000 °C
		S	0 to 1767 °C
THERMOCOUPLE TYPES	:	K T J R N E S	
TEMPERATURE SCALES	:	°C / °F / °A	
ACCURACY @23°C	:	+/- 0.1% OF READING +/- 0.2°C	
CHARACTERISING ACCURACY	:	LESS THAN 0.05 °C	
TEMPERATURE COEFFICIENT	:	0.01% OF READING/°C	
COLD JUNCTION COMPENSATION	:	0.0075 °C/°C	
RESOLUTION	:	0.1° to 1000, 1° ABOVE 1000	
FUNCTIONS	:	MEASURE TEMPERATURE / SIMULATE T/C	

GENERAL

BATTERY	:	PP3 9V I.E.C. 6F22
BATTERY LIFE (INTERMITTENT USE)	:	GREATER THAN 100 HOURS (ALKALINE)
WEIGHT	:	155 gms
DIMENSIONS	:	130 X 70 X 33 mm

CALIBRATION PROCEDURE

EQUIPMENT REQUIRED

1. 30mV GENERATOR ACCURATE TO WITHIN ±4uV
2. THERMOCOUPLE SIMULATOR ACCURATE TO WITHIN ±.0.1°C
3. TYPE 'K' MINIATURE THERMOCOUPLE PLUG TO MINIATURE THERMOCOUPLE PLUG LEAD
4. COPPER MINIATURE THERMOCOUPLE PLUG TO COPPER MINIATURE THERMOCOUPLE PLUG LEAD

CALIBRATION PROCEDURE

The 2030 instrument has its own built in calibration sequence that is activated via the arrow buttons on the front panel

1. Switch the unit OFF.
2. Whilst holding down both the arrow buttons switch the unit ON.
3. The word 'CAL' will appear in the top right hand corner of the display.
4. Connect the 30mV source and allow to settle.
5. Press the SCL button.
6. A solid bar will appear on the left hand of the display. This indicates that the unit is calibrating. When the calibration is complete, the bar will be deactivated.
7. Connect the thermocouple simulator and set for 0 °C type 'K', Allow to settle (approx 10 minutes)
8. Press the SCL button.
9. A solid bar will appear on the left hand of the display. This indicates that the unit is calibrating. When the calibration is complete, the bar will be deactivated.
10. The unit should now be displaying 0.0°C.
11. Check that the calibration is in accordance with the figures shown in Table 1. If not then repeat procedure.
12. Switch the unit OFF, by taking out the battery.
13. The unit is now fully calibrated.

NOTES

1. AUTO SWITCH OFF

Whilst the unit is in 'CAL' mode, if the 'SCL' button is pressed the Auto-Switch off feature will be toggled. The state of the Auto-Switch off feature is shown in the top right hand side of the display next to the 'CAL' message. If the Auto-Switch off is active the letter 'A' will be displayed if not then no character will be shown.

TEMPERATURE (°C)	LOW(°C)	HIGH(°C)
-150	-150.4	-149.6
-50	-50.2	-49.8
0	-.1	.1
30	29.8	30.2
100	99.7	100.3
500	499.6	500.4
1300	1301	1299

Table 1. Calibration limit

Cross-reference for compatible probes

Suitable probes for use with this instrument

TME PART No	DESCRIPTION	APPLICATION	T/C TYPE
KP05	NEEDLE PROBE	CORE TEMPERATURE OF SEMI-SOLID MATERIAL	K
TP05	NEEDLE PROBE	CORE TEMPERATURE OF SEMI-SOLID MATERIAL	T
KP07	NEEDLE PROBE HEAVY DUTY	CORE TEMPERATURE OF SEMI-SOLID MATERIAL	K
TP07	NEEDLE PROBE HEAVY DUTY	CORE TEMPERATURE OF SEMI-SOLID MATERIAL	T
TP10	SOUS VIDE NEEDLE PROBE	CORE TEMPERATURE OF SEMI-SOLID MATERIAL	T
KM01	LIGHT DUTY M.I. PROBE	GENERAL PURPOSE LIQUID/GAS MEASUREMENT	K
TM01	LIGHT DUTY M.I. PROBE	GENERAL PURPOSE LIQUID/GAS MEASUREMENT	T
KM03	M.I. PROBE	GENERAL PURPOSE LIQUID/GAS MEASUREMENT	K
TM03	M.I. PROBE	GENERAL PURPOSE LIQUID/GAS MEASUREMENT	T
KM04	M.I. PROBE EXTENDED LENGTH	GENERAL PURPOSE LIQUID/GAS MEASUREMENT	K
TM04	M.I. PROBE EXTENDED LENGTH	GENERAL PURPOSE LIQUID/GAS MEASUREMENT	T
KS01	SURFACE BAND PROBE	FAST RESPONSE SURFACE MEASUREMENT	K
TS01-S	DUAL PROBE	FOR SURFACE AND IMMERSION MEASUREMENT	
KS07	SURFACE PROBE	GENERAL PURPOSE SURFACE MEASUREMENT	K
TS04	SURFACE PROBE	GENERAL PURPOSE SURFACE MEASUREMENT	T
KS08	HIGH TEMP SURFACE PROBE	HIGH TEMPERATURE SURFACE MEASUREMENT	K
KA04	AIR TEMPERATURE PROBE	FAST RESPONSE AIR TEMPERATURE PROBE	K
TA04	AIR TEMPERATURE PROBE	FAST RESPONSE AIR TEMPERATURE PROBE	T
TA12	SPATULA PROBE	BETWEEN PACK PROBE	T
KH01	SOCKET IN HANDLE	HANDLE FOR USE WITH PLUG MOUNTED PROBES	K
TH01	SOCKET IN HANDLE	HANDLE FOR USE WITH PLUG MOUNTED PROBES	T
KHA02	PLUG MOUNTED AIR PROBE	FAST RESPONSE AIR TEMPERATURE PROBE	K
THA2	PLUG MOUNTED AIR PROBE	FAST RESPONSE AIR TEMPERATURE PROBE	T
KHM01	PLUG MOUNTED M.I. PROBE	GENERAL PURPOSE LIQUID/GAS MEASUREMENT	K
THM01	PLUG MOUNTED M.I. PROBE	GENERAL PURPOSE LIQUID/GAS MEASUREMENT	T
KHN01	PLUG MOUNTED NEEDLE PROBE	CORE TEMPERATURE OF SEMI-SOLID MATERIAL	K
THN01	PLUG MOUNTED NEEDLE PROBE	CORE TEMPERATURE OF SEMI-SOLID MATERIAL	T
THA12	PLUG MOUNTED SPATULA PROBE	BETWEEN PACK PROBE	T
KHS01	PLUG MOUNTED SURFACE BAND PROBE	FAST RESPONSE SURFACE MEASUREMENT	K
KHS02	PLUG MOUNTED SURFACE PROBE	GENERAL PURPOSE SURFACE MEASUREMENT	K
THS02	PLUG MOUNTED SURFACE PROBE	GENERAL PURPOSE SURFACE MEASUREMENT	T
PKHV1	HVAC KIT	PROBE KIT DESIGNED FOR THE HVAC INDUTRY	K
PKF1	FOOD KIT	PROBE KIT DESIGNED FOR THE FOOD INDUTRY	T
PKGP1	GENERAL PURPOSE KIT	PROBE KIT CONTAINING MOST POPULAR PROBES	K
TP01	CORKSCREW PROBE	PROBE DESIGNED FOR CORE TEMPERATURE OF MEAT	T
KPS10	PIPE CLAMP PROBE	PROBE DESIGNED TO BE CLAMPED ONTO PIPES	K
TFS01	FOOD SIMULANT PROBE	SIMULATES THE CORE TEMPERATURE OF FOOD IN HOT OR COLD STORAGE	

T.M.Electronics (UK) Ltd Technical Data