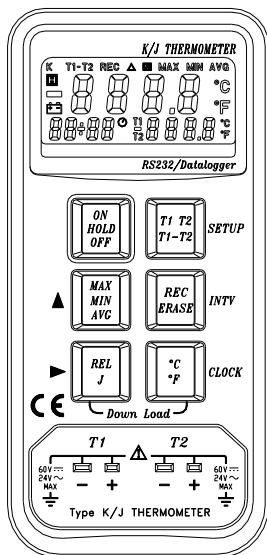




Datalogging K/J Thermometer

TES-1307

INSTRUCTION MANUAL



1. SAFETY INFORMATION

- Read the following safety information carefully before attempting to operate or service the meter.
- Use the meter only as specified in this manual; otherwise, the protection provided by the meter may be impaired.

Environment conditions

- ① Altitude up to 2000 meters
- ② Relatively humidity 80% max.
- ③ Operation Ambient 0~40°C

Safety symbols

When servicing, use only specified replacement parts.



Caution refer to this manual before using the meter.



Dangerous voltages.




Meter is protected throughout by double insulation or reinforced insulation.



Comply with EMC

2. SPECIFICATIONS

2-1 General Information

Display :	Dual display LCD.
Measurement Range :	Type K :-190°C to 1333°C (-310°F to 2431°F) Type J :-190°C to 760°C (-310°F to 1400°F)
Resolution :	0.1°C , 1°C , 0.1°F , 1°F.
Input Protection :	60Vdc, or 24 Vrms ac.
Sampling Rate :	1 time per second.
Memory capacity :	8000 records data, utmost 255 sets of results.
Over range indication :	“OL” appears on the display.
Break or no input indication :	“ - - - - ” appears on the display.
Low battery indication :	The  is display when the battery voltage drops below the operating voltage.
Power supply :	Single 9V battery 006P 9V or IEC 6F22, or NEDA 1604.
Battery Life :	Approx. 35 hours (Alkaline battery).
Operating temperature and humidity :	0°C to 40°C (32°F to 104°F) , 10 – 80%RH
Storage temperature and humidity :	-10°C to 60°C (14°F to 140°F) , 10 – 70%RH
Dimensions :	145mm(L) x 68mm(W) x 35mm(H) 5.7(L) x 2.7(W) x 1.4(H) inches
Weight :	Approx. 235g with battery.
Accessories :	Instruction manual, carry case, battery, CD Software, RS-232 cable, 9 pin to 25 pin gender changer.

2-2 Electrical Specifications

Basic Accuracy: (@23± 5°C Calibration) Accuracy are ± (...% of reading + degree) at 18°C to 28°C with relative humidity up to 80%.

For single thermocouple measurements

Function	Resolution	Range		Accuracy
		Type K	Type J	
°C	0.1°C	-190°C ~ -0°C	-190°C ~ -0°C	±(0.5%rdg + 0.7°C)
		0°C ~ 1000°C	0°C ~ 760°C	±(0.1%rdg + 0.5°C)
	1.0°C	1000°C ~ 1333°C		±(0.2%rdg + 1°C)
°F	0.1°F	-310°F ~ -0°F	-310°F ~ -0°F	±(0.5%rdg + 1.4°F)
		0°F ~ 999.0°F	0°F ~ 999.0°F	±(0.1%rdg + 1.0°F)
	1.0°F	1000°F ~ 2431°F	1000°F ~ 1400°F	±(0.2%rdg + 2°F)

Temperature Coefficient:

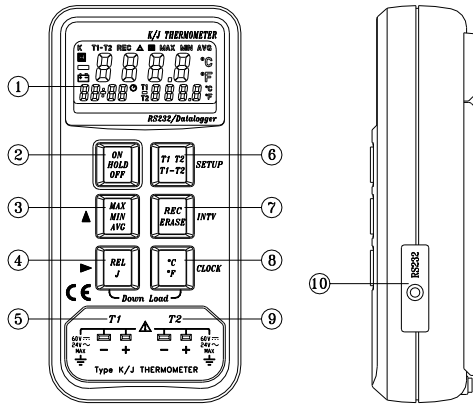
0.1 times the applicable accuracy specification per °C from 0°C to 18°C and 28°C to 40°C (32°F to 64°F and 82°F to 104°F) .

For T1-T2 Measurements accuracy is Basic accuracy add 0.2%rdg.

NOTE

The basic accuracy specification does not include the error of the probe. Please refer to the probe accuracy specification for additional details.

3. FRONT PANEL DESCRIPTION



(1). Display

(2). Power ON/OFF & Hold button

- ✧ Press the button to turn on the thermometer.
- ✧ If we press the button again, it will enter the Data Hold mode, the "HOLD" annunciator is displayed. When HOLD mode is selected, the thermometer held the present readings and stops all further measurements. All button will be disabled. If we press it again to cancel HOLD mode.
- ✧ Press and hold this button for 3 seconds, it will turns the thermometer OFF.

(3). MAX/MIN/AVG

- ✧ Press the button to enter the MAX/MIN/AVG with "M" mode, [displays the Maximum reading with time, Minimum reading and Average reading stored in this "M" 4 (memory) mode.]
- a). Press the button once, the LCD will show "M MAX". The timer located at the left bottom side of LCD display will be started. The LCD display will show the maximum temperature measurement together with the time that had been recorded since the meter last reset.

- b). Press the button again the LCD will show "M MIN". The LCD display will show the minimum temperature measurement together with the time that had been recorded since the meter last reset.
- c). Press the button again, the LCD will show "M AVG", "⌚". The average of the first 10 records.
- d). Press the button again, the LCD will show "M", "⌚". The LCD display will be back the original status.
- e). Press and hold the button for 3 seconds, the recorded maximum and minimum values will be cleared. The meter will be back to the normal mode.

Note : ① When MAX/MIN/AVG mode is selected, except **ON HOLD OFF** all function will be disabled.

② The **MAX MIN AVG** button is only for main display use.

(4). REL/J :

- ✧ Pressing this button to enter the relative mode, zero the display as a reference value, and annunciator "Δ" 0.0 is displayed. Press the button again to exit the relative mode.
 - ✧ Keep pressing this button, and press **ON HOLD OFF** button turn on, the thermocouple type will be set as J-type, when it is on.
- Note: ① If **REL J** mode is selected, except **ON HOLD OFF** and **REC ERASE** button, all function will be disabled.

② When the meter is T1-T2 mode, the **REL J** button will be disabled.

(5). T1 thermocouple input connector.

(6). T1/T2/T1-T2

- ✧ When we first power the meter on, the meter main display will show T1, and the secondary display will show T2.
- ✧ If we press the button, the meter main display will show T2, and the secondary display will show T1.

◇ If we press it again, the meter main display will show T1-T2, and the secondary display will show T1, T2, in circulation.

(7). REC/ERASE :

Data recording / reset datalogger

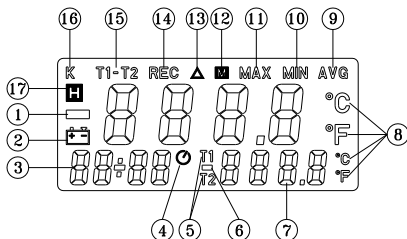
(8). °C/°F :

Press this key will change the temperature scale between °C and °F.

(9). T2 thermocouple input connector.

(10). RS-232 interface.

4. LCD DISPLAY DESCRIPTION



(1). Negative polarity	(10). Minimum
(2). Low battery mark	(11). Maximum
(3). Time information	(12). Memory
(4). Timer	(13). Relative mode
(5). Measure mode (secondary display)	(14). Data recording
(6). Negative polarity (secondary display)	(15). Measure mode (Main display)
(7). Measuring value (secondary display)	(16). K-Type
(8). Unit " °C, °F "	(17). Hold function
(9). Average reading	

5. OPERATION INSTRUCTIONS

(1). Plug the temperature probe into T1 or T2 input connectors.

(2). Press **ON HOLD OFF** button once to power on the meter. The left bottom side of LCD will show the date and time and then time counting status.

(3). If " - - - " appears, it indicates no temperature probe or the probe is broken.

(4). Input the thermocouple to measure T1 & T2 and LCD will display the value of T1 & T2 simultaneously. If users want to obtain the difference of T1,T2 (T1-T2), users can press the button of **T1 T2 T1-T2**. In addition, the value of T1 & T2 will display and interchange at the right bottom side of LCD.

6. DATA RECORDING/ERASING RECORDS

(1). Record one set :



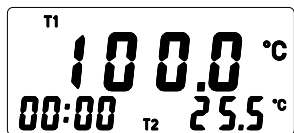
⇒ Press **REC ERASE** button once, and the "REC" will be displayed.

(2). Record data continuously :



⇒ Pressing **REC ERASE** button for 3 seconds, "REC" flash 1 time/sec in the display. To set the interval time of recording, refer to page 9 .

(3). Stop recording :



⇒ Press the **REC ERASE** button again to stop recording.

(4). Reset datalogger :



⇒ Start with the power off mode.

Keep pressing **REC ERASE** button, then press **ON HOLD OFF** button turn on, the LCD display “dEL”.

Note : If “**REC ERASE**” pressed while memory is full, “ **FULL** ” will display.

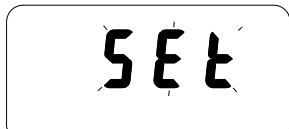
7. MODE SETTING

MAX MIN AVG ▲ : Button for increasing the value of Parameters, increasing the parameter rapid.

REL J ► : Button for moving to the desired parameter.

7-1 Date Time Setting :

① Start with the power off mode. Keep pressing **T1 T2 T1-T2** button, then press **ON HOLD OFF** button turn on, it will be enter setting mode.



② Press **°C °F** (clock) button enter year.

③ Press **MAX MIN AVG** button for increasing the value of parameters, increasing the parameter rapid.

④ Press **REL J** button for moving to the desired parameter.

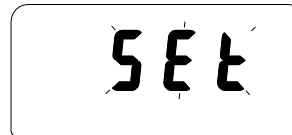
Set sequence : yyyy→MM→dd→hh→mm

Then pls press **°C °F** (clock) button to save the set value. While in the set mode, if users intend to escape from the mode and don't want to save the value, users can press **ON HOLD OFF** to end it.

※ Each data you recorded will be saved together with date and time.

7-2 Set for Recording interval time

① Start with the power off mode. Keep pressing **T1 T2 T1-T2** button, then press **ON HOLD OFF** button turn on, it will be enter setting mode.



② Press **REC ERASE** (INTV) button to set interval time.


③ Press **MAX MIN AVG** button for increasing the value of parameters, increasing the parameter rapid.

④ Press **REL J** button to adjust the next parameter (second).

Then pls press **REC ERASE** (INTV) button to save the set value. While in the set mode, if users intend to escape from the mode and don't want to save the value, users can press **ON HOLD OFF** to end it.

Note : In the set mode, if users don't push any button in 30 seconds, then it will escape from set mode and enter into temperature measurement mode.

8. BATTERY REPLACEMENT

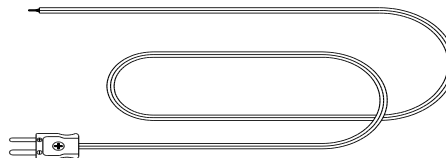
- (1). As battery power is not sufficient, LCD will display replacement with one  new battery type 9V is required.
- (2). Press bottom cover and push in the direction of the arrow to open.
- (3). Disconnect battery from instrument and replace with a standard 9-Volt battery and replace bottom cover.

9. OPTIONAL ACCESSORY

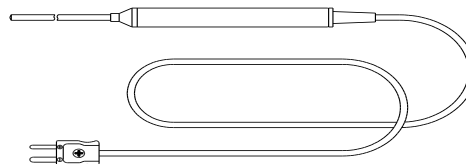
K (CA) type thermocouple.

Model	Range	Tolerances	Description
TP-K01 Bead probe	-50°C to 200°C -58°F to 392°F	±2.2°C or ±0.75% (±3.6°F or ±0.75%)	with Teflon tape insulation. Maximum insulating temperature : 260°C
TP-K02 immersion probe	-50°C to 1000°C -58°F to 1832°F	±2.2°C or ±0.75% (±3.6°F or ±0.75%)	3.2 φ×150 mm metal sheath 100 cm Compensating wire
TP-K03 Surface probe	-50°C to 750°C -58°F to 1382°F	±2.2°C or ±0.75% (±3.6°F or ±0.75%)	100 cm Compensating wire 12.5 φ x 94 mm handle

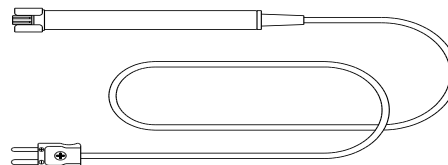
TP-K01: Available for general condition, especially for complex and any place hard to reach.



TP-K02: Available for temperature measurement of liquid, gels or air.



TP-K03: Available for flat or curved surface measurement.



10. RS-232 INTERFACE, SOFTWARE INSTALLATION and OPERATION

- ❑ For the detailed instruction, please refer to the content of attached CD-ROM, which has the complete instruction of RS-232 interface, software operation and relevant information.
- ❑ RS-232 protocol : are enclosed within the content of CD-ROM, please open the CD-ROM for details.



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