

# OPERATION MANUAL

8851 . 8852  
K.J.T. Type Thermometer

8855 . 8856  
K.J.T.R.S.E. Type Thermometer



Model : ■ 8851

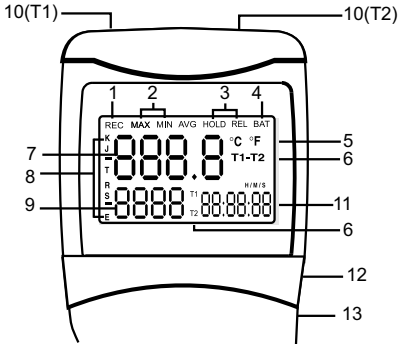
■ 8852

■ 8855

■ 8856



## Controls and Indicators



1. **REC** - Starts record mode( relative clock ), displays maximum and minimum temperatures recorded on the Primary screen along with the relative time they were recorded.
2. **MAX/MIN** - Temperature recorded.
3. **HOLD / REL** - Freezes Primary screen data or establishes a relative zero for the Primary screen information
4. **BAT** - Battery Low indication
5. **°F/°C** - Toggles display data from degrees Celsius to degrees Fahrenheit.
6. **T1-T2 Channel** - Toggles screen information from T1 (Primary) / T2 ( Secondary ) to T2 Primary / T1 Secondary ,then to T1-T2(Differential) on Primary and alternating T1/T2 temperatures on Secondary screen.

7. **Primary Data Screen** - Displays T1, T2, or T1 T2( temperature differential -TD )or a relative zero of T1, T2, or TD.
8. **K.J.T.R.S.E.** - Selects proper input reference for thermocouple in use ( T1 and T2 must be the same type ) K.J.T or R.S.E.( model 8855.8856 )
9. **Secondary Data Screen** - Displays T2, T1 or T1 and T2 alternately
10. **Thermocouple Ports** - Positive and negative polarized plugs for the thermocouple probes used ( Blade type ); T1 on the left ,T2 on the right
11. **Relative Clock Screen** - Displays time in hours and minutes & seconds (H/M/S) when Record is pressed and the relative time that MIN or MAX data was recorded
12. **RS232 output port**
13. **DC JACK**

## FUNCTIONAL DESCRIPTION

The meter will display all LCD segments when it is first turned on, for approximately 3 seconds. It will provide information with either one (8851.8855) or both thermocouples (8852.8856) plugged in. Numerous viewing combinations are available. The LCD is divided into three distinct sections; one large (Primary) top screen and two smaller bottom screens (Secondary and Relative Clock).



The three display areas keep you constantly updated with the temperature measurements and relative time information. You have a number of options regarding how and what information is presented on the LCD.

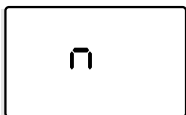
- ★ Temperature readings are easily toggled between Fahrenheit and Celsius
- ★ The back light illuminates the LCD for viewing in low light areas
- ★ The HOLD button will freeze the upper display data while allowing the lower displays to continue updating Information about selected functions along with a low battery indicator is also displayed as appropriate
- ★ The meter will default to the last mode selected

**Note:** If no thermocouples are plugged in, four dashes(----) will appear in the temperature data screens.




Model	Single input	Dual input	Type	Function
8851	V		K.J.T.	Timer
8852		V	K.J.T.	T1-T2 Channel
8855	V		K.J.T. R.S.E.	Timer
8856		V	K.J.T. R.S.E.	T1-T2 Channel

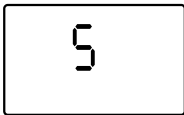
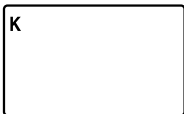
## AUTO POWER OFF ( SLEEP MODE )

This instrument will shut off automatically in approximately 20 minutes for every power on. For recording or operating over longer periods of time you can disable the sleep mode by press  and  simultaneously before power on. An " n " will appear in the center of the screen , at which time you can release the power button. The disable sleep mode will be invalid after power off.

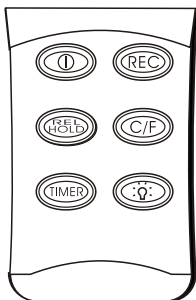


## UNIT SELECTABLE

Press  momentarily and  simultaneously for 2 or more seconds until **K** appeared , by pressing **C/F** button the type of probe cycles through **K** (the default), **J** and **T** thermocouple types, or **R.S.E.** type for model 8855 , 8856 . The current mode is displayed on the left side of the LCD. press  , an " **S** " will appear in the center of screen.





## MODE OPTIONS




Delete and replace with Programmable user selectable start-up mode. The display will default to the mode last used. For your convenience the meter defaults to the settings used during the last operation.

The following table lists the modes of operation that can be invoked by pressing the buttons indicated. The table assumes your instrument has been powered on with two thermocouples installed and is set to display (default) T1 on the primary display, type K thermocouple, and Record off :

BUTTON	RESPONSE / DISPLAY
ⓘ	Turns instrument on ( Default setting ) and off
REL HOLD	<b>Press momentarily</b> and the Primary display (T1, T2 or T1-T2) freezes with a HOLD on the top; <b>Press for two or more seconds</b> - REL appears on top of LCD and the REL Primary display indicates the relative zero HOLD (Relative zero causes the value of the primary display to show as "000.0" -only the amount of

	temperature change will be indicated); Relative temperatures can be recorded. <b>Press momentarily again</b> and the unit returns to default
CHANNEL (model: 8852.56)	<b>Press momentarily</b> and the Primary display changes to T2 (Secondary screen displays T1); press momentarily again and it displays T1-T2; Secondary display alternates between T1 and T2; <b>Press momentarily again</b> and the instrument returns to default
TIMER (model: 8851.55)	press momentarily, H/M/S (hours/minutes/seconds) appears on button right comer for relative time reference while measuring
	<b>Press momentarily</b> and the back-light illuminates for approximately 30 seconds then turns off.
°C / °F	<b>Press momentarily</b> and the unit toggles between Fahrenheit (the default) and Celsius temperatures; The current mode is indicated on the right side of the LCD
REC	<b>Press momentarily</b> and the Relative Clock starts in the lower right screen,  is displayed in upper left of LCD - All other button functions are locked out

except Power and Back-light. T1, T2, or T1-T2 is displayed on the Primary screen; The Secondary screen continues to update. Press momentarily again and the unit cycles through MAX and MIN (maximum and Minimum recorded temperatures) and back to current temperature; The record mode is displayed on the LCD. Press and hold  for three seconds to turn off the record function

## REPLACING THE BATTERY

Replace your 9-volt battery when:

- ★ The BAT icon appears on the right side of the LCD
- ★ The instrument will not power on
- ★ Use of the back-light causes the BAT icon to appear

Even if the battery was recently replaced, check its voltage level if you get no response from your instrument.

To replace the batteries:

1. Remove the thermocouples from the top of the instrument.
2. Lay the instrument face down on a clean, flat surface.
3. Remove the battery cover by a screw driver
4. Replace the battery, observing indicated polarity and close the cover by screw driver.

Remove batteries from instruments that you do not plan to use for a month or more. Do not leave batteries in instruments that may be exposed to temperature extremes.

## **MATERIALS SUPPLIED**

This package contains:

- The meter x 1
- Type K thermocouple probes x 1
- Battery x 1
- Manual
- Hard plastic case

Optional accessory :

- Rubber Holster
- CD (optional software w / D-Sub connector.
- 2nd K thermocouple probes.

## **SAFETY**

- Place ONLY thermocouples (type K, J, or T ) in the thermocouple ports (model 8851.8852) or only (type K.J.T. R.S.E) for model 8855.8856.
- Make sure your meter is set for the proper thermocouple type you are using.
- Be sure the thermocouple you use can withstand the temperature extreme it may be exposed to in your service task.
- Properly maintain your meter and calibrate it regularly

## TROUBLESHOOTING

**Q 1** : Instrument does not turn on

**Check** :1.Battery voltage

**Action** :1.Replace low battery

**Check** :2.Battery installation

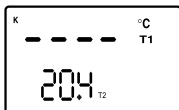
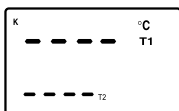
**Action** :2.Ensure clip grips battery posts tightly

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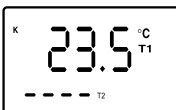
**Q 2** :Dashes appear in T1 and T2 data screens

**Check** :Thermocouples

**Action** :Insert missing thermocouples



( No T1 plugged in )



( No T2 plugged in )

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**Q 3** :Dashes appear in T1 and/or T2 data screens with thermocouples inserted

**Check** :1.Thermocouple continuity

**Action** :1.Measure resistance of thermocouples to ensure they are not broken internally -  
Replace if required

**Check** :2.Thermocouple connection

**Action** :2.Clean corrosion or debris off of thermocouple - Reinsert

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**Q 4** :Temperature drifts from known value in a controlled environment

**Check** :1.Thermocouple type

**Action** :1.Ensure thermocouple type matches the displayed icon

**Check** :2.Moisture, corrosion or debris on thermocouple

**Action** :2.Clean and dry thermocouple blades - Allow thermocouple plug to air dry

**Check** :3.Defective thermocouple

**Action** :3.Confirm defect with known good thermocouple - Replace if required

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**Q 5** :Relative clock will not start when RECORD button is pressed

**Check** :Thermocouples properly inserted

**Action** :Record will not start without thermocouples inserted

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**Q 6** :Dashes appear during review of maximum recorded value

**Check** :Open thermocouple

**Action** :Check for intermittent or momentarily removed, thermocouple

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**Q 7** :Data continues to update when HOLD or RECORD are invoked

**Check** :1.Proper operation

**Action** :1.Hold and Record affect the Primary screen of info only

**Check** :2.Hold/Record is not being fully pressed

**Action** :2.Observe HOLD or REC icons on LCD Press button firmly

**Q 8** :Instrument turns off during recording

**Check** :Auto power off defeat

**Action** :Follow procedures outlined in Operating Instructions

## OPERATING CONDITIONS

32 to 122°F (0 to 50°C) at 0 to 85 % relative humidity (non-condensing)

Resolution ( All model )		
<b>K</b>	-200~650°C	0.1°C
	640~1370°C	1°C
	-328~1000°F	0.1°F
	990~2498°F	1°F
<b>J</b>	-200~500°C	0.1°C
	490~760°C	1°C
	-328~940°C	0.1°C
	930~1400°C	1°F
<b>T</b>	All range	0.1°C
	All range	0.1°F
Following type only available for 8855 . 8856		
<b>R/S</b>	0~1000°C	0.1°C
	990~1760°C	1°C
	32~1000°F	0.1°F
	990~3200°F	1°F
<b>E</b>	-200~380°C	0.1°C
	370~736°C	1°C
	-328~720°F	0.1°F
	710~1832°F	1°F

## WARRANTY

The meter is warranted to be free from defects in material and workmanship for a period of one years from the date of purchase. This warranty covers normal operation and does not cover batteries, misuse, abuse, alteration, tampering, neglect, improper maintenance, or damage resulting from leaking batteries. Proof of purchase is required for warranty repairs.

### **T1-T2 Measurement, accuracy**

<b>Measurement Range Accuracy</b>		
<b>K</b>	-200~1370°C	$\pm(0.1\% \text{ rdg}+0.7^{\circ}\text{C})$
	-328~2498°F	$\pm(0.1\% \text{ rdg}+1.4^{\circ}\text{F})$
<b>J</b>	-200~760°C	$\pm(0.1\% \text{ rdg}+0.7^{\circ}\text{C})$
	-328~940°F	$\pm(0.1\% \text{ rdg}+1.4^{\circ}\text{F})$
<b>T</b>	-200~390°C	$\pm(0.1\% \text{ rdg}+0.7^{\circ}\text{C})$
	-328~730°F	$\pm(0.1\% \text{ rdg}+1.4^{\circ}\text{F})$
<b>R</b>	0~1000°C	$\pm(0.3\% \text{ rdg}+0.7^{\circ}\text{C})$
	0~3200°F	$\pm(0.3\% \text{ rdg}+1.4^{\circ}\text{F})$
<b>S</b>	0~1760°C	$\pm(0.3\% \text{ rdg}+0.7^{\circ}\text{C})$
	0~3200°F	$\pm(0.3\% \text{ rdg}+1.4^{\circ}\text{F})$
<b>E</b>	-200~736°C	$\pm(0.1\% \text{ rdg}+0.7^{\circ}\text{C})$
	-328~1832°F	$\pm(0.1\% \text{ rdg}+1.4^{\circ}\text{F})$

### **Ambient Coefficient**

0 - 18°C and 28- 50°C (Ambient temperatures)

For each °C ambient below 18°C or above 28°C, add the following tolerance into the accuracy spec: 0.01% of reading +0.03°C (0.01% of reading+0.06°F)

## **Accuracy, the Zenith of Measuring / Testing Instruments !**

- ▲ Hygrometer / Psychrometer
- ▲ Thermometer
- ▲ Anemometer
- ▲ Sound Level Meter
- ▲ Air Flow meter
- ▲ Infrared Thermometer
- ▲ K type Thermometer
- ▲ K.J.T. type Thermometer
- ▲ K.J.T.R.S.E. type Thermometer
- ▲ pH Meter
- ▲ Conductivity Meter
- ▲ T.D.S. Meter
- ▲ D.O. Meter
- ▲ Saccharimeter
- ▲ Manometer
- ▲ Tacho Meter
- ▲ Lux / Light Meter
- ▲ Moisture Meter
- ▲ Data logger
- ▲ Temp. / RH transmitter
- ▲ Wireless Transmitter .....

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