

Digital Thermometer TX-60 series

I. Introduction:

The TX-60 series Digital Thermometer accepts K.J.E.T.N.R.S.B. thermocouple types. It offer widest temperature range, highly accurate, high performance and rugged.

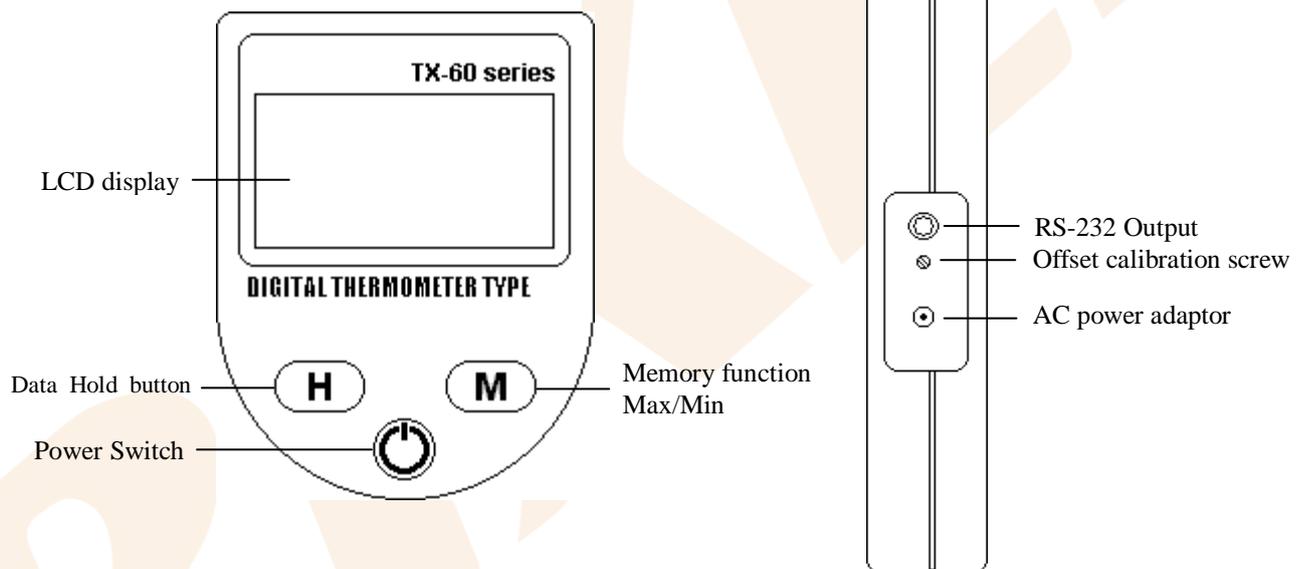
The TX-60 series Digital Thermometer has a variety of useful functions. Available for hold, stored MAX/MIN values, °C/°F switchable, auto-ranging and automatic/manual power shutoff and RS-232 Data output.

The TX-60 series Digital Thermometer also features single point field calibration offset factory setting and power sources both of DC 9V battery or AC adaptor.

II. Features:

- High Accuracy, Fast response.
- Data-Hold, Records MAX. MIN Values.
- Automatic/Manual power shut off function.
- °C/°F switchable
- Self-diagnostics (Alarm): Low Battery, Open TCs and Over Range Alerts
- Auto-Ranging with 0.1°/1° Resolution
- RS-232 Data Output, 9V AC Adaptor is available
- Rugged, drop-proof, dust-proof operating panel and case
- Wide measuring range (Thermocouple Type)

III. Symbol definition and button location



IV. Specifications:

Model No.	Input Type	Measuring Range	RS-232 initial data	Resolution	Accuracy (at 25°C)
TK-60	K	- 200 ~ + 1372 °C	(-200.0°C = 0 Bit)	0.1° Between -199.9 to + 199.9° 1° Above 200° (Auto Ranging)	± 0.1% of rdg +0.2°C (Between -199.9 to +199.9°C) ± 0.1% of rdg+1°C (Above 200°C)
TJ-60	J	- 200 ~ + 1200 °C			
TE-60	E	- 200 ~ + 1000 °C			
TT-60	T	- 200~ + 400 °C			
TN-60	N	- 200 ~ + 1300 °C	(-20.0°C = 0 Bit)	1°C (Full Range)	±0.1% of rdg +1°C
TR-60	R	- 20 ~ + 1768 °C			
TS-60	S	- 20 ~ + 1768 °C			
TB-60	B	+600 ~ + 1820 °C			

V. Common Specifications of TX-60 series

Sampling Rate : Approx. 0.4 sec/reading

Temp. Compensation : Auto. Temperature Compensation depends on T/C types

Display : Digital LCD display, Quick-type and Weatherability.

Signal Output : RS-232, 0.1°C/1Bit

Main Functions : Auto power off, Records Max./Min. values, Data-hold, °C/°F switchable, Low battery warning, RS-232 Signal output.

Power Supply : One 9V006P battery about 180 hours for continuing use. or AC Adaptor (option)

Dimension/Weight : 150 x 75 x 28 mm (L x W x D), approx. 160g (without battery).

Sensor connector : Miniature Connector for Thermocouple – Standard (Two pins)

※Above data of "Accuracy" and "Sampling rate" exclude the error of temperature probes.

※The specification of TK-60 series will be subject to change without notice.

VI. Operation Instructions:

A. Power Switch: Press the  button turn the thermometer On or Off.

B. Manual Power off ( + ):

Keep the  key pressed and press the  key turn on the meter, the meter will change to manual power off, the "M" indication appears on the display, denote the meter is manual power off mode.

C. Auto power off:

Press  turn on the meter, it is under auto power off mode. The meter automatically turns itself off after about 7 minutes if no key is operated.

D. Data Hold Function:

The measured values can be held in the display by pressing the  key, and a symbol  will appear in the display. Operator may press  button again to exit the HOLD mode.

E. MAX/MIN Value Operations:

Press  button, the meter will enter the memory function, the  symbol is on the display and the maximum value is shown on the display.

Press  again, the  symbol is on the display, and show the minimum value on the display.

※Operator may press  to circulate the display mode both options.

F. Low battery condition:

When the battery voltage is under proper operation requirement, the symbol "  " will show on the LCD and the battery needs to be replaced with new one.

G. °C/°F Switch:

Keep the  key pressed and press the  key turn on the meter, the meter will change to °C/°F, the "°C/°F" indication appears on the display.

Precaution:

- If operator would like to circumscribed power for long time measure record, please use the AC Adaptor. (This is chosen products, please contact original company sales department).
- Offset calibration screws offers temperature reparation or specialties calibration needed. Unless specialist please doesn't random adjust.
- When meter show the "  ", please check the thermocouple if well or not. Or your measure range is out of this meter that can accept the measure temperature.
- Please don't put the meter in high temperature, humid or shaky place.
- If have any problem of using; please don't repair or instead mounting by yourself.
- **Warranty:** Within one year from the date of original purchase.

RS-232 Transmission Functions

The RS-232 transmission port of TX-60 series is single side data transmission, it functions with 3 signal composed grounding wires to receive and input. We suggest that you choose the original transmission cable or shorter than 10 meters cable to connect PC and instrument.

※Notice: RS-232 transmission can not configure a variety of instruments on the same port.

a. Transmission Status: 57600 / 8 / N / 1

b. Transmission Content (8-BIT):

START	TYPE	MOD	MSD	LSD	CHECK	END
A8H	①	②	HI-DATA	LO-DATA	FFH	8AH

① BIT [7:0] = Instrument Model
TK-62 =>00H
TX-60 Series =>01H

② BIT [7:4] = Thermocouple Type

K	0000	R	0100
J	0001	S	0101
E	0010	N	0110
T	0011	B	0111

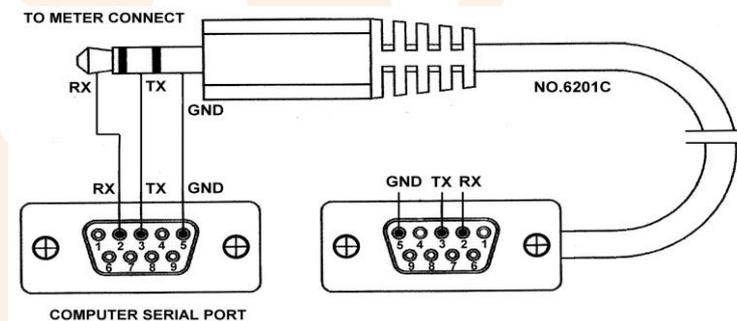
BIT [3:2] = Instrument Status

NORMAL	00
HOLD	01
MAX	10
MIN	11

BIT [1] = Power Model
Automatic Power Off = 0
Manual Power Off = 1

BIT [0] = Power
Enough Power = 0
Low Power = 1

c. Illustration of Connection:



Example 1: A8H,01H,11H,09H,23H,FFH,8AH

=>> TX-60 type, J-TYPE, NORMAL mode, Automatic Power Off, Low Power
09H,23H =>> $(9 \times 256) + (2 \times 16 + 3) = 2339$.BIT = + 33.9°C

Example 2: A8H,01H,6CH,32H,D4H,FFH,8AH

=>> TX-60 type, N-TYPE, MAX mode, Manual Power Off, Enough Power
32H,D4H =>> $((3 \times 16 + 2) \times 256) + (13 \times 16 + 4) = 13012$.BIT = + 1101. 2°C