OPERATION MANUAL

GLP 4 channel Thermocouple Logger

88594: K type

Beyond recording, empowering lab. data management

CE

QUICK GUIDE

Setup Mode Configuration

1. Enter Setup Mode:
   Press SET to turn on the meter and then press and hold SET to enter setup mode

2. Navigate & Adjust Settings:

➢ Use the ▼ REL T1-T2 or MAX/MIN ▲ RECALL cycle through menu options or adjust values in 0.1°C/°F increments.
Press and hold the ▼ REL T1-T2 or MAX/MIN ▲ RECALL key for 5 seconds to speed up adjustments while editing values.

➢ Press the PRINT ↵ START STOP key to confirm selections.

➢ Press the ESC/HOLD MEMO key to exit without saving changes.

Note: Green text keypad means press longer time.

The setting functions include:

P10 Logger sampling rate and start delay settings

P20 Temperature alarm settings

P30 Temperature offset settings

P40 Thermocouple type and temperature unit settings

P50 Real-time clock settings

P60 Password settings

P70 Memory clearance

P80 Meter information check

P90 Factory default reset

SETTING ITEMS			ICON	DEFAULT	ADJUSTABLE RANGE
P10 LoG	P10.1 Sampling Rate		rAt	1 second	1,2,5,10,15,30 secs and 1,2,5,10,15,30,60,90 mins
	P10.2 Start Delay		dLY	0 minute	0,1, 5, 10, 30 mins and 1, 2, 5 and 24 hours
P20 AL	P21 CH1	P21.0 Alarm On/OFF	oFF	oFF	oFF or on
		P21.1 High Alarm	CH1H	300°C/572°F	-200~1370°C
		P21.2 Low Alarm	CH1L		
	P22 CH2	P22.0 Alarm On/OFF	oFF	oFF	oFF or on
		P22.1 High Alarm	CH2H	300°C/572°F	-200~1370°C
		P22.2 Low Alarm	CH2L		
	P23 CH3	P23.0 Alarm On/OFF	oFF	oFF	oFF or on
		P23.1 High Alarm	CH3H	300°C/572°F	-200~1370°C
		P23.2 Low Alarm	CH3L		
	P24 CH4	P24.0 Alarm On/OFF	oFF	oFF	oFF or on
		P24.1 High Alarm	CH4H	300°C/572°F	-200~1370°C
		P24.2 Low Alarm	CH4L		
P30 oFFS	P30.1 Channel-1 Offset		CH1	OFF	oFF or -12 to +12°C and start from ±0.1°C/°F
	P30.2 Channel-2 Offset		CH2		
	P30.3 Channel-3 Offset		CH3		
	P30.4 Channel-4 Offset		CH4		
P40 tU	P40.1 Type of Thermocouple		tYP	K	K, J, T, R, S, E (for 88595 only)
	P40.2 Unit of Temperature		U it	°C	°C or °F
P50 rtc	P50.1 Time Format		24H	24H	24H or 12H
	P50.2 Hour Setting		HH	09	00~23
	P50.3 Minute Setting		nnnn	30	01~59
	P50.4 Day Setting		dd	15	01~31
	P50.5 Month Setting		nnnn	6	01~12
	P50.6 Year Setting		YY	25	25~99
P60 PAS	P60.1 Activate Password		oFF	oFF	oFF or on
	P60.2 Set Password		PAA	5555	0000~9999
P70 CLr	P70.1 Clear Data		no		no or YES
P80 inF	P80.1 Device Serial Number		Sn		Identical to meter serial number
	P80.2 Firmware		Fn		Identical to meter firmware version
	P80.3 Last Configuration Update Log		Ad		
P90 rSt	P90.1 Reset		no	no	no or YES

Operation

1. Charge the device for about 2 hours.

2. Plug the probe into the socket, ensuring correct polarity.

3. Press the 

to turn on the device.

4. Set the correct real-time clock, logging sample rate, and logging start delay time before operation. Refer to P10 and P50 column in the settings table on page 2.

5. Attach the probe firmly to the objects to be measured.

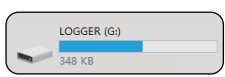
6. Press and hold the PRINT / START STOP key for more than 2 seconds to start or stop auto-recording.
Alternatively, press and hold the ESC/HOLD MEMO key for more than 2 seconds to manually record important data.

7. Refer to the manual for additional details.

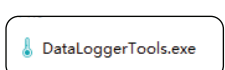
8. Computer connection:

- Stop logging first and then connect it to the computer.
  The “PC” icon appears on LCD to indicate the connection is built.
  Note: The software is compatible with Windows XP, 7, 10, and 11.

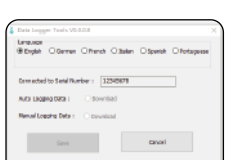
- The meter will be recognized by the computer as a USB drive named: “LOGGER”



- You will find an executable file named:
  “DataloggerTools.exe”



- Select the desired language for the report content and choose which to download.



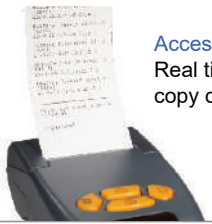
INTRODUCTION

Good Laboratory Practice (GLP) refers to a set of principles intended to ensure the quality, integrity, and reliability of non-clinical laboratory studies, such as pharmaceuticals, chemicals, and cosmetics. These principles are used to guide laboratory processes, documentation, and quality assurance in regulated environments.

For GLP compliance, a reliable thermometer is essential.
Look for these features:
1. Calibration and Traceability: Calibrated and traceable to international standards.
2.Data Logging: Ideal for long-term monitoring.
3.SOP Alignment: Supports access control and signed data preservation.

Calibrated and traceable
Time stamp for all measures & any adjustment

Long-term monitoring
Start or stop logging any time, any where. Not limited by the computer's presence.

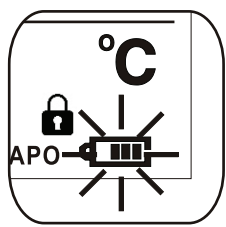


Access control & signed data
Real time print out for hard copy data filing.

This is the market's first thermocouple datalogger equipped with IR printer connection and GLP compliance feature.
Further more, it has below features:
- Extra-large LCD with dual-color adjustable backlighting for : enhanced visibility
- 48,000 auto-logging records
- 99 manual logging records with data recall function
- Data saved as CSV reports, no software required
- Multi-cycle start/stop logging functionality
- Data hold, maximum, and minimum data review
- Low battery indication
- Charging and data transmission via USB-C
- Individually programmable high/low alarm & temperature offset for each channel
- Buzzer and LED alarm
- Switchable temperature units between °C and °F
- Backlight for low-light environments
- Real-time timestamp
- Auto power-off after 20 minutes for energy savings

POWER SUPPLY

This product has a built-in rechargeable battery. Use the included charging cable to charge. Battery icon flashes during charging. About 120 hours of continuous use after 2 hours of charging.



MATERIAL SUPPLIED

The full package contains:

- 4 channel thermocouple logger x 1
- Class 1 K bead thermocouple x 4
- Manual x 1
- USB-C cable x 1

Optional:

To optimize the function of this meter, you may contact the store you purchase meter from to purchase compatible IR printer and universal adaptor.

- IR printer

- Universal adaptor

Knowledge sharing

Reasons for different type of thermocouples:

Temperature Range: Different thermocouples work best in certain temperature ranges.

For example:

Type K: Wide range (-200°C to 1260°C).

Type T: Low temperature applications (-200°C to 350°C).

Accuracy and Sensitivity: Certain types, like R and S, provide higher accuracy but are more expensive, while types like K and J are less expensive and widely used.

Environmental Compatibility: Different materials withstand different environments. Such as:

Type J: Good for reducing atmospheres but not suitable for oxidizing conditions.

Type T: Resistant to moisture and oxidation.

Material Cost and Availability: Noble metal thermocouples (R, S, and B types) are more expensive but durable, while base metal types (K, J, and T) are cheaper and commonly used.

This variety allows users to select the right thermocouple for their specific application, balancing cost, performance, and durability.

HARDWARE

Thermocouple socket

While plugging the probe into the socket, ensuring correct polarity!

Handheld, desktop, wall mount all in 1

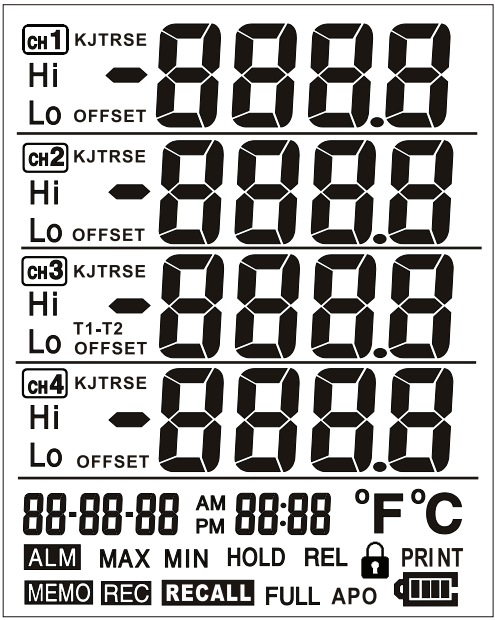


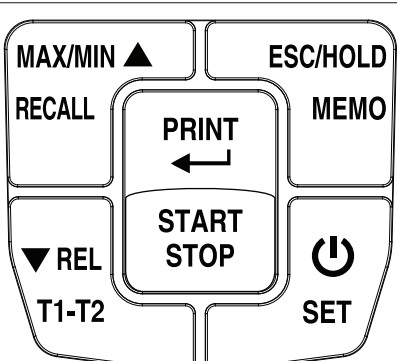

Battery charging and data transmission through USB-C

Hardware reset pin hole is on the rear side

Print out real time or 99 memories to IR printer


LCD & KEYPAD


CH1 KJTRSE
Hi
Lo OFFSET
CH2 KJTRSE
Hi
Lo OFFSET
CH3 KJTRSE
Hi
Lo T1-T2 OFFSET
CH4 KJTRSE
Hi
Lo OFFSET
88-88-88 AM PM 88:88 °F °C
ALM MAX MIN HOLD REL PRINT
MEMO REC RECALL FULL APO


MAX/MIN ▲
ESC/HOLD
RECALL
MEMO
PRINT
START
STOP
▼ REL
T1-T2
SET

KEYPAD OPERATION

Note: Green text keypad means press longer time

a. Press to turn on or off the meter
b. In the power-on state, press and hold to enter setup mode

a. Press to freeze or release the current measured value
b. Press and hold to manually log data into memory
c. In the settings state, press to exit.

a. Press to set the value at the time of pressing the button as the baseline. Subsequent readings on the screen will be relative to this baseline.
b. Press and hold to calculate the difference between Channel 1 and Channel 2, displaying the result on Channel 3.
c. In the settings state, press to decrease the value.

a. Press to cycle through MAX, MIN, and real-time measurement modes.
b. Press and hold to enter the manual records review (recall) mode.
c. In the settings state, press to increase the value.

a. Press to send the current value or manual memory to the IR printer.
b. Press and hold to start or stop the auto-recording.
c. In the settings state, press to confirm the selection.

OPERATION

General Functions

Charge and plug on probes

This product has a built-in rechargeable battery. Use the included USB-C cable to charge. About 120 hours of continuous use after 2 hours charging time.

After the product is charged, it is ready to use. Plug the probes into the socket, ensuring correct polarity.

Different kinds of thermocouple probes should not be used together.

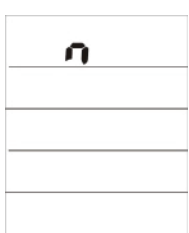
Power On/Off the meter

Power on/off:

Press the SET key to turn the meter on or off.

The APO (Auto Power Off) function is enabled by default, the APO icon appears on the LCD. If no keys are pressed for 20 minutes while the meter is not in logging mode, it will power off automatically.

Disable APO Temporarily:



While the meter is off, press and hold both ESC/HOLD MEMO and SET the buttons simultaneously until "" appears on the LCD. After that, release both buttons.

Note:

1. The auto power off function will restore when restart the meter.
2. In logging mode, the meter cannot be turned off or enter setup mode unless logging is stopped first. Use the SET key to toggle the LCD display off or on.

Accuracy quick check

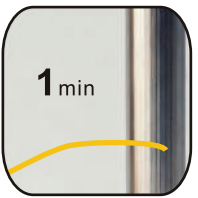
Leave the 4 probes in room temperature air for 1 minute, keeping them as close as possible. The temperature difference between each probe should be within 0.5°C. If not, refer to the troubleshooting page 19 for a solution.

Setup the real time clock

Press and hold the SET key to enter setup mode to set the real time clock. Please find the detail on page 25.
Note: The time format is day-month-year.

Get Value

Attach/insert the probes to the sample and allow it to stabilize for 1 minute to reach temperature equilibrium.



Backlight for dark places

To make it easier to see readings in dim areas, press any key can turn on backlight feature for 10 seconds.

Freeze the reading (HOLD)

To simplify recording or printing, especially during rapid temperature changes, you may press the ESC/HOLD MEMO key to lock/unlock the reading.

Note: This function will only freeze display but auto logging and print can still continue

MAX/MIN mode

Press the MAX/MIN RECALL key to cycle through MAX, MIN, and real-time measurement modes.
Note: Each channel's maximum and minimum values are tracked from power-on and reset upon restarting the meter.

Relative reading

Press the ▼REL T1-T2 key to set the value at the time of pressing the button as the baseline. Subsequent readings on the screen will be relative to this baseline.

Temp. Difference T1-T2

Press and hold the ▼REL T1-T2 key to calculate the difference between Channel 1 and Channel 2, displaying the result on Channel 3. Press and hold it again to return to normal measurement.

99 manual records

99 manual record

To manually record important data, press and hold the ESC/HOLD MEMO key, and the MEMO icon will flash three times. The memory can store up to 99 records. Once full, pressing and holding the ESC/HOLD MEMO key will cause the FULL icon to flash three times as a reminder. You can press and hold the ESC/HOLD MEMO key while the meter is in REL or MAX/MIN mode. The value stored is still the real-time value at that moment.

NOTE:
"FULL" *icon keeps flashing on LCD means auto logging memory is full, not to indicate 99 manual record is full.*

99 points memory recall

This function allows the user to review the 99 points of manually recorded data. Press and hold the MAX/MIN ▲ RECALL key to enter; the "RECALL" icon will appear. The first value displayed is the batch number of the last memory, followed by the values of each channel.

Use the ▼REL T1-T2 or MAX/MIN ▲ RECALL key to scroll. Long press the MAX/MIN ▲ RECALL key again to exit. If the meter was in REL mode before entering Recall, the display will switch back to real-time value instead of remaining in REL mode upon exit.

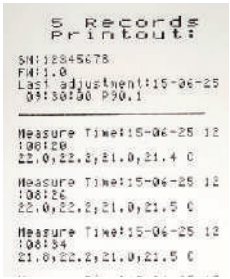
99 points memory clear up

There are 3 methods allows user to delete all manual recorded data.

①. Transfer the data to a computer. Once the data is successfully transferred, all existing data will be deleted automatically.

② & ③. Using "Clear up" or "Reset" function under SETUP.
Please find the details in the setting table on page 2.

99 points memory print out



This function allows the user to print all manual recorded data to a compatible IR printer.

Step1. Press and hold the MAX/MIN RECALL key to enter and the "**RECALL**" icon will appear.

Step2. After turning on the printer, align the meter with printer and then press the PRINT START STOP key to print.
DO NOT move the meter or printer while printing is in progress.

Step3. The printed data will display complete information required by GLP guidelines.

99 memory saved as *.CSV

This function allows the user to transfer all manual recorded data to computer for further analysis.
PC software and USB driver are not required. Refer to PC connection function on page 22 for details

Manual Logging :	
SN:	12345678
FW:	V01.00
Last adjustment :	15-06-25 13:32:49
No.	DD-MM-YY
1	15-06-25
2	15-06-25
3	15-06-25
4	15-06-25
5	15-06-25

48000 Auto Recording

Setup Without Computer

All logging parameters are configured directly on the meter.

Step 1: Configure Settings

Ensure the real-time clock, logging sample rate, and start delay time are correctly set (refer to the page 19).

Step 2: Start/Stop Logging

Press and hold the PRINT / START STOP key to begin recording. **REC** will stay on the LCD to indicate recording. If it has a start delay time setting, REC blinks during delay, then solid after first recording.

Press and hold the PRINT / START STOP key again until **REC** disappears to manually stop.

Notes:

a. Before the memory is full, logging can be stopped, reprogrammed (sampling rate/start delay), and restarted repeatedly.

b. The logging stops automatically when memory is full (**FULL** icon flashes).

Memory Full Alert

When **FULL** appears:

- Logging cannot resume.
- **dL dF** flashes 3 times as a reminder to download data to proceed.

In logging mode, the meter cannot be turned off or enter setup mode unless logging is stopped first. Use the SET key to toggle the LCD display on/off.

48000 auto log clear up

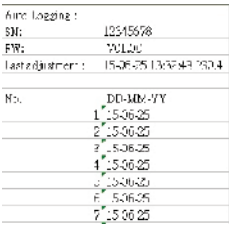
Once auto-logged data has been downloaded to computer, it enters a state where the next logging cycle can overwrite it.
If the data has not been downloaded, it will not be erased when a new logging cycle begins.

The second method to delete all logged data is through **"RESET"** feature under SETUP. See page 19 for reset.

48000 memory saved as *.CSV

This function allows the user to transfer auto logged data to computer for further analysis.

PC software ans USB driver are not required. Refer to PC connection function on page 22 for details.



Alarm

The high/low temp. alarm for each channel is individually programmable. On page 19 of SETUP for details.

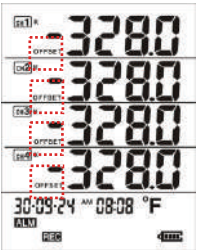
When the meter is programmed with the alarm function enabled, the ALM icon will appear. If the measured temp. exceeds the threshold, the "HI" or "LO" icon will flash and will only stop once the temperature returns to normal.

The buzzer will also beep, and the red backlight will flash every second during the first minute, then every 5 seconds thereafter.

Pressing any key will stop the buzzer and red backlight, but will not stop the flashing "LO" or "HI" icon.

OFFSET

Due to the varying grades of probes and the slight differences between probes of the same grade, customers can use the offset function to make fine adjustments to the probe's accuracy.



This function allows users to adjust the offset value for each channel individually to compensate for discrepancies with the master unit, typically caused by variations in probe quality.

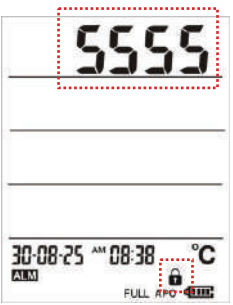
When any channel is programmed with an offset, the “OFFSET” icon will appear on the LCD.

See page 19 in SETUP for details.

GLP Password Control

This feature enables GLP password management, ensuring that only the valid password holder can access setup mode to change settings or download data to a PC. To activate this feature, see page 19 in setup mode for details.

When the meter is locked with a GLP password, the " 🔒 " icon will remain displayed.



When long pressing the SET key to enter setup mode, the LCD will first show “5555” with the first digit flashing. Use the REL T1-T2 or MAX/MIN RECALL key to select the correct digit, press PRINT START STOP to confirm, and proceed to the next digit until all four digits are entered.

If an incorrect password is entered, the LCD will display “Err” for one second before returning to normal measurement mode. If successful, the meter will enter setup mode.

Summary of Operation

	Measure mode	Auto logging mode	Setup mode	Hold mode	REL mode	T1-T2
Meter ON/OFF	V				V	V
LCD ON/OFF		V				
Setup	V		V		V	V
Backlight	V	V		V	V	V
ESC			V			
REL	V	V				V
MEMO	V	V		V	V	V
UP			V			
MAX/MIN	V	V			V	V
RECALL	V	V			V	V
DOWN			V			
HOLD	V	V			V	V
T1-T2	V	V			V	
ENTER			V			
PRINT	V	V		V	V	V
START/STOP	V	V				

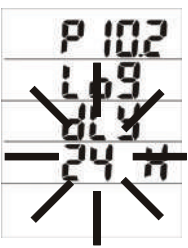
SETUP

This meter includes an advanced settings mode for customizing configurations or reviewing basic device information.
Available functions:
P10: Logger sampling rate and start delay settings
P20: Temperature alarm settings
P30: Temperature offset settings
P40: Thermocouple type & temperature unit settings
P50: Real-time clock settings
P60: Password settings
P70: Memory clearance
P80: Meter information check
P90: Factory reset

How to Navigate:
Press and hold the SET key (while the meter is powered on) to enter settings mode.
The first menu displayed is P10 Auto Logging. To select other functions:
Use ▼REL T1-T2 or MAX/MIN ▲ RECALL to navigate. Press PRINT ← START STOP to confirm your selection.

Sub-Menu Navigation:
Some programs include multiple sub-layers. Use ▼REL T1-T2 and MAX/MIN ▲ RECALL to locate desired options.
NOTE: Refer to the settings table on page 20 for the complete list of configurations.

Modifying Values:
When adjustments are allowed, the programmable value will flash for easy visibility.



Adjusting Values:
Use the ▼REL T1-T2 and MAX/MIN ▲ RECALL keys to adjust the value.
Press PRINT ← START STOP to confirm or press ESC/HOLD MEMO to quit without saving. To return to the previous screen, press ESC/HOLD MEMO.

Setting	Icon	Default	Range
P10 Logging	Log		***Allow user to choose auto logging sampling rate and start delay time**
P10.1 sampling rate	rAt	1 second	1, 2, 5, 10, 15, 30 seconds and 1, 2, 5, 10, 15,
P10.2 start delay	dLy	0 minute	30, 60, 90minutes 0, 1, 5, 10, 30 minutes and 1, 2, 5 and 24 hours
P20 Alarm	AL		***Allow user to program high/low alarm of each channel independently.**
P21 channel 1	cH1		
P21.0 alarm on/off		OFF	Adjustable value is between -200~1370℃ and
P21.1 high alarm	ch1H	300℃	default value is 300℃ or 572℉
P21.2 low alarm	ch1L	300℃	
P22 channel 2	cH2		Each step change is 0.1℃/℉
P22.0 alarm on/off		OFF	Press “UP” or “Down” key more than 5
P22.1 high alarm	ch2H	300℃	seconds to quickly change the value.
P22.2 low alarm	ch2L	300℃	
P23 channel 3	cH3		
P23.0 alarm on/off		OFF	
P23.1 high alarm	ch3H	300℃	
P23.2 low alarm	ch3L	300℃	
P24 channel 4	cH4		
P24.0 alarm on/off		OFF	
P24.1 high alarm	ch4H	300℃	
P24.2 low alarm	ch4L	300℃	
P30 offset	oFFS		***Allow user to program offset value of each channel independently.**
P30.1 for 1st channel	cH1	OFF	OFF or any value between -12 to +12℃
P30.2 for 2nd channel	cH2	OFF	Each step change is 0.1℃/℉
P30.3 for 3rd channel	cH3	OFF	Press “UP” or “Down” key more than 5
P30.4 for 4th channel	cH4	OFF	seconds to quickly change the value.

Setting	Icon	Default	Range
P40 temp. unit	tU		***Allow user to choose thermocouple types and temperature unit.**
P40.1 type of thermocouple	tyP	K	K,J,T,R,S,E
P40.2 unit of Temp	Uit	℃	℃,℉
P50 real time clock	rtC		***Allow user to enter correct real time clock for GLP compliant manual recording and auto recording.** Adjustable ranges are:
P50.1 24 / 12 hours	HH	24	24 or 12
P50.2 Hour setting	nnnn	09	00~23
P50.3 Minute setting	dd	30	01~59
P50.4 Day setting	nnnn	15	01~31
P50.5 Month setting	yy	6	01~12
P50.6 Year setting		25	25~99
P60 password	PAS		***Allow user to turn on/off access control function by 4 digits password.**
P60.1 Password on/off	PAA	OFF	
P60.2 Password		5555	0000~9999
P70 clear memory	cLr		***Allow user to clear all manual recording and auto recording data.**
P70.1 Clear Memo		NO	NO or YES
P80 meter information	inF		***Allow user to browse which setting has been recently changed.**
P80.1 Meter serial number	Sn		Identical to meter serial number
P80.2 Firmware version number	Fn		Identical to meter firmware version
P80.3 Last setting adjustment information			Date (DD-MM-YY, HH:MM) and setting number that customer recently change in SETUP mode.
P90 Reset	rSt	NO	***Allow user to reset ALL setting to factory default, including real time clock.**

COMPUTER CONNECTION

A Windows computer with an unlocked USB port is required.
No special software or USB driver needs to be preinstalled for this thermocouple logger.
The software is compatible with Windows XP, 7, 10, and 11.

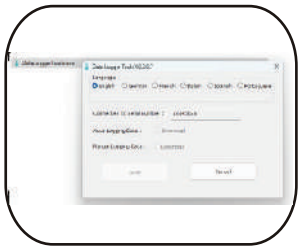
Step 1: Connect to computer

Stop logging first and then connect it to the computer.
The “PC” icon appears on LCD to indicate the connection is built.

Step 2: DataloggerTools.exe

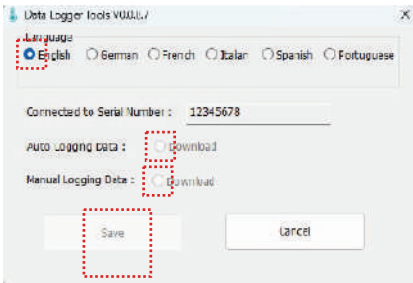
The meter will be recognized as USB drive by the computer.
The assigned disk number may vary from the example shown here.

You will find an executable file named “DataloggerTools.exe” Click to enter.



Step 3: Select what to download

Select the desired language for the report content. Additionally, choose whether to download auto-logging records, manual log records, or both. Then, click “Save” to execute.



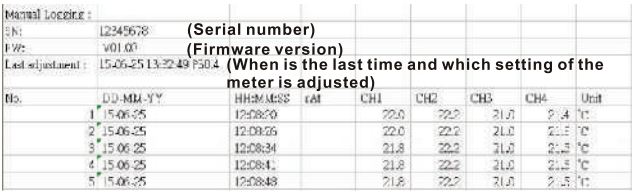
Step 4: Generate report

If this meter has password-based access control, the user must enter the password before generating a report on the computer. The generated report is in .csv format, which is highly compatible with various software applications, including Windows Excel.

If you choose to generate both auto-logging and manual logging records, two separate files will be created.

The generated report contains below information which is compliant to the requirement of GLP.

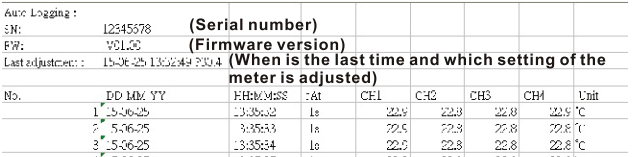
Manual



Manual Logging :								
SN:	12345678	(Serial number)						
FW:	V01.00	(Firmware version)						
Last adjustment :	15-06-25 13:32:49 P50.4	(When is the last time and which setting of the meter is adjusted)						
No.	DD-MM-YY	HH:MM:SS	rAt	CH1	CH2	CH3	CH4	Unit
1	15-06-25	12:08:30		22.0	22.2	21.0	21.4	°C
2	15-06-25	12:08:36		22.0	22.2	21.0	21.5	°C
3	15-06-25	12:08:34		21.8	22.2	21.0	21.5	°C
4	15-06-25	12:08:41		21.8	22.2	21.0	21.5	°C
5	15-06-25	12:08:48		21.8	22.2	21.0	21.5	°C

(Record date record time Temperature unit)

AUTO



Auto Logging :								
SN:	12345678	(Serial number)						
FW:	V01.00	(Firmware version)						
Last adjustment :	15-06-25 13:32:49 P50.4	(When is the last time and which setting of the meter is adjusted)						
No.	DD-MM-YY	HH:MM:SS	rAt	CH1	CH2	CH3	CH4	Unit
1	15-06-25	13:35:32	1s	22.9	22.8	22.8	22.9	°C
2	15-06-25	13:35:33	1s	22.9	22.8	22.8	22.8	°C
3	15-06-25	13:35:34	1s	22.9	22.8	22.8	22.8	°C
4	15-06-25	13:35:35	1s	22.9	22.8	22.8	22.8	°C
5	15-06-25	13:35:36	1s	22.9	22.8	22.7	22.8	°C
6	15-06-25	13:35:37	1s	22.8	22.8	22.7	22.8	°C
7	15-06-25	13:35:38	1s	22.8	22.8	22.7	22.8	°C

(Record date record time rate Temperature unit)

Step 5: Clear records and re-start

Depending on whether the records have been saved to the computer, there are several methods available to clear the memory.

	Not yet download to PC	Download to PC already
Auto Log	Through “RESET”	1. Start another new logging cycle can auto delete all saved data 2. Through “Clear up “function in Setting 3. Through “RESET”
Manual Log	1. Through “Clear up” in Setting 2. Through “RESET”	1. Start another new logging cycle can auto delete all saved data 2. Through “Clear up” function in Setting 3. Through “RESET”

In summary, no need to internationally clear up old data while you want to start a new logging cycle.

IR PRINTER CONNECTION

This meter allows you to print either a single data point or up to 99 manually logged data points to an IR printer. To print a single point, simply press the "**PRINT**" key. To print manually logged data, first enter recall mode, then press "**PRINT**" to print.

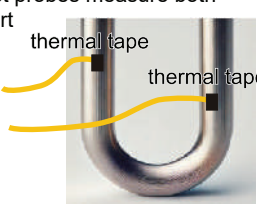
Do not remove the printer from the meter during the printing process, as this will interrupt the connection. The maximum transmission distance is 4.5 meters when the angle between the meter and the printer is 0 degrees. As the angle increases, the transmission distance de[illegible]

TROUBLE SHOOTING

- Already press power key but no display
  1) Make sure you have pressed power key more than 0.1 second
  2) Charging the meter first and then try again.

- Can't turn off the meter
  If the device cannot be turned off, it may have frozen. To hardware reset it, locate the small hole on the rear side of meter. Press it once using a paperclip to perform a hardware reboot and resolve the issue

- Too big difference from previous measurement
  The most important principle in troubleshooting is to isolate the components of the system and check each in turn.
  The components of the system include meter, probe, testing sample and technique.
  1. Meter
  This device and probe socket are not designed to be used under water.
  2.Probe
  The test probe wires bend repeatedly during use, which may lead to internal breakage over time. Therefore, replacing the test probes is necessary.
  3. Testing sample
  If the probe works properly in air but not in the sample, look for possible interferences in the sample that could alter the probe stability.
  4. Technique
  Check if the method of this analysis is compatible with your sample. For example, if multiple test probes measure both ends of the same metal tube, a short circuit may occur between them, affecting readings. To prevent this, apply thermal tape to the probe tips to insulate them.



- Incomplete Printout
  The printer and recorder may be out of effective transmission range or misaligned. Ensure proper alignment and proximity, then retry printing.

- Test Probe Insertion Issue
  The probe connector may not be miniature type or is inserted with reversed polarity. Verify the connector type and orientation, then insert correctly.

- Temperature Deviation in Air vs. Standard Reference
  If the probe is new and positioned correctly, the deviation is due to individual probe tolerances. Adjust the offset value in setting to minimize discrepancies.

- "FULL" icon appears
  The 48,000-record limit has been reached. Connect to a computer to download data or perform a "Reset" in Settings to erase all records.

- "dL dF" Indicator
  Means download first, appears when the record limit is full, and new recording is attempted. Download data first to computer before you want to start a new logging cycle.

- Forgot Password
  Contact your vendor for assistance.

- "SAVE" Button Grayed Out
  1. USB restrictions may prevent exe execution-try a different computer.
  2. No recorded data so "Save" remains disabled.

- Readings Display "----"
  The probe is disconnected or faulty. Ensure proper connection or replace the probe.

- A password request appears when downloading data.
  Means your logger has access control by password. Enter the logger's set password in computer screen then data could be saved to computer successfully.

◆ Error code list

E02: Indicates that the measured sample is below the min. detectable range. Leave the probe in room temperature air to verify if the issue is resolved.

E03: Indicates that the measured sample is above the max. detectable range. Leave the probe in room temperature air to verify if the issue is resolved.

E04: The internal temperature reference is out of order, triggering E04. Place the meter in room temperature conditions for 30 minutes to verify if the issue is resolved.

E07: The detected room temperature is below 10°C, triggering E07. Place the meter in room temperature conditions for 30 minutes to verify if the issue is resolved.

E08: The detected room temperature is above 60°C, triggering E08. Place the meter in room temperature conditions for 30 minutes to verify if the issue is resolved.

E31: Hardware error. Could not be fixed by user. Please contact your vendor for after sales service.

Err: Appears when an incorrect password is entered. Please enter correct password.

SPECIFICATION

Model	88594	88595
K temp. Range (main unit) (under 18~28°C ambient temp.)	-200~1370°C (-328~2498°F)	
J temp. Range (main unit) (under 18~28°C ambient temp.)	N/A	-200~-760°C (-328~1400°F)
T temp. Range (main unit) (under 18~28°C ambient temp.)	N/A	-200~390°C (-328~730°F)
R temp. Range (main unit) (under 18~28°C ambient temp.)	N/A	0~1760°C (32~3200°F)
S temp. Range (main unit) (under 18~28°C ambient temp.)	N/A	0~1760°C (32~3200°F)
E temp. Range (main unit) (under 18~28°C ambient temp.)	N/A	-200~736°C (-328~1356°F)
K bead thermocouple temp. Range	-50~200°C (-58~392°F)	
Resolution	Above 1000 °C/°F is 1°C/°F, below 1000 C/°F is 0.1°C/°F	
Accuracy	±0.5°C for under1000°C,1°C for above ±(0.9°F for under1832°F,1.8°F for above)	
Backlight	Blue and Red (red for Alarm)	
Buzzer	~70dB at 10cm distance	
Memory	48000 records for auto logging 99 records for manual logging	
Sampling rate	1, 2, 5, 10, 15, 30 sec,1, 2, 5, 10, 15, 30, 60, 90mins	
Start delay	0, 1, 5, 10, 30 minutes and 1, 2, 5 and 24 hours	
Power	Built-in rechargeable 3.7V Lithium battery with USB-type C port	
Consumption	<6.5mA(BLT off);<30mA(BLT on) >120 working hours (BLT/Buzzer off)	
LCD size (mm, HxW)	60x75	
Operating temp.	10~60°C	
Operating RH%	Humidity < 80%	
Storage temp.	-20~50°C	
Storage RH%	Humidity < 90%	
Dimension(mm,LxWxT)	180x75x50	
Weight (g)	~200g	
Standard Package	Meter, class 1 K bead thermocouple x4, manual, USB-C cable	
Optional accessory	IR printer, Universal adaptor	

WARRANTY

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

RETURN AUTHORIZATION

Authorization must be obtained from the supplier before returning items for any reason. When requiring a RA (Return Authorization), please include data regarding the defective reason, the meters are to be returned along with good packing to prevent any damage in shipment and insured against possible damage or loss.

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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