

1 YEAR
WARRANTY



Ω OMEGA® User's Guide



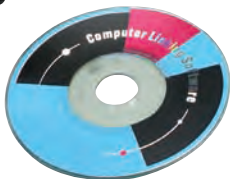
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HH309A **Data Logger Thermometer**



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目 录

项目	页次
一. 简介.....	1
二. 规格.....	1
三. 符号定义及按键位置.....	2
四. 操作说明.....	5
4.1 开/关机与背灯功能.....	5
4.2 连接温度热电偶.....	5
4.3 温度单位选择.....	5
4.4 锁定温度读值.....	5
4.5 T1-T2 功能.....	6
4.6 记忆及清除记忆功能.....	6
4.7 时间设定.....	6
4.8 记录时间间隔设定.....	7
4.9 最大、最小读值功能.....	7
4.10 自动关机.....	8
4.11 电池不足指示.....	8
4.12 校正点.....	8
4.13 数字输出.....	8
五. 软件安装说明.....	9
附录.....	9

一. 简介:

OMEGA HH309A(DataLogger) 是一具以 K-type 热电偶温度传感器为 Sensor 的数字温度表, OMEGA HH309A 具有内存装置,最多可连续记忆 16000 笔(注一),可以不接计算机直接将温度值先记录在电表,然后经由计算机将内存读出,供做分析,打印或存档等用途。也可以由计算机记录大量数据(视您计算机的内存及硬盘空间)。其中的热电动势与温度转换关系以 IEC458 国际标准之 K-type 转换函数定义。

二. 规格:

显示方式:

四位数液晶银幕显示器,四组显示值。

测量范围: -200~1370°C -328~2498°F

分辨率:

-200°C~200°C 0.1°C; 200°C~1370°C 1°C

-200°F~200°F 0.1°F; else 1°F

输入端保护: 60V DC, or 24Vrms AC

操作环境:

0°C~50°C (32°F~122°F); 0~80% RH

储藏环境:

-10°C to 60°C (14°F~140°F); 0~80% RH

使用电池: 9V DC

电池寿命: 约 100 小时(碱性电池)

操作海拔: 海拔 2000m 以下

测量精度: 环境温度 $23 \pm 5^\circ\text{C}$, 湿度 80%RH 以下

范 围	准 确 度
-200°C ~ 200°C	±(0.2% reading + 1°C)
200°C ~ 400°C	±(0.5% reading + 1°C)
400°C~1370°C	±(0.2% reading + 1°C)
-328°F ~ -200°F	±(0.5% reading + 2°F)
-200°F ~ 200°F	±(0.2% reading + 2°F)
200°F ~ 2498°F	±(0.3% reading + 2°F)

温度系数：

当操作温度不在 18°C~28°C 范围时，每一度需加入以下的不准确度：

读值 × 0.01% ± 0.03 °C

读值 × 0.01% ± 0.06 °F

注意：

以上的精度是电表本身的规格,但在实际应用时需考虑热电偶本身的规格误差。请参阅相关规格表以确认总误差。

取样率：3 秒 / 每次

外观尺寸：184x64x30 mm

重量：约 250g

附件：K Type 温度棒 x 2, 电池, 皮套, 使用说明书
RS-232 连接线, 软件(OMEGA HH309A)

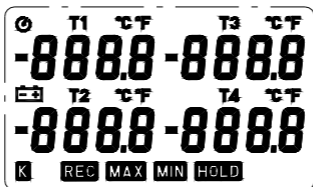
AC 电源转换器：9VDC±15% 100mA (选购)

USB 连接线(选购)。

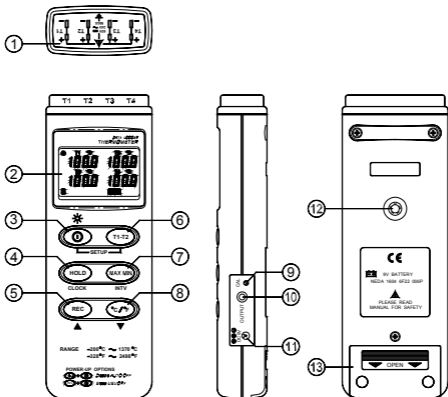
《注一》：

每次按下"REC"键开始记录,到再次按"REC"结束记录称为一组数据,您可以记录无限多组数据,直到内存用完为止。

三.符号定义及按键位置:



-  : 负号指示符号
- °C°F** : 温度单位符号
- K** : 传感器类型指示符号
- MAX** : 最大值显示符号
- MIN** : 最小值显示符号
-  : 自动关机符号
- HOLD** : 读值保留指示符号
-  : 低电池指示符号
- T1,T2**
T3,T4 : 热电偶插头指示符号
-  : T1-T2 差值指示符号
- REC** : 读值记录中指示符号



按键说明：

- | | |
|---------------|------------|
| ① T1-T4 热电偶接头 | ② LCD 顯示幕 |
| ③ 电源开关 | ④ 讀值保留按鍵 |
| ⑤ 记录按钮 | ⑥ T1-T2 按钮 |
| ⑦ 最大、最小读值按钮 | ⑧ 溫度單位選擇 |
| ⑨ 溫度偏移校正旋鈕 | ⑩ 數位輸出連接器 |
| ⑪ AC 电源转换器插座 | ⑫ 三腳架連接座 |
| ⑬ 電池盒蓋 | |

四. 操作说明：

4.1 开/关机与背灯功能：

按①键一次开启电源;再按一次打开/关闭背灯。
持续按此键3秒,关闭电源。

4.2 连接温度热电偶：

将热电偶的连接器插入温度表顶端的连接头,请注意连接器的正负极性。

4.3 温度单位选择：

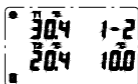
按“°C/°F”键选择以°C 或者以°F 为显示的温度单位。

4.4 锁定温度读值：

按下“HOLD”键可锁定显示读值，再按一次可解除锁定;当读值锁定时，“MAX MIN”，“T1-T2”及“°C/°F”功能将不能执行。

4.5 T1-T2 功能：

按一次“T1-T2”键，在电表 LCD 右上方会显示“1-2”字样，表示电表 LCD 右下方所显示为 T1 减 T2 的读值，如右图一。



图一。

4.6 记忆及清除记忆功能：

按下“REC”键后，电表就会开始记录，再按一次“REC”键就会停止记录。



图二。

如果要清除记忆，先关机，然后按住“REC”键不放，再同时按住电源键，LCD 会显示“CLR”，“SURE 5”字样并开始倒数，按住键不放直到倒数显示“0”即表示清除记忆完毕，之后放掉所有键再开机。

4.7 时间设定：

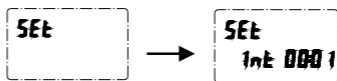


步骤 1: 按住“T1-T2”键再开机:此时进入设定模式。

步骤 2: 按“HOLD”(clock)键:

步骤 3: 按“REC”▲ 或 “°C/°F”▼ 增减数字，若要快速增减数字，请按住此钮不放，按“HOLD”(clock)更换调整项目，顺序是：年→月→日→时→分→秒，然后按“HOLD”(clock)储存设定值，在设定途中，如果想离开设定模式且不储存设定值，可按电源键来结束。

4.8 记录时间间隔设定：



步骤 1: 按住“T1-T2”键再开机,此时进入设定模式。

步骤 2: 按 "MAXMIN"(INTV)键:

步骤 3: 按"REC" ▲ 或 "C/°F" ▼ 增减数字,若要快速增减数字,请按住此钮不放,按"MAXMIN"(INTV)键调整下一个项目,最后按"MAXMIN"(INTV)储存设定值,在设定途中,如果想离开设定模式且不储存设定值,可按电源键来结束。

4.9 最大、最小读值功能：

当按下"MAX MIN"键时电表将同时记录最大值、最小值;当 MAX 出现时,显示值为记录的最大值。再按一次"MAX MIN"键,当 MIN 出现时显示的值即为记录的最小值。


再按一次"MAX MIN"键,当 MAX MIN 同时闪烁时显示的值为目的的测量值。


再按一次"MAX MIN"键,将回到 MAX 显示。

如此使用者可选择合适的读值显示,而期间的读值将随时更新。


当按住"MAX MIN"键达 2 秒将结束此操作状态。

4.10 自动关机：

当一般方式开机时，电表会在 LCD 左上方出现  符号，表示在 30 分钟内没有按键操作及 RS232 联机以及没有记录数据时会自动关机。

当要解除自动关机模式时，可以压住“HOLD”键再开机，LCD 上的  符号就不会显示，表示自动关机已解除。

4.11 电池不足指示：

当  显示在显示屏时，表示电池电量已不足，需要更换新电池。

4.12 校正点：

输入	调整点	允许误差
0.0°C	VR1	±0.1°C
190.0°C	VR2	±0.1°C
1000°C	VR3	±1°C
1900°F	VR4	±1°F

P.S

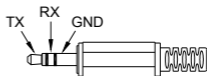
一般情况下可以一大气压中水的三相平衡点（有水有冰的热平衡容器）的 0°C 及 VR1 的 Offset 调整获得不错的校正结果。

4.13 数字输出：

输出方式：UART 9600bps N, 8, 1 normal High.

输出格式：ASIC II 字符输出及编码状态旗标回

报信号输出连接：请参考右图



五. TestLink SE-309 软件安装说明：

将光盘 TestLink SE-309 程序安装到您的计算机后,再将计算机连接线连接温度表及计算机即可。

硬件最低需求:

486-100MHZ 以上 PC 兼容,16MB 内存,5MB 以上可用硬盘空间。


操作系统需求:Win98/NT4.0/NT2000/XP/Vista

安装方式:

在 Windows 下将光盘片放在光驱中,执行 Windows 的"开始"的执行,输入 e:\setup,按 Enter 键,就会执行安装程序,依照指示即可完成安装,安装完毕后会在"开始"的"程序集"中出现"TestLink"程序项,点取其中的"SE-309"执行程序,其它详细使用说明请参考在线说明。

<附录> 本表有附一线式温度棒,其规格如下：

型号	范围	准确度	说明
TP-K01 Bead probe	-50°C to 200°C -58°F to 392°F	$\pm 2.2^{\circ}\text{C}$ or $\pm 0.75\%$ ($\pm 3.6^{\circ}\text{F}$ or $\pm 0.75\%$)	铁氟龙绝缘,最高耐温 260 °C



***注意!** 当温度表与 PC 联机时,温度棒不可测量带电物体,以避免温度表受损。

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence. The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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