

1 YEAR
WARRANTY



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HH309A **Data Logger Thermometer**



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一.簡介:

OMEGA HH309A (DataLogger)是一具以 K-type 熱電偶溫度感測器為 Sensor 的數位溫度錶, OMEGA HH309A 具有記憶體裝置,最多可連續記憶 16000 (註一) 筆,可以不接電腦直接將溫度先記錄在電錶中,然後經由電腦將記憶體讀出,供做分析,列印或存檔等用途。也可以由電腦記錄大量資料(視您電腦的記憶體及硬碟空間)。其中的熱電動勢與溫度轉換關係以 IEC458 國際標準之 K-type 轉換函數定義。

二.規格:

顯示方式:

四位數液晶銀幕顯示器,四組顯示。

測量範圍: -200 ~ 1370 -328 ~ 2498 °F

解析度:

-200°C ~ 200°C 0.1°C; 200°C ~ 1370°C 1°C

-200°F ~ 200°F 0.1°F; else 1°F

輸入端保護: 60V DC, or 24Vrms AC

操作環境:

0°C ~ 50°C (32°F ~ 122°F); 0 ~ 80% RH

儲藏環境:

-10°C to 60°C (14°F ~ 140°F); 0 ~ 80% RH

使用電池: 9V DC

電池壽命: 約 100 小時(鹼性電池)

操作海拔: 海拔 2000m 以下

測量精度: 環境溫度 $23 \pm 5^{\circ}\text{C}$, 濕度 80%RH 以下

範 圍	準 確 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)

溫度係數：

當操作溫度不在 18°C~28°C 範圍時，每一度需加入以下的不準確度：

讀值 × 0.01% ± 0.03 °C

讀值 × 0.01% ± 0.06 °F



注意：

以上的精度是電錶本身的規格，但在實際應用時需考慮熱電偶本身的規格誤差。請參閱相關規格表以確認總誤差。

取樣率：3 秒/每次

外觀尺寸：184x64x30 mm

重量：約 250g

附件：K Type 溫度棒 x 2, 電池, 皮套, 使用說明書

RS-232 連接線, 軟體 (OMEGA HH309A)

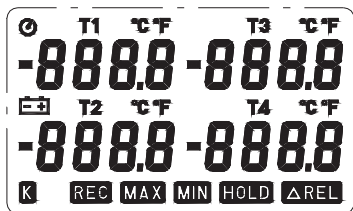
AC 電源轉換器：9VDC±15% 100mA (選購)

USB 連接線(選購)

《註一》：

每次按下"REC"鍵開始記錄,到再次按"REC"結束記錄稱為一組資料,您可以記錄無限多組資料,直到記憶體用完為止。

三. 符號定義及按鍵位置



: 負號指示符號

°C°F

: 溫度單位符號



: 感測器類型指示符號



: 最大值顯示符號



: 最小值顯示符號



: 自動關機符號



: 讀值保留指示符號



: 低電池指示符號

T1,T2

T3,T4

: 熱電偶插頭指示符號



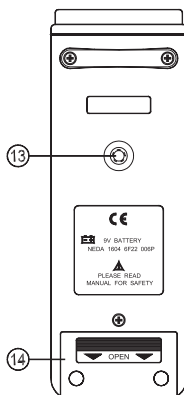
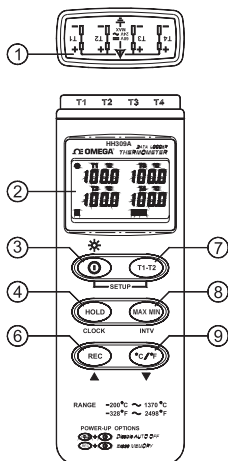
: T1-T2 差值指示符號



: 相對值指示符號



: 讀值記錄中指示符號



按鍵說明:

- | | |
|----------------|--------------|
| ① T1-T4 熱電偶連接頭 | ② LCD 顯示幕 |
| ③ 電源開關 | ④ 讀值保留按鍵 |
| ⑤ 相對值顯示按鈕 | ⑥ 記錄按鈕 |
| ⑦ T1-T2 按鈕 | ⑧ 最大、最小讀值按鈕 |
| ⑨ 溫度單位選擇 | ⑩ 溫度偏移校正旋鈕 |
| ⑪ 數位輸出連接器 | ⑫ AC 電源轉換器插座 |
| ⑬ 三腳架連接座 | ⑭ 電池盒蓋 |

四. 操作說明：

4.1 開/關機與背燈功能:

按①鍵一次開啓電源;再按一次打開/關閉背燈。
持續按此鍵 3 秒,關閉電源。

4.2 連接溫度熱電偶：

將熱電偶的連接器插入溫度錶頂端的連接頭,請注意連接器的正負極性。

4.3 溫度單位選擇：

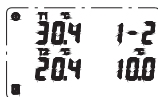
按“°C/°F”鍵選擇以°C 或者以°F 爲顯示的溫度單位。

4.4 鎖定溫度讀值：

按下“HOLD”鍵可鎖定顯示讀值，再按一次可解除鎖定;當讀值鎖定時，“△REL”，“MAX MIN”，“T1-T2”及“°C/°F”功能將不能執行。

4.5 T1-T2 功能：

按一次“T1-T2”鍵，在電表 LCD 右上方會顯示“1-2”字樣，表示電錶 LCD 右下方所顯示為 T1 減 T2 的讀值，如右圖一。



圖一。

4.6 記憶及清除記憶功能：(309)

按下“REC”鍵後，電錶就會開始記錄，再按一次“REC”鍵就會停止記錄。



圖二。

如果要清除記憶，先關機，然後按住“REC”鍵不放，再同時按住電源鍵，LCD 會顯示“CLR ” “SURE 5 ”字樣並開始倒數，按住鍵不放直到倒數顯示“0 ”即表示清除記憶完畢，之後放掉所有鍵再開機。

4.7 時間設定：(309)

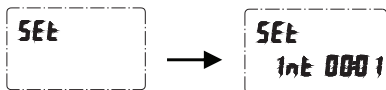


步驟 1: 按住“T1-T2”鍵再開機:此時進入設定模式。

步驟 2: 按 “HOLD”(clock)鍵:

步驟 3: 按“REC” ▲ 或 “°C/°F” ▼ 增減數字，若要快速增減數字，請按住此鈕不放，按“HOLD”(clock)更換調整項目，順序是：年→月→日→時→分→秒，然後按“HOLD”(clock)儲存設定值，在設定途中，如果想離開設定模式且不儲存設定值，可按電源鍵來結束。

4.8 記錄時間間隔設定：(309)



步驟 1: 按住“T1-T2”鍵再開機:,此時進入設定模式。

步驟 2: 按 "MAXMIN"(INTV)鍵:

步驟 3: 按"REC" ▲ 或 "°C/°F" ▼ 增減數字,若要快速增減數字,請按住此鈕不放,按"MAXMIN"(INTV)鍵調整下一個項目,最後按"MAXMIN"(INTV)儲存設定值,在設定途中,如果想離開設定模式且不儲存設定值,可按電源鍵來結束。

4.9 最大、最小讀值功能：

當按下"MAX MIN"鍵時電錶將同時記錄最大值、最小值;當 MAX 出現時,顯示值為記錄的最大值。

再按一次"MAX MIN"鍵,當 MIN 出現時顯示的值為記錄的最小值。

再按一次"MAX MIN"鍵,當 MAX MIN 同時閃爍時顯示的值為目前的測量值。

再按一次"MAX MIN"鍵,將回到 MAX 顯示。

如此使用者可選擇合適的讀值顯示,而期間的讀值將隨時更新。

當按住"MAX MIN"鍵達 2 秒將結束此操作狀態。

4.10 自動關機：

當一般方式開機時，電錶會在 LCD 左上方出現  符號,表示在 30 分鐘內沒有按鍵操作及 RS232 連線以及沒有記錄資料時會自動關機。

當要解除自動關機模式時，可以壓住“**HOLD**”鍵再開機，LCD 上的  符號就不會顯示,表示自動關機已解除。

4.11 電池不足指示：

當  顯示在顯示幕時，表示電池電量已不足，需要更換新電池。

4.12 校正點：

輸入	調整點	允許誤差
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

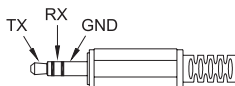
一般情況下可以一大氣壓中水的三相平衡點（有水有冰的熱平衡容器）的 0°C 及 VR1 的 Offset 調整獲得不錯的校正結果。

4.13 數位輸出：

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

輸出格式：ASIC II 字元輸出及編碼狀態旗標回

報信號輸出連接：請參考右圖



五. TestLink SE-309 軟體安裝說明：

將光碟 TestLink SE-309 程式安裝到您的電腦後,再將電腦連接線連接溫度錶及電腦即可。

硬體最低需求:

486-100MHZ 以上 PC 相容,16MB 記憶體,5MB 以上可用硬碟空間。

作業系統需求:Win98/NT4.0/NT2000/XP/Vista

安裝方式:

在 Windows 下將光碟片放在光碟機中,執行 Windows 的"開始"的執行,輸入 e:\setup,按 Enter 鍵,就會執行安裝程式,依照指示即可完成安裝,安裝完畢後會在"開始"的"程式集"中出現 **"TestLink"** 程式項,點取其中的"SE-309"執行程式,其它詳細使用說明請參考線上說明。

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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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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