HTM3 Mk2 MONITOR MANUAL
Manual Ref H308 Issue 2
(99022502)

PLEASE READ THIS MANUAL BEFORE USING HTM3

The HTM3 is a hand held monitor, it will read a range of Robydome temperature and humidity sensors specifically designed for grain and vegetable store operation.

Use as a simple monitor (operation 1) or as a data logger (operation 2/3).

The clear LED display and push button operation allows the recording of temperatures in stored produce to be a simple and accurate task.

The power saver feature extends battery life.

SPECIFICATION

Temperature reading range	-20°C to +150°C (using suitable sensors).
Resolution	0.1°C
Accuracy	+/- 0.5°C (-20 to 100°C).
RH reading range	10 to 95%,+/- 2%.
Memory	Stores up to 200 readings.
Battery	PP3 or MN1604, 9v

GETTING STARTED: Set-up and check-out

1. Identify the various parts of the monitor, the diagram will help with this. Pressing the relevant key will operate the function.

   Take care when connecting sensor, the socket and sensor plugs have a polarizing keyway.

2. Check-out the "secret" settings:-

   a) Battery Saver Time; this is set to 30 seconds when supplied, to access hold PROG and simultaneously switch ON using the 1 key. The first number is the software ref, release PROG, the time is shown (t1) in seconds.

      To adjust use MEM to increase and PROG to decrease. Once adjusted, HTM3 will automatically power OFF after the set time has elapsed since the last key pressed. Setting to zero disables the saver. Once set, switch OFF using the 0 key.

   b) Number of stored sensors; this is pre-set to 1 (n1), this can be adjusted by holding MEM and then switch ON. The software ref is displayed, release MEM, the number (n) is the MAXIMUM number of memory locations that can store temperature readings.

To adjust press MEM to increase and PROG to decrease. To GET STARTED keep reading at n1; the maximum number is 200.

Once set switch OFF using the 0 key.

OPERATION 1: using HTM3 to read temperature

1. Plug any Robydome sensor into the sensor connector socket, ensure the plug mates correctly, note the alignment of the polarising slot of the socket.

2. Switch ON (key 1), the display will show the temperature of the connected sensor in degrees C. Four dashes show when no sensor is connected.

   After the pre-set time the battery saver will switch HTM3 OFF or it can be switched OFF using the POWER OFF key 0.

3. To read the same or another sensor temperature repeat step 2 or 1 and 2.

NOTE: If you don't want to store readings then do not read operation 2 and 3.

OPERATION 2: using HTM3 to read and store one temperature

1. Ensure sensor is plugged in, switch power ON, display shows sensor temperature.

2. To STORE the reading in MEMORY:-

   a) Press and HOLD the PROG key, it will show P1, after 3 seconds display flashes to indicate reading stored in memory location 1 (P1).

   b) Release PROG, display will again read ACTUAL sensor temperature.

   c) To store another reading at memory location 1 (P1) repeat steps (a) and (b), the new reading will over-write (replace) the previous one.

   d) If PROG is released before display flashes then reading is NOT stored.

   e) With no connected sensor, the PROG function will not work, the display shows 4 flashing P's indicating reading NOT stored since PROBE not connected.

3. To READ a stored temperature in MEMORY:-

   a) Press and HOLD MEM, the display shows P1 (location 1).

b) Release MEM, display shows the stored reading as a flashing number, after 3 seconds display has a steady (non-flashing) reading which is the ACTUAL temperature of the connected sensor.

c) To read from MEMORY at any time press MEM.

d) HTM3 will show readings from memory even if no sensor is connected, . just press MEM.

REMEMBER: Steady display is ACTUAL reading, flashing display is STORED reading.

OPERATION 3: Using HTM3 to read and store multiple temperatures

1. Review "GETTING STARTED" paragraph 2b to adjust number of readings to be stored. Instead of leaving the memory location number at n1 change to the MAXIMUM number of sensors (readings) you wish to store, for example n10 for 10 sensor readings. This is accessed in "secret" set-up.

2. **TIP:** It is a good idea to have the SAME memory location number as sensors to be read. Once number is adjusted switch monitor OFF to revert to normal operation.

3. At this point, HTM3 works exactly as per OPERATION 2, it will store and read from one memory location only. Start here and store the first (P1) reading from sensor 1; review OPERATION 2, paragraph 2(a), 2(b) and 2(c).

4. To store more than one reading the MEMORY LOCATION UP and DOWN keys need to be used (↑↓). See HTM3 diagram.

5. To STORE more than one reading:-

   a) Move connected sensor to the next position to be monitored OR connect monitor to the next sensor.

   b) Press the UP key(↑) momentarily, display shows P2 for 3 seconds and then the connected sensor temperature. REMEMBER, no sensor reads 4 dashes.

   c) Press PROG, the memory location P2 is shown, after 3 seconds display then flashes, the reading is now stored in memory at location 2. Release PROG to read ACTUAL temperature once again.

   d) Press ↑ again to move to P3, and then PROG to store a new reading in memory location 3. Readings can be stored up to the maximum set.

6. At any time the memory location can be changed up or down by using the ↑ or memory location keys to select desired number.

7. To READ stored temperatures:-

   a) To read out of memory press and hold MEM, the location is displayed, release MEM to read the stored value (flashing) at that location.

      REMEMBER; flashing display is stored reading, steady display is actual.

      This is useful for comparing an ACTUAL temperature with the previously stored reading at the same location.

   b) Use the scan location keys ↑ or ↓ to select another memory location when reading other stored values. After selecting the location press MEM to read.

8. Using the memory in HTM3 can help to compare temperatures from one week to the next.

   a) Ensure memory location numbers coincide with sensor (probe) positions at ALL times.

   b) Read position 1 (P1) sensor temperature.

   c) Press MEM, ensuring the memory location number (in this case P1) is OK, if not adjust. Now the flashing stored reading can be compared with the actual (steady) reading. (This assumes the monitor has read and stored reading from the previous week, for example).

TIP: To re-check and compare temperature just press MEM as many times as required to see if temperature has risen or fallen since the last time.

   d) Use PROG to store the new reading for the week, it will over-write (replace) the previous reading.

9. To automatically scan readings from memory using ONE key stroke:-

   a) Press and HOLD MEM, check the location display is where you want to start. If not adjust using ↑ or ↓ .

   b) Pressing either ↑ or ↓ whilst HOLDING MEM will set for automatic scanning.

   c) To scan UP press MEM and ↑ , release ↑ and then MEM.

   d) Press MEM, release to read from memory, press again and HOLD, the location number will increment UP, release to read next location value. Continue to review readings in other higher locations, holding MEM automatically increments location.

   e) To scan DOWN repeat from (a) but press ↓ instead of ↑.

10. ***TIP: You don't have to wait for the display to stop flashing to change location number, press MEM again and hold to scan to the next location, this is useful when transferring data to a document.***

    At any time use ↑ or↓ to adjust location.

11. To revert to normal NON AUTO-SCANNING operation switch HTM3 OFF.

12. HTM3 can read the Robydome RHS32 relative humidity sensor.

    Plug the sensor in as per temperature sensors. The monitor will then display the humidity (%) sensed by RHS32, an H on the display indicates humidity is shown.

    RH readings cannot be stored in memory.

13. Clearing Memory

    a) It may be required to clear all stored readings from the HTM3 memory, for instance at the beginning of a new season.

    b) **BE CAREFUL**, once cleared the data held in memory is not retrievable and therefore it is lost forever.

    c) To clear **ALL** memory locations HOLD MEM, PROG and ↑ together and switch ON. The display will read four C's.

    d) Release all 3 keys, display will flash four C's for 3 seconds.

    e) **IMPORTANT** - whilst the display flashes it is possible to terminate memory clear, if HTM3 is switched OFF before flashing sequence finishes memory will NOT be cleared.

    f) Once display reads normally the memory is TOTALLY cleared.

MAINTENANCE

1. Battery

    a) The battery will normally last one season.

    b) The monitor will warn if the battery is low, four decimal points will show on the display. The battery should be replaced as soon as possible.

    c) Replace by sliding the battery compartment cover on the under-side of HTM3 in the direction of the 3 chevrons, the battery is then visible.

d) Dispose of battery in an environmentally conscious manner.

STORAGE AND USE

a) Always keep the monitor in a dry, cool place when not in use for long periods.

b) Protect from the direct effects of the environment, eg rain. do not leave monitor in direct sunlight for long periods.

c) HTM3 is supplied with two spring clips to allow it to be mounted directly on a lance type sensor. Probing and reading can then be done one handed.

USING HTM3 WITH ROBYlink™ SYSTEMS

OVERVIEW

ROBYlink™ is designed to make taking a lot of readings simple and fast.

ROBYlink™ compatible sensors are connected to the SDC3 Smart Box which is read by the HTM3 monitor using IRP3 infra-red probe.

Temperature readings are transferred to the memory of HTM3 using infra-red light transmitted by SDC3 and received by IRP3 probe.

OPERATION 1: Reading and Storing Temperatures.

1. a) Plug the infra-red probe into HTM3.
   b) Switch ON, display will read “SDC3” to show correct mode.
   c) Display will then show a previous reading OR, if memory is empty (clear), four dashes.

2. a) Ensure HTM3 is switched ON.
   b) Bring probe head up to the target window marked with a RED CIRCLE & IR on SDC3 Smart Box.
   c) Hold the probe against the window and look for the battery indicator to the left to show SDC3 powered up.
   d) Keep probe in position checking HTM3 display, first it shows “rd” for READING DATA; then “Fin” to show reading sequence was successful.
   e) Repeat (d) if sequence was not completed.
   f) The readings from ALL the connected sensors are now in memory.

3. a) Readings can now be reviewed using MEM and the arrow keys. Refer to “OPERATION 3: Using HTM3 to read and store multiple temperatues”, para 7 (a) and (b).
   b) To transfer readings into memory STORE press and hold PROG until display flashes. Now any new readings can be compared with STORED values by pressing MEM.
   c) New readings can be taken at any time, they will “over-write” previous ones, but the STORED values remain until the transfer procedure is done using PROG.

OPERATION 2: Reading Multiple SDC3 Boxes.

1. a) Where more than one SDC3 is to be read HTM3 automatically sorts its memory into different allocations for each box using its “memory manager”.
   b) SDC3 boxes are coded by internal setting switches so a maximum of 32 can be read by ONE HTM3.
   c) After an SDC3 box has been read the temperatures displayed relate directly to that particular box, the memory manager automatically directs readings so the display shows the latest information.
   d) To read temperature values from other SDC3 boxes press and immediately release PROG. A “U” number (unit) will appear showing which SDC3 was last read e.g. U1, U2 etc. Use the arrow keys, whilst U shows, to select a different number and then the related readings will be displayed. Scan sensor temperatures using the arrow keys.
   e) If the display shows four dashes then readings have note been taken yet for that particular SDC3.

BEWARE:

Every time an SDC3 is read the data is over-written for that particular box, therefore a good routine is to TRANSFER readings into STORE once all boxes have been interrogated. The transfer routine puts all data into STORE.

2. The ROBYlink™ system also makes reviewing actual and stored readings simple by using MEM to check for temperature rise or fall for each sensor location.

USING A P.C. WITH HTM3 AND ROBYlink™

OVERVIEW

Comparing temperature readings with HTM3 can be even simpler if the data can be down-loaded to a P.C.

Now a software package is available from Robydome and is part of the STORECHECK family. It is designed to make record keeping and store management straight forward.

There are two parts to the software:

STORECHECK HTM3 DATA CAPTURE is for non ROBYlink™ applications where the stored information is derived from readings taken with standard sensors.

STORECHECK ROBYlink™ DATA CAPTURE allows readings from ROBYlink™ systems taken by HTM3 to be down-loaded to a P.C.

Both versions come on one disk and run on M.S. WINDOWS 3.11, 95 or 98.

To order use our model ref. SW64 or part number 250-575.

The package is complete with an interface module which links HTM3 with the serial port of the P.C.