

H-Triad/Twin Weighing Scales TECHNICAL INFORMATION

**TEC: H-NOTES
Rev 0.2 20.05.09**

These technical notes provide information on the following topics that are dealt with further in the technical manual. Here discussed is not so much mechanical or hardware issues but rather matters concerning programming and all the procedures for preparing the weighing scales for normal use.

1. **Setting up the weighing scales**
2. **Replacing the CPU board**
3. **Replacing the converter board**
4. **Calibration.**
5. **Updating software.**
6. **Connecting to a Ditron ECR**
7. **Connecting WEIGHING SCALES in a 485 network**

NOTE ON THE CONVENTION OF KEYS USED

By [+] and [-] the menu items and various parameters are selected.

By the [*] key, ([enter/total]) the menu item or parameter or a selected value is confirmed.

By [C] the next menu level up is selected: the current value of a parameter is cancelled so as to re-input it;

By [00] in a number of cases allows exit without saving the parameters.

In addition to the keys mentioned above other keys are also used with the same functions associated which are needed for programming the right model of weighing scales, and hence the keypad, with new hardware. We will call these keys alternative keys and their fundamental feature is that they are recognised with the functions described by any model of weighing scales. They can be used at any time it is found that the keypad does not match up, and so be able to select it properly before proceeding with other programming.

			H-TREAD	H-TWIN
1	[-]	=	[1/21]	[key]
2	[+]	=	[2/22]	[f]
3	[C]	=	[3/23]	[t]
4	[*]	=	[4/24]	[pt]

1) SETTING UP THE WEIGHING SCALES:

SETTING UP THE WEIGHING SCALES WITH NEW HARDWARE:

Weighing scales with new hardware need a series of programming actions in order to work properly. Normally these programming actions are performed at the manufacturing plant but may be required if a CPU board and/or converter board is replaced. Here below the various steps are shown and need to be followed scrupulously:

1. If taken from one environment to another with a different temperature, keep the weighing scales switched off even for a few hours, if **calibration** is also to be performed.
2. With seals open, close short circuit "CAL" on the small allocated converter board, which is accessible lifting the tray.
3. Switch on the weighing scales.
4. You will be asked to press a key. Indeed the software, in recognising that this is a new CPU board, will need to generate identification to assign to the board so as to be able to identify it when switched on later.
5. Then you may be asked to input the date in 6 figures as DDMMYY and to confirm it. It may happen that the keys struck do not match the screen printed symbols. In this event strike the first alternative key and try again until the right keypad is detected and which will allow you to input the date requested
6. At this point, as the "CAL" circuit is shorted, control passes to the metrology software. Inputting the date and confirming is requested, and then a menu is shown.
7. By [+] and [-] the following possible selections are available:
Param / Mod. / Weight / Events / Other

Select the "Other" menu, and within this, the item "rStvAL" to request initialling of the factory preset parameter values.

In reality this operation is already performed automatically where new hardware is present.

It may however be necessary to change the following parameters which differ by type of weighing scales.

Parameters : preset value

Model of weighing scales (from the Mod. menu): 12 kg/2g/ (select as necessary the one concerned)

"tAstiE" (keypad type	from Other menu):	0 for H-Triad	(1 for H-Twin)
"PrStAM" (preprint	from Other menu):	5 for H-Triad	(4 for H-Twin)
"CntrSt" (contrast module from Other menu):		20 for H-Triad	(10 for H-Twin)

8. Perform event reset by selecting the "Events" menu and the item "reset events", confirming with the [*](Enter/Total)key. You will be asked to key in the following password as confirmation "909090" and a specific message will advise you that this has taken place.
9. Perform the calibration procedure which is activated by the **Weight** item in the main menu as described in the "**Calibration**" paragraph.
It is to be borne in mind that to perform calibration of the weighing scales, it must have been switched on for around ten minutes at least in order to reach working temperature: a firm surface without vibrations must be used, and ensuring furthermore that the weighing scales are properly placed by checking the spirit level is needed. If calibration is performed properly, at the end of this the weighing scales enter a status in which the weight information can be viewed on the "WEIGHT" and its value in 1/5 divisions on the "PRICE" display, so allowing a rapid check on its functioning to be made. At this point, striking a key causes exit from this state and return to the menu. Pressing key [C] allows running back up the menu until the main menu is reached, when exiting from which by [C], saving is requested by pressing [*](ENTER/TOTAL) or not saving changes by pressing [00]. In reality, the calibration procedure, if completed, brings about automatic saving of any modifications made.
10. Switch off the weighing scales; remove the "CAL" short circuit mentioned above. Switch the weighing scales on again.
11. At this point the application system starts and after a test on viewers and the presentation of the model and release software and the time needed to perform zero detection, they set up in the transaction record functioning mode. A 100 error message may be displayed indicating that the software, having recognised that it is dealing with a new board, performs initialling of files and programming actions and working variables of the weighing scales automatically. Press the confirm key to exit the message.
12. Though not necessary, being in this case done automatically, complete initialling of applications data can be performed through key "INITIALISING" (for release 1.0.18 the key to be used is DEBUG and code 25).

SETTING UP THE WEIGHING SCALES WITH A NEW OR DIFFERENT CPU BOARD :

It is to be borne in mind that all the electronics of the weighing scales are accessible for normal maintenance without it being necessary to break the metric seal. The exception to this is the converter board which is enclosed in a box that is accessible by lifting the tray and the loading cell which can be replaced only with seals opened, as it is bound to the converter board.

To replace the CPU board, all that is needed is to open the weighing scales head and detach the various keypad connectors, the serial module, printer and power feed so it can be extracted.

Ensure that the jumper for the CN6 buffer battery is closed before mounting it on the new board. Then close the plastic head cover.

Here below the various steps that are to be followed scrupulously for setting up are shown:

1. Switch the weighing scales on

2. If dealing with a new board, you will be asked to press a key. Indeed the software in recognising that this is a new CPU board will need to generate identification to assign to the board so as to be able to identify it when switched on later.
3. If dealing with a new board you may be asked to input the date in 6 figures as DDMMYY and to confirm it. It may happen that the keys struck do not match the screen printed symbols. In this event strike the first alternative key and try again until the right keypad is detected and which will allow you to input the date requested.
4. At this point the application system starts and after a test on viewers and the presentation of the model and release software and the time needed to perform zero detection, they set up in the transaction record functioning mode. A 100 error message may be displayed indicating that the software, having recognised that it is dealing with a new board, performs initialling of files and programming actions and working variables of the weighing scales automatically. Press the confirm key to exit the message.
5. If for any reason it should happen that the model shown on the alphanumeric display is different from the model of weighing scales, you must proceed as follows:
Enter "Service" metrology mode via the sequence shown below:
For H-TRIAD displaying model H-TWIN, strike keys [1/21, [2]. [+/-], [5], [1], [Shift], [00/help]
For H-TWIN displaying model H-TRIAD, strike keys [Plu], [0], [+], [0], [9], [5] [00]
and modify the parameters as indicated under point 7 of the paragraph "SETTING UP THE WEIGHING SCALES WITH NEW HARDWARE" using the alternative keys described above.
Then exit from the metrological menu thus returning to applications
Point (6 applies for release 1.0.19 and above)
6. In this case too, though not necessary, being done automatically, complete initialling of applications data can be performed through key "INITIALISING" (for release 1.0.18 the key to be used is DEBUG and code 25).

2) REPLACING THE CPU BOARD

When, only the CPU board is to be replaced for repair, we have the situation described in the paragraph "SETTING UP THE WEIGHING SCALES WITH A NEW OR DIFFERENT CPU BOARD"

3) REPLACING THE CONVERTER BOARD

When only the convertor board is to be replaced for repair we have the situation similar to that described in the paragraph "SETTING UP THE WEIGHING SCALES WITH NEW HARDWARE" with the difference that points 4) and 5) are not usually performed. Point 11) does not usually include signalling error 100 with consequent initialling of files and application parameters held unchanged on the CPU board. Point 12) is not needed; indeed it is to be avoided so as not to lose data files such as : "articles", "ingredients", "batches" etc.

4) CALIBRATION:

See the document "Calibration of the weighing system from the keypad".

5) UPDATING SOFTWARE:

Updating the software, except for bootloader software, is allowed only through a loading procedure utilising the serial interface device RS232. In particular, through specific software running on a computer linked in its turn to the weighing scales through a specific RS232 serial cable (use the standard Ditron PC cable), a logical connection is established with the motherboard resident bootloader of the weighing scales. Through a proprietary protocol the new software to program is transferred to flash in micro. For security reasons the software sent is encrypted prior (at the time of generation) with a secret key known to the bootloader.

Installing downloaded software.

In order to perform weighing scales software updating, if not already done, the downloaded program needs to be installed to a PC which has at least an RS232 type serial port (a USB RS232 converter will also suffice). The downloaded program is made up of an executable "Binloader.exe" and 3 OCX to be registered in windows according to the information supplied with the package, which are shown below.

In order to register the 3 OCX, copy them into the folder\windows\system32\ and then register them using paste for each OCX into the file"\windows\system32\regsvr32.exe".

Updating weighing scales software:

To perform uploading of the new firmware, proceed as described as below:

- connect the serial cable to the COM 1 port of the computer and the serial socket fitted to the weighing scales. Run the executable "binloader.exe"

To synchronise the binloader program with the weighing scales, first press the "CONNECT" key and then after a few seconds switch on the weighing scales.

Once synchronised, first perform block erasure and then select the "FILE" to upload and then press the "WRITE" button to perform the download.

Press the DISCONNECT button and exit, closing the application.

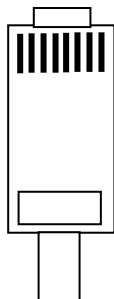
N.B.: for each session of programming action, run "binloader" again.

6) CONNECTION TO A DITRON ECR:

The weighing scales may be connected to a DITRON ECR via a specific connector and preparing the serial port mentioned to work according to the RS232 standard and in compliance with the mode foreseen for this connection.

For the connection to the ECR the cable mirrors the following

1.....8



ECR (RJ45)	WEIGHING SCALES (RJ45)
8 (GND) -----	8 (GND)
5 (RX) <<<-----	6 (TX)
6 (TX) -----	>>> 5 (RX)
4 (RTS) -----	>>> 3 (CTS)
3 (CTS) <<-----	4 (RTS)

To program the ECR connecting port IN THE WEIGHING SCALES follow the following instructions:

Enter into "Key 7" ; key in password 79513 ;

key in code 10; select and confirm the COM 1

Then set the various parameters of the above port which are preset as 9600 – No parity - 8 bit per char - 1 bit of stop.

Followed by the parameters:

leave timeout 500

Mode: select ECR

ECR Mode: select only total /single trans.

The following significant parameters follow only if single trans. mode is selected

- Close Yes/No : send/do not send transaction record closure command to ECR
- Dept. not coded. indication of the department to be advised to ECR for those not coded
- Send Returns Yes/No : send/do not send negative values to ECR (returns)
- Department for returns : indication of the department to be advised to ECR for returns.
- Automatic send Yes/No : Sending to ECR takes place automatically after printing of the transaction record/ sending to ECR is done if I key in confirm after printing.

For ECR in "KEY P" program via port com2:

TYPE: WEIGHING SCALES

PROTOCOL: 40180

MODEL: 0

DEPARTMENT: 1

Then execute 101 confirm

Return to "key REG"

7) CONNECTION OF WEIGHING SCALES IN A 485 NETWORK:

To connect the weighing scales in a 485 network it is necessary to program the network number to each one:

KEY 7

(NETWORK MENU)

Input Password 79513

CODE 11 –

Input weighing scales number: 00 for the Master

from 01 to 09 for the slave and confirm with [Enter/Total]/[*] (asterisk for the H-Twin)

Switch off and connect all the weighing scales with the cables and switch them back on (cables not supplied)

CABLE SCHEME

RJ45 male		RJ45 male
1	-----	1
2		2
3		3
4		4
5		5
6		6
7	-----	7
8		8

Check the network connection: the "ONLINE" LED must be lit on the H-Triad model. In a number of H-Twin weighing scales, this led is hidden above the battery led. For both models, when the weighing scales are connected to the network two arrows appear on the alphanumerical display beside the model to indicate the connection:

example:

← H-TWIN → indicates weighing scales connected to the network
H-TWIN indicates weighing scales disconnected from the network

Once weighing scales connected to the network are switched on, and the master has been programmed, it is possible to send all the information from the master to the other weighing scales as follows:

Enter KEY 7 (NETWORK MENU) insert PassWord – 79513

Input Code 12 (SENT SETUP)

Once terminated, press the [C] key twice to return to weighing scales function.

If for any reason weighing scales are disconnected, switched off or have broken down, it is necessary to perform reinstatement of the network by the following procedure depending on whether Master or Slave is involved:

- if Slave, as soon as work restarts on another weighing scales, message "Error Weighing Scales N.x" will appear on the alphanumerical display, thus giving the operator the opportunity of ignoring those weighing scales and continuing to work by striking the [KEY] key. From then on indeed, those weighing scales will be ignored by all the other weighing scales in the network.
- if Master, switch off all the weighing scales, modify any Slave to have it become Master by simply reprogramming its network number to 00, then switch them back on.

If on the other hand it is wished for weighing scales connected to the network to work singly, proceeding as follows is necessary:

- if the weighing scales are Master, they are already suited to functioning alone.
- if on the other hand they are Slave, they need to be baptised as Master, i.e. enter KEY 7 (NETWORK MENU), input PassWord -79513 code 11 and then assign number 00 to the weighing scales. It is also possible to isolate it without a network number when assigning the network number with the [RC] key.

Press key [C] twice to return to weighing scales function.