



T24 - Wireless Telemetry

Telemetry Training - Part 2

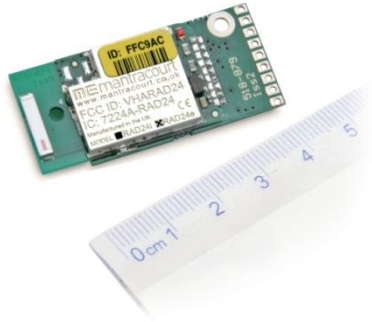
January 2015

Chapter 6

T24 Transmitter Modules



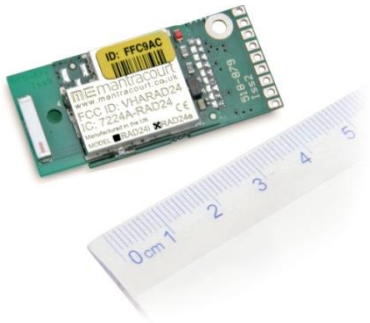
Transmitter Modules 200 Hz



- T24-SA
 - 5V DC excitation voltage
 - Calibrated to 2.5 mV/V
 - Strain gauge drive capability 85 to 5,000 Ohms
 - Noise free resolution
 - Sample time < 10 ms 1:50,000
 - 1 Kg : 50 ton load cell
 - Sample time < 1,000 ms 1:250,000
 - 20 g : 50 ton load cell
- T24-VA
 - 0 - 10 V input
 - Noise free resolution
 - Sample time < 10 ms 1:7,000
 - Sample time < 1,000 ms 1:11,000
- T24-IA
 - 0 - 20 mA input
 - Calibrated 4 - 20mA
 - Noise free resolution
 - Sample time < 10 ms 1:5,000
 - Sample time < 1,000 ms 1:10,000



Transmitter Modules 2,000 Hz



- T24-SAf
 - 5V DC excitation voltage
 - Calibrated to 2.5 mV/V
 - Strain gauge drive capability 85 to 5,000 Ohms
 - Noise free resolution
 - Sample time < 10 ms 1:50,000
 - Sample time < 1,000 ms 1:250,000
- T24-VAf
 - 0 - 10 V input
- T24-IAf
 - 0 - 20 mA input
 - Calibrated 4 - 20mA

Points to Note:

- Logging only available in paired configuration with toolkit
- Concatenated binary data provider makes integration only possible with base station



Housing & Powering Modules

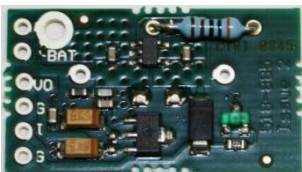


- T24-ACM

- Houses any acquisition module
- IP65 rated case
- Option of
- Field terminals for power and sensor connection
- Battery pack
- Extended range ANTA (standard), ANTB & ANTC

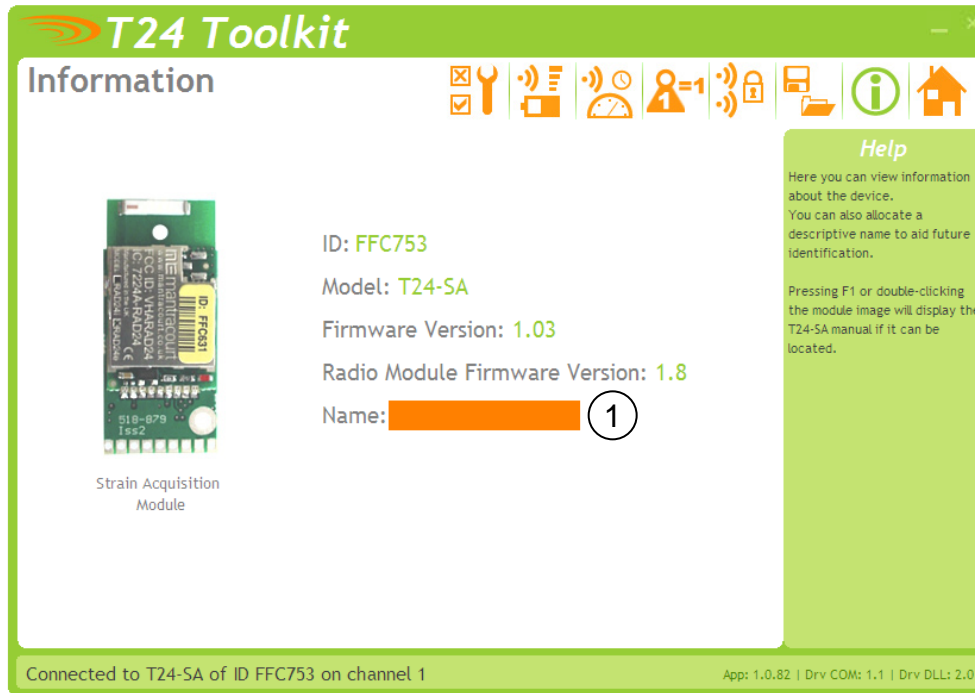
- T24-BC1

- Li-ion battery charger
- Integrated voltage regulator
- +5V charge supply
- 2 charge currents :
 - 133 mA
 - 466 mA



Configuring Transmitter Modules

Information Settings



1. Apply system name (Optional)



Calibrating Transmitter Modules

1 Calibration

1 Number of Calibration Points

2 Select the number of points you want to calibrate over. This can be between 2 and 9 points.

Calibration Points

1	0.0	2	6	0.0	Acquire
2	0.0	3	7	0.0	Acquire
3	0.0	Acquire	8	0.0	Acquire
4	0.0	Acquire	9	0.0	Acquire
5	0.0	Acquire			

To start again [Click Here](#) To perform System Zero [Click Here](#)

mV/V Input
-0.0021
Shows the input applied. [Strain Gauge]
[Format](#)

Calibrated Value
-0.0021
Shows the calibrated value. This may not display correctly until you have Acquired the second point!
[Format](#)

[Advanced](#)

Help
This page allows you to calibrate and linearise the device by applying a number of known loads.

Simply select the number of calibration points you require and enter the required engineering unit value for each point then apply each load and click the [Acquire] link.

NOTE: Clicking any of the [Acquire] links may invalidate any existing calibration and will remove any existing System Zero.

Connected to T24-SA of ID FFC753 App: 1.0.76 | Drv COM: 1.0 | Drv DLL: 2.0

1. Select the number of calibration points you wish to take you calibration over.
2. Enter the value of each calibration point. i.e. 0 Kg, 50 Kg, 120 Kg, 220 Kg, etc...
3. As you apply each weight click the acquire button next to the value to set the calibration point.



Configuring Transmitter Modules



Data Rate

1 Transmit Interval (mS)
333 Enter the interval between taking a measurement and transmitting the result. Default = 300

2 Sample Time (mS)
5 The longer the sample time the more accurate the readings but the less life will be achievable from the battery. Default = 5

3 Low Power Mode
Yes When Low Power mode is active the device semi-sleeps between transmissions so battery life is vastly increased. Default = Yes

4 Battery Life Guide

Battery Type	Usable Capacity (Ah)
Custom	2.2

Sensor Impedance (Ohms) 1000 Usage Per 24 Hour Period (Hours) 24

Noise Free Resolution: 15.5 bits or 1:50,000
Battery Life: 27 days and 15 hours

Connected to T24-SA of ID FFC753 on channel 5
App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Transmit Interval : Time between transmission. Default - 333 mS resulting in a 3 Hz sample
2. Sample Time : Time sample it taken for from connected sensor. Default - 5ms
3. Low Power Mode : Manages if the modules stands by between transmissions; below 40 ms low power mode ineffective
4. Battery Life Guide : Enter the details of the battery connected and sensor details plus predicted usage per 24 hours and the guide will give you the noise free resolution and predicted battery life for the transmitter module

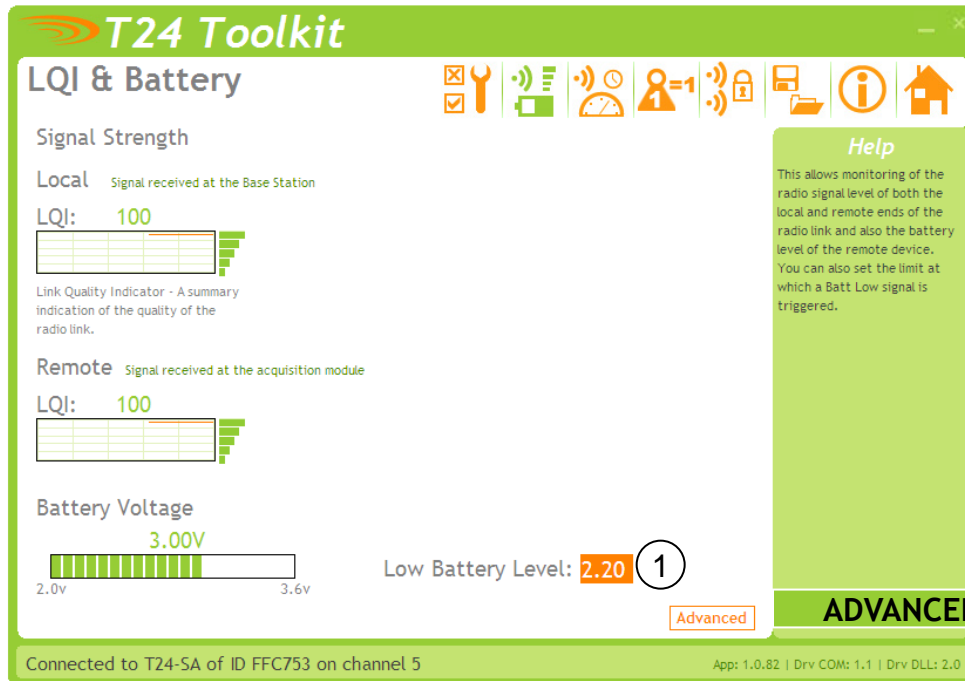


Configuring Transmitter Modules

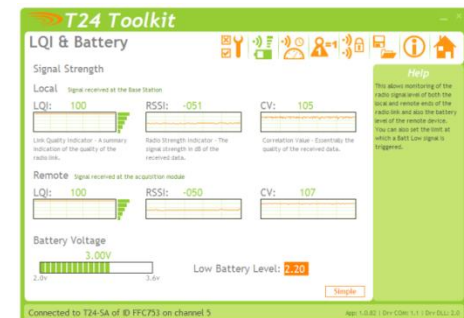
LQI & Battery

This page displays battery voltage & Link Quality Indicator (LQI) at the base station (Local) and transmitter module (Remote). The LQI is calculated from the Relative Signal Strength Indicator (RSSI) & Correlation Value (CV) which can be viewed under the advance view.

1. Low Battery Level : When the Battery goes below this voltage the SA will transmit low battery warning to data consumers



ADVANCED VIEW



Configuring Transmitter Modules

Advance Settings

1 Sleep Delay (s)
0 Enter a time in seconds after which without receiving a 'Keep Awake' message the device will enter deep sleep where no transmissions will occur again until the device is woken.

2 Data Tag
C753 This identifies the data transmissions and should only be changed under instruction. If this is changed then you would need to pair the device again with any reliant modules such as handhelds.

Help
These are advanced settings and do not normally require changing.

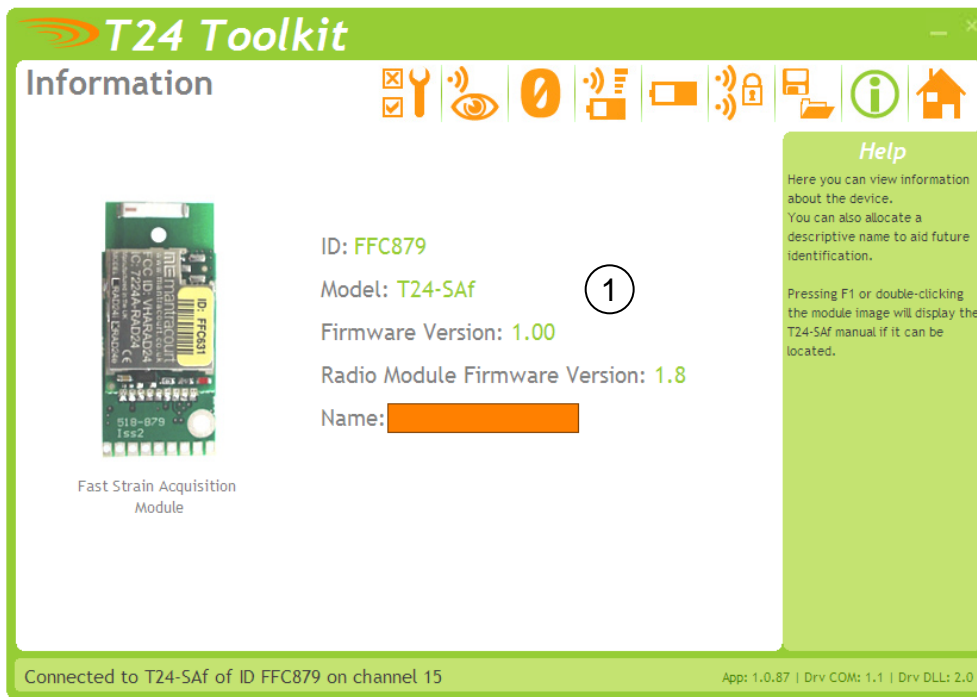
Connected to T24-SA of ID FFC753 on channel 5
App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Sleep Delay : Time lapse that module will sleep after last “Keep Awake” message. handheld send keep awake messages every 5 sec; therefore it is wise to set this to 30 seconds so if Handheld moves out of range the transmitter module sleeps. Default - (0) no sleep delay
2. Data Tag : This is the tag attached to any data provided by the transmitter module. Default - last 4 HEX digits of Radio ID.



Configuring Fast Transmitter Modules

Information Settings



1. Apply system name (Optional)



Configuring Fast Transmitter Modules

Battery Life

LQI & Battery

T24 Toolkit

Battery Life

Battery Life Guide

Battery Type Select a common battery type or enter a custom capacity.
Custom

Usable Capacity (Ah) **2.2**

Sensor Impedance (Ohms) **1000**

Usage Per 24 Hour Period (Hours) **24**

Battery Life: 1 days and 16 hours

Help
 The battery life guide is only an indication of battery life and there are many factors that can affect this which are not accounted for here.
 The guide assumes ideal operating conditions at 20 degrees centigrade and that capacitor modules are fitted when using alkaline batteries.
 Please refer to device manual for more information.

Connected to T24-SAf of ID FFC879 on channel 15
 App: 1.0.87 | Drv COM: 1.1 | Drv DLL: 2.0

T24 Toolkit

LQI & Battery

Signal Strength

Local Signal received at the Base Station

LQI: **099** RSSI: **-053** CV: **106**

Remote Signal received at the acquisition module

LQI: **099** RSSI: **-053** CV: **108**

Battery Voltage

3.06V

Low Battery Level: **2.20**

Simple

Help
 This allows monitoring of the radio signal level of both the local link and remote ends of the battery level of the remote device. You can also set the limit at which a Batt Low signal is triggered.

Connected to T24-SAf of ID FFC879 on channel 15
 App: 1.0.87 | Drv COM: 1.1 | Drv DLL: 2.0



Configuring Fast Transmitter Modules

Zero Settings

The screenshot displays the 'Zero Settings' window in the T24 Toolkit. It features a toolbar with various icons, including a green zero icon. The main content area is divided into three sections: 'System Zero Value' showing '0.0', 'Zero Now' with a button, and 'nV/V' showing '-967'. A 'Help' panel on the right provides instructions. The status bar at the bottom shows connection details and version information.

1

2

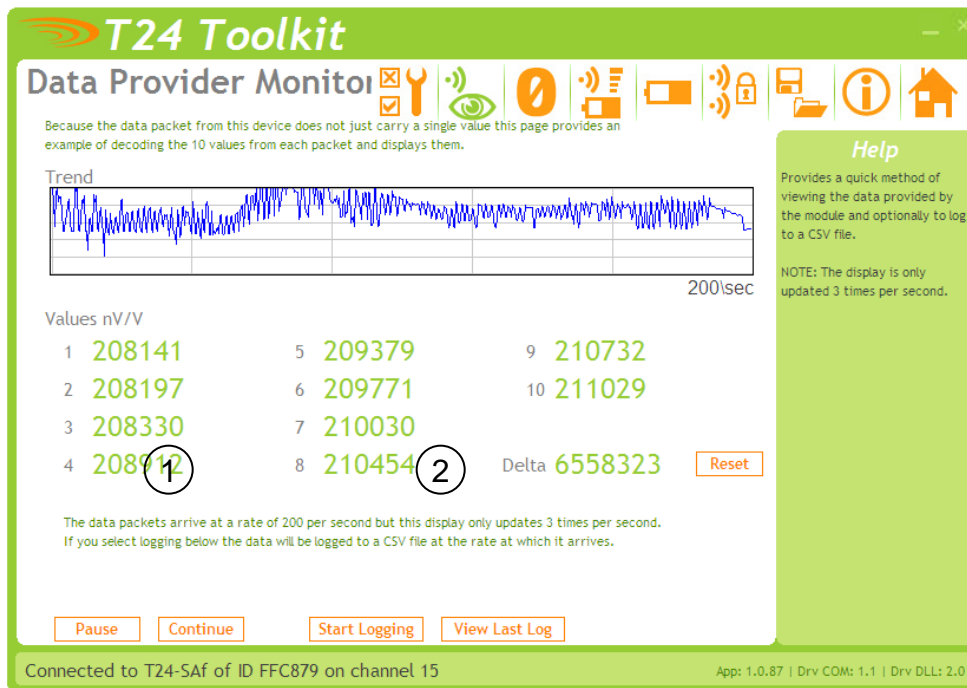
3

1. System zero value
2. Zero now
3. Current nV/V reading



Configuring Fast Transmitter Modules

Data Provider Monitor



T24 Toolkit

Data Provider Monitor

Because the data packet from this device does not just carry a single value this page provides an example of decoding the 10 values from each packet and displays them.

Trend

200|sec

Values nV/V

1	208141	5	209379	9	210732
2	208197	6	209771	10	211029
3	208330	7	210030		
4	208912	8	210454	Delta	6558323

Reset

The data packets arrive at a rate of 200 per second but this display only updates 3 times per second. If you select logging below the data will be logged to a CSV file at the rate at which it arrives.

Pause Continue Start Logging View Last Log

Connected to T24-Saf of ID FFC879 on channel 15

App: 1.0.87 | Drv COM: 1.1 | Drv DLL: 2.0

Help

Provides a quick method of viewing the data provided by the module and optionally to log to a CSV file.

NOTE: The display is only updated 3 times per second.

1. Pause / continue chart
2. Start / Stop Logging to *.csv File



Configuring Fast Transmitter Modules

Advance Settings

The screenshot shows the 'Advanced Settings' window in the T24 Toolkit. It features a toolbar with various icons and a 'Help' section on the right. The settings are as follows:

- Sleep Delay (s):** Set to 0. Description: Enter a time in seconds after which without receiving a 'Keep Awake' message the device will enter deep sleep where no transmissions will occur again until the device is woken.
- Data Tag:** Set to C879. Description: This identifies the data transmissions and should only be changed under instruction. If this is changed then you would need to pair the device again to the handheld.
- Shunt Cal:** Set to No. Description: You can turn on and off the shunt calibration. Ensure that you turn this off before returning the module to its normal operation.

At the bottom, it shows 'nV/V' set to -657 and 'Connected to T24-Saf of ID FFC879 on channel 15'. The footer includes 'App: 1.0.87 | Drv COM: 1.1 | Drv DLL: 2.0'.

1. Sleep Delay : Time lapse that module will sleep after last “Keep Awake” message. Handheld send keep awake messages every 5 sec; therefore it is wise to set this to 30 seconds so if handheld moves out of range the transmitter module sleeps. Default - (0) no sleep delay
2. Data Tag : This is the tag attached to any data provided by the transmitter module. Default - last 4 HEX digits of Radio ID.
3. Add in shunt for calibration



Chapter 7

T24 Handheld Modules



Handhelds



- T24-HS
 - Single connection to transmitter module
 - Tare function
 - Local and remote low battery indicator
 - Signal low indicator
 - Battery life 40 Hours continuous use

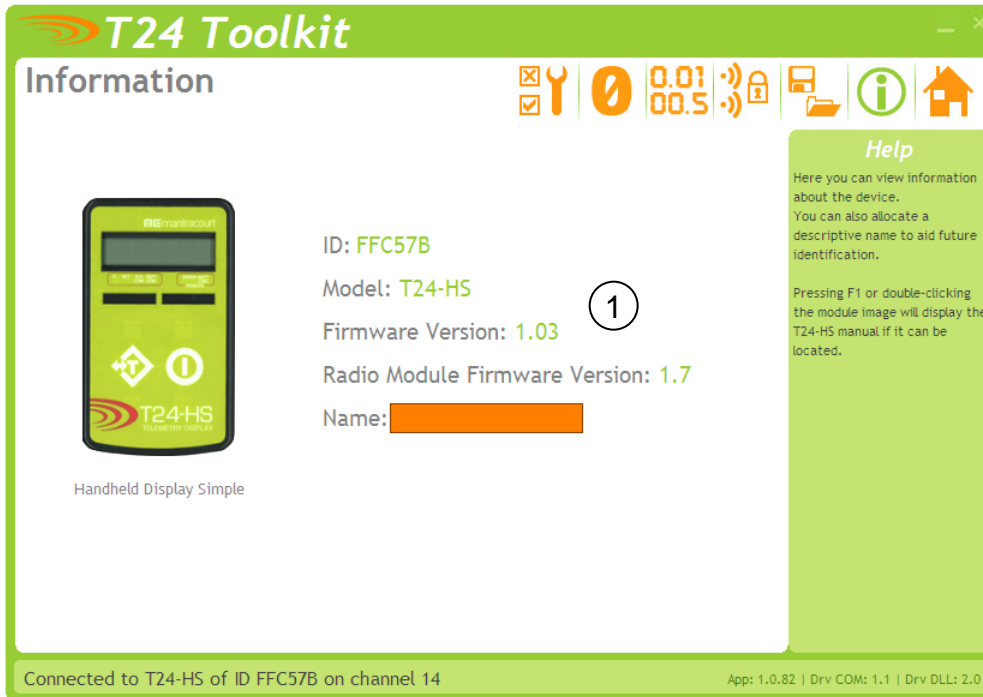


- T24-HA
 - Connection to up to 12 transmitter modules
 - 2 models
 - Result : Sums values from all transmitter modules
 - Item : Allows users to scroll through all transmitter modules
 - Same functionality & indicators as T24-HS



T24-HS Handheld

Information Settings



T24 Toolkit

Information

Handheld Display Simple

ID: FFC57B

Model: T24-HS

Firmware Version: 1.03

Radio Module Firmware Version: 1.7

Name: [redacted]

Help

Here you can view information about the device. You can also allocate a descriptive name to aid future identification.

Pressing F1 or double-clicking the module image will display the T24-HS manual if it can be located.

Connected to T24-HS of ID FFC57B on channel 14

App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Apply component name (optional)



T24-HS Handheld

0.01 00.5 Display Format

1 Format & Resolution : Enter the format you wish the display to show

2 Leading Zero Suppression : Remove preceding zero's from display

3 Overload Limit : Value at which display shows

1. Format & Resolution : Enter the format you wish the display to show

2. Leading Zero Suppression : Remove preceding zero's from display

No 000.0165
Yes 0.0165

3. Overload Limit : Value at which display shows

OVERLOAD



T24-HS Handheld

Zero Settings

T24 Toolkit

Zero Settings

1. **Power On Auto Zero**
0.0 The device can automatically zero the display on power up to tare away any unwanted readings. Here you can enter a limit above which the auto zero will not operate. Set to zero to disable.

2. **Zero Indication Band**
0.0 You can enter a value here below which zero will be displayed. When the input does exceed this value the correct value will be displayed. This can be used to hide unwanted display changes after zeroing without affecting the reading when above this level.

Help
Adjust power on zero and the zero indication band.

Connected to T24-HS of ID FFC57B on channel 14

App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Power On Auto Zero : Limit above which initial value is not tared away
2. Zero Indication Band : Value below which zero should be displayed.



T24-HS Handheld

Advance Settings

T24 Toolkit
Advanced Settings

1. **Waker Duration (mS)**: 12000. Select how long the handheld will wait to wake the paired device. The default is 12 seconds (12000 mS).

2. **Do Sleep Wake**: Yes. Choose whether the handheld will wake the paired device when it is turned on and will send it to sleep again when turned off. The default is YES.

3. **Auto Off Delay (m)**: 5. Enter a delay in minutes after which the handheld will power off if no button is pressed. Enter zero to disable this function. The default is 5 minutes.

4. **Keep Awake Interval (S)**: 5. Once the handheld has woken the paired device it keeps it awake by sending a Keep Awake signal at regular intervals. This interval is entered in seconds. The default is 5 seconds.

5. **Pair Wait Duration (S)**: 5. This determines how long to wait in seconds when pairing a device to the handheld. The default is 5 seconds.

Paired Data Tag: C753. Enter the Data Tag of the paired acquisition module.

Paired ID: FFC753. Enter the ID of the paired acquisition module. (Required to wake the module).

Help: These are advanced settings and do not normally require changing.

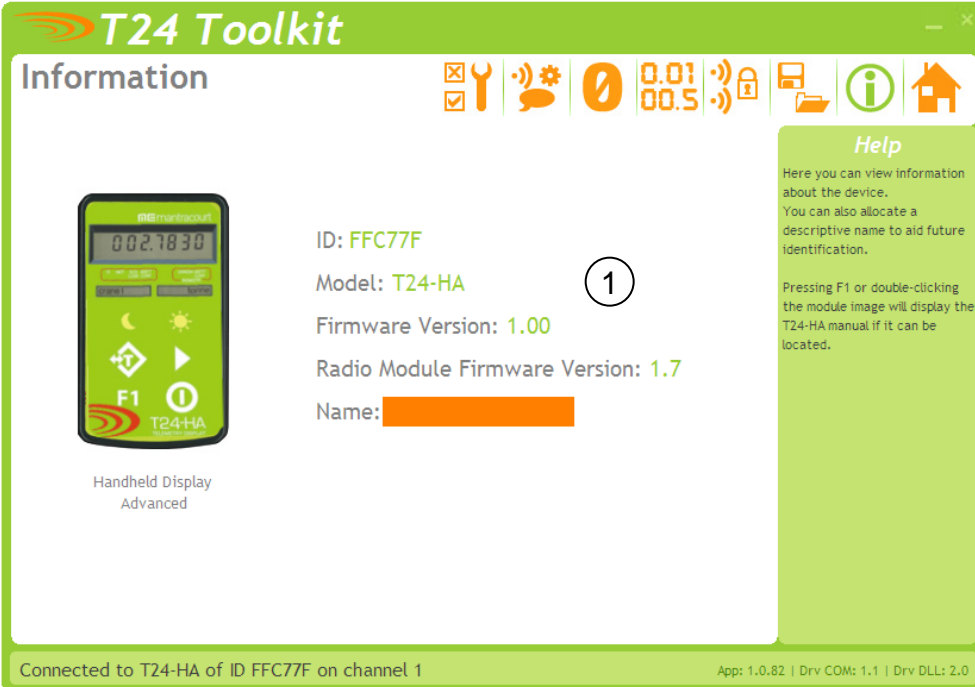
Connected to T24-HS of ID FFC57B on channel 14 | App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Waker Duration : Period waking will be attempted for
2. Do Sleep Wake : Should handheld wake and sleep transmitter module
3. Auto Off Delay : no button press shutdown
4. Keep Awake Interval : Time between keep awake packets
5. Pair Duration : Maximum pairing time



T24-HA Handheld

Information Settings



T24 Toolkit

Information

Handheld Display
Advanced

ID: FFC77F
Model: T24-HA
Firmware Version: 1.00
Radio Module Firmware Version: 1.7
Name: [redacted]

Help

Here you can view information about the device. You can also allocate a descriptive name to aid future identification.

Pressing F1 or double-clicking the module image will display the T24-HA manual if it can be located.

Connected to T24-HA of ID FFC77F on channel 1

App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Apply component name (optional)



T24-HA Handheld

0.01 00.5 Display Format

1 Format & Resolution : Enter the format you wish the display to show

2 Leading Zero Suppression : Remove preceding zero's from display

3 Overload Limit : Value at which display shows OVERLOAD

4 Motion Band : +/- Value Data must stay with in to be considered stable

5 Motion Time : Time that the data must stay with in motion band to be considered stable

1. Format & Resolution : Enter the format you wish the display to show
2. Leading Zero Suppression : Remove preceding zero's from display
 - No 000.0165
 - Yes 0.0165
3. Overload Limit : Value at which display shows OVERLOAD
4. Motion Band : +/- Value Data must stay with in to be considered stable
5. Motion Time : Time that the data must stay with in motion band to be considered stable



T24-HA Handheld

Zero Settings

- 1
- 2
- 3

T24 Toolkit
Zero Settings

Power On Auto Zero
0.0
The device can automatically zero the display on power up to tare away any unwanted readings. Here you can enter a limit above which the auto zero will not operate. Set to zero to disable.

Zero Indication Band
0.1
You can enter a value here below which zero will be displayed. When the input does exceed this value the correct value will be displayed. This can be used to hide unwanted display changes after zeroing without affecting the reading when above this level.

Allow System Zero
12
A system zero can be performed by holding the Tare key down for a number of seconds. If you would like this function enabled just enter the number of seconds to hold the key for. Enter zero to disable.

Perform System Zero
You can perform a system zero now by [Clicking Here](#) or remove any existing system zero by [Clicking Here](#) NOTE: the handheld must already be configured with the correct acquisition devices and valid communications must be established. This will perform the same action as when the Tare key is held and performing system zero via the keypad has been enabled.

Help
Adjust power on zero and the zero indication band.

Advanced

Connected to T24-HA of ID FFC77F on channel 1
App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Power On Auto Zero : Limit above which initial value is not tared away
2. Zero Indication Band : Value below which zero should be displayed.
3. Allow System Zero : Length of time the Tare button should be pushed for to perform system zero
4. External System Zero : transmitter module value subtracted from result

T24 Toolkit
Zero Settings Advanced

External System Zero
An external device can apply a system zero offset. To use this feature enter the Data Tag ID of the device supporting it. For this feature to work you will require a special device capable of transmitting the required system zero value. Enter a Data Tag ID of 0000 to disable.

Data Tag ID: 0000 000000

4

Back

Connected to T24-HA of ID FFC77F on channel 1
App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0



T24-HA Handheld

Mode & Comms

T24 Toolkit
Mode & Comms

1 Operational Mode
Result Mode

2 F1 Data Tag
AAAA

3 Allow Next Key
8

4 F1 Data
As Displayed

Help
This is where you configure the basic operating mode of the device.
You can also attach remote devices by pairing rather than enter their ID and Data Tag information manually.

Remote Data Tags and IDs
Here is where you need to identify the remote acquisition devices that you wish to communicate with. Click the X button to remove an item or the P button to pair to an actual device. Alternatively just type in the required information.

	Data Tag	ID		Data Tag	ID		Data Tag	ID			
1	C753	FFC753	P X	5	0000	000000	P X	9	0000	000000	P X
2	0000	000000	P X	6	0000	000000	P X	10	0000	000000	P X
3	0000	000000	P X	7	0000	000000	P X	11	0000	000000	P X
4	0000	000000	P X	8	0000	000000	P X	12	0000	000000	P X

Connected to T24-HA of ID FFC77F on channel 1
App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

- Operational Mode :
 - Result
 - Item
- F1 Data Tag : Data Tag attached to Data provider produced when F1 Pushed
- Allow Next Key : In Result mode pushing and holding next key for this period will cause individual values to be displayed
- F1 Data : Specifies whether data provided on F1 key press :
 - As Displayed
 - Always Gross



T24-HA Handheld

Mode & Comms

Adding Transmitter Modules

- Manual : Enter Data Tag and ID
- Pairing : Click **P** and Power cycle the Transmitter Module

Remote Data Tags and IDs

Here is where you need to identify the remote acquisition devices that you wish to communicate with. Click the X button to remove an item or the P button to pair to an actual device. Alternatively just type in the required information.

	Data Tag	ID		Data Tag	ID		Data Tag	ID
1	C753	FFC753		5	0000		9	0000
2	0000	000000		6	0000		10	0000
3	0000	000000		7	0000		11	0000
4	0000	000000		8	0000		12	0000



T24-HA Handheld

Advance Settings

T24 Toolkit
Advanced Settings

1 **Waker Duration (mS)** 12000
Select how long the handheld will wake the paired device. The default is 12 seconds (12000 mS).

2 **Do Sleep Wake** Yes
Whether the handheld will wake and sleep the paired devices as it is turned on and off. The default is YES.

3 **Auto Off Delay (m)** 5
The handheld will power off if no button is pressed within this time. Enter zero to disable this function. The default is 5 minutes.

4 **Keep Awake Interval (S)** 5
Paired devices need to be kept awake. Enter the interval in seconds to transmit Keep Awake messages. The default is 5 seconds.

5 **Pair Wait Duration (S)** 5
This determines how long to wait in seconds when pairing a device to the handheld. The default is 5 seconds.

6 **Item Duration (S)** 10
Select how long an individual input is displayed before reverting to Result display. The default is 10 seconds.

7 **Message Duration (mS)** 600
Select how long the item messages will be displayed before showing values. i.e. INPUT 4. The default is 600mS.

Help
These are advanced settings and do not normally require changing.

Connected to T24-HA of ID FFC77F on channel 1
App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Waker Duration : Period waking will be attempted for
2. Do Sleep Wake : Should handheld wake and sleep transmitter module
3. Auto Off Delay : no button press shutdown
4. Keep Awake Interval : Time between Keep Awake Packets
5. Pair Duration : Maximum Pairing Time
6. Item Duration : How long Item values are displayed for in Result Mode
7. Message Duration : How long Item Message will be shown for



Chapter 8

T24 Output Modules



Output Modules



- T24-S0
 - User formatted ASCII string output over RS232 / RS485
 - 9 - 36 V power supply
 - Connects to up to 8 transmitter modules
 - Provides sum function of transmitter modules
 - Switch input
 - Data output triggered via data provider
 - Log numbering



- T24-PR1
 - 56 mm carriage thermal printer
 - 9 - 36 V Power supply
 - Connected to up to 8 transmitter modules
 - Print triggered via data provider
 - Print log numbering

- T24-AO
 - Analogue output device
 - ± 10 V output
 - 0-20mA output



T24-SO

Information Settings



T24 Toolkit

Information

Serial Output

ID: FFC67A
Model: T24-SO
Firmware Version: 1.04
Radio Module Firmware Version: 1.7
Name: [redacted]

Help

Here you can view information about the device. You can also allocate a descriptive name to aid future identification.

Pressing F1 or double-clicking the module image will display the T24-SO manual if it can be located.

Connected to T24-SO of ID FFC67A on channel 1

App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Apply component name (optional)



T24-S0

Input Settings

1 Switch Mode
0-Print

2 Output Trigger Data Tag
0000

3 Data Tag
4 Timeout
5 Format

	Data Tag	Timeout	Format		Data Tag	Timeout	Format	
1	0000	2000	000.0000	5	0000	2000	000.0000	
2	0000	2000	000.0000	6	0000	2000	000.0000	
3	0000	2000	000.0000	7	0000	2000	000.0000	
4	0000	2000	000.0000	8	0000	2000	000.0000	
Sum							000.0000	6

Connected to T24-S0 of ID FFC67A on channel 1
App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Switch input Mode: Trigger output or switch between gross & net
2. Output Trigger Data Tag : On reception data provider with this tag output is triggered
3. Data Tag : of transmitter module inputs
4. Timeout : Time after which data error has occurred
5. Format : of data from data provider
6. Sum Format : This is the format of the sum, in a system with no direct data transmitter modules this sets the output format



T24-SO

12345 Output Settings

1 Duplicate
No Select whether to print twice for every print (output) triggered.

2 Min Interval
0 Time in milliseconds that must be allowed between prints. Print triggers faster than this will be ignored.

3 Gross Text
GROSS Text to replace the <GN> token when in gross mode.

4 Net Text
NET Text to replace the <GN> token when in net mode.

5 Print On Error
No Select whether an output will be triggered as any input device fails to supply data within the timeout period. useful if a device is supplying data to a serial display and is triggered from the arrival of that data.

6 Do Output

Log Number
0 Enter the current log number. Each time a print (output) is triggered this number will increment.

Log Digits
4 Number of digits to display when the <LOG> token is replaced. i.e. 3 digits will allow log number to count to 999 then reset to zero.

Line Delay Char
00 Define the character that will trigger the end of line delay. Enter in hexadecimal.

Line Delay
0 Delay in milliseconds to wait after each 'line' is sent to the serial output. Useful for limiting the data being sent to a printer.

Help
Configure the serial output and associated output settings.

Connected to T24-SO of ID FFC67A on channel 1 App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Print Options
 - Duplicate output
 - Min interval between outputs
2. Text Options
 - Text to replace <GN> token Gross and Net mode
3. Print On Error : If Any transmitter module fails should output occur
4. Log Options
 - Initial log value & scope of log number
 - Non volatile log number
5. Line delay and character
6. Do Output : triggers an output



T24-S0

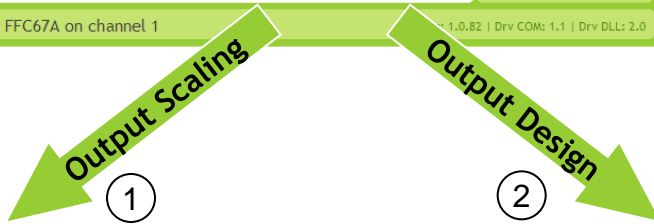
12345 Output Settings

Print On Error being sent to a printer...

No Select whether an output will be triggered as any input device fails to supply data within the timeout period. useful if a device is supplying data to a serial display and is triggered from the arrival of that data.

Do Output Output Scaling Output Design

Connected to T24-S0 of ID FFC67A on channel 1 | App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0



T24 Toolkit Output Scaling

At Low Input Value of Display Should Read

At High Input Value of Display Should Read

To configure custom display scaling just enter a low and high pair of values indicating what you would like displayed for a given input value. (NOTE: This will be applied to all inputs and totals.)

To remove any custom scaling [Click Here](#)

Back

Connected to T24-S0 of ID FFC67A on channel 1 | App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

T24 Toolkit Output Design

<<OD>> <<DA>>
<<OD>>

End Of Line Token Line Delay Character

The token added to the design when you press the Enter key. Use either <NL> (Equivalent to <OD><DL>) or use the Line Delay

Do Output Preview Back

Connected to T24-S0 of ID FFC67A on channel 1 | App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Output Scaling
 - Low input and high input read out specifications
2. Output Design
 - Format the ASCII string output

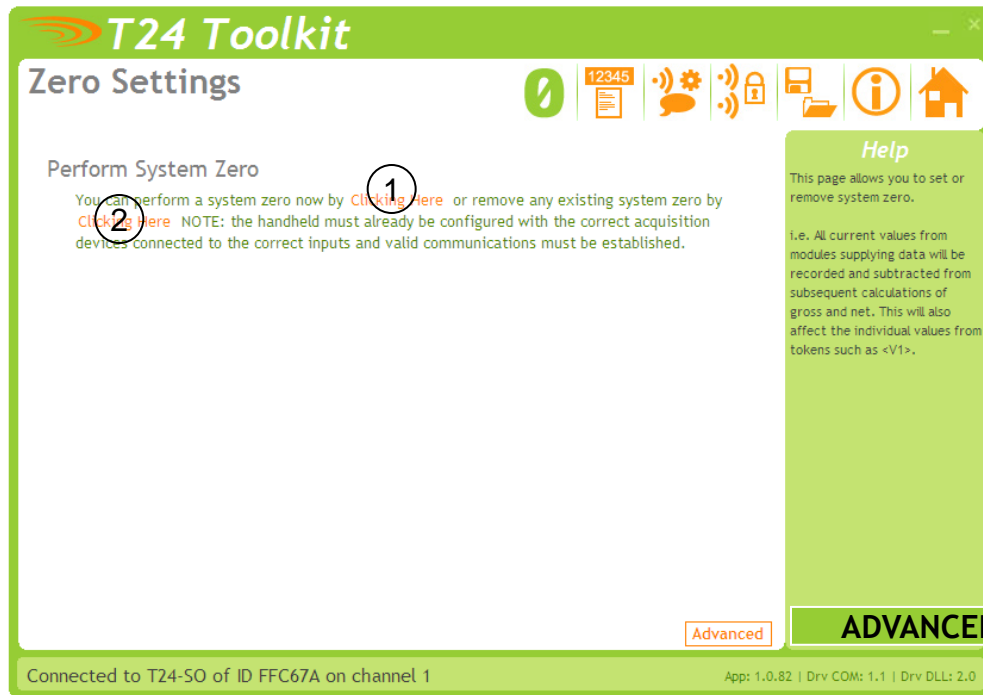
Available variables to add to output String

Description of variables

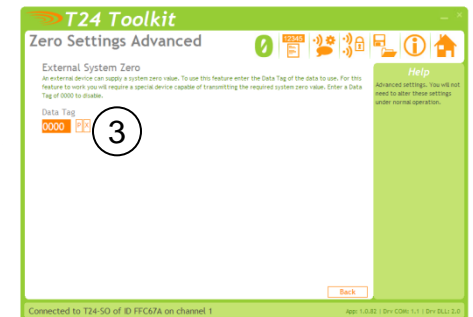


T24-SO

Zero Settings

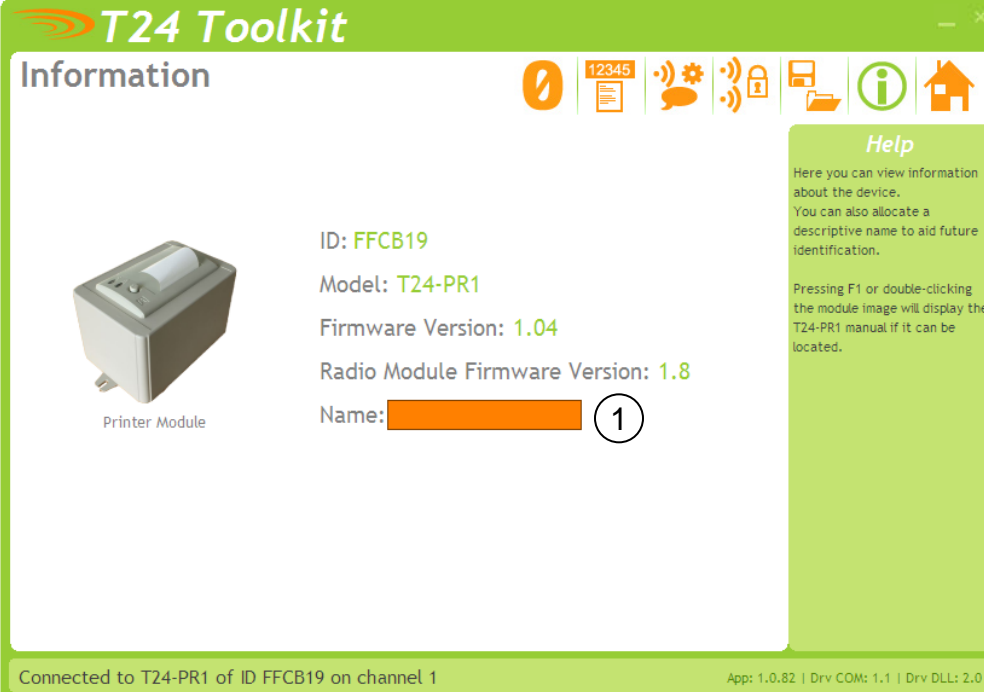


1. Perform System Zero i.e. Tare
2. Remove System Zero
3. External System Zero : transmitter module value subtracted from result




T24-PR1

Information Settings



T24 Toolkit

Information

 Printer Module

ID: FFCB19
Model: T24-PR1
Firmware Version: 1.04
Radio Module Firmware Version: 1.8
Name:

Help

Here you can view information about the device.
You can also allocate a descriptive name to aid future identification.

Pressing F1 or double-clicking the module image will display the T24-PR1 manual if it can be located.

Connected to T24-PR1 of ID FFCB19 on channel 1

App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Apply component name (optional)



T24-PR1

Input Settings

1 Output Trigger Data Tag

2 Data Tag

3 Timeout

4 Format

5 Sum Format

	Data Tag	P	X	Timeout	Format		Data Tag	Timeout	Format
1	0000	P	X	2000	000.0000	5	0000	2000	000.0000
2	0000	P	X	2000	000.0000	6	0000	2000	000.0000
3	0000	P	X	2000	000.0000	7	0000	2000	000.0000
4	0000	P	X	2000	000.0000	8	0000	2000	000.0000
Sum									0005000

1. Output Trigger Data Tag : On reception data provider with this tag output is triggered
2. Data Tag : of transmitter module inputs
3. Timeout : Time after which data error has occurred
4. Format : of data from data provider
5. Sum Format : This is the format of the Sum, in a system with no direct data transmitter modules this sets the output format



T24-PR1

12345



Output Settings

1 Duplicate
No

Select whether to print twice for every print (output) triggered.

2 Gross Text
GROSS

Text to replace the <GN> token when in gross mode.

3 Net Text
NET

Text to replace the <GN> token when in net mode.

4 Log Number
0

Enter the current log number. Each time a print (output) is triggered this number will increment.

Log Digits
4

Number of digits to display when the <LOG> token is replaced, i.e. 3 digits will allow log number to count to 999 then reset to zero.

Line Delay Char
0A

Define the character that will trigger the end of line delay. Enter in hexadecimal.

Line Delay
10

Delay in milliseconds to wait after each 'line' is sent to the serial output. Useful for limiting the data being sent to a printer.

5 Do Output

Output Scaling

Output Design

Help
Configure the serial output and associated output settings.

Connected to T24-PR1 of ID FFCB19 on channel 1

App: 1.0.82 | Drv COM: 1.1 | Drv DLL: 2.0

1. Print Options
 - Duplicate prints
 - Min interval between prints
2. Text Options
 - Text to replace <gn> token gross and net mode
3. Print On Error : If any transmitter module fails should print occur
4. Log Options
 - Initial log value & scope of log number
 - Non volatile log number
5. Do Output : triggers a print



T24-PR1

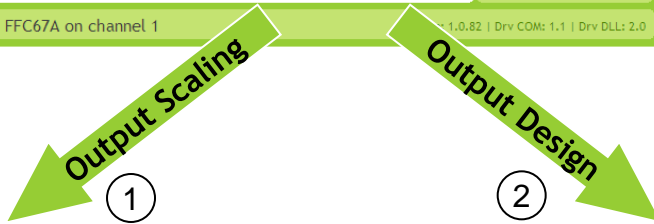
12345 Output Settings

Print On Error
 No

Select whether an output will be triggered as any input device fails to supply data within the timeout period. Useful if a device is supplying data to a serial display and is triggered from the arrival of that data.

Do Output Output Scaling Output Design

Connected to T24-SO of ID FFC67A on channel 1



T24 Toolkit Output Scaling

At Low Input Value of Display Should Read

At High Input Value of Display Should Read

To configure custom display scaling just enter a low and high pair of values indicating what you would like displayed for a given input value. (NOTE: This will be applied to all inputs and totals.)

To remove any custom scaling [Click Here](#)

Back

Connected to T24-SO of ID FFC67A on channel 1

T24 Toolkit Output Design

<<00>>013>>0A>>
<<00>>

End Of Line Token Line Delay Character

The token added to the design when you press the Enter key. Use either <NL> (Equivalent to <CR><LF>) or use the Line Delay

Do Output Preview Back

Connected to T24-SO of ID FFC67A on channel 1

1. Output Scaling
 - Low input and high input read out specifications
2. Output Design
 - Format the print out

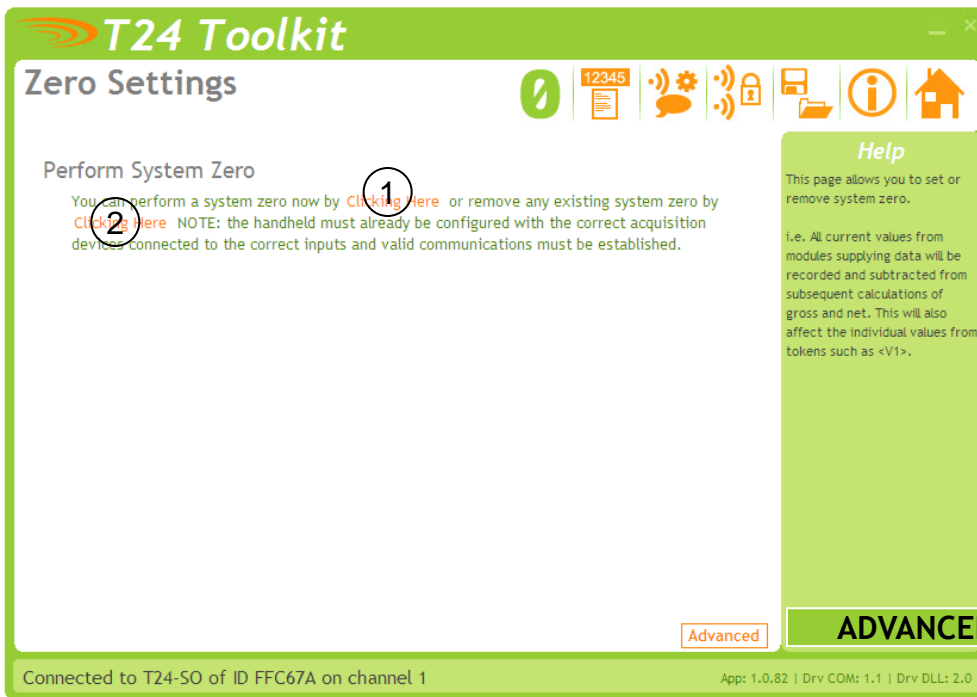
Available variables and formatting to add to output string

Description of variables

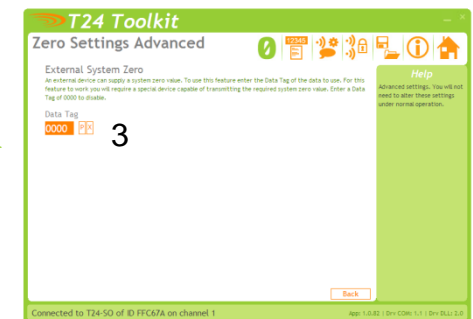


T24-PR1

Zero Settings



1. Perform System Zero i.e. Tare
2. Remove System Zero
3. External System Zero : transmitter module value subtracted from result



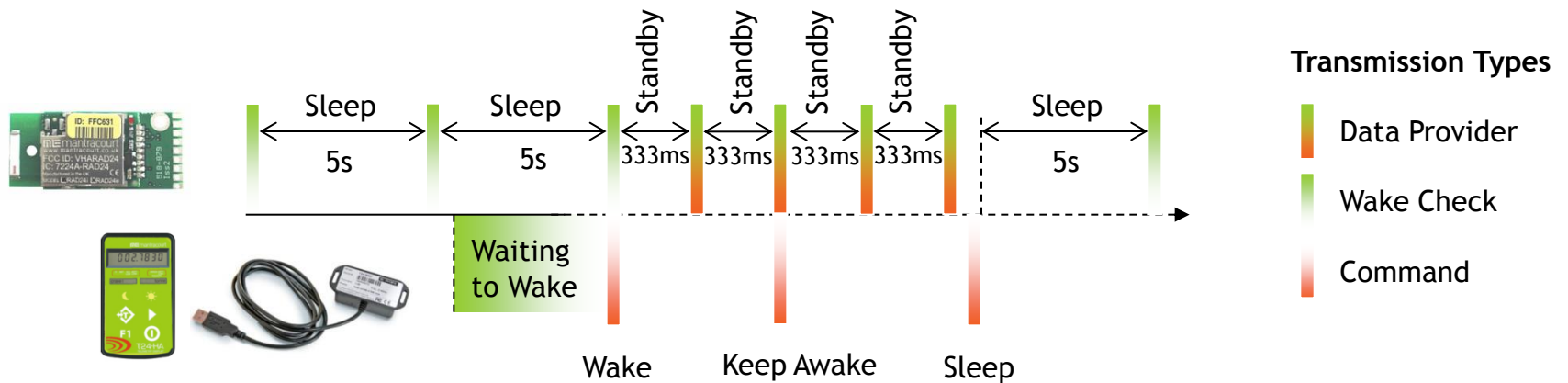
Chapter 9

Advanced System Architecture

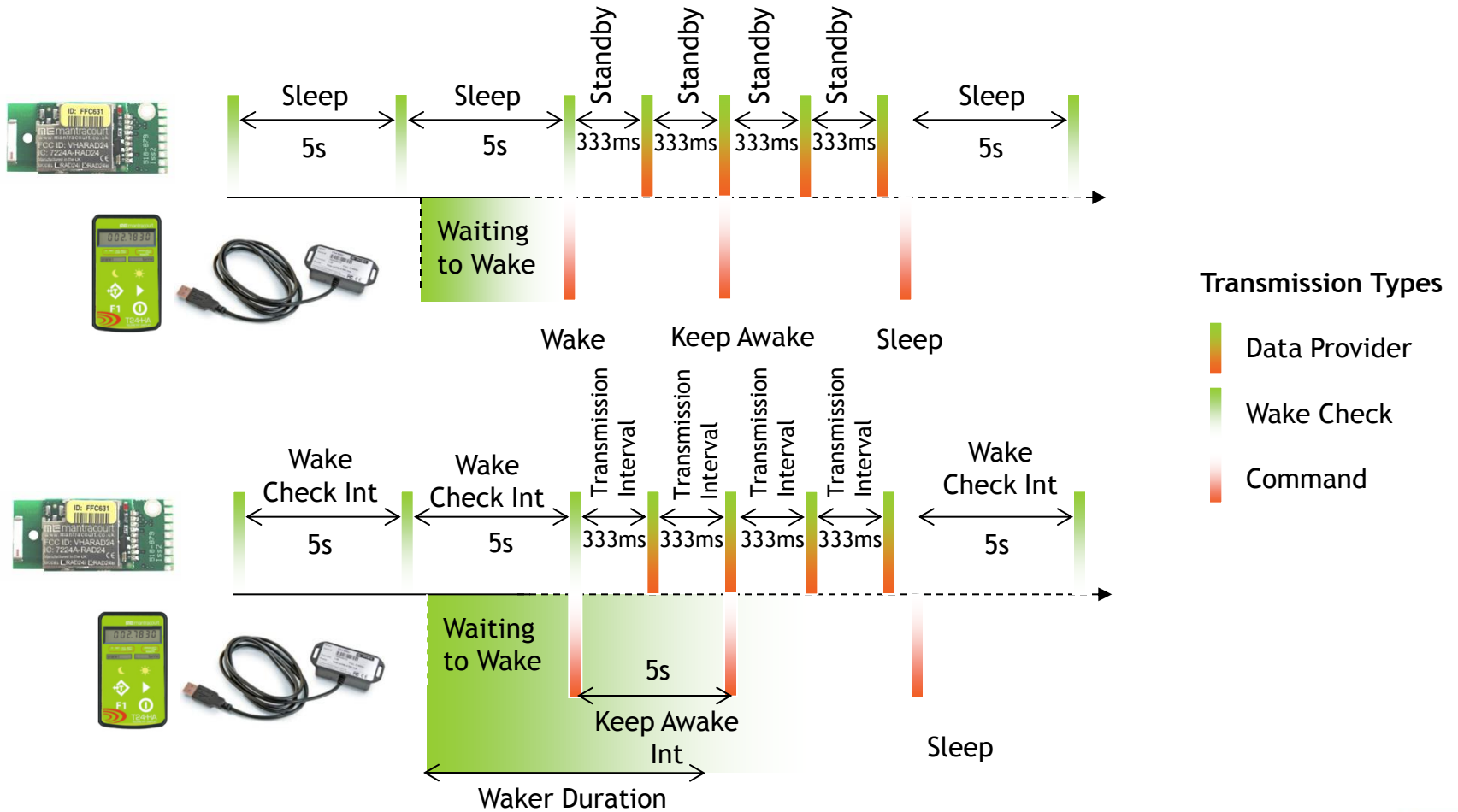


System Architecture

- Data is not requested but provided by transmitter modules
- Transmitter modules standby during operation under 25 Hz
- Transmitter modules sleep & wake to preserve battery life
- Sleep & Wake functions controlled by data consumers e.g. base station or handheld
- Sleeping modules intermittently check to wake (default 5 sec)
- Data consumers wake modules by responding to wake check transmissions (default 12 sec)



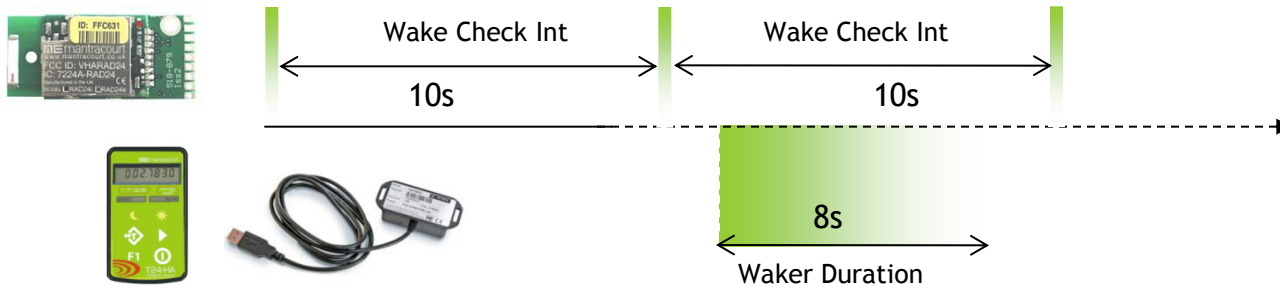
System Architecture



System Architecture

Common Configuration Errors

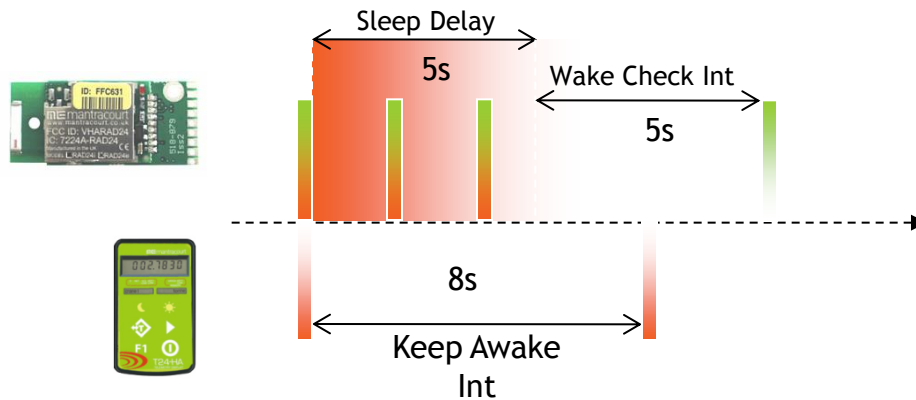
- Wake Check Interval & Waker Duration Miss Match



Transmission Types

- Data Provider
- Wake Check
- Command

- Sleep Delay Shorter than Keep Awake Interval



Chapter 10

System Examples



Simple Crane Link



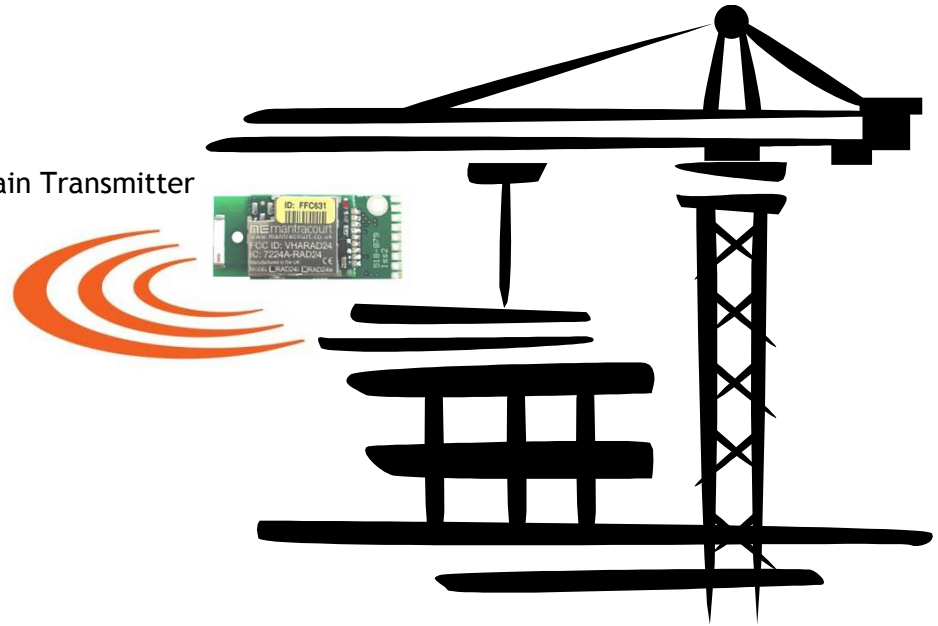
T24-BSu - USB Base Station

- System configuration
- T24-SA calibration



T24-HS - Handheld Simple

T24-SA - Strain Transmitter



- 2 x D cell alkaline batteries
- 1000 ohm load cell
- 3 updates per second.
- 1 minute weigh period.
- 60 weighs per day

Battery Life = 5 years +



Weigh Bridge



T24-BSu - USB Base Station

- System configuration
- T24-SA calibration

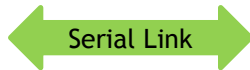


- 2 x D cell alkaline batteries
- 1000 ohm load cell
- 3 updates per second
- Active for 2 hrs per day

Battery Life = 4 years



Serial Dis - Remote Digital Display Module



T24-SO Receiver with Data Port for Display or Printer

- Collect Data from T24 - SA's
- Output to Display



Multi-Link Weighing



- T24-BSu - USB Base Station**
- System configuration
 - T24-IA calibration



- T24-HA - Handheld Advance**
- Collect data from T24-IA's
 - Total weight
 - Send data to PR1 on F1 Key

- T24-PR1 - Printer Module**
- Print formatted receipt with total weight

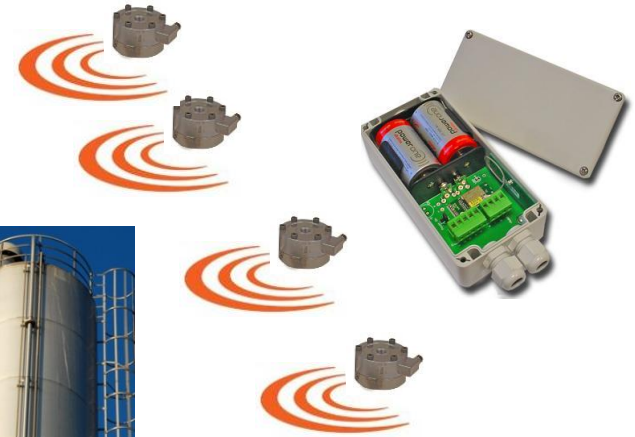


- 2 x D cell alkaline batteries
- 350 ohm load cell
- 3 updates per second
- 5 minute weigh per lift
- 15 lifts per day

Battery Life = 4 years



Silo Weighing



T24-BSu - USB Base Station

- System configuration
- Collect data from T24 - SA's



- 2 x D cell alkaline batteries
- 4 x 350 ohm load cell
- 1 update every 15 seconds

Battery Life = 5 years



Centre of Gravity



- T24-BSu - USB Base Station
- System configuration
 - Collect data from T24 - SA's
 - Custom Visual Link software



- 2 x AA alkaline batteries
- 1000 ohm load cell
- 10 updates per second
- 30 minutes usage per day

Battery Life = 1 year 1 month

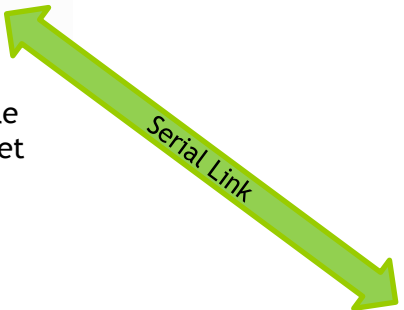


Remote Logging



PC Running T24-TK

- Logging all data to log file
- remote access via internet



- 2 x D cell alkaline batteries
- 1000 ohm load cell
- 1 update every 5 seconds

Battery Life = 5 years +



T24-BSi - Industrial Base Station

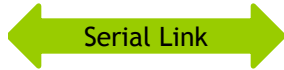
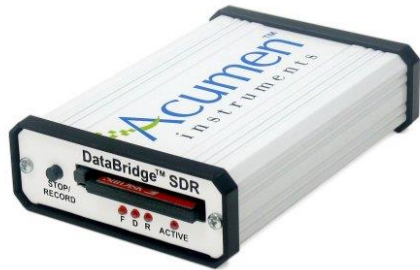
- System configuration
- Collect data from T24 - SA's



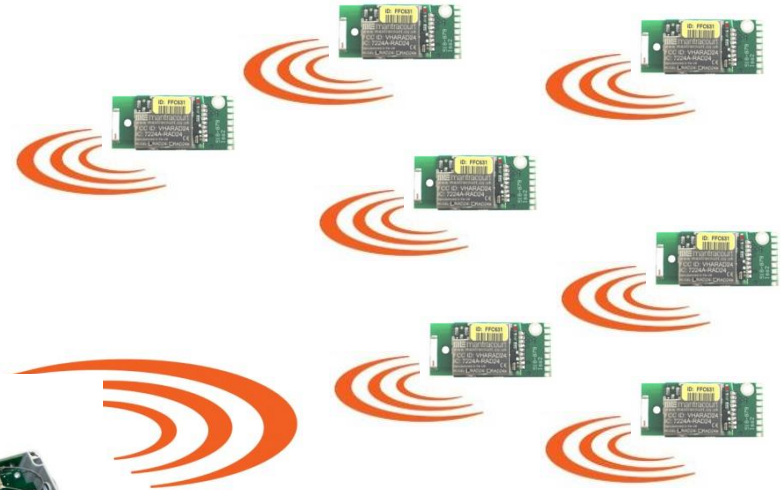
Use with Data Logger



T24-BSu - USB Base Station
 • System configuration



T24-SO - Receiver with Data Port for Display or Printer
 • Collect data from T24 - SA's
 • Output User formatted ASCII string



- 2 x AA cell alkaline batteries
- 1 x 1000 ohm load cell
- 200 updates per second
- No sleep & wake

Battery Life = 7 days 14 hours

- 2 x AA cell alkaline batteries
- 1 x 1000 ohm load cell
- Update every 30 minutes

Battery Life = 5 years +





Thank you for your attention

For further information visit:
mantracourt.com