The BroadWeigh shackle can be used almost exactly as a normal shackle with a few additional considerations.
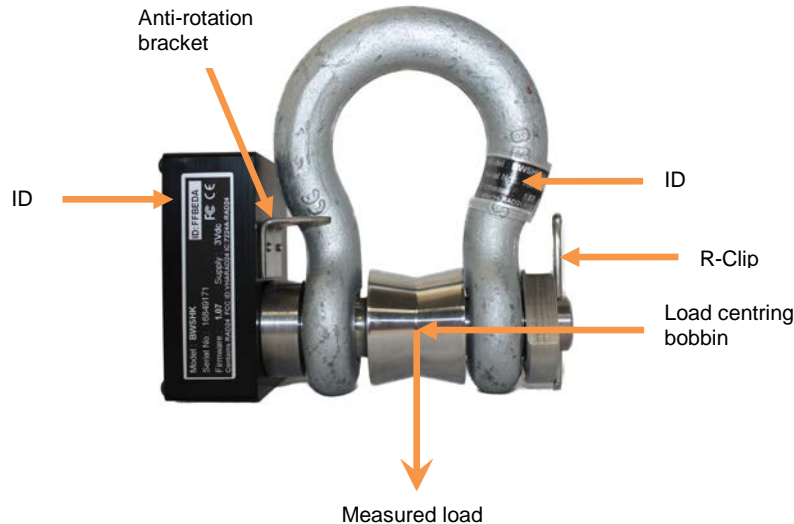
It is worth noting that the strain gauge is located within the shackle pin and therefore this is where measurement takes place. The loading in the bow is not measured directly but can be inferred.

Before rigging, check the shackles all work. Remove cover and insert batteries, observing polarity. Wake them up by switching the handheld display on- ⏻. All shackles on the same radio channel will wake and their LEDs should start to flash.

Cycle through the shackles on the display by pressing the select button- ▶ and check that the data tag shown on the handheld matches the one on the shackle with its LED constantly on.

Alternatively, you can use the Log 24/100 software once its workspace is set up to wake/sleep the shackles and confirm that they are transmitting as expected.

Anti-rotation bracket

ID

ID

R-Clip

Load centring bobbin

Measured load

For maximum accuracy and safety, it is critical to ensure the following:

- **The pin and bow must be used as a pair in the orientation shown and are marked with matching IDs.**
- **The load centering bobbin must be used as shown.**

It is a good idea to note down all the shackles' data tags and where they are located within the rig plot. This is crucial for identifying which loads are being measured and where.

Model : BWSHK   ID: FEBEDA
Serial No.: 16849171
Firmware : **1.07**   Supply : **3Vdc**
Contains RAD24 FCC ID:VHARAD24 IC.7224A-RAD24

Default Data Tag (Last 4 digits of device ID)

BroadWeigh Handheld Display

Sig Low
The radio signal from the BroadWeigh device is low. Signal may be intermittent when this indicator is visible until----- is displayed.
Note: Even with a degraded signal the display value will always be correct.

Batt Low
The batteries in the handheld are low and need to be replaced.

Remote Error
The BroadWeigh Device has an error that the handheld does not recognise.

Remote Batt Low
The batteries of the BroadWeigh Device are low and need to be replaced.

Select button
Press to cycle through available BroadWeigh devices.
Press and hold to see selected device **Data Tag**.

Power button
Press and hold to power on/off. All BroadWeigh devices on the same radio channel that are in range will power on/off with the BW-HR.

Quick Start Guide – Hardware

BroadWeigh™

Radio Channel	Data Tag	Location

Radio Channel	Data Tag	Location

Pre use check list

☐ Shackles power up
☐ Shackles talk to handheld or Log24/100
☐ Data tags match as expected
☐ Pins and bows match
☐ Anti-rotation brackets are correctly positioned
☐ Bobbins are in place
☐ R-clips are in place
☐ Shackles' data tags and rig location are noted

To get the optimum wireless range

☐ Rig the BroadWeigh shackle vertically
☐ Aim the BroadWeigh logo towards the receiver
☐ Ensure a good line of sight
☐ Keep a reasonable distance from other objects

BroadWeigh comes with **Log24** PC logging software and the **T24 Toolkit**. The T24 Toolkit is used for the initial setup of the hardware and to monitor wireless traffic in the area (see over).

With Log24, up to 24 channels of data can be viewed real time or logged via CSV to an application such as Microsoft Excel. The Log100 software displays up to 100 with greater functionality.

Install the Log24 software by inserting the **CD** or **USB stick** and following the instructions. Once the software is installed connect the **USB base station** and launch the software.

File
Open Workspace
Save Workspace
Exit

Sleep and Wake
Wake
Wakes all BroadWeigh devices on the same radio channel.
Sleep
Sends all modules on the same radio channel to sleep.

Battery low

Display channel title

Value

Edit
Configure workspace
Opens the configure workspace window. This is where the data display screen is organised.

Signal strength (LQI)

Logging
Start logging
Opens a file save dialog window to allow the user to select the name and destination of the log file.
Stop logging
Stops a previously started log.
View last log
Opens the last logged file with the application that is associated with the .csv extension.

A window similar to the one opposite will appear (four display channels are shown). This is known as a workspace. Each display channel does not necessarily need to display data from a single BroadWeigh shackle; they can be set up to show mathematical calculations involving as many shackles as required.
In the case opposite, display channel 4 is showing the sum of display channels 1, 2, and 3.
The **configure workspace** window below is where the display channels are set up.

As shown, hovering over an area within the window gives tool-tip help which, with the online help should provide enough information to aid setup.
To summarise, select the number of display channels required, assign Data Tags to the expression section **(ensuring that they are enclosed in triangular bracket, <FF69>)** and change any other parameters as necessary.
The triangular brackets allow the expression field to identify the Data Tag for what it is.

Quick Start Guide – T24 Toolkit

BroadWeigh™

The **T24 toolkit** allows detailed interrogation and setup of the BroadWeigh devices and base station. This is achieved via various dialog windows and editable boxes (coloured orange).

It is essential to setup and test all components of a system before planned use. This should mean that all the software is pre-loaded, data tags and radio channels are set and components are labelled making on-site use as smooth as possible. More detailed information on the T24 toolkit is available at, http://www.broadweigh.com/support.html

Install the T24 Toolkit by inserting the **CD** or **USB stick** and following the instructions. Then connect the **USB base station** and launch the software.

Data provider monitor
View and log data provided by devices.

Settings
Configure base station connection

Spectrum analyser
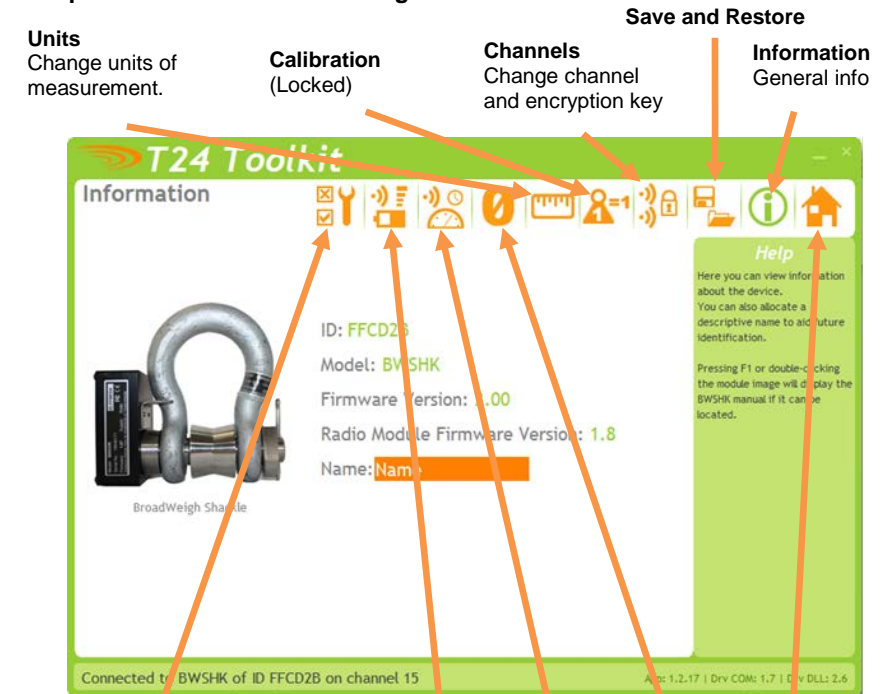Planar and spectral views of local radio traffic to check for possible congestion.

Home
Pair and configure your device. Follow the onscreen instructions. If power cycling is not available it is possible to pair using the device's ID and data tag but you need to be on the correct radio channel.

Pairing

This is the System used for configuring the BroadWeigh devices. First, remove one of the batteries. Then, click the 'Pair' button (on the home screen) and firmly re-connect the power to the device. This makes a solid link without needing to know the device's Data Tag or radio channel.

Sample Paired Device- BroadWeigh Shackle

Units
Change units of measurement.

Calibration
(Locked)

Channels
Change channel and encryption key

Save and Restore

Information
General info

Advanced Settings
Allows changing of the device data tag.
The other settings do not normally require changing.

LQI and Battery
Monitors signal quality and battery condition.

Data Rate
Adjust accuracy and compare to theoretical battery life.

Zero
Set zero to hide small values.

Home
'Un-pair' current device and return to home screen.

BroadWeigh™

No data displayed in Log24 display window

Are the shackles awake?
Use the wake function within Log24. Either 'Ctrl+W' or 'Sleep and wake>Wake' in the drop down menus. It may then be necessary to check the 'Keep awake' box in the **configure workspace** window.
Is the expression correctly entered?
Make sure that the device data tags are entered within triangular brackets in the

form **<FF69>**. Remember that the data tag is (by default) the last 4

characters of the device ID.

Are the base station, shackles and Log24 workspace all on the same radio channel?
(i)   The easiest method to check is to go through and methodically try different channels in the Log24 configure workspace window. (Return to display window to manually wake each channel).
(ii)   You can also use the T24 Toolkit to monitor activity on various channels via the **Data Provider Monitor**. Change the channel and then manually wake all data providers on that channel (it will take around 10 seconds to update). This will then show all available data providers on the channel and may highlight errors in Data Tag entry.

Be aware that the base station can only be set to one radio channel. Therefore you cannot log data and pair devices at the same time. It is good practice to configure the hardware via the T24 toolkit before using the Log24 software as it is possible for the two programs to give conflicting instructions.

Unexpected values displayed

(i)   Check to see if the display channel has been zeroed (an asterisk in top left of channel). To clear a zero either go to configure workspace or 'shift-click' the zero button in the display window.
(ii)   Check to see if an unnecessary function has been used.

Poor Signal Quality (LQI)

Check location of BroadWeigh shackles and USB base station.
A poor line of sight between the shackle and base station or objects in close proximity will affect the range. Try re-siting the base station. It may be worth considering a wireless repeater if the problem persists.
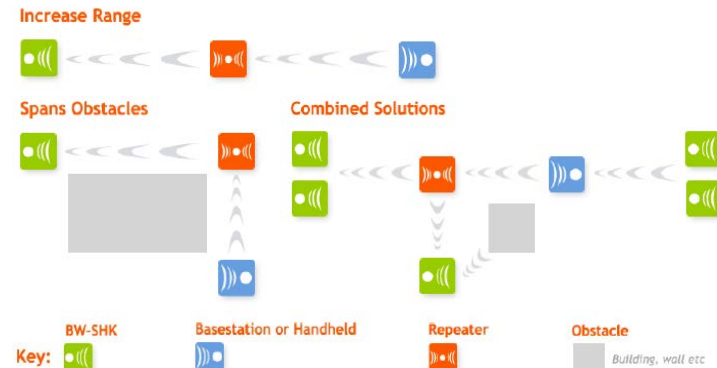
Check local traffic on the 2.4Ghz radio band.

Using the T24 Toolkit, go to the **spectrum analyser window**. This will show local traffic on the 2.4GHz radio band and highlight any potential congestion. You can then change the radio channels for all devices via pairing.
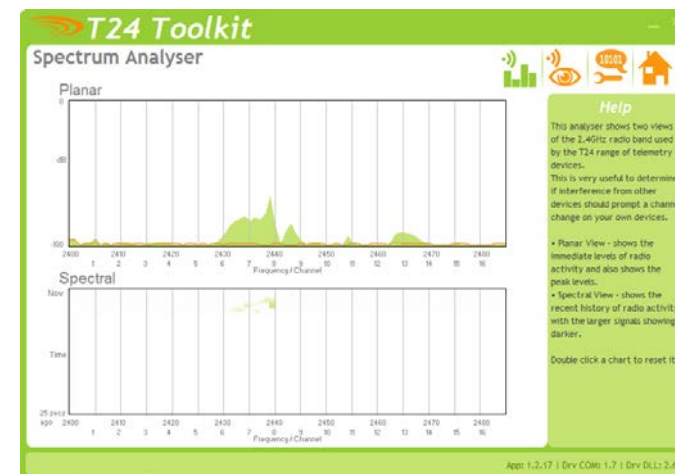
The above charts show the traffic from a Wi-Fi network and it can be seen to be operating over channels 6 to 9. It would be best (though not essential) to avoid using these channels.