WTE40 Sanki Belt Scale System

Operation
& Installation Manual

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Weigh Frame Components

The Sanki Conveyor Weigher Kit has been specifically designed to fit into Sanki modular conveyors of the following belt widths:

350mm
450mm
600mm

CONSULT THE FACTORY FOR OTHER CONVEYOR DESIGNS & BELT WIDTHS

The belt weigher kit consists of the following:

Weigh frame (Fig 1)
Belt speed sensor (tachometer) & target sprocket (Fig 2)
Junction boxes (load cell & tacho) (Fig 3)
Integrator (Masterweigh 6) (Fig 4)
Weigh frame cheek plate (Fig 5)

Fig 1

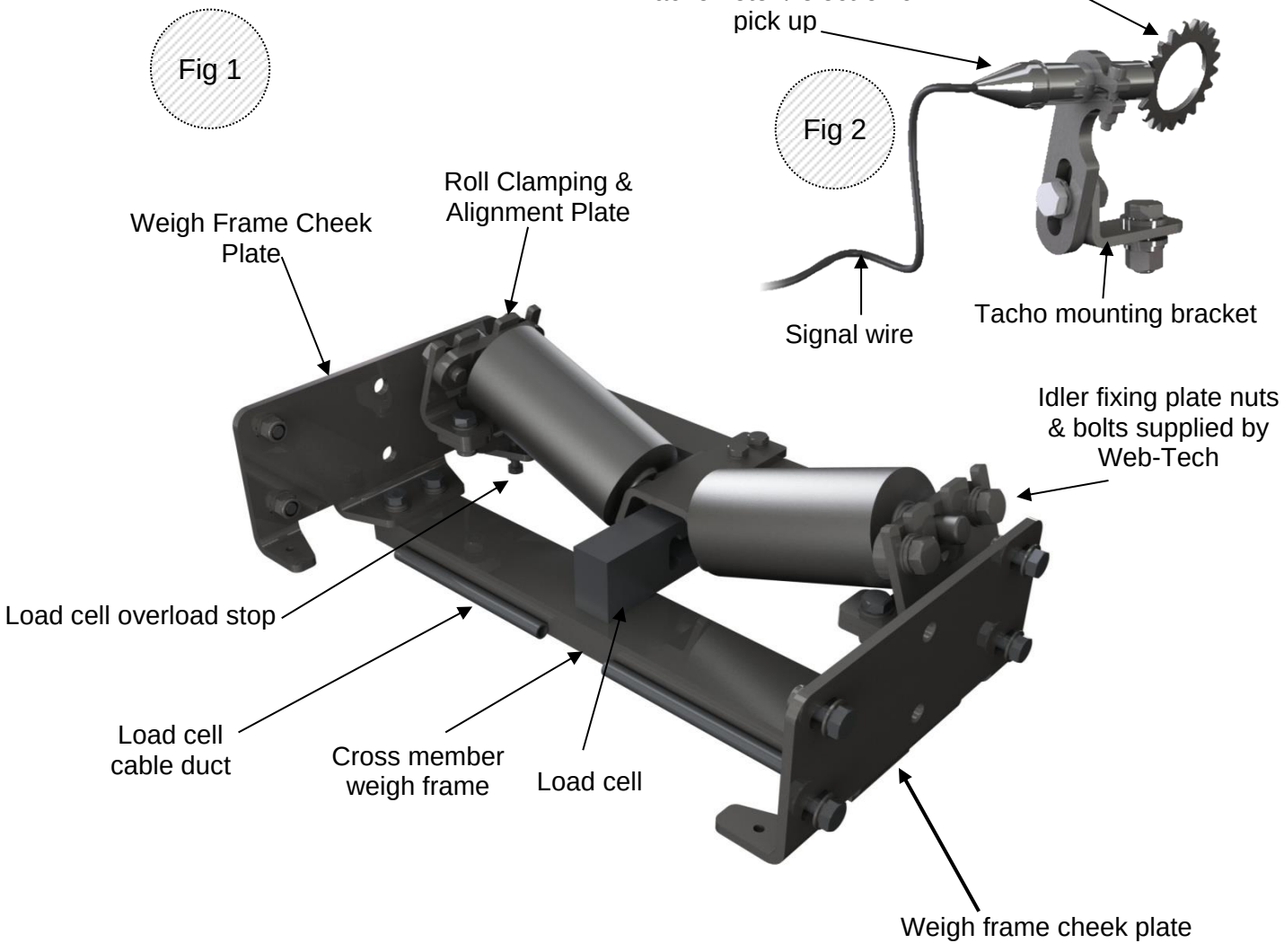
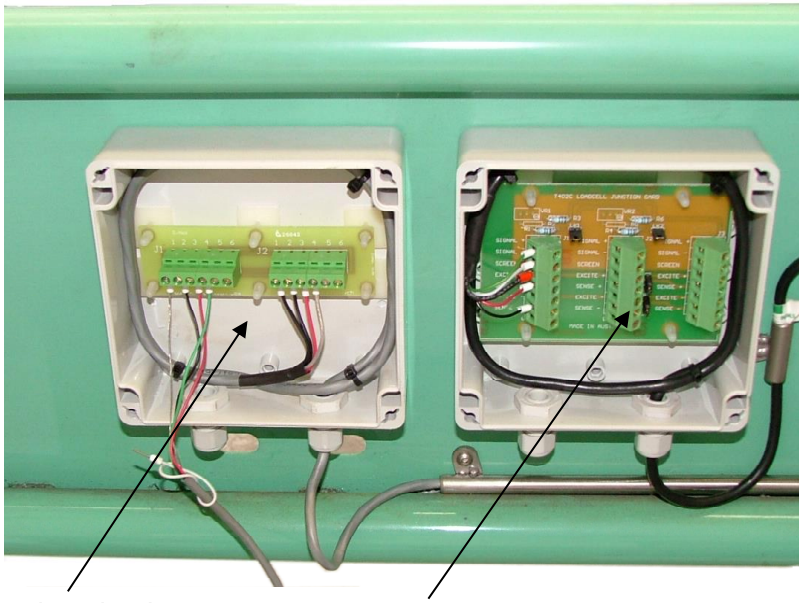


Fig 2

Fig 3



Tachometer junction box & inter-connect PCB

Load cell junction box & inter-connect PCB

Fig 4

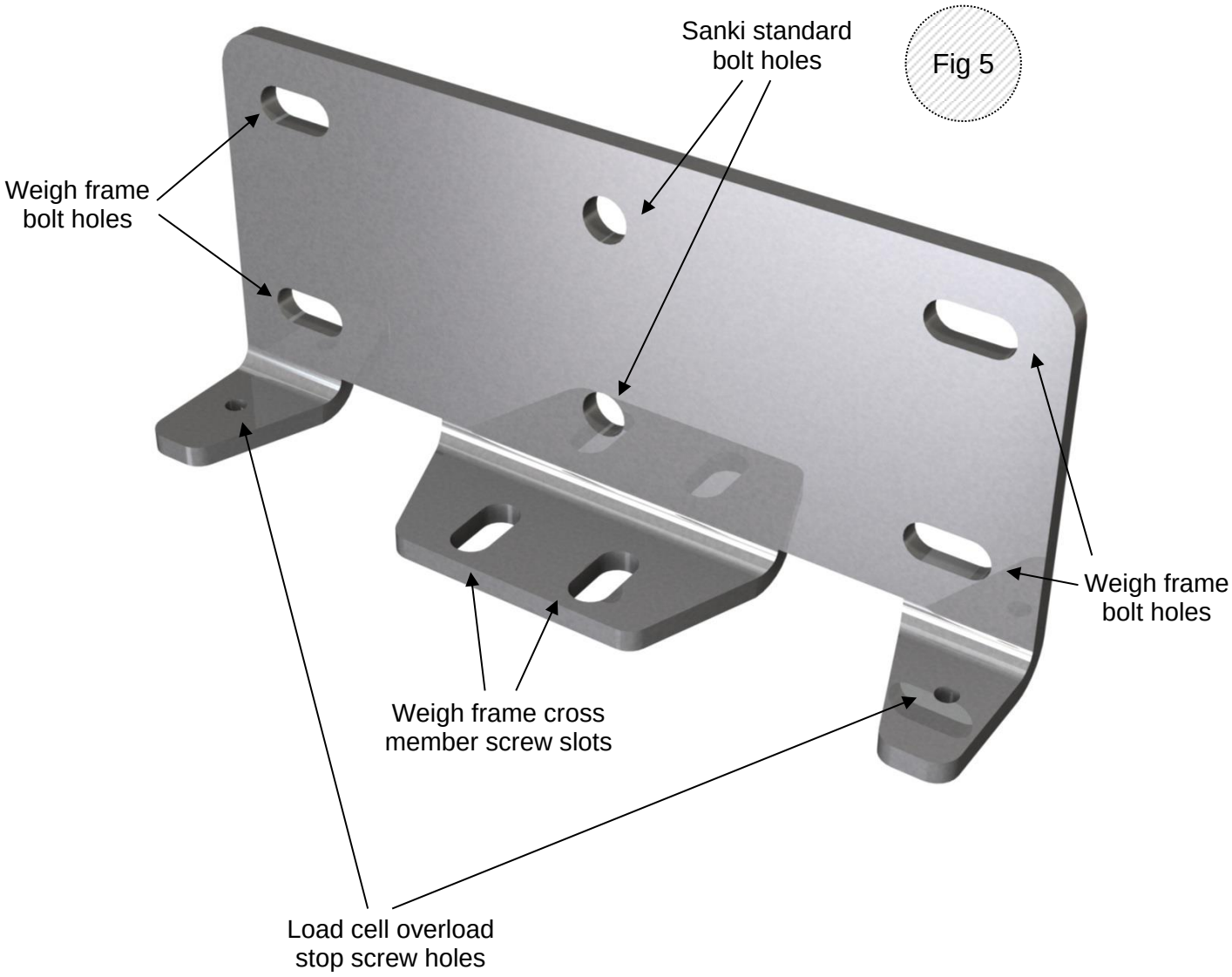


Fig 5
Sanki standard bolt holes
Weigh frame bolt holes
Weigh frame bolt holes
Weigh frame cross member screw slots
Load cell overload stop screw holes

Prior to fitting the weigh frame into the Sanki conveyor, **remove** the existing idler where the scale is to be fitted. The scale should be fitted as close to the tail pulley as possible however there should be at least two Sanki supplied idler assemblies between the tail pulley and weigh frame.

Ideally the conveyor belt should be removed prior to fitting the conveyor belt scale. When the belt cannot be easily removed the belt tensioning mechanism should be slackened to allow work to be carried out under the belt.

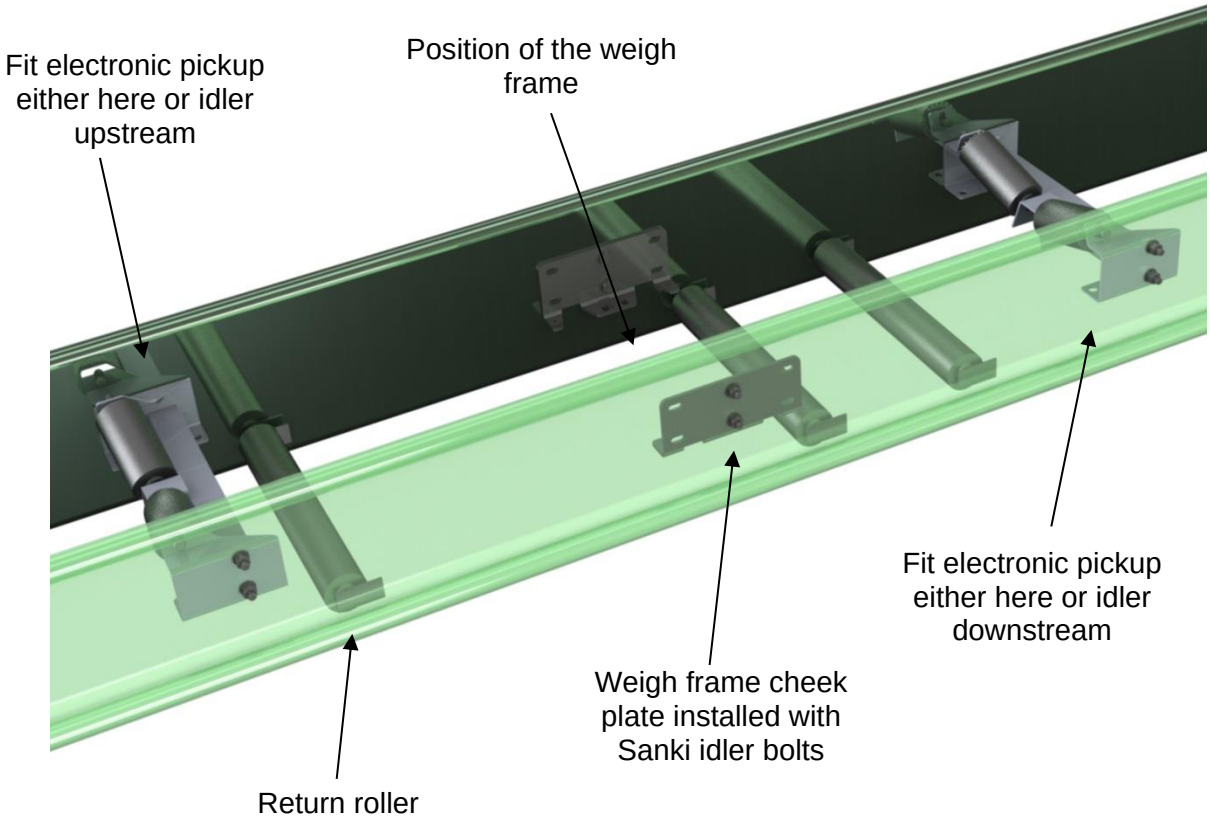
To easily fit the weigh fame into the conveyer the weigh frame cheek plate can be used as a drilling template, see figure 5. The weigh frame cheek plate should be fitted to the conveyor as shown below, using the two bolt holes and the nut and bolts that were originally used to secure the idler assembly (see below).

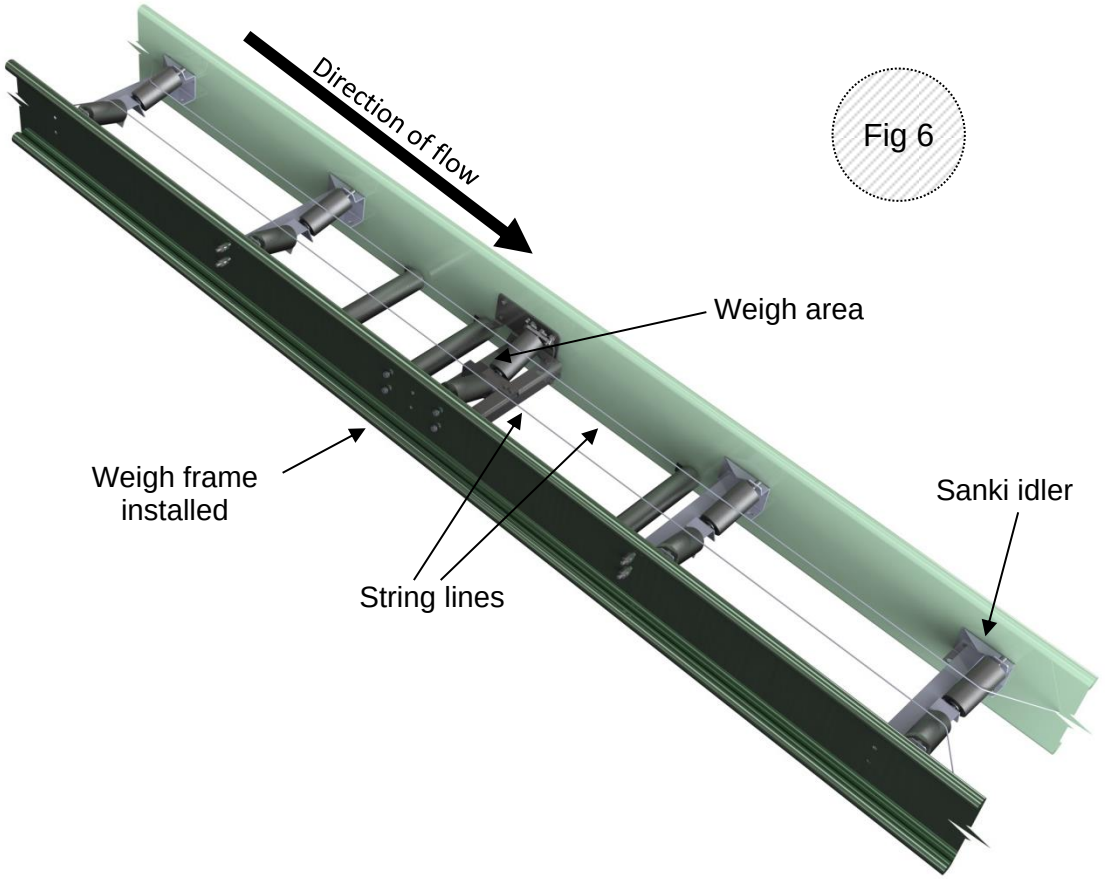
Mark out the 4 holes on both sides of the conveyor and drill using an M10 drill. Clear away any drags and swarf following the drilling.

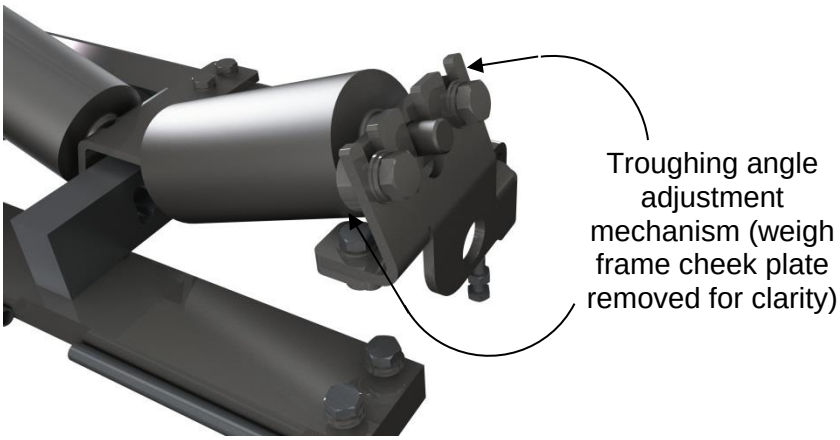
Once the 4 holes on either side of the conveyer have been drilled attach the cheek plates to the conveyer side plates using the 8 supplied bolts, nuts and washers. Then remove the 2 bolts positioned in the original Sanki idler frame holes.

Prior to attaching the weigh frame to the conveyor, make sure to loosen the load cell overload stop screws. Note when these screws have been loosened the load cell can be damaged. Use the supplied 4 nuts, bolts and washers to fix the scale into position. Do not tighten them up at this point.

Note: Once the electronics have been wired set the overload screws so that the load cell's maximum millivolt output does not exceed 20mV.







If the Sanki Conveyer Weigher Kit is to operate accurately the weigh frame must be correctly installed. **The vertical alignment of all the idlers in the weigh area and the positioning of the load cell along the centre of the conveyer belt are of critical importance.** The above diagram (Fig 6) shows a typical Sanki conveyor fitted with string lines. The stringlines should be set out as shown and pulled tight. Web-Tech suggests using nylon fishing line of 30kg breaking strength or better. The idler assemblies where the stringlines are tied off should be a little higher (max 1.5mm) than those the weigh area. **Prior to proceeding remember the load cell could be damaged while aligning the idler assemblies. Extra care should be taken to ensure minimal force is exerted on the load cell.**

The troughing angle of the standard Sanki idler assembly is generally fixed at 20^{o}. However the weigh frame has a mechanism for adjusting the upper half of the roll (Fig 7). This allows the installer to ensure that the weigh frame and associated rolls can be aligned with the standard Sanki rolls. The idlers on the weigh frame should be lifted to just make contact with the string lines. Prior to moving on to the fitting of the tachometer / electronic pickup assembly make sure all bolts are tight.

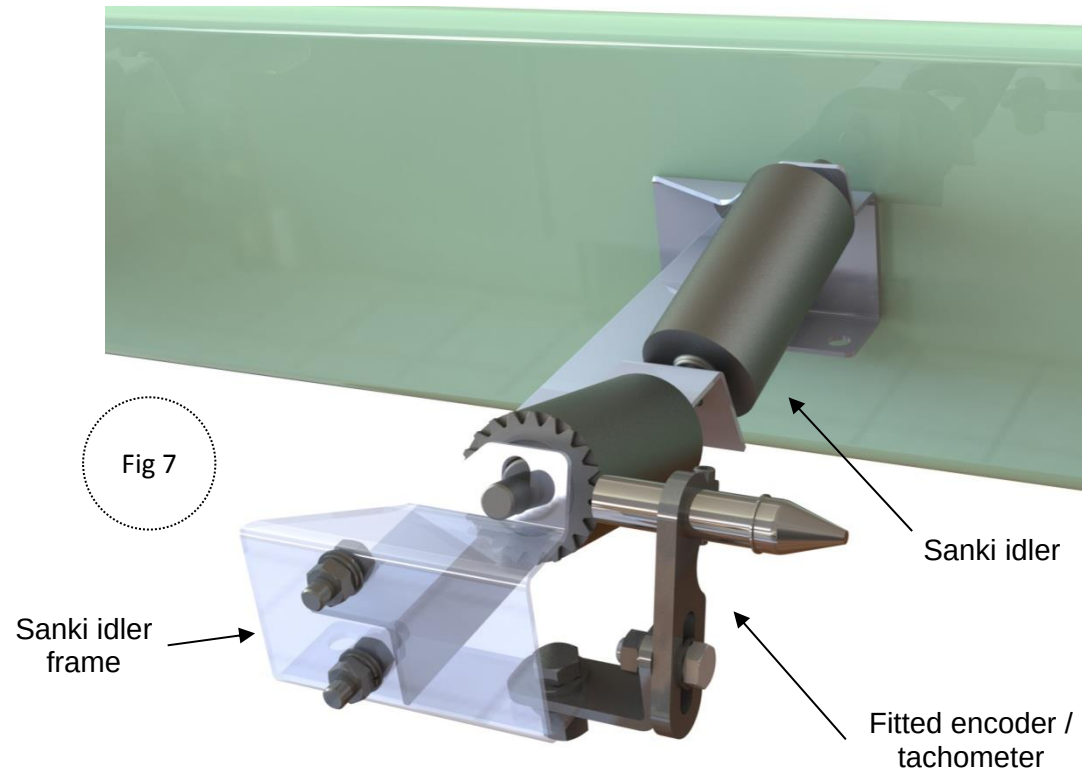


Figure 7 shows a **Sanki Idler** assembly fitted with an electronic pickup assembly. The electronic pickup is part of the belt scale kit (Fig 2) on page 1. The laser cut sprocket may have been supplied pre-fitted to the roll or loose supplied depending on how the belt scale was ordered. It is highly recommended that Web-Tech fits the sprocket, however if the sprocket was not factory fitted to the roll, a sprocket mounting kit would have been included. Remove the roll and prepare to weld (TIG) the sprocket to the roll. To assist in fixing the sprocket to the roll, a sprocket positioning mandrel has been supplied (Fig 8). The sprocket should be fitted to the mandrel and the mandrel placed on the roll shaft. Once the sprocket has been accurately positioned on the shaft and with the mandrel in place, the sprocket should be attached to the roll by means of TIG welding. It is important that the sprocket be fitted as shown (Fig 10). The sprocket should be fused on the roll in 3 or 4 places, equally placed around the roll and on the tip of the raised part of the sprocket. The point of fixing should be small and not affect the air gap required for the sensor to work. Please contact Web-Tech for more information about the recommended air gap.

Fig 8

Sprocket positioning mandrel

Fig 9

Sprocket

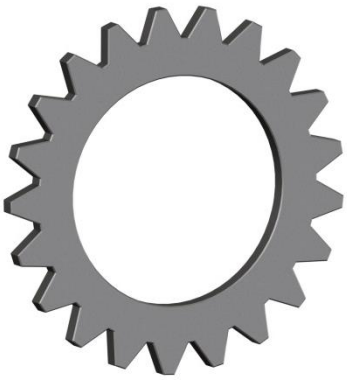


Fig 10

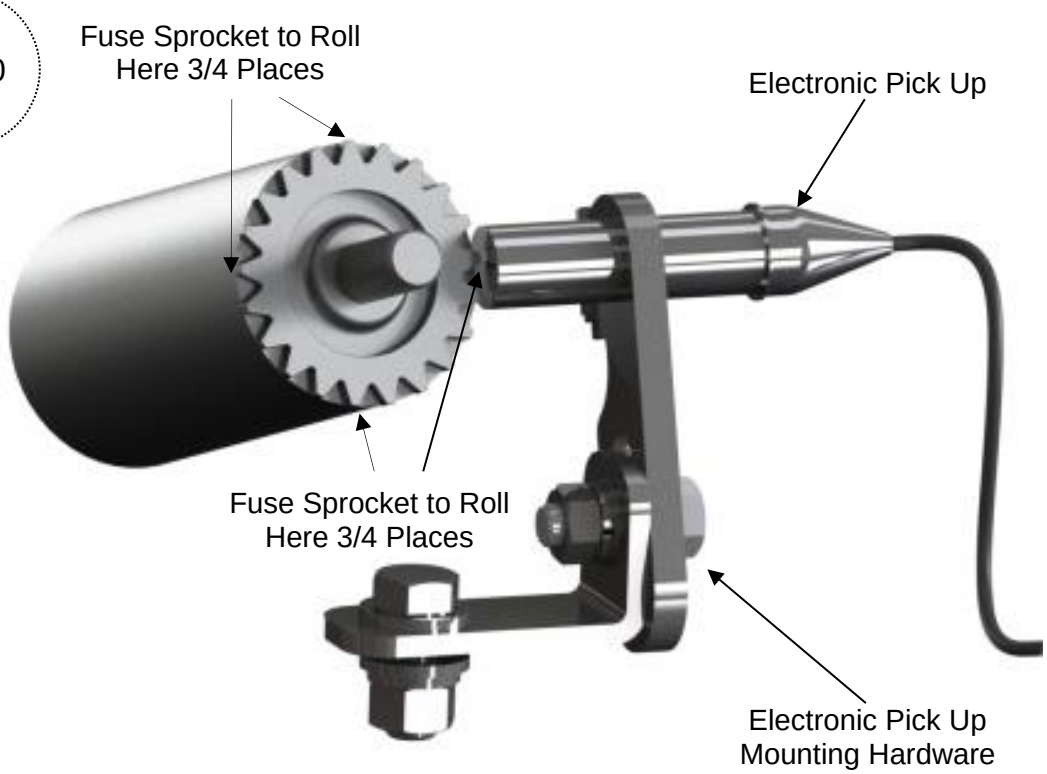


Fig 11

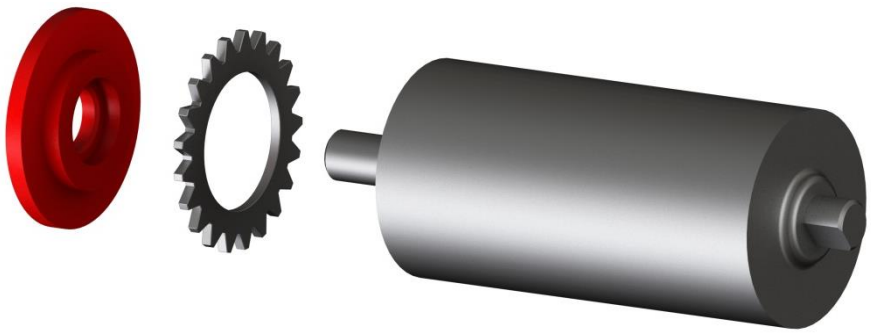
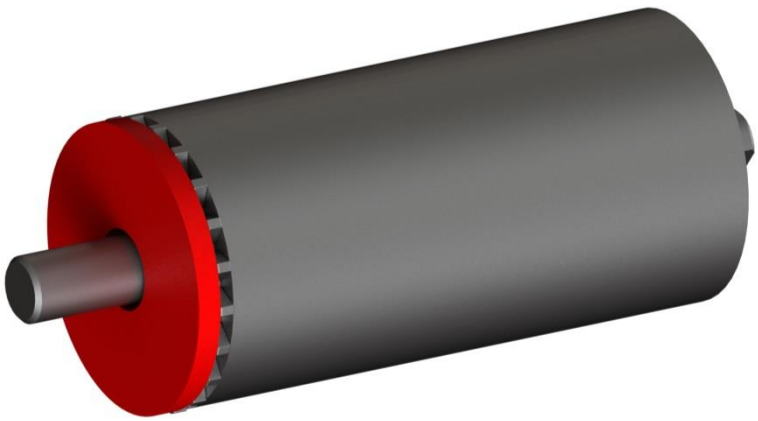


Fig 12



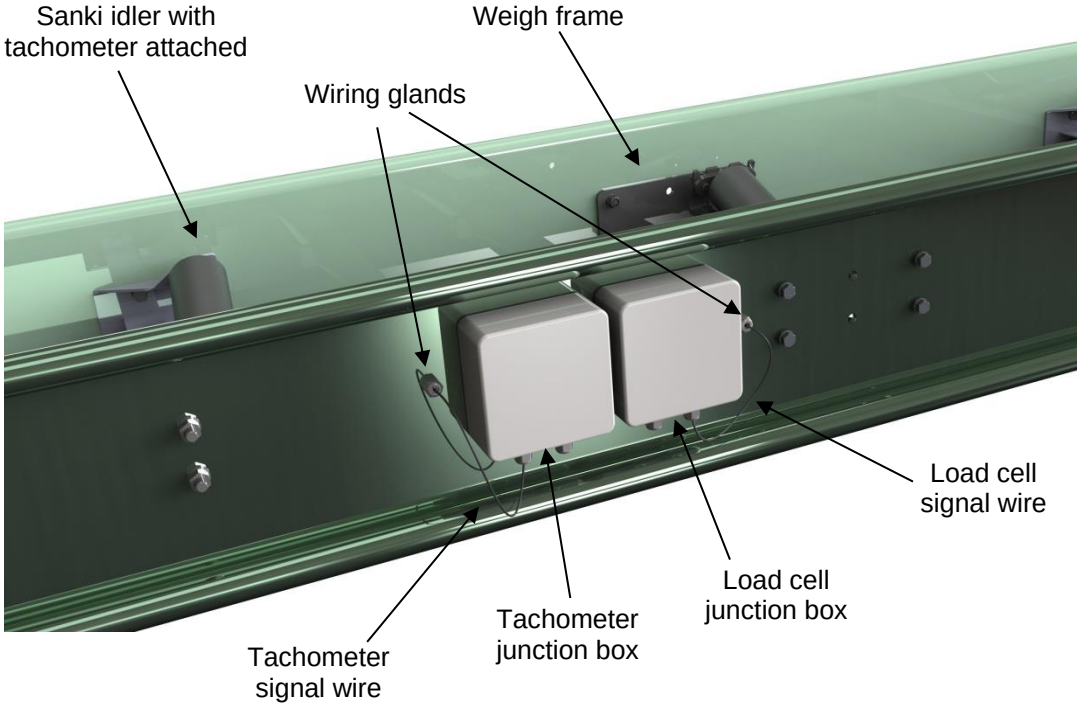
With the sprocket fixed to the roll, return the roll to the idler frame. Make sure it is seated correctly and that the vertical alignment of the rolls in the weigh area has not been compromised.

The electronic pickup should now be fitted to the bracket as shown. It is important that the electronic pickup be placed as shown in (Fig 10). If the device is not targeted onto the sprocket as shown it may not work as intended. It is important that the electronic pickup does not clashing with any of the teeth on the sprocket, slowly spin the roll to test. Once the electronic package has been installed the performance of the tachometer / encoder can be tested.

The electronic pickup's wiring must be routed to the outside of the stringers as shown below. It is important to fit glads to the conveyors stringers if long term damage to the cable is to be avoided. At this point the load cell cable should be routed to its junction box.

The load cell and electronic pickup junction boxes are the same dimensionally. However the circuitry inside is different (Fig 3). The junction boxes must be fitted to the Sanki conveyor stingers as shown (Fig 3). The positioning of the respective boxes must be within reach of the cable tails for both the electronic pickup and load cell. Figure 3 shows the recommended position for the junction boxes. However the final positioning may differ owing to conveyor real estate availability.

Maximum distance from Junction Boxes to Masterweigh 6 is 125m.



Masterweigh 6 Integrator

Operation
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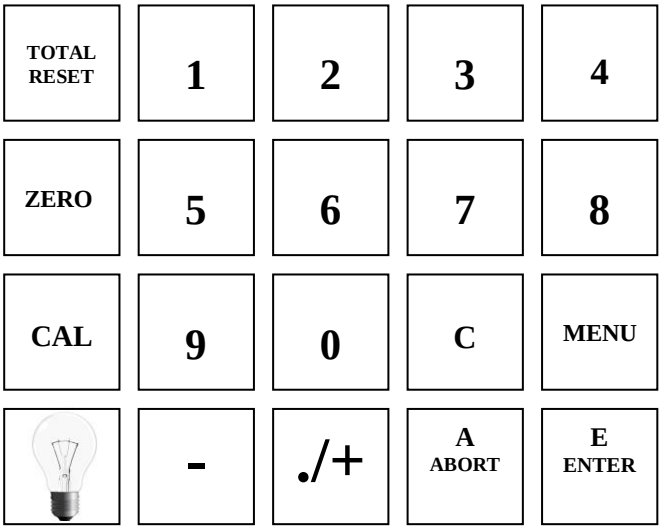
KEYBOARD LAYOUT AND KEY FUNCTIONS

MASTERWEIGH 6 KEYBOARD LAYOUT



Masterweigh 6 can operate in a protected security, or open mode depending how the user has configured it. See "Security" for set up details. The following text assumes that the operator has gained access to the system.

SECURITY CODES

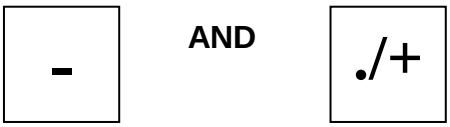
If a user has entered security codes into the Masterweigh 6, entry to the menus will be restricted. Two four-digit codes can be entered – (see Menu 15 for details).

One code (Operator Access) allows the code holder limited access to any data in the menus, for checking only. The other code (Configuration Access) is needed for access to menus and to make changes to calibration and program parameters etc. Note that no access will be given if no code is entered.

If security codes have been activated, on pressing the Menu key, the computer asks for the four-digit code. If no attempt is made to enter a code then the display returns to the Mass Rate Mass Total (MRMT) format after 30 seconds. If an invalid code is detected, the display returns to MRMT format immediately. If a security code is detected then limited or complete access is gained to the menus, as appropriate. Once the menu format is exited the code will have to be re-entered for further access.

KEY FUNCTIONS

This key switches between the main display mode showing "Mass Rate/Mass Total" (MRMT) and the "Menu" mode.



When in "Menu" mode, pressing the (+) or (-) key once will go forward or backward one menu entry. If either key is held down, the menu changes will repeat at a rate of approx. 5 per second. When entering the data, the (./+) key is the decimal point.

When in the "Menu" mode and entering changes or new data, this key enables the user to abort the changes and restore the existing entries. The top level menu screen is then displayed.

Similar to "Abort", except that the current screen data only is cancelled and the existing entries restored. The display remains at the current screen.

In menu mode, the key accepts the default setting or confirms any data entered and moves to the next level in the operating sequence.

In MRMT display mode, if the “Enter” key is pressed, the current CPU (central processor unit) status is displayed, and also the number of times the CPU has been restarted.

KEYBOARD LAYOUT AND KEY FUNCTIONS (Cont'd)

If the display is flashing, the CPU fault status may be viewed by pressing the Enter key whilst in the MRMT display mode.

SPEED KEYS

TOTAL RESET

When this key is pressed MW6 clears the accumulated mass total.

ZERO

Activation of this key takes the operator directly to the belt zero function without having to scroll through the menu structure.

CAL

When this key is pressed, the operating display jumps to the fixed weight calibration function, ready to span the system

When this key is pressed, the display display backlighting operates.

NUMERIC KEYS

These keys are used to enter calibration data.

MENU ENTRY 1 – Parameter Setup

Menu 1 is used firstly to enter the maximum capacity of the scale and the increment size.

1

Menu Entry 1 Parameter Set Up

2

Current capacity = 1000.000 tonnes/hour Enter new capacity? 0.000

3

Mass total increment=1.000 tonnes Enter new inc. (10 -- 0.001)? 0.000

4

Remote totaliser pulse width =100ms Enter new value? (20 - 1000) 0

Menu 1 can also be used to access and modify the precision zero reference and reference voltage, by pressing the "C" key. This data has been factory set, and does not reprogramming unless the unit has been reconfigured.

5

Menu Entry 1 Parameter setup

6

WARNING: Calibration data. Do not modify -- Press A to continue

7

Calibration zero = x.xxx milli-volts Enter new zero ref.? 0.000

8

Precision ref. = x.xxx millivolts Enter new precision ref. ? 0.000

9

Press E for Rate O/P span calibration else press A

10

Rate O/P = x.xxmA C for next. E to reset unit

1. At Menu Entry 1, press Enter to examine or modify the maximum capacity of the scale, the precision of the increment size, and the remote counter pulse width.

2. At this step, the current scale capacity is displayed. A new value may be keyed-in, then press Enter to continue. Otherwise press Enter with no data entry to retain existing values and continue. This value sets the 100% point for the 4-20mA mass rate output signal. Note that the system can measure mass rates above this value (assuming the instruments remain within their normal operating range), and higher values will be shown on the screen and totalised. However, the 4-20mA mass rate output signal will show 20mA for all mass rates above this value.
Note that units can be changed to tons, lbs, or kg if preferred, within Menu Entry 11.

3. This step displays and allows alteration to the mass total increment. This increment is used for both the mass rate and the mass total displays. Enter the new value required and press the Enter key. No change is made if Enter is pressed without data entry. Note that the increment size programmed is also the increment size to cause one pulse output from the totaliser. Also, do not change the increment size during normal operation, as the change in setting will invalidate any existing accumulated mass total.

4. This step displays and allows alteration to remote counter pulse width; this value is limited to between 20ms and 1000ms. Note the value entry should be in multiple of 10ms, ie: 20, 30 .....990, 1000. No change is made if Enter is pressed without data entry. One pulse is outputted each time the mass total increases by one increment (as set in step 3 above).

MENU ENTRY 1 – Parameter setup (Cont'd)

Enter a pulse width that will match with the remote counter, or PLC response time, but keep the following in consideration when selecting this value: The pulse output can go no faster than the value you just selected, but the accumulation of the mass total may, and so the remote totaliser will fall behind the actual mass total. e.g. if the pulse width is set to 100mS, then at it's fastest rate, the output will be "on" for 100ms, then "off" for 100ms. This will give a maximum output of 5 complete pulses per second (100mS on and 100mS off = 200mS per total pulse cycle). Therefore, if the feeder is running faster than 5 increments per second (= 18000 increments per hour), then the remote total will be wrong. E.g. for an increment value of 0.01tonnes, the limit will be 180tph.

To modify factory calibration data:

5. At Menu Entry 1, press the "C" key to gain access to the factory calibration data. The correct values for these calibration constants have been engraved onto the main board of the Masterweigh 6 stack (the top board). Check that the values that are programmed are the same as the engraved values, and modify the values in the menu as required. This is normally factory set, and is only to be programmed if the electronics is re-configured.

6. The display will warn the operator not to modify data and to press A to exit and to continue. Press the Enter key at this point for access to the "Zero Reference".

7. Enter new data and/or press the Enter key to proceed.

8. Now access to the precision reference has been gained. Enter new data and/or press the Enter key again.

9. Either exit at this step by pressing the "A" key, or press Enter to access the menu which exercises the 4-20mA circuit.

10. Pressing "C" steps through the Rate O/P's to the desired value namely: 20.0, 10.04, 5.02, 7.53, 6.27, 5.645, 5.335, 5.178, 5.099, 1.790mA. Press Enter to reset unit. (A current meter needs to be connected across pins 1 & 2 of J10, or in series with the load if connected).

MENU ENTRY - Pulses Per Belt Revolution Calibration

This calibration is carried out with the belt moving. The number of complete belt revolutions over a time period is counted by the operator, and the Masterweigh counts the pulses returned from the speed sensor device. The revolutions are then entered using the keypad and the pulses/rev calculated by the Masterweigh and then saved.

To enable the revolutions to be counted, a point on the belt should be marked with paint, and a suitable point on the framework chosen close to the belt. The count is then started as the belt mark passes this point and stopped as the mark again passes this point after the greater of 5 minutes or 5 belt revolutions.

1

Menu entry: 2 Pulse per rev = 1000 Revs =5

2

Manual entry of Pulses/Rev or press Enter to continue

3

Manual entry of N. of Revs or press enter to continue

4

To start belt pulse count, Press E Pulse counted = Time =

5

To stop belt pulse count, Press E Pulses counted = Time =

6

Enter number of belt revolutions ? Pulses counted = Time =

7

Pulses per belt revolution = Press E to save, otherwise press A

1. At Menu Entry 2, press Enter to proceed with calibration.

2. If the pulses per rev are known, then manually key in the number of pulses and press Enter. Otherwise simply press Enter to continue.

3. Manually key in the number of revs (for the above number of pulses) and press Enter. Otherwise press Enter to continue.

4. At the moment the belt mark passes the fixed point chosen, press Enter to start the Masterweigh counting pulses, and start counting revolutions. Note that the display panel will show the counting.

5. After at least 5 minutes, press Enter again to stop the count as the mark passes the fixed point.

6. Key in the number of revolutions counted, and press Enter to confirm.

7. Press Enter to save the number of pulses/rev just calibrated, otherwise press A to abort and return to the original values (if any).

MENU ENTRY 3 – Load Zero Calibration

This menu entry enables the operating zero to be calibrated. A specified number of belt revolutions are run (as determined by Menu 2), with no material or calibration weights on the belt. If the zero is correct then the mass total accumulated over the period will be zero.
The display shows the currently stored value in millivolts, as read at the load-cell input including any contribution made by the autozero function.
Note that the zero value is automatically adjusted if the excitation voltage changes.

1

```
Menu entry:  3
Zero cal. = 2.563mV        2.563mV  ZTrck
```

2

```
Manual entry of Zero Error,
0.000mV
 or press Enter to continue
```

3

```
Press E to continue
Mass rate =  0.000
```

4

```
(Zero reset)  To Start zero cal, Press E
Mass rate  =  0.000      Revs =     0.0
```

5

```
To Abort zero calibration, Press A
Mass rate  =  0.000   Revs  =    0.0
```

6

```
To calculate new calibration, Press E
Mass total =       1.150    Revs =       10
```

7

```
Zero error =     2.756 millivolts
Press E to save, otherwise press A
```

1. At Menu Entry 3, press Enter to proceed.

2. (Optional) Using a digital voltmeter, measure the belt zero error value (in millivolts) at the loadcell, or read the mV level displayed in Menu 8.

Manually key in the value to the Masterweigh and press the Enter key to accept, or press Enter with no data entered to continue and allow Masterweigh to automatically carry out a zero calibration.

Note that entering this value does not negate the need to perform a zero calibration.

3. The current zero error is now displayed as a mass rate. Press Enter for the loadcell calibration procedure.

4. The mass total will now display zero. Check that the belt is empty, then press the Enter key to begin the zero calibration test.

5. The difference between the current loadcell zero and the actual load reading is accumulated over the test duration, which is the total number of belt revolutions specified in menu 2.

The test can be aborted at any time by pressing the Abort key. If the test is aborted, the existing value of the zero calibration is used. This zero calibration value normally includes contributions from both the load zero calibration (as carried out in this menu entry) and the auto zero tracking function. It is thus possible by entering the menu to this level and then aborting to reinitialise the working copy of the zero calibration and remove any auto zero tracking contribution.

MENU ENTRY 3 – Load Zero Calibration (Cont'd)

6. This display will come up automatically when the belt has completed the required number of revolutions. The measuring phase of the test has finished and the resulting mass total is displayed. This mass total should be approximately zero, however if non-zero then a new loadcell zero may be required.

Press the Enter key to display the millivolt offset resulting from this test. This value is what Masterweigh believes is required to establish a new zero calibration.

7. The new loadcell zero, or offset, is displayed in millivolts. Press the Enter key to save this value as the new loadcell zero, or press Abort to exit without saving.

MENU ENTRY 4 – Fixed Weight Calibration

This menu entry allows the automatic calibration of the load cell span. The test is run over a preset number of belt revolutions, as in Menu 2, during which calibration weights (or weigh chains) are placed on the belt or weighframe. A mass total is accumulated in the course of the test. This total is then compared with an expected or "target" weight and the span adjusted accordingly. The display shows the currently stored load cell span value. The span number shown is just an engineering number proportional to the "gain" required i.e. the higher the number, the higher the reading.

1

```
Menu entry : 4
Fixed weight calibrate, span = 222.1
```

2

```
Manual entry of Span Factor,      0.000
or press Enter to continue
```

3

```
Span Cal Mode = Fixed Weight
Press Clear to Change      Enter to accept
```

4

```
Current weight =                120.8 tonnes
Enter target weight ?           0.000 tonnes
```

5

```
Press E to continue
Mass rate =     0.000
```

6

```
To Start span calibration, Press E
Mass Rate = 0.000      Revs = 0.0
```

7

```
To abort span calibration, Press A
Mass rate = 1543.000          Revs = 1.507
```

8

```
To calculate new calibration, Press E
Mass total = 120.000          Revs = 10
```

9

```
New span factor = 223.580
Press E to save, otherwise press A
```

10 (Seen only if span invalid)

```
Span of 345678.123 is invalid
Press A to continue
```

1. Press Enter when at Menu Entry 4 to proceed.

2. At this stage the span factor can be set manually by entering the desired span factor and pressing the Enter key. If no value has been entered, then no change is made to the stored value and the next level is entered.

3. Masterweigh 6 has been provided with two methods of spanning (calibrating). Fixed Weight or Empirical (Menu 5).

After initial calibration, the user can, by toggling "Fixed Weight" to "R-Cal", perform a calibration verification. An explanation of this procedure follows this text.

For initial calibration, toggle this menu step to Fixed Weight by pressing the Clear "C" button, if R-Cal has been selected.

MENU ENTRY 4 – Fixed Weight Calibration (Cont'd)

4. The target weight is the mass total that is expected over the number of belt revolutions as currently set. (Menu 2). This target weight may at this point be changed to suit the calibration weights being used. Note that this value will generally be determined by running this procedure and recording the result, immediately after performing an empirical calibration. (Menu 5). A load zero calibration should generally be performed (Menu 3) before running this procedure.

If a new value is entered then pressing the Enter key will save this as the new target weight. If the Enter key is pressed without entering a target weight, then no change to the stored value occurs.

5. The current mass rate is shown; the number of belt revolutions is zeroed. Press the Enter key to start the test.

6. Once started the test will run until the currently specified number of belt revolutions has been counted. (Refer to Menu 2).

7. During this step the weight is totalised over the specified number of belt revolutions, after which time the totalisation is automatically stopped. If the Enter key is pressed during the test, then the totalisation will be terminated, with a mass total of zero. The test can be aborted at any time by pressing the Abort key.

8. The resulting mass total is displayed along with the number of belt revolutions counted. Press the Enter key to calculate the new span calibration factor.

9. The new derived load cell span is displayed. Press the Enter key to save this value as the new loadcell span. Press the Abort key if this value is not to be stored.

10. Should the span value calculated be outside the range 0.1 to 3000 then the Masterweigh will display a warning message. Under these circumstances the new span will not be saved, and the unit will revert to the value previously stored.

Calibration Methods:

1. Ideally conveyor belt scales should initially be calibrated using empirical data obtained from accurate static scales. However, in most situations this task is impossible to achieve, but the fact remains that there is no substitution for data being input to Masterweigh 6 that has been derived from actual material bearing down on the load cell via the weighframe/carriage at normal conveyor speeds.

2. A calibration chain, a device that rolls on top of the belt provides the next best method of calibration. It imparts load to the load cells through the belt, but can not simulate belt tensions as a fully loaded belt does.

3. Static calibration weights are often used where a chain is impractical to use. Bars of a known weight are loaded directly onto the weighframe and hence simulate a load. This method does not take into consideration belt tension or weight transfer through the belt. It does however, exercise the weighframes mechanics.

4. R-Cal is an electronic method of checking the calibration. A simulated loadcell signal is created by running the belt empty and electronically unbalancing the load cell by switching in a reference signal across one arm of the Loadcell Bridge.

MENU ENTRY 4 – Fixed Weight Calibration (Cont'd)

This method provides a reasonable method of quickly checking a weightometer but is no substitution for the aforementioned calibration methods.

The software required to implement this function is supplied in all Masterweigh 6 units but the hardware required for the use is an optional extra and therefore only supplied to order.

Assuming that your system is rigged for R-Cal, proceed as follows.

Initially, calibration Menu 4 should be accessed and the Enter key pushed until the sub menu Span Cal Mode is reached.

Menu 4:

Span Cal Mode = R-Cal Press Clear to change, Enter to accept

Toggle the clear key until R-Cal has been selected.

Now proceed as for normal calibration which is performed as described under Menu Entry No. 4.

When Masterweigh 6 completes the test, note the number but do not accept it by pressing enter. Press the Abort key.

The total achieved should be logged and future R-Cal tests reference to it. If the value recorded in subsequent tests exceeds +/- 0.5% of the original value perform a full calibration using weights etc.

Note: Zero system prior to R-Cal test.

MENU ENTRY 5 – Empirical Span Calibration

This menu entry enables the manual entry of totalisations and the resultant recalculation of the load cell span. To use this calibration facility, it is necessary to weigh a quantity of material with the belt scale and then to accurately determine the actual mass of that material by independent means (i.e. via a weighbridge or static scale). The two totals are then entered and the Masterweigh computes the new span factor.

1

Menu entry: 5 Empirical calibration, span = 211.7

2

Enter weigh bridge total? 0.000

3

Enter belt scale total? 0.000

4

New span = 205.6, previous = 211.7

1. At menu Entry 5, press Enter to proceed.

2. Enter the exact mass total, as measured by the weighbridge. Press Enter when the data is correct.

3. Enter the mass total as measured by the weigher. Press Enter.

4. Press Enter to store the new span value as the load cell span calibration factor. Press Abort if no update is required. Press Menu and Enter to save.

THIS PAGE INTENTIONALLY LEFT
BLANK TO INSERT APPROPRIATE
SOFTWARE VARIATIONS IF
APPLICABLE.

MENU ENTRY 6 – NULL LEVEL

This entry displays the level at which the load is considered to be zero. This allows any variations in belt weight to be shown as zero. Below this level, the mass rate display will show zero, no increment of the mass total will occur, no pulses will be output to remote counters and the mass rate analogue output will be set to 4.0mA.

1

Menu entry : 6 Null level = 20.000 tonnes/hour

2

Max Mass Rate = 23.195 Press C to Clear, Press E to continue

3

Enter a new null level? 0.000 Mass rate = 23.2 tonnes/hour

1. At Menu Entry 6, press Enter to proceed.

2. Max Mass rate will latch on the highest mass rate value recorded automatically.

3. Key in the new Value as observed in menu no.2. Press Enter when the data is correct.

Note on selecting the null level: This entry is used to mask variations in mass rate caused by variations in the belt weight, caused by the belt splice etc. To select the null level, observe the mass rate shown over several belt revolutions with the belt running completely empty (no product or calibration weights).

Take note of the highest equivalent mass rate reached, and then enter a value slightly higher than this level. E.g. if the mass rate was swinging from -20 to 0 to +20 select 22 as the null level. On a correctly installed and aligned weigher, this figure should be approximately 1% of capacity.

MENU ENTRY 7 – Auto Zero Tracking

This entry specifies the mass rate level below which automatic zero tracking occurs and the number of belt revolutions required before a new zero calibration value is established. Control of the Autozero Alarm relay is achieved from this menu. The auto zero mode will not be entered, or continue unless the mass rate remains below the specified level. The value is normally set at approximately 1.5% of capacity. A qualifying time delay period is also provided to ensure that the belt is completely free of material. Should it be necessary to clear the present auto zero value, then this can be done by entering Menu 3 (load zero calibration), then aborting after starting the test. A "z" will be displayed at the right hand side, bottom line, of the main mass rate/mass total display, when the auto zero conditions are met and the Masterweigh is collecting data for a possible new zero level. Note: The auto zero tracking procedure is inhibited under the following conditions:-

- ❄ Masterweigh not in the mass rate / mass total display mode
- ❄ Input tacho frequency less than 5Hz.

It may be required that the user wishes to know if the Autozero function is being forced to zero out, belt zero errors which could be considered as abnormal. This is achieved by setting a window around the signal from the load cell during any period that the belt is considered to be running empty by Masterweigh. The window is set in this menu at step 5 & 6. If the signal from the load cell falls outside these 'user preset' levels then the Autozero limit alarm relay will energise.

Under some circumstances it may be necessary to increase the tolerance at which Masterweigh flags in the display that a negative loadcell excursion has taken place which is greater than the level set in the Auto zero x 2.

The error is only flagged in the local display in the form of an "E" at the right hand side of the display where the "Z" is normally shown.

Step 7 allows the user to increase the tolerance before displaying the "E". At step 8 the user can toggle the above function on or off depending on preferences.

Note: Under normal running conditions negative loadcell excursions should not be occurring! Check the weigh area for abnormalities.

1

```
Menu Entry: 7
Zero Track if greater than 20.0 for 5 revs
```

2

```
Auto Zero Level = 20.0000 tonnes /hour
Enter New Level ? =  0.00000
```

3

```
Auto zeroing period = 5 revs
Enter new period?      0
```

4

```
Delay before auto zeroing = 60secs
Enter new Delay?       0
```

5

```
Auto Zero Low Limit – 0.000mV
Enter new level?
```

6

```
Auto Zero high Limit – 0.000mV
Enter new level?       0.000mV
```

7

```
Auto Zero Error Level = 2 times Auto Zero
Enter new value?  0
```

8

```
Autozero Error Display is: On
Press Clear to Change, Enter to accept
```

MENU ENTRY 7 – Auto Zero Tracking (Cont'd)

1. At Menu Entry 7, press Enter to proceed.

2. Enter the new autozero level in mass rate units and press the Enter key. If the Enter key is pressed with no data entry then the stored value remains unchanged.

3. Enter the period required (in belt revolutions) over which autozeroing occurs. Note that the number of belt revolutions should be chosen such that the total zeroing period is of the order of 5 minutes or more. This will ensure that accurate zero levels are produced. Note that the actual zero level used by the Masterweigh will not be updated until a zeroing period has been completed. If a new value is entered and the Enter key is pressed then that value is saved, otherwise no update occurs.

4. This step enables the qualifying delay time to be set. Choose a time that will ensure that all material is off the belt. The delay time commences when the mass rate falls below the minimum level set above.

5. Step five allows the user to enter the value in mV below which it may be considered that an invalid Autozero is taking place.

6. Step six allows the user to enter the value in mV above which it may be considered that an invalid Autozero is taking place.

7. Increase this factor if the letter "E" is being encountered in the main display.

8. The function of displaying the letter "E" can be switched on or off here by pressing the "C" button.

MENU ENTRY 8 – Loadcell Input (Millivolts)

This entry displays the load cell input in millivolts. The displayed value is unaffected by the load zero, load calibration, and zero tracking functions. The entry also displays the excitation voltage as currently sensed by the Masterweigh. It is displayed to the nearest volt only, ie. 10V is in the range 9.501 to 10.5V. It is updated once every 3 minutes.

This display enables a user to confirm that the Masterweigh is correctly sensing the excitation voltage and thus that all links etc. are correctly installed. Incorrect excitation sensing will result in inaccurate and unstable mass rate measurements. Access is also available to the output of the voltage to frequency converters.

1

Menu Entry: 8 Loadcell = 16mV, (Extin. = 10V

2

V to F count = xxxxx Press Enter to continue

This facility is for technician's use only.

1. Menu Entry 8 displays the load-cell millivolt output and excitation voltage.

2. Press Enter to access the current V to F output.

3. Press Enter again to return to Menu Entry 8.

MENU ENTRY 9 – Tacho Frequency

This entry displays the current tacho frequency in hertz, (the input range is 5Hz to 1000Hz) and switches between software or hardware inputs.

1

Menu Entry 9: Tacho Frequency = 250.005 Hertz

2

Tacho Source = Hardware Press Clear to change, Enter to accept

3

Tacho Source = Software Press Clear to change, Enter to accept

4

Tacho Source = Ext. Con Press Clear to change, Enter to accept

1. Press "E" to enter the menu to select the source of the tachometer signal.

2. Press "C" to change (or toggle) between the available pulse sources which are :

- Hardware – input signal to the system as generated by the speed sensor (magnetic pick-up or optical tachometer)
- Simulated – an internally generated 100Hz signal that is always on.
- Ext.Con – an internally generated signal that is only on when an external contact is closed between terminals “TG” and “T In” on terminal strip J8.

3. Press Enter to accept and return to the Menu Entry 9.

MENU ENTRY 10 – Modification of Filter Constants

Filtering can be applied to the following functions:

Displayed mass rate
4-20mA mass rate output
Tacho input

The level of filtering is specified by a constant that may be in the range 1 second to 120 seconds. Time constants greater than 120 seconds have the same effect as a 120-second constant.

A time constant of 1 second is equivalent to no filtering. Time constants greater than 1 second introduce a delay in the rate of change of the filtered function.

1

Menu Entry: 10 To modify Filter factors press Enter

2

Display Time constant is	2 secs
Enter new Time constant	0

3

Rate O/P Time constant is	4secs
Enter new Time constant	

4

Tacho I/P Time constant is 1 secs Enter new time constant

1. Press Enter to modify the display filter time constant.

2. The display mass rate filter time constant is shown. When a time constant of greater than 1 is selected, the main mass rate display is damped. A new value for the display filter constant may be entered.

3. The 4-20mA mass rate output filter time constant is now displayed. A new value for the mass rate output filter constant may be entered.

4. The tachometer input filter is displayed here and a new constant applied if necessary.

Note: At each step, pressing the Enter key will save the new value. If a new value has not been entered, then the current value is unchanged.

MENU ENTRY 11 – Modification of Displayed Units

The displayed units for mass rate and total may be selected from tonnes, lbs, tons or kgs. The displayed units for mass rate will be the same as those selected for mass total, ie. tonnes/hour, lbs/hour, tons/hour or kgs/hour.

1

Menu entry : 11 To modify display units, Press E

2

1 = tons	2 = lbs
3 = kgs	4 = tonnes

1. Pressing the Enter key will advance to select mass units.

2. At this stage the mass units which can be displayed are shown. To select the mass unit required press the number key associated with it, then press the Enter key. The units number selected will be shown in the lower right hand corner of the display. Numbers greater than 4 will not change the currently displayed mass total and mass rate units. Pressing the Enter key without entering a new unit number, or pressing Abort, will not change the currently displayed units.

3. Press Menu and Enter to save.

MENU ENTRY 12 – Belt Speed Indication

This entry displays the current belt speed in metres/second (or feet/minute if the mass rate unit is in tons or lbs) based on the total belt length in metres. This Menu does not need to be programmed, however it may be useful.

1

Menu entry: 12 Belt speed = 3.10 metre/second

2

Belt load = 75.015 kg/metre Press E to continue

3

Current belt total length = 200.000m Enter new belt total length 0.000m

4

Enter measured belt speed in metres/min 0.000 Press E for belt length

5

Calculated belt length = 0.000 metres Press E to save, otherwise Press A

1. This entry shows the current calculated belt speed. Press Enter once view the current belt loading.

2. The current calculated belt loading will be displayed in the appropriate units (kg/m or lb/ft, depending on the mass units selected). This belt loading is calculated from the current Mass Rate and belt speed.

3. The current value for the belt length is shown. If the belt length is known, enter it here.

4. If the belt length is not known, and an accurate belt speed has been physically measured from the belt itself, the Masterweigh can calculate the belt length. Enter the measured belt speed in the units shown then press Enter to calculate the new belt length.

5. If you entered a belt speed, this value will be the calculated belt length. If it appears correct, Press enter to save the value, or abort to ignore the calculation. Note that if you entered a belt length in step 3 and not a belt speed in step 4, this value will be meaningless. Press Enter to continue.

MENU ENTRY 13 – Clearing Mass Total

Menu entry : 13 Press C, to clear Mass Total

1. When the mass total on the "mass rate/mass total" display (MRMT) is to be zeroed, press C at Menu Entry 13. All totalised figures are then cancelled by the integrator.

Press Menu, then Enter to return to the MRMT display.

MENU ENTRY 14 – Real Time Clock Menu (Optional)

This menu controls the operation of the Masterweigh 6 real time clock. The real time clock is a separate module with its own battery power source that will continue to keep accurate time, even in the case of power loss to the Masterweigh 6 unit. This menu is only accessible if the real time clock module has been installed. Step 1 displays the following current time, date and day-of-week information.

1

Menu entry: 14 Wed Time = 09:12:43am Date =

Pressing Enter advances to:

2

Elapsed Time = Press clear to reset 0 days 00.19.58 hours

Here a free running elapsed time count is displayed. Pressing clear will reset the elapsed time counter. Pressing Enter advances to:

3

Clock is currently in 12-hour mode Press +/- to change, Enter to accept

The Masterweigh 6 real time clock can be configured to display the current time in 12 or 24-hour mode, the selection is made in this menu.

Pressing Enter advances to:

4

Time = 09:13:56am Enter new time (HHMM)

Here the current time is displayed and may be modified. A 4-digit time string of the form "HHMM" needs to be entered. Where HH is the desired hours, ie. "12", "03", etc, and MM is the desired minutes, ie. "45", "07", etc. E.g. to enter 9:30, press 0,9,3,0,E.

Pressing Enter advances to:

5

Time is currently: am Press +/- to change, Enter to accept

Here the current 12 hour time format postfix is displayed, and may be modified. The user can select either "am" or "pm".

Pressing Enter advances to:

6

Date = 29/6/94 Enter new date (DDMMYY)

Here the current date is displayed and may be modified. A 6-digit time string of the form "DDMMYY" needs to be entered. Where DD is the desired days, ie. "27", "04", etc. MM is the desired months, ie. "11", "05" etc and YY is the desired years, ie. "94", "01"etc. E.g. to enter 12 Feb 2000, press 1,2,0,2,0,0,E.

Pressing Enter advances to:

7

Day of the week = Wednesday Press +/- to change, Enter to accept

Here the current day of the week is displayed and may be changed by the user. Pressing the "+" or "-" key toggles through the days of the week.

Pressing Enter advances to:

8

Power of hours = 1 Press Enter to continue

Here a count of power-on hours since the last unit re-configuration is displayed. This display is provided for information only, it is not user adjustable. Pressing Enter returns to step 1.

MENU ENTRY 15 – Access Code Menu

Masterweigh 6 provides for 2 levels of user configurable access code. If no access codes are activated, all Masterweigh 6 menus are accessible all the time. An "Operator" and a "Configuration" access code may be entered. As soon as an access code is activated, the user cannot leave the main mass rate/total menu and gain entry to the menu system without entering a valid/correct access code.

Entering the correct Configuration access code allows full access to all Masterweigh 6 menus and parameters. Entering the correct Operator access code allows limited access to the Masterweigh 6 menu system.

Step 1 of this menu displays:
1

Menu Entry: 15 Press Enter to modify access codes

Unless the special security key has been installed in link 3 of the CPU PCB, the following menus cannot be accessed. If the security key is installed, then pressing Enter advances to:
2

Operator Access Code: Enter access code? 0

Here a new Operator access code may be entered; this can be a number in the range 1 to 32766. Note that entering and Operator access code of 0 (zero) clears the Operator access code. If the security key is installed, then pressing Enter advances to:

3

Configuration access code: Enter access code? 0

Here a new Configuration access code may be entered, this can be a number in the range 1 to 32766. Note that entering a Configuration access code of 0 (zero) clears the Configuration access code. Pressing Enter returns to step 1.

MENU ENTRY 16 – Report Printing Menu (Optional)

This menu controls the automatic report printing function of the Masterweigh 6. This menu is only accessible if the real time clock module has been installed. It is possible to configure the Masterweigh 6 to automatically produce a report, via the RS232 serial port, on either a time or mass total basis. It is also possible to manually command a report at any time. The format of the report is:

Masterweigh Report

Date = 29/06/00
Time = 12:01:41
Mass total = 2474450 tonnes
Mass rate = 5380 tonnes/hour

Menu step 1 displays the following:
1

Menu entry : 16	
Automatic report printing	Off

Pressing Enter advances to:
2

Press Clear to print report NOW
Press E to continue

Pressing Clear will cause a report to be immediately printed via the RS232 serial port.

Pressing Enter advances to:
3

Report Mode = Off
Press Clear to change, Enter to accept

Pressing Clear toggles the report mode between:

* Off,
* Time based, or
* Total based

Pressing Enter when report mode is Off, returns to Step 1 above.

Pressing Enter when report mode is Time based advances to:
4

Report every	1 hour
Enter new value?	0 hours

Here the time based reporting period is displayed and may be modified. The time period entered here will cause the Masterweigh 6 to automatically print a report via the serial port every time the period expires, ie. a report period of 4 hours will cause a report to be automatically printed at midnight, 4 am, 8 am, noon, 4 pm, 8 pm, etc. Pressing enter here returns to step 1 above.

Pressing Enter when report mode is Total based advances to:
5

Report every	100 tonnes
Enter new value ?	0 tonnes

Here the total based reporting increment is displayed and may be modified. The mass total increment entered here will cause the Masterweigh 6 to automatically print a report via the serial port every time the increment is added to the mass total, ie. a total increment of 2500 tonnes will cause a report to be automatically printed at 20000 tonnes, 22500 tonnes, 25000 tonnes, 27500 tonnes, etc. Pressing Enter here returns to step 1 above.

The RS232 Parameters are:

Baud	19200 bps
Data bit	8 bits
Stop bit	2 bits
Parity	None

RE-CONFIGURING MASTERWEIGH 6

Under some circumstances Masterweigh's memory can be corrupted so that correct operation of the unit is not possible. This condition can occur if Masterweigh has been subjected to severe electrical noise or spikes.

This phenomenon usually occurs on 240/110V AC power lines; however they can also appear on the load cell input cables as well as the tachometer cables. Masterweigh has been protected as far as possible; however, severe noise or spikes can get through.

Once any part of memory has been corrupted Masterweigh will detect it and automatically flag an error. If the corruption has only changed data, an error may not be detected and some erroneous results may occur. The only way to clear the memory of this data is by re-configuring.

Switching the power off and on will not clear the memory. The act of re-configuring causes all the calibration data to be lost and replaced by factory data. The calibration data specific to your application can easily be re-entered if you have kept a note of what was in the menus.

Menu 1 however, does have specific data that is logged on the main PCB under Calibration zero and Precision ref.

LOG ALL CALIBRATION DATA, AS YOU MAY NEED TO MANUALLY RE-ENTER IT AT A LATER DATE.

TO RE-CONFIGURE MASTERWEIGH 6 PROCEED AS FOLLOWS:

1. Switch off Masterweigh.

2. Simultaneously press the "Backlight" and "Abort" keys.

3. With both the above keys pressed switch Masterweigh on.

4. The display will now show the message:

   Press C to Configure
   Any other key to continue

5. Now press the C key and Masterweigh will return to normal running mode.

6. Masterweigh is now configured to factory defaults.

7. Press Menu to enter Menu entry 1, then press C to enter the calibration data section. The display will warn you not to continue. Press Enter to continue.

8. The display will request a new Calibration Zero to be entered. Enter the value that is engraved onto the right hand side of the main PCB under the label "Cal Zero", then press E.

9. The display will request a new Precision Reference. Enter the value that is engraved onto the right hand side of the main PCB under the label "Prec. Ref.", then press Enter.

10. Press M then E to return to normal running mode.

Remember: If MW6 is re-configured all calibration data is lost! Keep Notes.

FACILITIES AVAILABLE

Introduction

The Masterweigh is a precision microprocessor based instrument for accurate integration of mass totals in belt scale applications.

The "core" of the highly successful Masterweigh design has been in operation for many years and has been proven in the field and tested by the National Standards Authority of Australia. The tests on the core proved that the instrument is accurate to 0.1% over its operating range. The operating environment is based on a series of discrete Menus. Each menu allows the user to set up a working environment or calibrate the system.

For a detailed description of each menu, refer to **Section OP-3 - OP-22** of the manual.

Note that detailed information relating to the keyboard operating command procedures is to be found earlier in this manual.

Load Cell Input and Excitation

The Masterweigh is designed to accept a load-cell millivolt signal in the range 0 to 32 millivolts with a resolution of approximately 4 microvolts.

An on-card voltage source provides excitation for the load cell. This source can provide excitation for up to four 350 ohm load-cells in parallel.

The excitation is not precisely controlled, but is maintained within approximately 1 percent of the set value. The Masterweigh monitors the excitation voltage and automatically compensates for any voltage change that may occur.

The excitation is adjustable over a wide range to enable optimum performance to be obtained from a wide variety of load cells and is normally set for 10.00V.

The Masterweigh is configured to provide a positive excitation voltage referenced to ground (unipolar). The positive voltage is continuously adjustable from +4 to +12 volts. The Masterweigh is factory set for a unipolar excitation of 10 volts.

Following adjustment of the excitation, allow a minimum of 30 seconds for the Masterweigh to update its internal excitation reading before proceeding with calibration functions.

The approximate value of the excitation voltage sensed by the Masterweigh is displayed in Menu 8. This should match the voltage sensed at terminals J9 pin 1 and 2. i (Allow 30 seconds for update of display after adjusting the excitation).

Incorrect configuration of excitation sensing will cause erratic mass rate readings.

The millivolt input accepts a differential millivolt signal, and will operate accurately over a common mode range of minus 8 to plus 8 volts. The input is overload protected to plus or minus 35 volts on either terminal with the Masterweigh energised, and plus or minus 20 volts on either terminal when not energised. Transient overload capacity is much higher than this continuous rating, and depends on the duration of the overload.

FACILITIES AVAILABLE (Cont'd)

Load cell Input and Excitation (Cont.)

The analogue to digital conversion is performed using voltage to frequency conversion techniques, thereby providing excellent rejection of signal noise over a wide frequency range.

With the exception of short periods allocated to self-calibration, the Masterweigh is continuously monitoring the load cell input rather than periodically sampling, as is the case for systems which use dual-slope integrating converters. This results in a more accurate measurement of the rapidly fluctuating input signal from the load cell.

Careful design of the input circuitry ensures excellent rejection of common-mode signals both AC and DC.

Note: The excitation voltage regulators are overload and short-circuit protected, however, short circuiting of the excitation output will interfere with normal operation of analogue input circuitry and the RS232 interface.

Caution: Application of an external voltage source to the excitation terminals may cause serious damage to the Masterweigh.

No calibration or adjustment of the Masterweigh analogue inputs is required. Gain and zero are automatically adjusted by the reference. This automatic calibration is repeated once every 30 seconds, whenever the Masterweigh is energised.

After energising the Masterweigh, always allow a minimum of thirty (30) seconds for this automatic calibration to be performed before initiating a span or zero calibration sequence.

(Note: If Masterweigh has not been energised for some time, allow 3 minutes before initiating the above).

FACILITIES AVAILABLE (Cont'd)

Tacho Input and Supply

a) Electrical Characteristics

The tacho input is designed to accept a voltage input of 2.5 to 50 volts peak and so will accept either a TTL or sinusoidal voltage input. The input threshold voltage is +1.2 volts at the positive input with respect to the negative input.

The negative input is directly connected to the Masterweigh grounds. Avoid earthing this input in the field as it will create ground loops.

The tacho input will not accept frequencies in excess of 800 Hz (approx.).

A regulated +5 volt supply is provided for energising a digital pulse generator. This supply is rated at 200mA maximum, and is overload and short-circuit protected.

It may be necessary to briefly remove all load after removing a short circuit in order to reset the protection circuit. Short-circuiting of the tacho +5 volt supply will not affect the Masterweigh CPU operation.

Masterweigh is fitted with a potentiometer (RV2) to adjust the tachometer's 5V rail if required. (Normally only used when the tacho supply drops to a voltage where the tachometer ceases to work owing to significant voltage drop from long cable runs, IS barriers or the like.

CAUTION: Application of an external voltage source to the tacho supply terminals may cause damage to the Masterweigh.

b) Frequency Selection

The tacho generator should be selected and fitted to provide a frequency input to the Masterweigh within the range 5 to 1000 Hz, to ensure compatibility & accurate measurement.

The tachometer is normally selected for the user by the factory. Selection depends on the rotational speed of the pick up pulley, which in turn is supplied by the user.

Note that the tacho frequency has no affect on the rate at which the load cell signal is sampled.

Pulse Output

The Masterweigh provides a pulse output for external accumulation of the mass total. Masterweigh provides for three methods of indicating when a change in Masterweigh's total has occurred.

1) An Internally Generated + 5VDC Pulse
2) An Internally Generated + 24VDC Pulse
3) Contact closure from an internal relay (providing voltage free contacts).

Which of these options is used can be selected from links LK6 and LK7 as shown in the USER CONFIGURATION section.

The pulse duration is adjustable in Menu 1. One pulse is output each time the least significant mass total digit displayed is incremented by 1 count. A minimum of 20 milliseconds is guaranteed between pulses, thereby providing a maximum pulse rate of 25 pulses per second (20 milliseconds on, plus 20 milliseconds off).

The internal +5V supply is regulated to +5V. It is not isolated from ground. External load resistance should not be lower than 50 ohms.

FACILITIES AVAILABLE (Cont'd)

The internal +28V is unregulated and may vary over the range 25-35V. It is isolated from ground to allow configuration of a fully isolated pulse output. This +28V supply is shared with the 4-20mA analogue loop output, and is rated at 400mA continuous maximum current.

The contact closure is completely isolated and is rated at 32V maximum and 500mA maximum. It must not be used for 110V or 240V operation.

All pulse outputs are protected by 2 of 500mA fast blow fuses, F2 and F3.

Analogue Output

The Masterweigh provides one 4-20mA analogue output channel, with a resolution of better than 0.5%. It operates as a loop-powered configuration and therefore derives its operating power from the 4mA residual loop current. A minimum of 20 volts is required to operate with zero ohms load, rising by 1 volt for every 50 ohms of load, ie. 30 volt supply required for 500 ohm load.

An isolated 24VDC regulated supply is provided on the Masterweigh power supply board, which can be used to energise the analogue loop.

Links LK2 and LK3 on the bottom power supply board, select either the onboard supply or an external supply connected in series with the analogue loop.

Span calibration of the output is readily performed by accessing the analogue calibration in the Menu 1 set up.

There is no provision for zero adjustment on the analogue output.

Earthing

This is achieved by installing the shunt on LK1 (link) located on the lower pcb above the capacitors. Installing this link will connect the Masterweigh's digital and analogue grounds to power earth.

Display Backlighting

The liquid-crystal display used in the Masterweigh provides LED backlighting for improved readability under adverse light conditions. If the unmarked key has not been activated then the display will switch off if any key has not been used within 5 minutes.

System Output Status

A voltage free contact has been provided for remote monitoring of the Masterweigh autozero function. If the autozero function returns a value that is outside the "high and low" limits that were set in Menu 7, the relay will energise. It will remain energised until an operator initiated zero is performed in Menu 3.

USER CONFIGURATION

Power Supply PCB (Lower Board)

LK1 Grounding

When the shunt is in position Masterweigh is referenced to ground. When open Masterweigh is floating.

LK2, LK3, LK3, LK4 Current loop supply

These links select the power supply for the analogue output current loop. The supply can be an internally generated isolated 24VDC supply, or an external supply of 20 to 50VDC.

Set the links to select the appropriate power source as follows:

Internally generated:

LK2	LK3
A	A

Externally generated:

LK2	LK3
B	B

LK6, LK7 Totaliser Pulse Output

These links select whether the totaliser relay is potential free or switches the internal 24Vdc. Set the links to suit the external counter device.

Internally generated +24 VDC (Isolated):

LK6	LK7
A	A

Voltage free contacts:

LK6	LK7
B	B

POTENTIOMETER ADJUSTMENTS

Excitation Level Adjustment

Power Supply PCB (Bottom Board)

RV1: Used to adjust the load cell excitation used in conjunction with a digital meter.

RV2: Used to adjust the tachometer supply voltage. The voltage can be adjusted 5-23V and is set to 5V at the factory. The voltage can be adjusted when there is a voltage drop at the tachometer due to long cables, or Intrinsic Safety Barriers are used. If a Proximity switch is used the voltage can be adjusted to the correct supply voltage.

Contrast & Analogue Output Adjustment

CPU PCB (Top Board)

VR1: Adjusts the LCD display viewing angle so that the display can be easily read.

VR2: Used to span the 4-20mA analogue output channel. Connect a digital current meter in series with the analogue output. Set the analogue output to 20mA (see Menu 1). Adjust the output using VR2 until the current meter shows 20.00

FIELD TERMINAL STRIPS

J3 – Power supply input

1. A	240VAC/110VAC	Active
2. N	240VAC/110VAC	Neutral
3. E	240VAC/110VAC	Earth

J5 – System Status Relay

1. COM	Common contact
2. NO	Normally open contact
3. NC	Normally closed contact

J6 – Pulse counter outputs

1. P+	Pulse Counter Output
2. P-	Pulse Counter Output
3. SLD	Screen

J7 – Auxiliary 24V DC output

1. GND	24V ground
2. 24V	24V

J8 – Tachometer inputs

1. TG	Tacho Ground
2. TIN	Tacho Signal In
3. TE	Tacho supply +5V
4. SLD	Screen

J9 – Load cell inputs

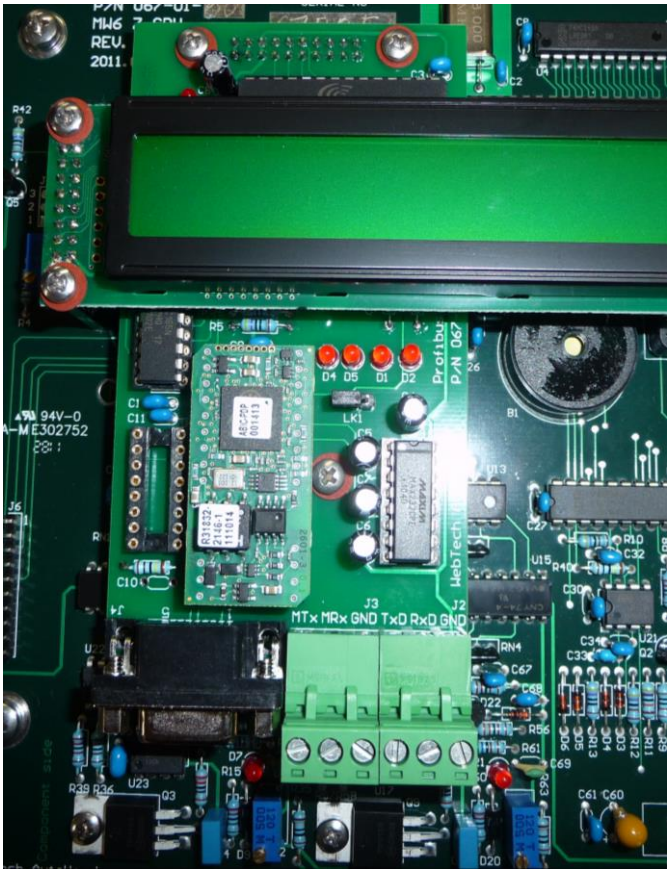
1. L+	Load cell signal output +ve
2. L-	Load cell signal output -ve
3. E+	Load cell excitation +ve
4. E-	Load cell excitation -ve
5. SLD	Load cell Shield

J10 – Analogue Rate output

1. -	Analogue output -ve
2. +	Analogue output +ve
3. SLD	Screen

FIELDBUS – PROFIBUS

PROFIBUS



MW6 with Profibus Card Installed

The Profibus card for MW6 functions as a Profibus DP-V0 slave. The card also has a standard RS232 interface to transmit data to a printer or a computer.

Data on the Profibus interface is exchanged as cyclical I/O. The interface supports all the standard baud rates up to 12Mbps. The Profibus interface supports DP features such as Freeze mode, Sync mode, Auto baud detection and Set slave address.

Connectors:

J2 is the standard MW6 RS232 interface used to transmit ASCII data to a computer or other device such as a printer.

J3 is an RS232 interface which provides an easy way to monitor and access parameters on the Profibus interface.

J4 is the Profibus interface connector and is a standard DB9 connector which is the preferred and most commonly used connector. There are no terminating or biasing resistors on the interface and it is suggested that standard Profibus connectors containing both terminating and biasing resistors are used.

Link LK1 switches the RXD pin between the Profibus module and the normal RS232 communications see FIG 1C below

Status Indicators:

D1 shows activity on the TX line of the standard RS232 interface.

D2 shows activity on the RX line of the standard RS232 interface.

D3 indicates the 5V supply is on.

	STATUS	DESCRIPTION
D4	Off On Flashing	Off-line or no power Data exchange mode Clear mode

FIELDBUS – PROFIBUS (Cont'd)

Node Address:

MENU 14

Profibus address = 1

Press ENTER

Enter new address here.

Press ENTER

Baud rate is auto detect

DB9F Pinout

The Pinouts for the Profibus connector are as below:

PROFIBUS Connector (DB9F)	
Pin	Signal
1	
2	
3	B-Line
4	RTS
5	GND BUS (isolated)
6	+5V BUS (output, isolated,100mA max)
7	
8	A-Line
9	
Housing	Shield

The +5V BUS and GND BUS are supplied by the Profibus module, and are normally used for the RS485 bus biasing resistors.

FIELDBUS – PROFIBUS (Cont'd)

Masterweigh 6 Profibus Interface

Variable Data Format

All 32-bit variables (floating-point and unsigned long) are stored in a six byte format to allow for data using two different byte orders. If the variable is expected to be encoded with a byte order from bytes 0-3, four bytes should be read starting at offset 0 of the six byte block. If the byte order is expected to have the two 16-bit words reversed, four bytes should be read starting from offset 2 of the six byte block.

0	1	2	3	4	5
Byte 0	Byte 1	Byte 2	Byte 3	Byte 0	Byte 1

Profibus Module Data

The data provided by the Profibus interface is sent as a 42-byte block containing the following seven variables in order:

Variable	Code	Type
Mass rate	MR	IEEE float
Mass total	MT	DWORD (32-bits)
Load cell	LC	IEEE float
Tacho frequency	TF	IEEE float
Belt speed	BS	IEEE float
Load cell zero	LZ	IEEE float
Load cell span	LS	IEEE float

As each variable is stored in the six-byte format, the 42-byte block is encoded as follows:

0	1	2	3	4	5	6	7
MR0	MR1	MR2	MR3	MR0	MR1	MT0	MT1

8	9	10	11	12	13	14	15
MT2	MT3	MT0	MT1	LC0	LC1	LC2	LC3

16	17	18	19	20	21	22	23
LC0	LC1	TF0	TF1	TF2	TF3	TF0	TF1

24	25	26	27	28	29	30	31
BS0	BS1	BS2	BS3	BS0	BS1	LZ0	LZ1

32	33	34	35	36	37	38	39
LZ2	LZ3	LZ0	LZ1	LS0	LS1	LS2	LS3

40	41
LS0	LS1

FIELDBUS – ETHERNET/MODBUS TCP

ETHERNET

MW6 with Ethernet/Modbus TCP Card Installed

Connectors:

J2 is the standard MW6 RS232 interface used to transmit ASCII data to a computer or other device such as a printer.

J3 is an RS232 interface which provides an easy way to monitor and access parameters on the Ethernet interface.

J4 is the Ethernet interface connector and is a standard CAT5E connector which is the preferred and most commonly used connector.

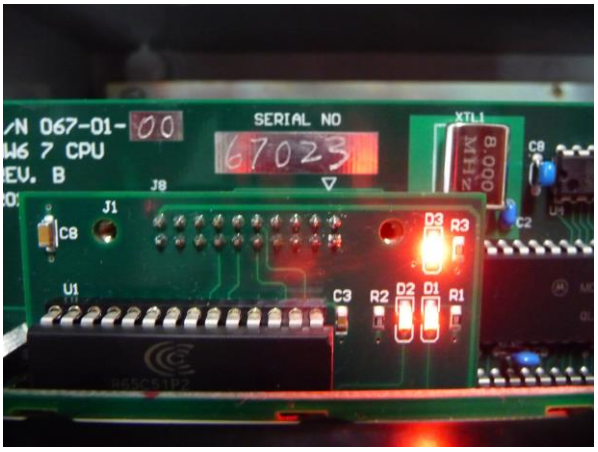
Link LK1 switches the RXD pin between the Ethernet module and the normal RS232 communications

Status Indicators:

D1 shows activity on the TX line of the standard RS232 interface.

D2 shows activity on the RX line of the standard RS232 interface.

D3 indicates the 5V supply is on.



D4-7 are as shown in below:

LED	State	Status
Link/Activity D7	Off	Device not powered
	Green	Module connected to an Ethernet network
	Green, flashing	RX / TX Activity
	Alternating Red/Green	Self test in progress
Data Rate D6	Off	10 Mbps operation
	Green	100 Mbps operation
	Alternating Red/Green	Self test in progress
Module Status D5	Off	Device not powered
	Green	Device has an EtherNet/IP connection
	Green, flashing	Device has no EtherNet/IP connection
	Red	Major fault (unrecoverable)
	Red, flashing	Minor fault (recoverable)
	Alternating Red/Green	Self test in progress
Network Status D4	Off	No power or no IP address
	Green	EtherNet/IP connection(s) established
	Green, flashing	No EtherNet/IP connections established
	Red	Duplicate IP address detected
	Red, flashing	One or several EtherNet/IP connections has timed out
	Alternating Red/Green	Self test in progress

FIELDBUS – ETHERNET/MODBUS TCP (Cont'd)

Setup in MW6 Menu:

1. Select menu 14 in the Masterweigh 6 setup menu, and press enter to configure the Modbus TCP interface.
2. Configure the system using the following settings:

Setting	Value
DHCP Enabled	0
IP Address	010000000025 (Four 3-digit numbers 010.000.000.025)
Subnet Mask	255255255000 (Four 3-digit numbers 255.255.255.000)
Gateway	010000000138 (Four 3-digit numbers 010.000.000.138)

To setup the interface, the device's IP address, subnet mask and gateway will have to be configured. This can be entered statically, or received dynamically using DHCP.
After entering menu 14, the user can first configure DHCP by entering 1 for enabled or 0 for disabled.

If the user selects 1, the configuration is completed and the user can exit the menu to save changes.

If the user selects 0, they will then be prompted to enter the IP address, subnet mask and gateway. These values need to be entered in a 12-digit format (AAABBBCCCDDD) where, for example, the IP address 192.168.0.1 is entered as 192168000001. After these values are entered, the user can exit the menu to save changes.

Masterweigh 6 Modbus TCP Interface

Variable Data Format

All 32-bit variables (floating-point and unsigned long) are stored in a six byte format using three consecutive registers to allow for data using two different byte orders. If the variable is expected to be encoded with a byte order from bytes 0-3, two registers should be read starting from the base register. If the byte order is expected to have the two 16-bit words reversed, two registers should be read starting from register offset 1.

Address	Variable	Type
Base+0	High Value	IEEE float/DWORD
Base+1	Low Value	IEEE float/DWORD
Base+2	High Value	IEEE float/DWORD

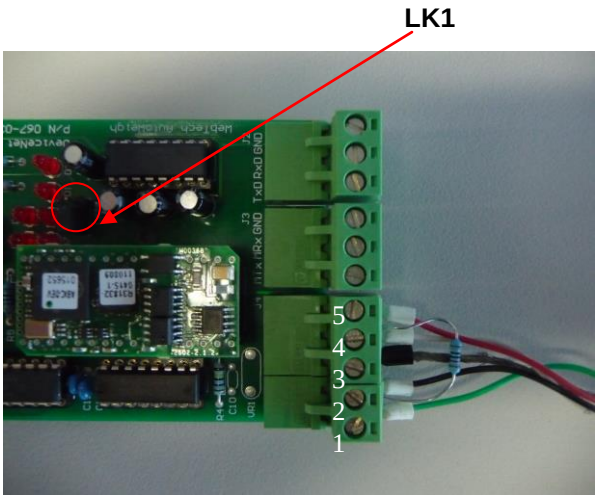
Modbus TCP Data

The registers provided by the Modbus TCP interface are as follows:

Address	Variable	Type
1	Mass Rate High	IEEE float
2	Mass Rate Low	IEEE float
3	Mass Rate High	IEEE float
4	Mass Total High	DWORD (32-bits)
5	Mass Total Low	DWORD (32-bits)
6	Mass Total High	DWORD (32-bits)
7	Load Cell High	IEEE float
8	Load Cell Low	IEEE float
9	Load Cell High	IEEE float
10	Tacho Frequency High	IEEE float
11	Tacho Frequency Low	IEEE float
12	Tacho Frequency High	IEEE float
13	Belt Speed High	IEEE float
14	Belt Speed Low	IEEE float
15	Belt Speed High	IEEE float
16	Load Cell Zero High	IEEE float
17	Load Cell Zero Low	IEEE float
18	Load Cell Zero High	IEEE float
19	Load Cell Span High	IEEE float
20	Load Cell Span Low	IEEE float
21	Load Cell Span High	IEEE float

FIELDBUS – DEVICENET

DEVICENET



DeviceNet Card

Pin outs:

The pin-outs for the DeviceNet connector are shown in the figure above.

DeviceNet Connector	
Pin	Signal
1	V-
2	CAN_L
3	Shield
4	CAN_H
5	GND BUS (isolated)
6	V+

You must ensure that 120Ohm 0.5W termination resistors are installed between CAN HI and CAN LO at the two ends of the DeviceNet network.

MW6 DeviceNet:

The DeviceNet card for MW6 functions as a DEV-V0 slave. The card also has a standard RS232 interface to transmit data to a printer or a computer.

Data on the DeviceNet interface is exchanged as cyclical I/O. The interface supports all the standard baud rates up to 12Mbps. The

DeviceNet interface supports DP features such as Freeze mode, Sync mode, Auto baud detection and Set slave address.

Connectors

J2 is the standard MW6 RS232 interface used to transmit ASCII data to a computer or other device such as a printer.

J3 is an RS232 interface which provides an easy way to monitor and access parameters on the DeviceNet interface.

J4 is the DeviceNet interface connector

Link LK1 switches the RXD pin between the Profibus module and the normal RS232 communications.

FIELDBUS – DEVICENET (Cont'd)

MW6 DeviceNet Setup:

Node Address

MENU 14

DeviceNet address = 1

Press ENTER

Enter new address here.

Press ENTER

Baud rate is auto detect

Status Indicators:

D1 shows activity on the TX line of the standard RS232 interface.

D2 shows activity on the RX line of the standard RS232 interface.

D3 indicates the 5V supply is on.

	STATUS	DESCRIPTION
Module Status D5	Off On Flashing	Off-line or no power Data exchange mode Auto Baud in progress
Network Status D7	Off On Flashing	Off-line Online-Connected Online-not connected

Masterweigh 6 DeviceNet Interface

Variable Data Format

All 32-bit variables (floating-point and unsigned long) are stored in a six byte format to allow for data using two different byte orders. If the variable is expected to be encoded with a byte order from bytes 0-3, four bytes should be read starting at offset 0 of the six byte block. If the byte order is expected to have the two 16-bit words reversed, four bytes should be read starting from offset 2 of the six byte block.

0	1	2	3	4	5
Byte 0	Byte 1	Byte 2	Byte 3	Byte 0	Byte 1

DeviceNet Data

The data provided by the DeviceNet interface is sent as a 42-byte block containing the following seven variables in order:

Variable	Code	Type
Mass rate	MR	IEEE float
Mass total	MT	DWORD (32-bits)
Load cell	LC	IEEE float
Tacho frequency	TF	IEEE float
Belt speed	BS	IEEE float
Load cell zero	LZ	IEEE float
Load cell span	LS	IEEE float

As each variable is stored in the six-byte format, the 42-byte block is encoded as follows:

0	1	2	3	4	5	6	7
MR 0	MR 1	MR 2	MR 3	MR 0	MR 1	MT 0	MT 1

8	9	10	11	12	13	14	15
MT 2	MT 3	MT 0	MT 1	LC0	LC1	LC2	LC3

16	17	18	19	20	21	22	23
LC0	LC1	TF 0	TF 1	TF 2	TF 3	TF 0	TF 1

24	25	26	27	28	29	30	31
BS0	BS1	BS2	BS3	BS0	BS1	LZ0	LZ1

32	33	34	35	36	37	38	39
LZ2	LZ3	LZ0	LZ1	LS 0	LS 1	LS 2	LS 3

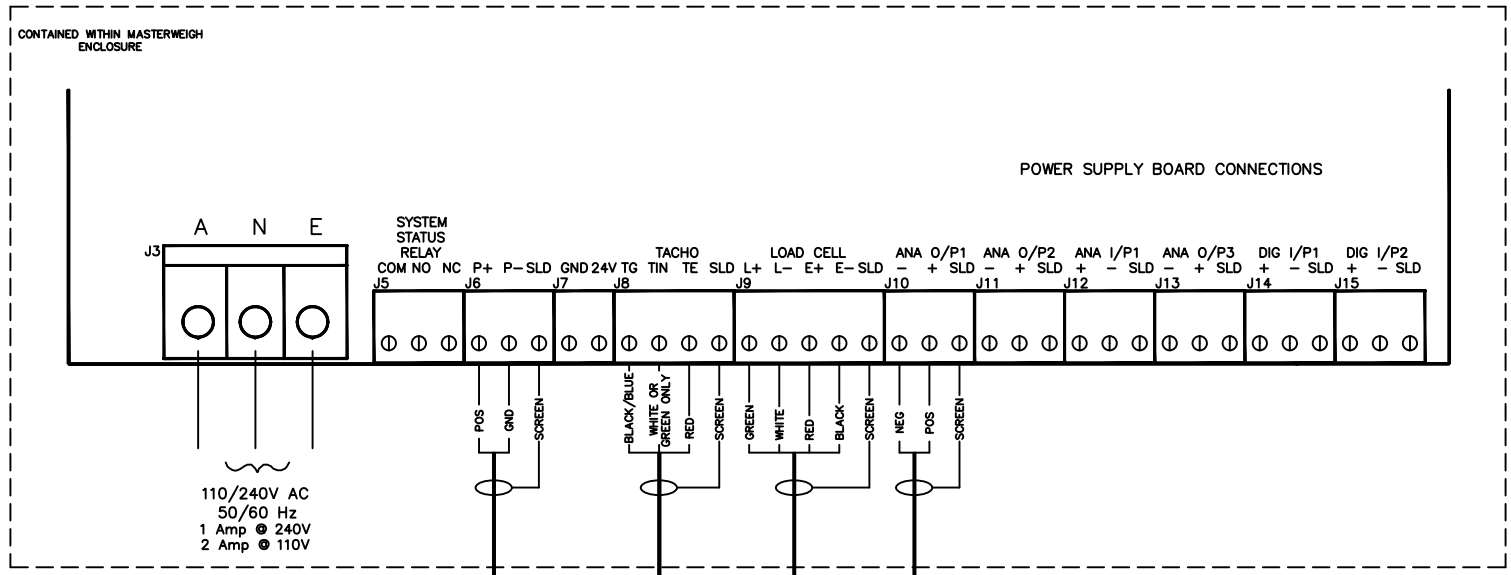
40	41
LS0	LS1

"Zero Calibration" with Masterweigh 6

1. Acquire correct Calibration Data Sheet and Design Data Sheet for belt scale/feeder.
2. Allow conveyor/feeder to run for at least ½ hr prior to calibration.
3. Remove feed from conveyor/feeder.
4. Press 'MENU' key.
5. Press '3' (or '+' key 2 times) to get to menu 3 "Zero Calibration". There will be 2 values displayed. 1st is "Zero Cal = xx.xxxmV the 2nd value is xx.xxxmV Ztrck.
6. Record BOTH values for future reference.
7. Press '8' key (or + key 5 times). This will bring you to MENU 8 "Loadcell Input".
8. Check that loadcell voltage is close to that last recorded in the calibration data sheet "DYNAMIC (No Load)" mV, and is relatively stable.
9. Press '9' key (or + key 1 time). This will bring you to MENU 9 "Tacho Frequency".
10. Check that the frequency displayed is close to that last recorded in the Calibration Data Sheet, and is relatively stable.
11. Press "Menu" key, then press "Abort" key. Masterweigh should return to the normal operating display.
12. With the belt running empty, press the "ZERO" key.
13. The display should read "To Start Zero Cal Press E".
14. Press "E". The belt should complete a full number of revolutions as indicated on the Calibration Data Sheet ('Menu 2' No of Belt revs:) Watch conveyor to ensure no product flows over the weigher and nothing is fouling the weigh frame while the calibration takes place.
15. When the calibration is complete, the display will read "To calculate new calibration press E" "MASS TOTAL = xx.xxx." Where xx.xxx is the actual number of tonnes the belt scale/feeder has weighed during the calibration.
16. If the Mass Total value is < ±0.2% of capacity, Press "A", Masterweigh will return to the normal operating display and **Zero calibration is complete!** If not press "E".
17. The display will now read "Zero Error = xx.xxxmV Press E to save Otherwise press A". (This value should be close to those recorded in step 7). Record this value & press "E". The Masterweigh will return to the normal operating display.
18. Steps 14 through to 19 should be repeated until the value in step 19 is < ±0.2% of capacity.
19. If the zero calibration is changed, the new value should be recorded and the Calibration Data sheet updated.

"Span Calibration" with Masterweigh 6

1. Acquire correct Calibration Data Sheet and Design Data Sheet for belt scale/feeder.
2. Allow conveyor/feeder to run for at least 20 minutes prior to calibration.
3. Remove feed from conveyor/feeder.
4. **Perform Zero calibration before span calibration is attempted.**
5. Ensure correct amount of calibration weight is used. (Design Data Sheet)
6. With the conveyor/feeder running empty, apply calibration weights.
7. Press 'MENU' key.
8. Press '4' key (or + key 3 times). This will bring you to menu 4 "Fixed Weight Calibrate Span".
9. Check that the Span value is the same as that last recorded in the calibration data sheet.
10. Press 'E' key 3 times. The display will read "Target weight = XX.XXXt". Check that this value is the same as that last recorded in the Calibration data sheet Target Weight.
11. Press 'A' key. This will return to start of menu 4.
12. Press '8' key (or + key 4 times). This will bring you to MENU 8 "Loadcell Input".
13. Check that loadcell voltage is close to that last recorded in the calibration data sheet "DYNAMIC (With Weights)" mV, and is relatively stable.
14. Press '9' key (or + key 1 time). This will bring you to MENU 9 "Tacho Frequency".
15. Check that the frequency displayed is close to that last recorded in the Calibration Data Sheet, and is relatively stable.
16. Press "Menu" key, then press "Abort" key. Masterweigh will return to the normal operating display.
17. With the feeder running empty, and calibration weights in place, press the "CAL" key.
18. The display should read "To Start Span Calibration Press E".
19. Press "E". The belt should complete a full number of revolutions as indicated on the Calibration Data Sheet ('Menu 2' No of Belt revs:). Watch feeder to ensure no product flows over the weigher and nothing is fouling the weigh area while the calibration takes place.
20. When the calibration is complete, the display will read "To calculate new calibration press E" "MASS TOTAL = xx.xxx." Where xx.xxx is the actual number of kg the scale/feeder has weighed during the calibration.
21. The Mass Total value should be close to the target weight. If it is < ± 0.5%. Press "A", Masterweigh will return to the normal operating display and the **Span calibration is complete!** If not press "E".
22. The display will now read "New Span Factor = xx.xxx Press E to save Otherwise press A". (The span value should not change by more than around ±1%. If the span change is greater than ±1%, Abort the calibration & check the feeder for mechanical problems / changes). If the span change is within ±1%, record the new value & press "E". The masterweigh will return to the normal operating display.
23. Steps 19 through to 24 should be repeated until the value in step 24 is < ± 0.5% of the Target Weight.
24. If the span value is changed, the final value should be recorded and the Calibration Data sheet updated.



REVISIONS	
A:	16/08/2011 ORIGINAL ISSUE
B:	10/02/15 ADJUSTED REFERENCE DRAWINGS JR

CERTIFICATION
WEB-TECH AUSTRALIA PTY. LTD. CUSTOMER No.:
CUSTOMER CUSTOMER ORDER No.:
☐ RETURN OF APPROVAL NOT REQUIRED
☐ RETURN APPROVAL FOR RECORD
☐ BEFORE MANUFACTURING PROCEEDS
WEB-TECH AUSTRALIA PTY. LTD.
CERTIFIED BY: DATE / /
CUSTOMER APPROVAL DATE / /
☐ APPROVED FOR CONSTRUCTION
☐ APPROVED AS NOTED
☐ APPROVED AS NOTED – RESUBMIT

UNLESS OTHERWISE STATED UNTOLERANCED DIMENSIONS TO BE WITHIN THE LIMITS SHOWN

NOMINAL SIZE	UP TO 30	ABOVE 30, UP TO 100	ABOVE 100, UP TO 300	ABOVE 300, UP TO 1000	ABOVE 1000
MACHINING	± 0.1	± 0.2	± 0.3	± 0.5	± 1.0
FABRICATION	± 0.5	± 0.5	± 0.5	± 1.0	± 2.0
ASSEMBLIES	± 0.5	± 0.5	± 0.5	± 1.0	± 2.0

DRAWN	M. WILDE
CHECKED	
APPROVED	
DATE APP'D	
SCALE	N.T.S.

DO NOT SCALE IF IN DOUBT ASK

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

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A.C.N. 010 784 431
11 ELECTRONICS STREET EIGHT MILE PLAINS, QUEENSLAND, 4113, AUSTRALIA
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TITLE ELECTRICAL CONNECTION DIAGRAM FOR MASTERWEIGH 6

SIZE	DRAWING No. NUMBER	SHT.	REV.
A1	WTMW6	01	B

CONTRACT
PROJECT
CAD FILE WTMW7

CONTAINED WITHIN MASTERWEIGH ENCLOSURE

J3 A N E

A N E

110/240VAC
50/60 Hz
0.1 Amp @ 240V
0.2 Amp @ 110V

SYSTEM STATUS RELAY
COM NO NC — J5

P+ P− SLD GND 24V — J6 J7

TG — J8

TACHO
TIN TE SLD — J9

LOAD CELL
L+ L− E+ E− SLD — J10

ANA O/P1
− + SLD — J11

ANA O/P2
− + SLD — J12

ANA I/P1
+ − SLD — J13

ANA O/P3
+ − SLD — J14

DIG I/P1
+ − SLD — J15

DIG I/P2
+ − SLD

NOT USED

POS GND SCREEN

REMOTE TOTALISER OR PLC INPUT

12345678

BLACK GREEN +5V SCREEN

GREEN WHITE RED BLACK SCREEN

NEG POS SCREEN

INTERCONNECTION CABLE TO BE FOUR (4) CORE SCREENED. (SUPPLIED BY OTHERS)

INTERCONNECTION CABLE TO BE THREE (3) CORE SCREENED. (SUPPLIED BY OTHERS)

REMOTE RATE METER OR PLC INPUT

0 100

NOTES

1. RATE OUTPUT IS ISOLATED 4–20mA.
2. PULSE OUTPUT CAN BE 5VDC, 24 VDC OR VOLTAGE FREE CONTACTS (LINK SELECTABLE).
3. SEE DRAWING WTMW6–01–99 FOR SERIAL I/O CONNECTIONS.

LOADCELL JUNCTION BOX

LOADCELL J–BOX TERMINATION BOARD

LOADCELL 1	LOADCELL 2	LOADCELL 3	LOADCELL 4	INDICATOR
WHITE — SIGNAL+	WHITE — SIGNAL+	WHITE — SIGNAL+	WHITE — SIGNAL+	L+ — SIGNAL+
GREEN — SIGNAL−	GREEN — SIGNAL−	GREEN — SIGNAL−	GREEN — SIGNAL−	L− — SIGNAL−
SCREEN — SCREEN	SCREEN — SCREEN	SCREEN — SCREEN	SCREEN — SCREEN	SCREEN — SCREEN
RED — EXCITE+	RED — EXCITE+	RED — EXCITE+	RED — EXCITE+	E+ — EXCITE+
— SENSE+	— SENSE+	— SENSE+	— SENSE+	— SENSE+
BLACK — EXCITE−	BLACK — EXCITE−	BLACK — EXCITE−	BLACK — EXCITE−	E− — EXCITE−
— SENSE−	— SENSE−	— SENSE−	— SENSE−	— SENSE−
J1	J1	J1	J1	J3

LOAD CELLS CONTAINED WITHIN WEIGHFRAME

ENCODER (TACHO)

JUNCTION BOX

SCR	5	5	SCREEN
GND	4	4	GND (BLACK)
SIG	3	3	SIG (WHITE)
	2	2	SPARE (GREEN)
+5V	1	1	+5V (RED)

CABLE INTEGRAL TO TACHO

REVISIONS

A: 6/3/12 ORIGINAL ISSUE

B: 2/4/14 SPEED SENSOR J–BOX CHANGED

DRAWN	L.H.
CHECKED	
APPROVED	
DATE APP'D	
SCALE	N.T.S
	DO NOT SCALE IF IN DOUBT ASK

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Phone +61–7–3841 2844 Fax +61–7–3841 0005

TITLE: ELECTRICAL CONNECTION DIAGRAM FOR FOUR LOAD CELL BELT SCALES INCORP. MASTERWEIGH 6 & TACHO (ENCODER).

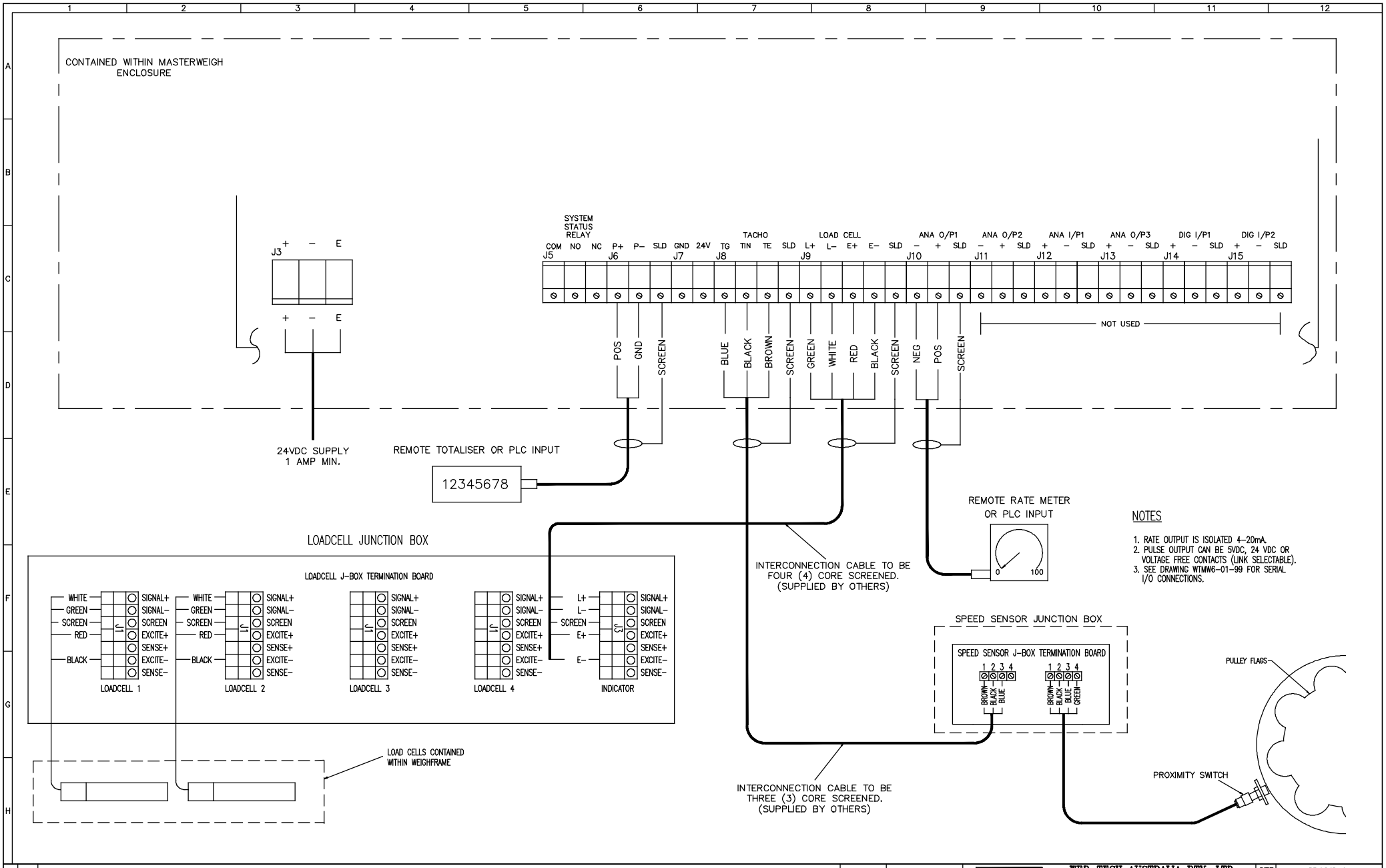
ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

SIZE	DRAWING No.	REV.
A1	WTMW6–01–15	B

CUSTOMER

PROJECT

CAD FILE



REVISIONS
A: 15/3/12 ORIGINAL ISSUE ORC-RMD

DRAWN	L.H.
CHECKED	
APPROVED	
DATE APP'D	
SCALE	NTS
	DO NOT SCALE IF IN DOUBT ASK

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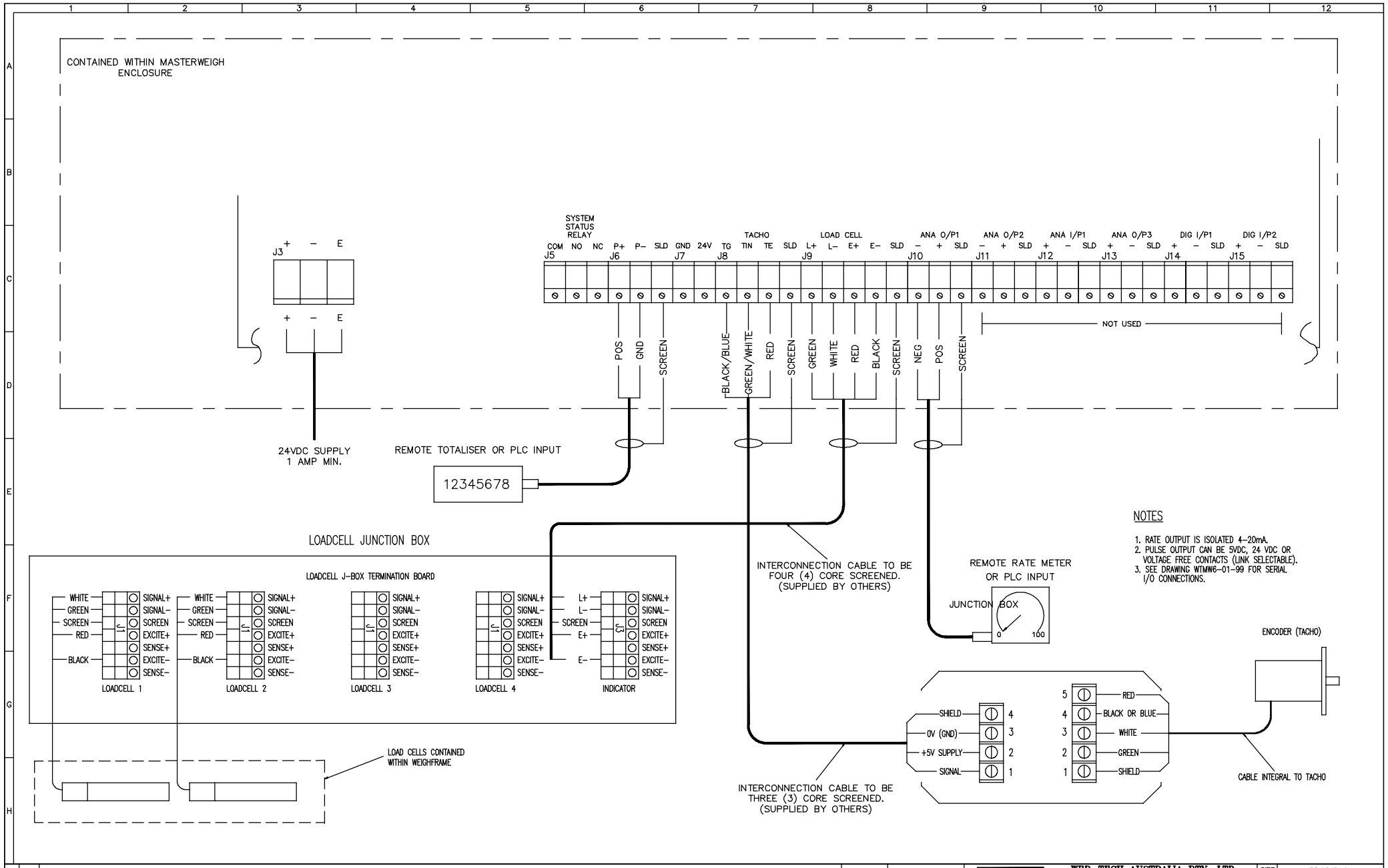
P.O. BOX 4006 EIGHT MILE PLAINS, QUEENSLAND, 4113, AUSTRALIA
Phone +61-7-3841 2844 Fax +61-7-3841 0005

TITLE: ELECTRICAL CONNECTION DIAGRAM FOR DUAL LOAD CELL BELT SCALES INCORP. MASTERWEIGH 6 (24VDC) & PROX SWITCH.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

SIZE	DRAWING No.	REV.
A1	WTMW6–01–13	A

CUSTOMER CONTRACT
PROJECT PROJECT
CAD FILE FILE



REVISIONS
A: 15/3/12 ORIGINAL ISSUE

DRAWN	L.H.
CHECKED	
APPROVED	
DATE APP'D	
SCALE	NTS
	DO NOT SCALE IF IN DOUBT ASK

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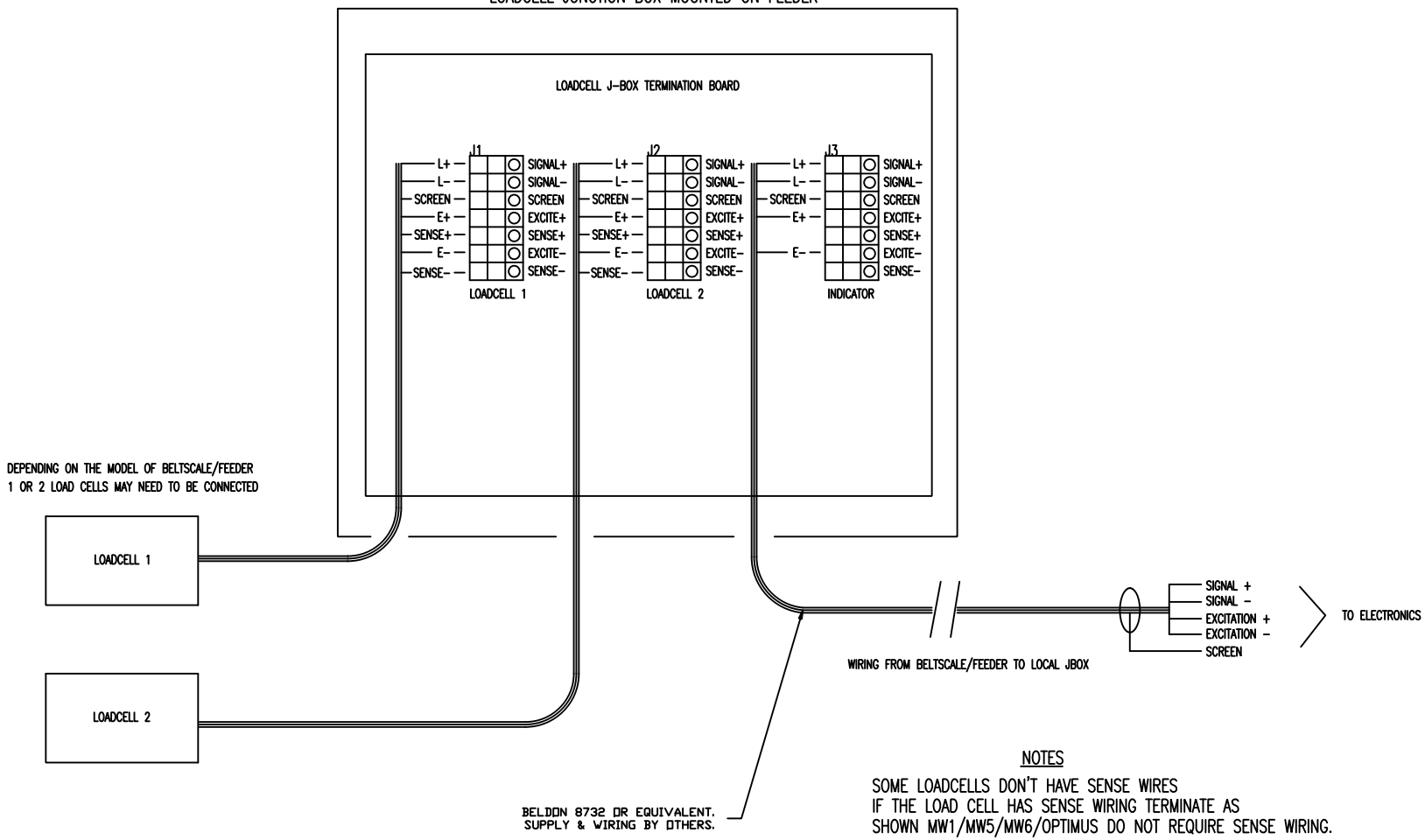
P.O. BOX 4006 EIGHT MILE PLAINS, QUEENSLAND, 4113, AUSTRALIA
Phone +61-7-3841 2844 Fax +61-7-3841 0005

TITLE: ELECTRICAL CONNECTION DIAGRAM FOR DUAL LOAD CELL BELT SCALES INCORP. MASTERWEIGH 6 (24VDC) & TACHO SENSOR.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

SIZE	DRAWING No.	REV.
A1	WTMW6–01–12	A

CUSTOMER
PROJECT
CAD FILE



NOTES

SOME LOADCELLS DON'T HAVE SENSE WIRES
IF THE LOAD CELL HAS SENSE WIRING TERMINATE AS
SHOWN MW1/MW5/MW6/OPTIMUS DO NOT REQUIRE SENSE WIRING.

TYPE	L+	L-	E+	E-	SENSE+	SENSE-
TEDEA	RED	WHITE	GREEN	BLACK	BLUE	BROWN
RLHBB	WHITE	RED	BLUE	BLACK	GREEN	GREY
LPX	GREEN	WHITE	RED	BLACK	N/C	N/C
RL30000	GREEN	WHITE	RED	BLACK	N/C	N/C
WTD-132	GREEN	WHITE	RED	BLACK	N/C	N/C
WL3000	GREEN	WHITE	RED	BLACK	N/C	N/C
WHBX-S-C3	GREEN	WHITE	RED	BLACK	N/C	N/C
WHBX-S-C4	WHITE	RED	BLUE	BLACK	N/C	N/C

REVISIONS
A 29.02.96 ORIGINAL ISSUE

UNLESS OTHERWISE STATED
UNTOLERANCED DIMENSIONS
TO BE WITHIN THE LIMITS SHOWN

NOMINAL SIZE	UP TO 50	ABOVE 50 UP TO 150	ABOVE 150 UP TO 300	ABOVE 300 UP TO 1000	ABOVE 1000
MACHINING	±0.1	±0.2	±0.3	±0.5	±1.0
FABRICATION	±0.5	±0.5	±0.5	±1.0	±2.0
ASSEMBLIES	±0.5	±0.5	±0.5	±1.0	±2.0

DRAWN	M.W.
CHECKED	M.W.
APPROVED	M.W.
DATE APP'D	18/06/2003
SCALE	N.T.S.

DO NOT SCALE
IF IN DOUBT
ASK

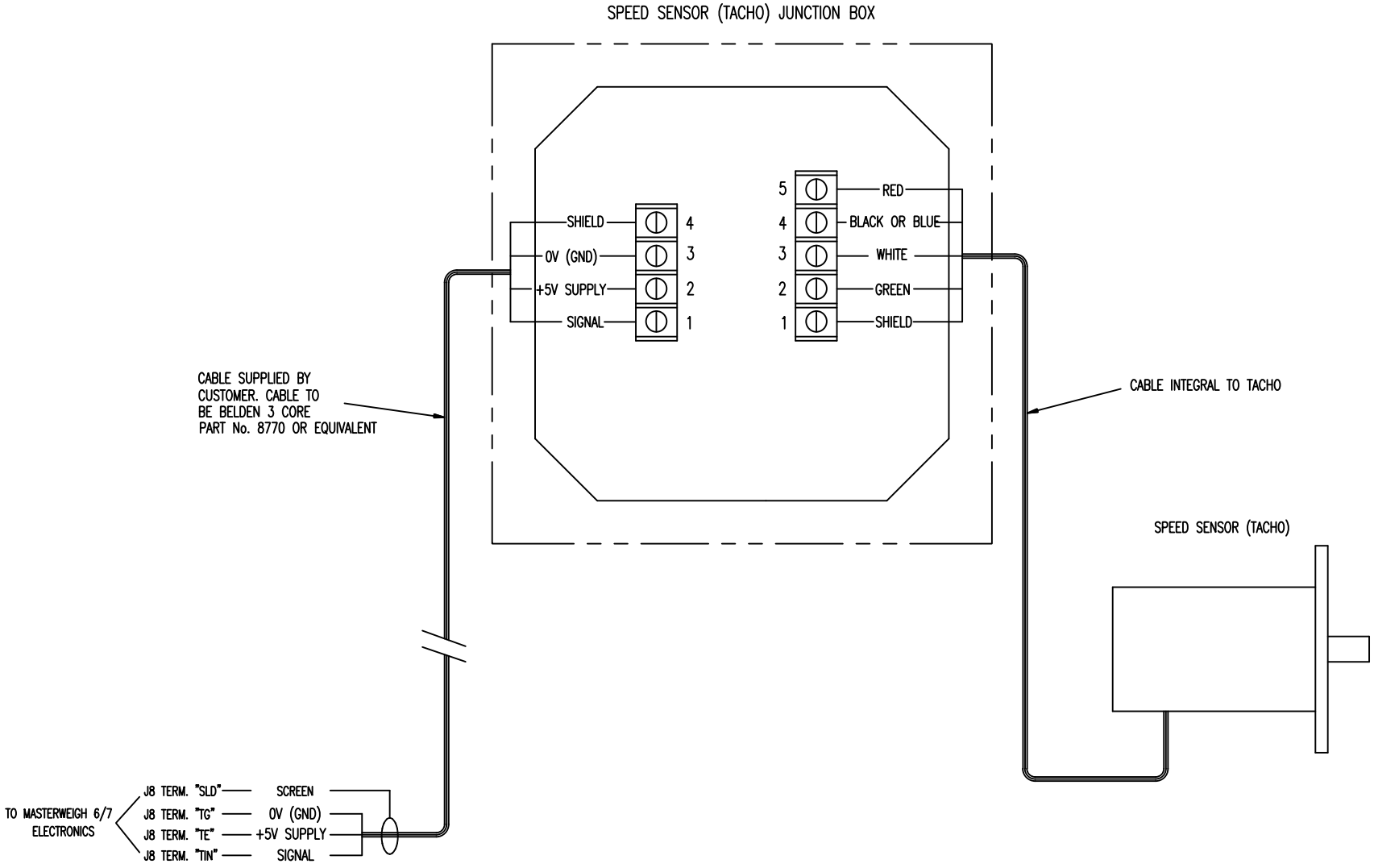
WEB-TECH AUSTRALIA PTY. LTD.
ACN 010 764 421
11 ELECTRONICS STREET EIGHT MILE PLAINS, QUEENSLAND, 4113, AUSTRALIA
P.O. BOX 4006 EIGHT MILE PLAINS, QUEENSLAND, 4113, AUSTRALIA
Phone +61-7-3841 2844 Fax +61-7-3841 0865

SIZE A1 | DRAWING No. NUMBER SMLCJB-02 | SHT. 1 | REV. C

TITLE
LOADCELL JUNCTION BOX CONNECTION DIAGRAM

CONTRACT
PROJECT
CAD FILE

ALL DIMENSIONS IN MILLIMETRES
UNLESS OTHERWISE SPECIFIED



REVISIONS
A: 26/10/98 ORIGINAL ISSUE

DRAWN	L.HARTLEY
CHECKED	L.HARTLEY
APPROVED	L.HARTLEY
DATE APP'D	26/10/98
SCALE	N.T.S
	DO NOT SCALE IF IN DOUBT ASK

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A.C.N. 010 784 431
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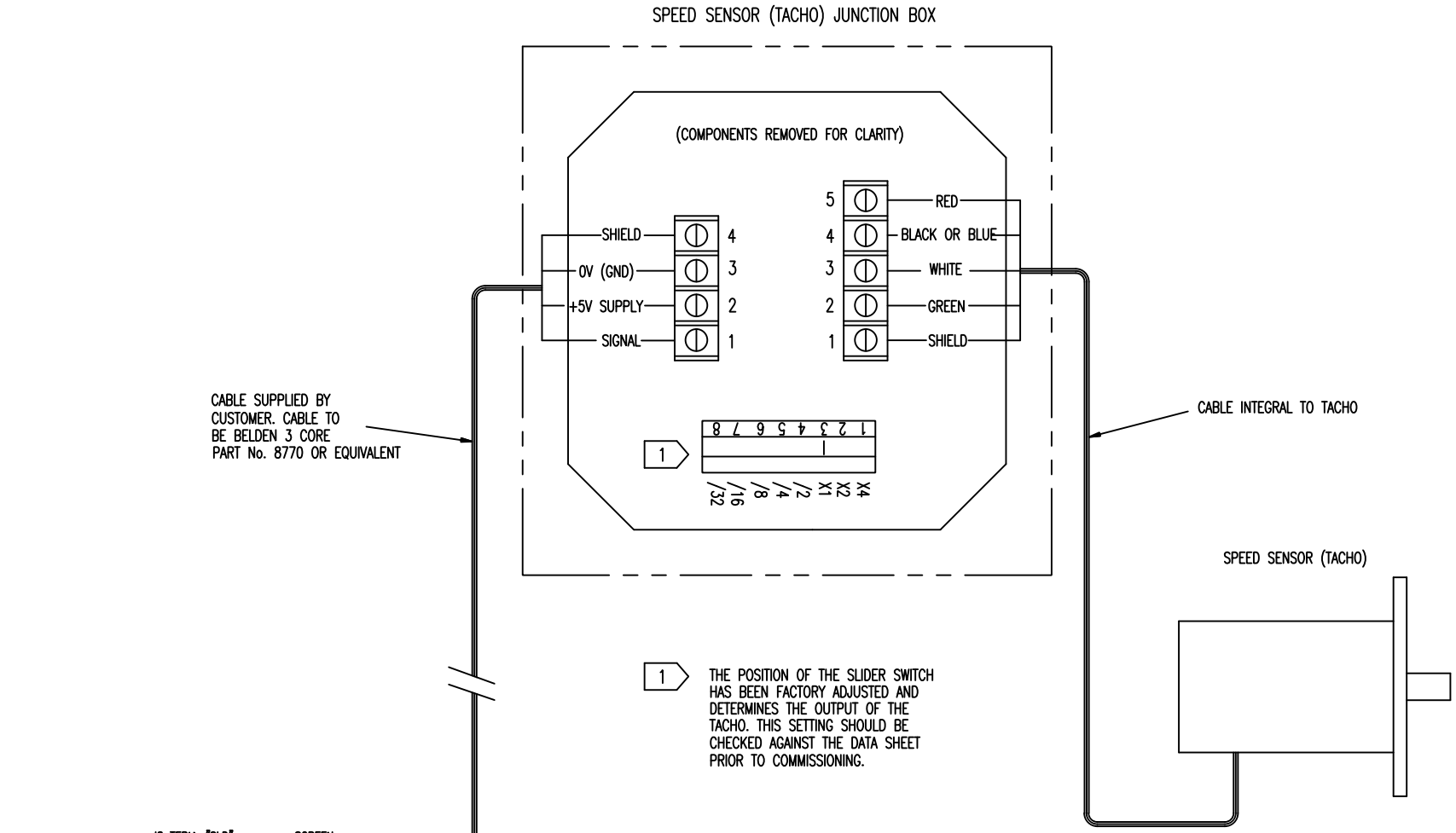
Phone +61-7-3841 2844 Fax +61-7-3841 0035

TITLE: TACHO (S/S) JUNCTION BOX WIRING (WITHOUT MULTIPLICATION) MASTERWEIGH 6/7 INTEGRATOR

SIZE	A1
DRAWING No. NUMBER	JB010014-67
REV.	A
CUSTOMER	
PROJECT	
CAD FILE	JB010014

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED



REVISIONS
A: 26/10/98 ORIGINAL ISSUE

DRAWN	L.HARTLEY
CHECKED	L.HARTLEY
APPROVED	L.HARTLEY
DATE APP'D	26/10/98
SCALE	N.T.S
	DO NOT SCALE IF IN DOUBT ASK

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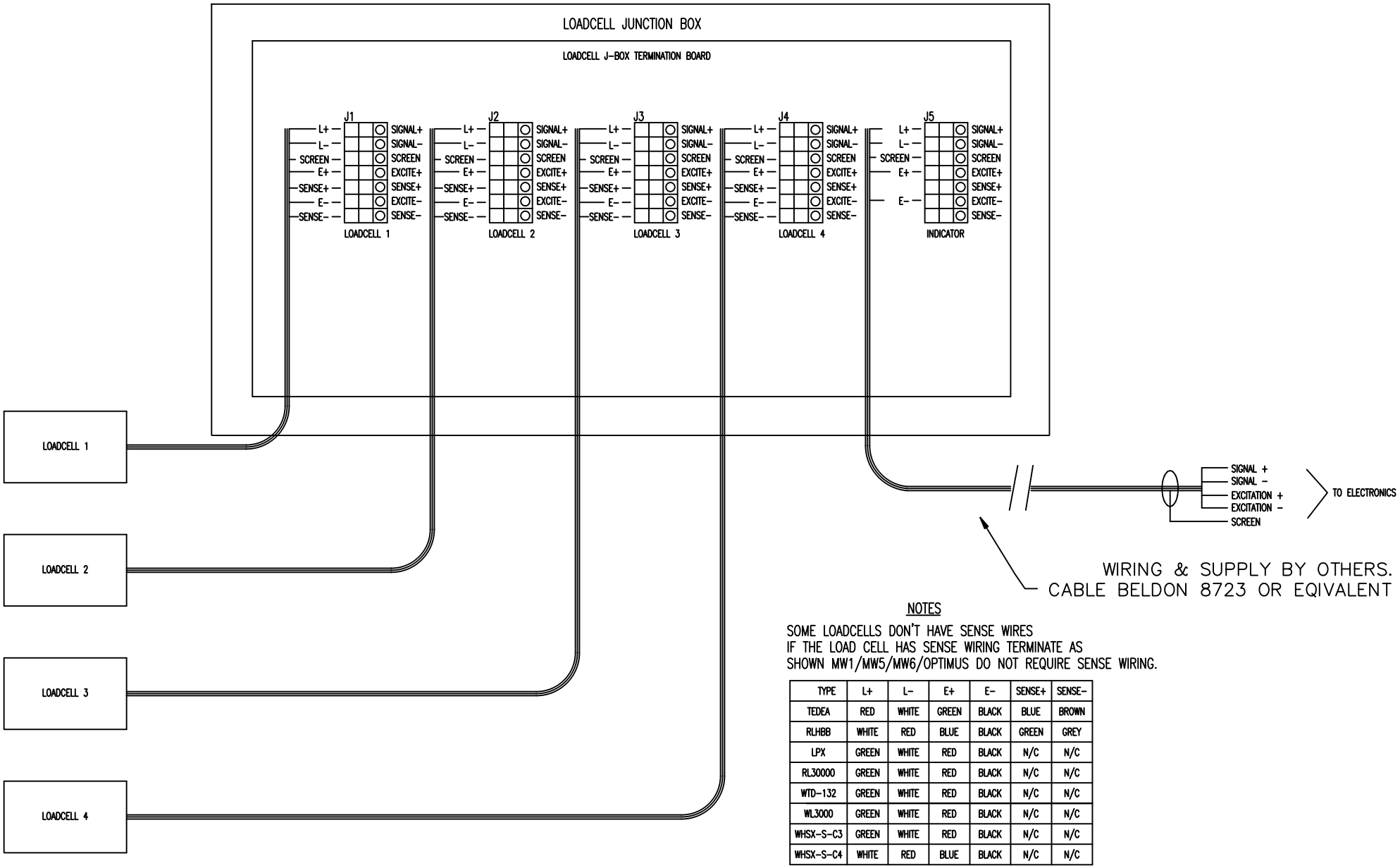
Phone +61-7-3841 2844 Fax +61-7-3841 0035

TITLE: TACHO (S/S) JUNCTION BOX WIRING (WITH MULTIPLICATION) MASTERWEIGH 6/7 INTEGRATOR

SIZE	A1
DRAWING No. NUMBER	JB010015-67
REV.	A
CUSTOMER	
PROJECT	
CAD FILE	JB010015-67

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED



NOTES

SOME LOADCELLS DON'T HAVE SENSE WIRES
IF THE LOAD CELL HAS SENSE WIRING TERMINATE AS
SHOWN MW1/MW5/MW6/OPTIMUS DO NOT REQUIRE SENSE WIRING.

TYPE	L+	L-	E+	E-	SENSE+	SENSE-
TEDEA	RED	WHITE	GREEN	BLACK	BLUE	BROWN
RLHBB	WHITE	RED	BLUE	BLACK	GREEN	GREY
LPX	GREEN	WHITE	RED	BLACK	N/C	N/C
RL30000	GREEN	WHITE	RED	BLACK	N/C	N/C
WTD-132	GREEN	WHITE	RED	BLACK	N/C	N/C
WL3000	GREEN	WHITE	RED	BLACK	N/C	N/C
WHSX-S-C3	GREEN	WHITE	RED	BLACK	N/C	N/C
WHSX-S-C4	WHITE	RED	BLUE	BLACK	N/C	N/C

REVISIONS
A: 29.02.96 ORIGINAL ISSUE
B: 19.03.04 ORIGINAL ISSUE
C: 24.08.10 ADDED LOAD CELLS

UNLESS OTHERWISE STATED UNTOLERANCED DIMENSIONS TO BE WITHIN THE LIMITS SHOWN

NOMINAL SIZE	UP TO 50	ABOVE 50 UP TO 150	ABOVE 150 UP TO 300	ABOVE 300 UP TO 1000	ABOVE 1000
MACHINING	±0.1	±0.2	±0.3	±0.5	±1.0
FABRICATION	±0.5	±0.5	±0.5	±1.0	±2.0
ASSEMBLIES	±0.5	±0.5	±0.5	±1.0	±2.0

DRAWN M.W.
CHECKED M.W.
APPROVED M.W.
DATE APP'D 24/10/2003
SCALE N.T.S.
DO NOT SCALE IF IN DOUBT ASK

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SIZE A1 | DRAWING No. NUMBER LJBL-01 | SHT. 1 | REV. C

TITLE
LOADCELL J-BOX (LARGE) CONNECTION DIAGRAM FOR VARIOUS TYPE LOADCELLS

CONTRACT
PROJECT
CAD FILE

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

MW6 DATA SHEET					
Customer:				Conveyor Designation:	
Model:				Date:	
Load Cell Cap/Type:				Data by:	
Tare:		Serial No:		Material:	
Contract No.				Order No:	
Software version No:				Board S/N:	
Tacho:		Ppr.	Type:	Multiplier :	Internal/External

Menu	MASTERWEIGH 6 DATA					
1	Parameter Setup				Pulse Width:	ms
	Capacity	Inc	Zero ref:	mV	Precision ref:	mV
2	Pulses:		Per Belt Rev.		No. of Belt Revs:	
3	Zero Calibration:			mV.	Z Track:	mV.
4	Fixed Weight Calibration		Calibration Weights :			
	Span:	Target Weight:			From Chains or Live Load Test	
5	Empirical Span:					
6	Null Level:	This value should be no more than 1 to 2% of design capacity.				
7	Autozero Tracking					
	Zero Track if <		For	Revs.	Delay Time:	secs
8	Load Cell Output					
	Static (No Load):		mV.	Static (with Weights):		mV.
	Dynamic (No Load):		mV.	Dynamic (with Weights):		mV.
9	Tacho Frequency:		Hz.	@ Motor frequency =		Hz.
10	Filter Factors					
	Display:	secs.	Rate O/P:	secs.	Tacho I/P :	secs.
	Fast Track Band:	%.				
11	Displayed Units:	Kgs / Hr		Belt Serial Number :		
12	Belt Speed:	m /s	@ Motor freq. =	Hz.	Belt Length :	m
	Resets =	Cleared to 1.		Configures =	Cleared to 1.	

WEB-TECH WEIGHFEEDER DESIGN DATA SHEET

CLIENT : _____ **DATE :** _____

DESIGNATION : _____ **MODEL :** _____

CALIBRATION METHOD : _____

CALIBRATION BAR(S)

1. CALIBRATION BAR QTY AND TOTAL WEIGHT _____ = _____ **kg**
2. IDLER PITCH _____
3. TOTAL WEIGH AREA _____ **metres**
4. EQUIVALENT LOADING/m WITH CAL BAR(S) (Item 1 / Item 3) = _____ **kg/m**
5. BELT SPEED _____ **m/s**
6. SIMULATED MASS RATE (Item 4 x Item 5 x 60) _____ **kg/min**
=
7. BELT LENGTH _____ **metres**
8. No. OF BELT REVOLUTIONS FOR TEST _____
9. **TARGET WEIGHT (Item 4 x Item 7 x Item 8) =** _____
10. **TARGET WEIGHT after material tests =** _____

CALIBRATION CHAIN

1. WEIGHT OF CALIBRATION CHAIN PER STRAND _____ **kg/m**
2. No. OF STRANDS _____
3. TOTAL WEIGHT OF CALIBRATION CHAIN (Item 1 x Item 2) _____ **kg/m**
4. BELT LENGTH _____ **m**
5. No. OF BELT REVOLUTIONS FOR TEST _____
6. **TARGET WEIGHT (Item 3 x Item 4 x Item 5) =** _____
7. **TARGET WEIGHT after material tests =** _____

SETTINGS

1. SHEARGATE OPENING (@ CENTRE) _____ mm
2. MIN. FREQUENCY ON VVVF DRIVE _____ Hz
2. MAX. FREQUENCY ON VVVF DRIVE _____ Hz