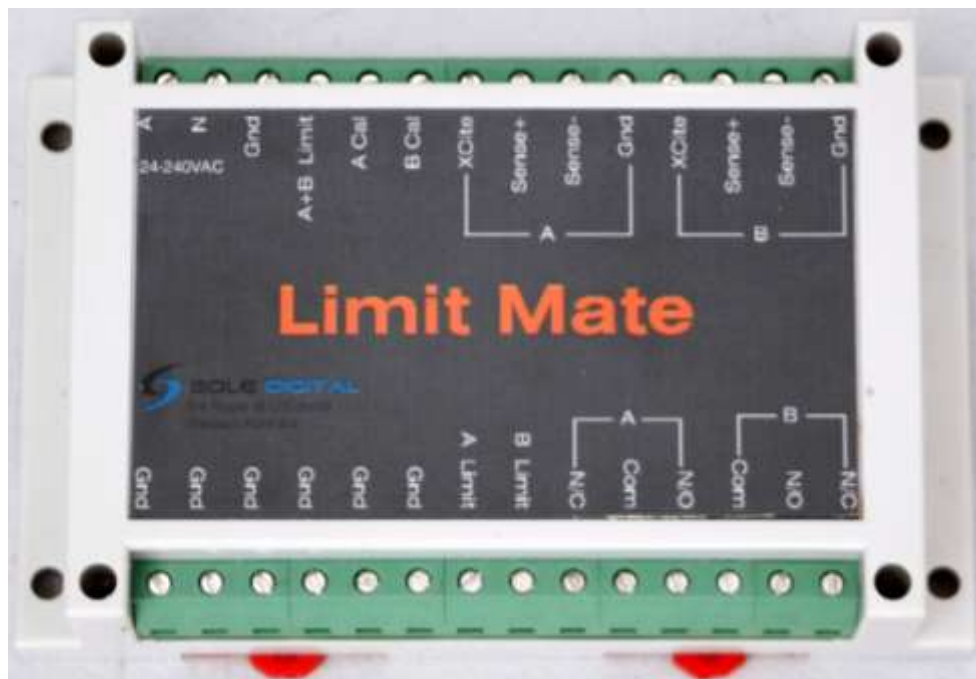


## LimitMate Hardware Guide

Version 1.0, 11/03/2011

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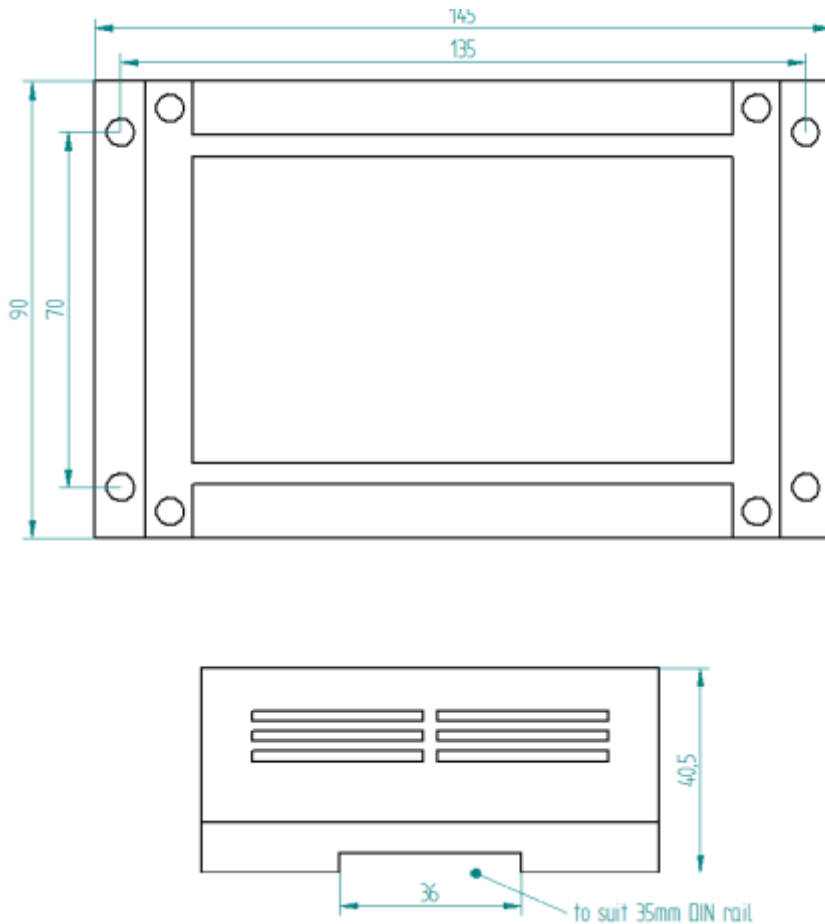


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## PHYSICAL DIMENSIONS



LimitMate can be panel or DIN rail mounted.

## ELECTRICAL SPECIFICATIONS

Parameter	Description	Min	Typ	Max	Units
$V_{in}$	Supply voltage	24		240	VAC
$I_{in}$	Supply current		40	60	mA
$V_{limit}$	Output relay voltage rating			125	VAC
$I_{limit}$	Output relay current rating	0.5		2	A
Load Sense Inputs A & B	Load sensing inputs 2-10mV/V: load pin or rope clamp				
$V_{xcite}$	Load cell excitation voltage		5		VDC

## WIRING DIAGRAM

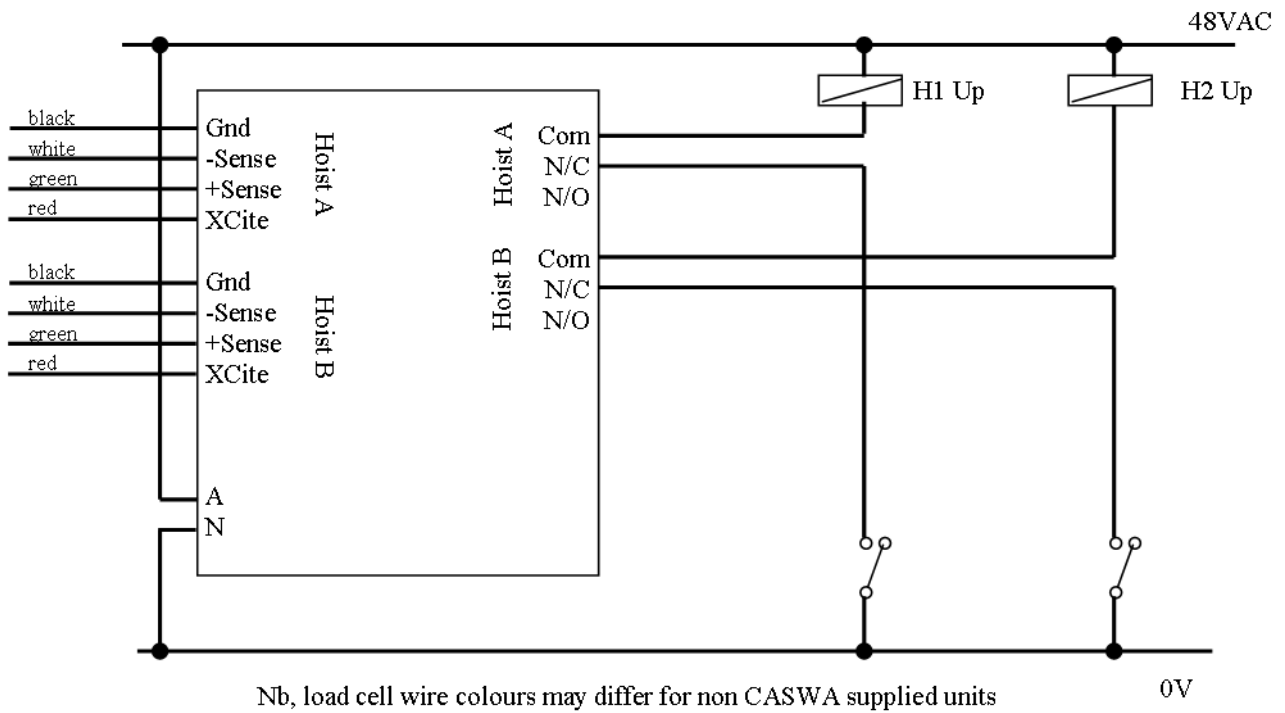


Figure 1: LimitMate wiring diagram

## CALIBRATION INSTRUCTIONS

After installing LimitMate and associated load measuring devices, you will need to:

1. Remove the cover from LimitMate to gain access to the trimpots.
2. Calibrate LimitMate by setting the gains for each hoist as discussed below.
3. Set the limits for each hoist as discussed below.
4. Set the combined crane limit as discussed below.
5. Replace the cover on LimitMate.

For steps 2 to 4 you will need the small flat bladed screw driver that was supplied with LimitMate (referred to in this guide as 'the screwdriver') and a multimeter with a set of standard probes.

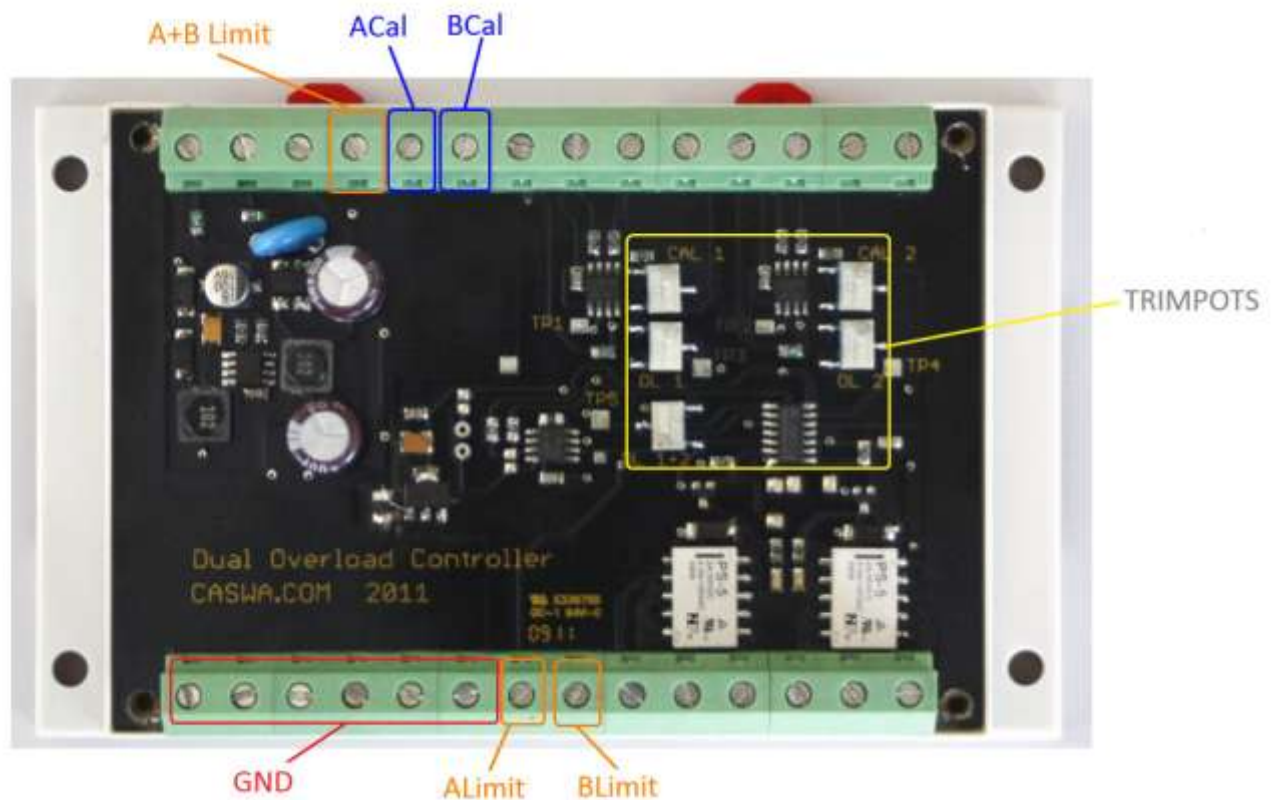


Figure 2: LimitMate Internal Circuit

## Calibrating LimitMate (Setting the Gain)

1. Lift a calibration load with your first hoist (referred to as hoist A). This is typically a minimum 80% of maximum load. (E.g. if the hoist is rated to 20T, this should be at least 18T.) You can also lift the second hoist calibration load at the same time if you prefer, or lift it separately at step 6.
2. Connect the negative probe of a multimeter to one of the GND terminals on LimitMate.
3. Connect the positive probe to the ACal terminal on LimitMate (see Figure 3) and set the multimeter to DC Volts.

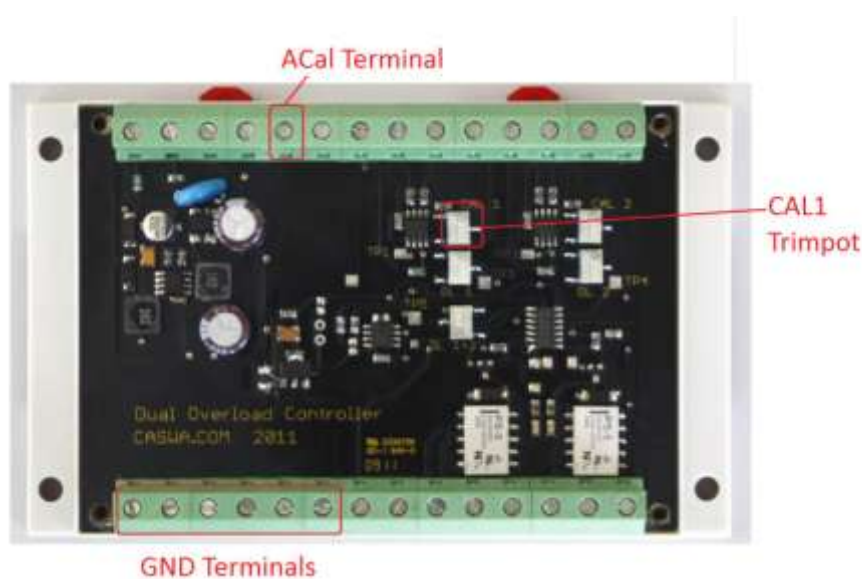


Figure 3: Setting the gain for Hoist A

4. With the screw driver, adjust the CAL1 trimpot until your multimeter reads a DC voltage value that is equivalent to 100mV/tonne of calibration weight.  
(E.g. if your calibration weight is 18 tonnes, you need to see 1.8VDC on your multimeter.)
5. You can now remove the calibration load from hoist A as it is no longer required (or do so later if you prefer).
6. If you haven't done so already, lift a calibration load using the second hoist (referred to as hoist B).

7. Insert the positive probe into the BCal terminal on LimitMate (Figure 4). Ensure that the negative multimeter probe is still connected to GND.

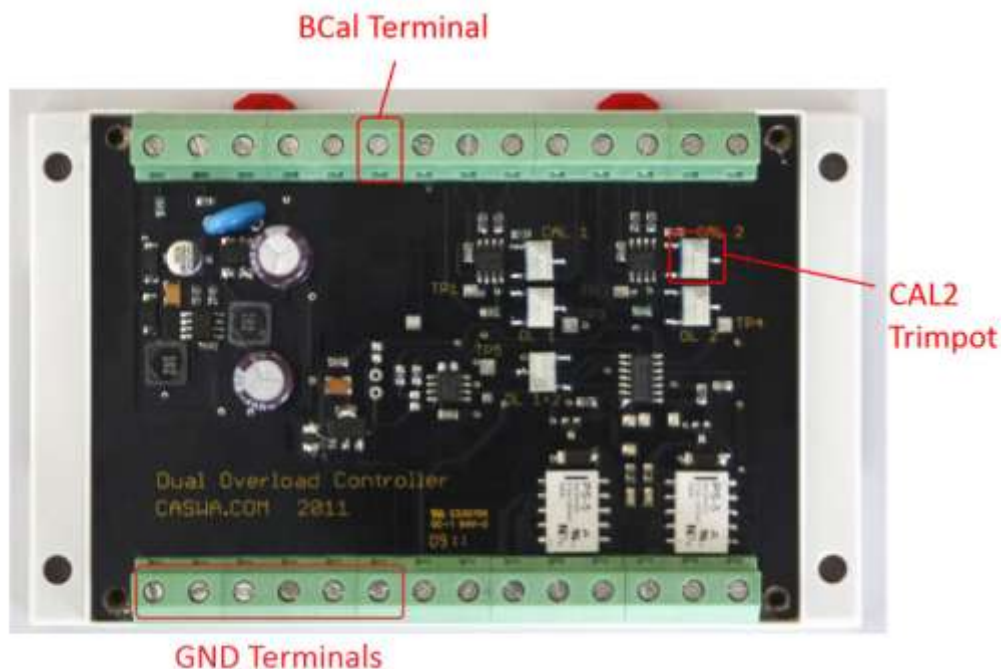


Figure 4: Setting the gain for Hoist B

8. With the screw driver, adjust the CAL2 trimpot until your multimeter reads a DC voltage value that is equivalent to 100mV/tonne of calibration weight.  
(E.g. if your calibration weight is 4 tonnes, you need to see 0.4VDC on your multimeter.)
9. You can now remove the calibration load from hoist B as it is no longer required.

### Setting Individual Hoist Limits

1. Determine your desired hoist overload limits in tonnes. These will be referred to Overload 1 and Overload 2.
2. Ensure that the negative multimeter probe is still connected to GND on LimitMate.
3. Insert the positive probe into the ALimit terminal on LimitMate (Figure 5).

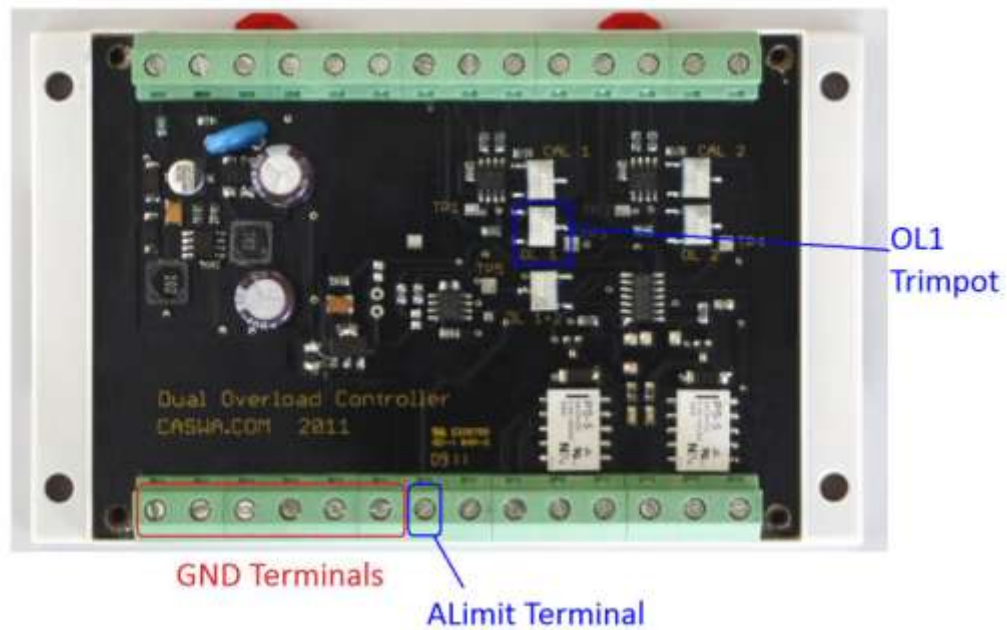


Figure 5: Setting the limit for Hoist A

4. With the screw driver, adjust the OL1 trimpot until your multimeter reads a DC voltage value that is equivalent to 100mV/tonne of load for Overload 1.  
(E.g. if your desired limit is 22 tonnes, you need to see 2.2VDC on your multimeter.)
5. Insert the positive probe into the BLimit terminal on LimitMate (Figure 6).

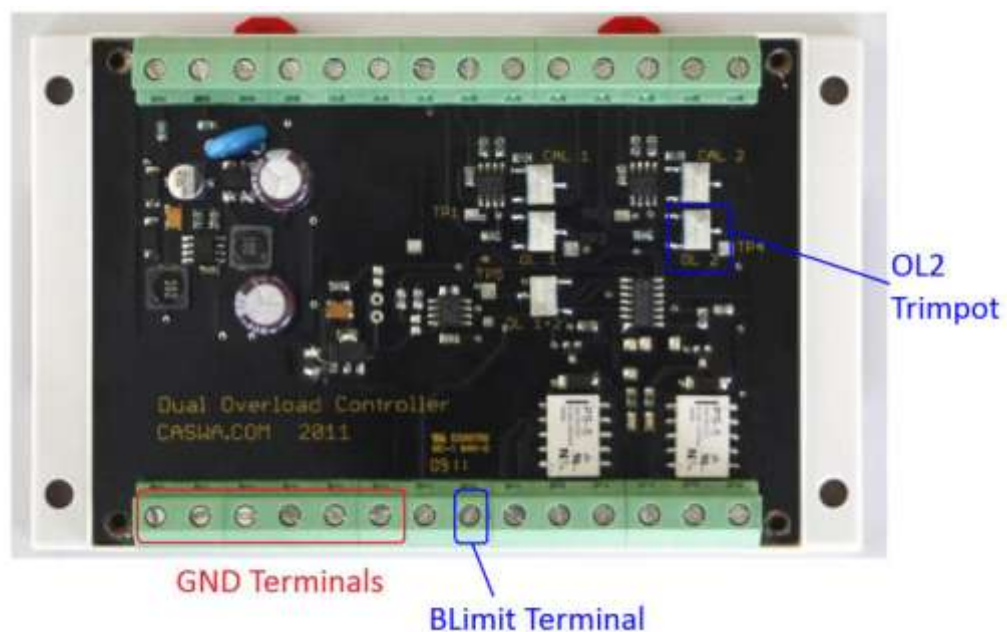


Figure 6: Setting the limit for Hoist B

6. With the screw driver, adjust the OL2 trimpot until your multimeter reads a DC voltage value that is equivalent to 100mV/tonne of load for Overload 2.  
(E.g. if your desired limit is 6 tonnes, you need to see 0.6VDC on your multimeter.)

### Setting the Combined Crane Limit

1. Determine your combined crane overload limit in tonnes. This will be referred to as Overload 1+2.
2. Ensure that the negative multimeter probe is still connected to GND on LimitMate.
3. Insert the positive probe into the A+B Limit terminal on LimitMate (See Figure 7).

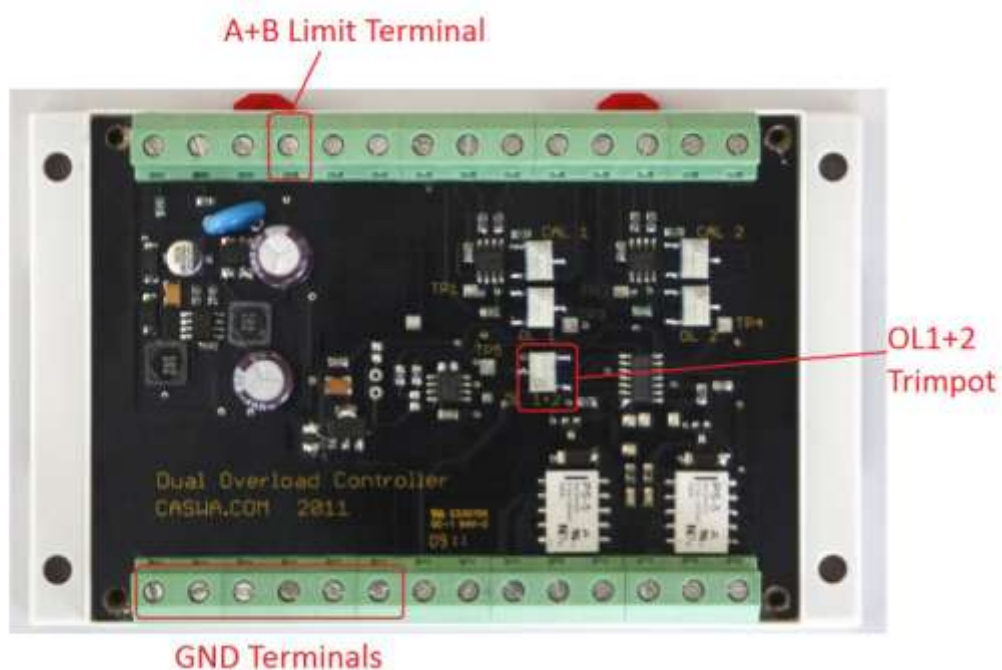


Figure 7: Setting the combined limit

4. With the screw driver, adjust the OL1+2 trimpot until your multimeter reads a DC voltage value that is equivalent to 100mV/tonne of load for Overload 1+2.  
(E.g. if your desired crane overload limit is 22 tonnes, you need to see 2.2VDC on your multimeter.)

You can now replace the cover on LimitMate as you are all done!