

INSTALLATION & OPERATORS MANUAL

LOADWISE MODEL 316

BOOM ANGLE INDICATOR

WARRANTY

There are no warranties, express or implied, made by either the distributor or the manufacturer of new **LOAD WISE** equipment, except the manufacturer's warranty against defects, material and workmanship.

The Manufacturer warrants each new product made by the Manufacturer to be free from defects in material and workmanship, its obligation and liability under this warranty being limited to replacing free of charge at its factory, any part proving defective under normal use and service within twelve months from the date of delivery, providing the equipment is on record with the manufacturer as being installed by the distributor. If the machine is not on record as being installed by the distributor, the manufacturer will consider the date of shipment from the factory. This warranty is in lieu of all other warranties, expressed or implied, and the obligation of the Manufacturer under this warranty shall not include any transportation or other charges or consequential damages or delay resulting from the defect. Any operation beyond rated capacity or improper use or application of the product or the substitution upon it of parts not approved by the Manufacturer shall void this warranty. This warranty covers only the products of Loadwise International Ltd. The products of other Manufacturers are covered only by such warranties as are made by their Manufacturers.

WHAT IT IS

An Angle Sensor with Display Unit, and optional A-2-B switch

It measures and displays the angle of the sensor with respect to the horizon. Also the angle is compared with adjustable High and Low Angle Limits and a warning device is triggered if they are exceeded. If the optional A-2-B switch and weight are fitted this is also monitored and the wiring device triggered if the switch is operated.

What it consists of

In the Cab

Display unit

- a) showing the angle sent from the sensor
- b) with up or down plus and minus switches for adjusting the alarm levels
- c) with test and override switches

On the boom







- a) angle sensor
- b) optional A-2-B switch and weight

*On the
Superstructure*

- a) optional second angle display unit

OPERATION

On power up the unit will first display its serial number and then give the angle of the sensor with respect to the horizon and show a negative sign if below zero

- 1) Whilst TEST is pressed the display should give 45° and the warning device will be activated
- 2) Whilst  is pressed the high angle (HI) alarm limit will be displayed
- 3) Whilst  is pressed the low angle (LO) alarm limit will be displayed. This low limit will be disarmed whilst set to 0.0°. It cannot be set to a negative value but will be activated below zero degrees. When the alarm is set to a positive angle.
- 4) To adjust the arm points hold either  or  and press '+' or '-'. Each push will change the display by 0.1°. If a faster response is required hold in the '+' or '-'. After approximately 5 seconds the display will change in 1.0° steps only whilst the '+' or '-' continue to be held.
- 5) Whilst holding  if OVERRIDE is pressed the alarm limit will be reset to 90.0°
- 6) Whilst holding  if OVERRIDE is pressed the alarm limit will be reset to 0.0° and be disarmed.
- 7) Press OVERRIDE to deactivate an alarm situation. This will be automatically Cancelled when the alarm situation is removed or by a second press of OVERRIDE.
- 8) When a remote display is fitted the pushbuttons will be inactive
- 9) When any push button is pressed two bars will flash one above and one below the
Negative sign.

DISPLAY MESSAGES

If the system detects an alarm condition or fault the following messages are flashed on the display

- 1) **HI** The high alarm setting has been exceeded
- 2) **LO** The low alarm setting has been exceeded
- 3) **A-2-B** (Optional) The Anti Two Block has been activated if connected
- 4) **F.F.F.F** The system has detected a fault
- 5) Each time a key is pressed two horizontal bars on the left of the display flash
- 6) Negative sign shown by a single horizontal bar on the left hand of the display





CALIBRATION

To enter the calibration mode the following notes must be observed:-




- 1) Switch off the power to the unit.
- 2) Press and hold both '+' and '-' together
- 3) Switch on the power while continuing to press '+' and '-'
- 4) Wait whilst the serial number is displayed
- 5) When 'CAL' appears release both keys (before CAL disappears)
- 6) If entry into the calibration mode has been successful the two unused decimal points will start flashing.
- 7) If unsuccessful repeat the sequence from 1-5

Total System Reset

Only required when the system is in calibration for the first time or has been totally corrupted. Four buttons must be pressed and held in the correct order.

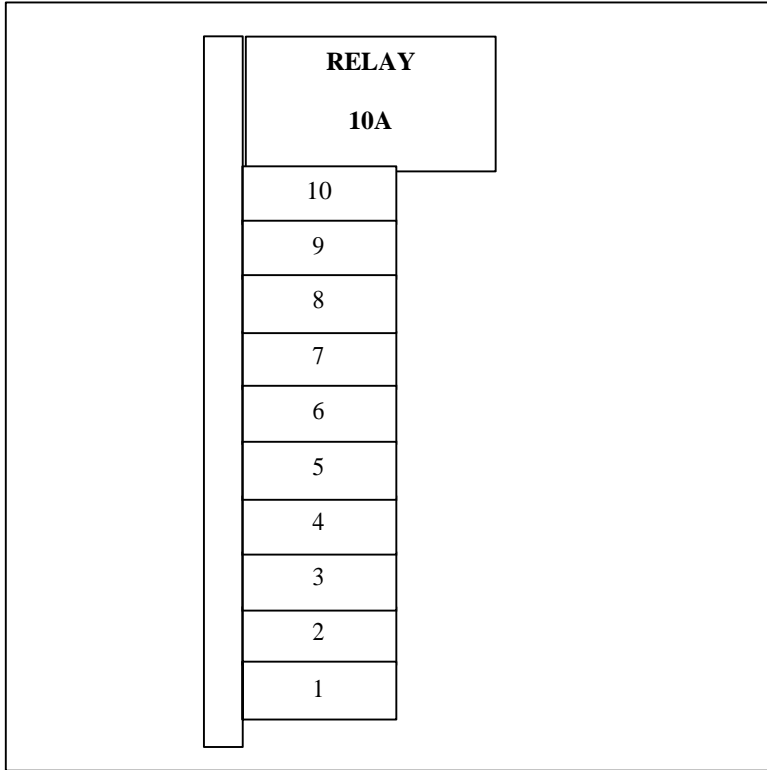
- a) Press and Hold 
- b) Press and Hold 
- c) Press and Hold '-'
- d) Press and Hold '+'
- e) Release '+' and '-'
- f) Then release  and 

To Set Angle

- 8)
 - a. Put the boom to zero degrees
 - b. Press and hold  then press 'TEST' the display should then show 0.0°.
 - c. If correct then continue to hold  and press 'TEST' again
 - d. Put the boom to 25°
 - e. Press and hold  then press 'TEST' the display will now show 25°

- Out Put Function* 9) a. To have the output relay normally energised hold 'TEST' and then press '+'
b. To have the output relay normally de-energised hold 'TEST' and then press '-'
- A – 2 – B Function* 10 a. To enable the Anti Two Block function hold OVERRIDE and Press '+'
b. To disable the Anti Two Block function hold OVERRIDE and press '-'
11. To view the digital equivalent of the analogue signal press and hold both TEST and OVERRIDE
- To exit Calibration Mode* Press and hold '+' and '-' until the decimal point stops flashing and then release them

WIRING CONNECTIONS – Model 316



TB1

Terminal	1 - Yellow	} Angle Sensor
Terminal	2 - White	
Terminal	3 - Black	
Terminal	4	Positive Supply (should be fused 1 amp) 10v – 30v DC
Terminal	5	Negative (ground)
Terminal	6	} To A-2-B } Link terminal 6 & 7 if not used
Terminal	7	
Terminal	8	Relay Contacts Common
Terminal	9	Relay Contacts Normally Open
Terminal	10	Relay Contacts Normally Closed