TECHNICAL
MANUAL
v2.1B

ANYLOAD®

OCS Series
Electronic Crane Scale

- **OCSA3 & OCSA4** General Purpose Crane Scales
- **OCSB3 & OCSB4** Compact Crane Scales
- **OCSC3 & OCSC4** Enhanced Crane Scales
- **OCSG1 & OCSG2** Heat Resistant Crane Scales
- **OCSM1 & OCSM2** Light Duty Crane Scales
- **OCSZ** Heavy Duty Crane Scale

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1. User Input

In this section, the operator will learn how to operate the scale properly either on scale or by its remote controller.

KEYS ON SCALE

	ON/OFF	ZERO	TARE	HOLD	2ND
Scale Configuration	Exit	↑	→	Confirm	Save
Calibration	Exit	↑	→	Confirm	Save
Power Adjustment	Exit	↑	→	Confirm	
System Info	Exit			Confirm	

KEYS ON REMOTE CONTROLLER

	Scale Configuration	Calibration	Power Adjustment	System Info
◀	↑	↑	↑	
▶	→	→	→	
■	Confirm	Confirm	Confirm	Confirm
⬭	↓	↓	↓	
◀	←	←	←	
F1				
F2				
⏻	Exit	Exit	Exit	Exit
▲	Save	Save		

2. Advanced Operations

Operations section features the versatile and powerful functions for crane scale measurement. Most of the operations are accessible via dedicated remote controller. Some of the settings in the scale are protected by password to prevent unwanted settings modification. If you are not sure to do it, contact your local representative or dealership for technical support.

Action

- o To enter **SCALE CONFIGURATION MODE**, press 2ND key on scale or ▲ on remote controller twice. The password message will display.
- o To input **SCALE CONFIGURATION** password, use ZERO and TARE keys on scale or ◀ and ▶ on remote controller.
- o To confirm the password or inputted value, press HOLD keys on scale or ■ on remote controller.
- o To save and exit **SCALE CONFIGURATION MODE**, press 2ND key on scale or ▲ on remote controller.
- o To exit **SCALE CONFIGURATION MODE** without saving, press ON/OFF key on scale or ⏻ on remote controller.

To learn more how to input values or change the option, refer to User Input section in User's Guide.

Function

- o In **SCALE CONFIGURATION MODE**, user can change the scale's metrology performance, like system measurement unit, auto and manual zero, automatic zero-tracking, anti-motion algorithm, and gravidity acceleration, etc.
- o The screen will display the welcome message:

> *WARNING:*
> *Parameters in SCALE CONFIGURATION are closely related to scale's metrology performance. It is NOT recommended to change anything in SCALE CONFIGURATION unless you are authorized from your local representative or dealership with the correct password.*

Condition

o The scale must not in **HOLD** mode otherwise an error message | $hoLd$ | will display.

AUTO-ZERO RANGE

o During the power-on procedure, the initial load on the scale will be automatically zeroed if the load is within the **AUTO-ZERO RANGE**.

o There are 6 options of **AUTO-ZERO RANGE**: "0%, "2%", "4%", "10%", "20%", and "100%" of Max. Cap.. When **AUTO-ZERO RANGE** is set to "0%" Max. Cap., the **AUTO-ZERO** function is disabled.

o The default **AUTO-ZERO RANGE** is set to "20%" Max. Cap..

$$A= \quad 20$$

MANUAL-ZERO RANGE

o After powering on, the scale can be zeroed manually by pressing ZERO key on scale or ◀ on remote controller if the load's weight is in **MANUAL-ZERO RANGE**. *Some models do not have zero key on scale, use the remote controller instead.*

o There are 6 options of **MANUAL -ZERO RANGE**: "0%, "2%", "4%", "10%", "20%", and "100%" Max. Cap.. When **MANUAL -ZERO RANGE** is set to "0%" Max. Cap., the **MANUAL -ZERO** function is disabled.

o The default **MANUAL -ZERO RANGE** is set to "4%" Max. Cap..

$$n= \quad 4$$
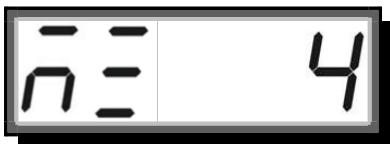
ZERO-TRACKING RANGE

- o **ZERO-TRACKING** function will zero the scale when weight reading is within the **ZERO-TRACKING RANGE**.
- o There are 6 options of **ZERO-TRACKING RANGE**: 0.0 division, 0.5 division, 1.0 division, 1.5 division, 2.0 division, and 2.5 division equivalent to "0E", "0.5E", "1.0E", "1.5E", "2.0E", and "2.5E", respectively. When **ZERO-TRACKING RANGE** is "0.0E", the **ZERO-TRACKING** function is disabled.
- o The default **ZERO-TRACKING RANGE** is set to 0.5 division, "0.5E"

NOTE:
Enabling Zero-Tracking will enhance temperature and drift performance of the scale

ACCELERATION DUE TO GRAVITY

- o Adjust the **GRAVITY ACCELERATION** only when you use the scale in a place where acceleration of gravity is greatly different from the place where the scale was calibrated.
- o **GRAVITY ACCELERATION** can be set from "9.700" to "9.899".
- o The default **GRAVITY ACCELERATION** is set to "9.794".

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USER-DEFINED UNIT

- o   The scale allows user to define a special unit as USER-DEFINED UNIT.
- o   USER-DEFINED UNIT can be set from "0.000" to "9.999".
- o   The default USER-DEFINED UNIT is set to "1.000".

$$U\ 1.000$$

> **NOTE:**
> A USER-DEFINED UNIT is an additional unit represents the unit defined by the user, aside from kg or lb. The conversion value is equivalent to the ratio against to its SYSTEM UNIT.
>
> For example, assuming the scale's system unit is kg. If the USER-DEFINED UNIT is equivalent to 1.234 unit per 1kg then after switching to USER-DEFINED UNIT, the scale should display the 1000kg weight to 1234 user-defined unit.

- o   After pressing 2ND key on scale or ⬛ on remote controller, the scale will save current settings and will exit from **SCALE CONFIGURATION MODE** then automatically returns to **WEIGHING MODE**.

$$End$$

CALIBRATION

Action

- o   To enter **CALIBRATION MODE**, press 2ND key on scale or ⬛ on remote controller twice. *Some models do not have 2ND key on scale, use the remote controller instead.* Enter the password for calibration. (*Note, this procedure should be done by qualified or authorized person to change the calibration settings. Ask the password from your local dealership or from technical support).*

- o To input **CALIBRATION** password, press ZERO and ^{TARE} keys on scale or
  ◄ and ► on remote controller.

- o To confirm the password, press HOLD key on scale or ■ on remote controller.

- o To save and exit **CALIBRATION MODE**, press 2ND key on scale or
  ■ on remote controller.

- o To exit **CALIBRATION MODE** without saving, press ON/OFF ^{key on scale}
  or ⏻ on remote controller.

To learn more on how to input values or change the option, refer to User Input section in User's Guide.


NOTE:

To meet some countries' metrology requirements, a Calibration plug is equipped which will be used to switch the scale from weighing mode to calibration mode.

Upon entering the Calibration mode, a message $noPLG$ may display in the screen. This means that you need to switch the jumper of the calibration plug. Refer to the sample images for the mainboard of some of OCS models and locate the calibration jumper pin and the instructions to switch the jumper. In this model, the user must take off the front panel to access the plug.
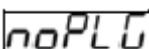
After the calibration, put the jumper back to its original pin.

If your model does not have calibration plug, just enter the calibration password and proceed with the calibration process.

Unplug the jumper from the yellow-cycled pin, and plug it to the red-cycled pin. Otherwise, calibration is not allowed.
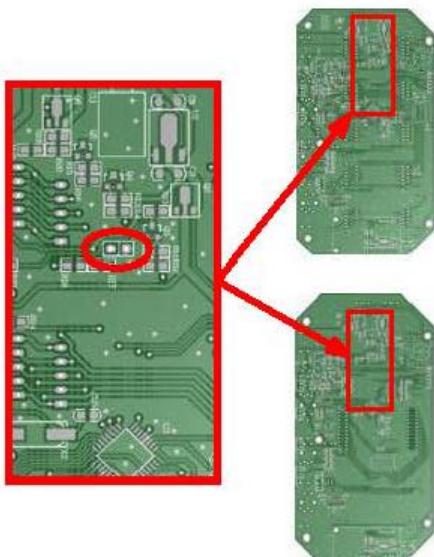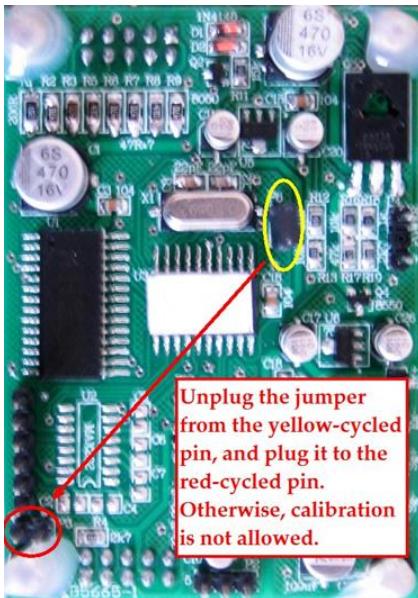
Function

o When the scale needs to be recalibrated, user can recalibrate the scale in **CALIBRATION MODE**.

o The screen displays the welcome message:

NOTE:
It is NOT recommended to do the CALIBRATION unless you are authorized from your local representative.

Condition

o The scale must not in **HOLD** mode otherwise, error message will display.

SYSTEM UNIT

- o In contrast to the **DISPLAY UNIT**, the **SYSTEM UNIT** was set before it leaves the factory. It was set when the scale was calibrated at factory.
- o Some models were set to metric scale's **SYSTEM UNIT** (kg by default) while some were set to imperial scale's **SYSTEM UNIT** (lb by default).

To switch between metric and imperial system, refer to the Display Unit Switch section.
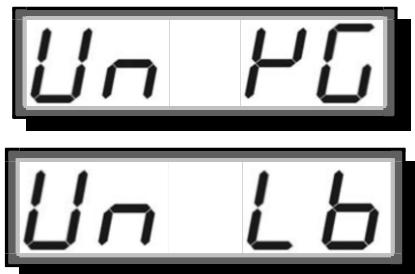
- o The lb indicator w i l l light on after **SYSTEM UNIT** switches to lb.
- o The kg indicator will light on after **SYSTEM UNIT** switches to kg.

Note: Some models may not have both lb and kg indicator. Some may have lb indicator or kg indicator only. For models with only one indicator, the light will turn off when the scale is switch to its alternate measurement unit (either in kg or lb).

NOTE:

SYSTEM UNIT shall be changed only if the alternate unit will be made as the new system unit. Most of these scales are calibrated from factory with imperial unit (lb unit) as the system unit. If you want to use the metric as the system unit, change the system unit to Un PG then recalibrate the scale. Recalibration is required for changing SYSTEM UNIT.

The same process if your scale was set with metric system unit, switch the system unit to Un Lb then recalibrate.

MAXIMUM CAPACITY

Action

- o To set the scale's **MAXIMUM CAPACITY**, select the capacity options. The parameter value will be multiplied by 1000 to get the maximum capacity value. For example, if it is set to FS 2 (see image below) then the scale will be set to have 2000 lb or 2000kg max capacity (it will not matter what unit you set at system unit).


> *WARNING:*
>
> *Do NOT try to set maximum capacity bigger than the scale's actual capacity. Overloading may damage and break the scale. It is also dangerous and it may cause injury or fatality.*

ZERO WEIGHT CALIBRATION

Action

- o When the screen displays , this means that we have to start the zero calibration. Remove the load from scale except for hooks or chains that will be used to hold the test weight. Keep the scale unloaded, stabled and relatively at zero weight.

- o After pressing HOLD key on scale or on remote controller, the scale will detect current weight, displaying the below detection message.

- o **ZERO WEIGHT CALIBRATION** is finished when message $\boxed{L\ oRd\ 1}$ is displaying.

ONE LOAD CALIBRATION

Action
- o Put on the test weight, when the screen displays $\boxed{L\ oRd\ 1}$.

- o After pressing HOLD key on scale or ⬛ on remote controller, the scale displays the below message, waiting for user's input of the load's weight value.


- o After pressing HOLD key on scale or ⬛ on remotecontroller, the scale will detect the load's weight and will display the below detection message.

- o **ONE LOAD CALIBRATION** is finished when message $\boxed{L\,o\,Rd2}$ is displaying. To finish the calibration, press 2ND key on scale or ▲ on remote controller.

Condition

- o The load must be heavier than "0", (or "0.0" or "0.00", depending on the resolution) otherwise an error message $\boxed{_____}$ will display.
- o The load must not be heavier than the scale's maximum capacity otherwise an error message $\boxed{}$ will display.
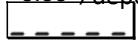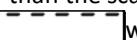
NOTE:

It is recommended to use test weight or span calibration weight that is equal to scale's maximum capacity in calibrating the scale.

NOTE:

In most cases, one load calibration is enough but if high linearity performance of the scale is required then calibrate the scale using the multi load calibration like Two Loads Calibration or Three Loads Calibration.

TWO LOADS CALIBRATION

$$L\,o\,Rd2$$

Action

- o Put on the second weight, when the screen displays $\boxed{L\,o\,Rd2}$

- o After pressing HOLD key on scale or ■ on remote controller, the scale displays the first load's weight value, waiting for user's input of the second load's weight value.

$$0\,1\,0\,0\,0$$

- o After pressing HOLD key on scale or ▣ on remote controller, the scale will detect the second weight and will display the below detection message.

- o **TWO LOADS CALIBRATION** is finished when message $LoAd3$ is displaying. To finish the calibration, press 2ND key on scale or ▲ on remote controller.

Condition
- o The second load must be heavier than the first load otherwise an error message ‾ ‾ ‾ ‾ ‾ will display.
- o The second load must not be heavier than the scale's maximum capacity otherwise an error message ‾ ‾ ‾ ‾ will display.

> NOTE:
>
> If the scale will be calibrated with two loads, it is recommended to use a first test weight of 50% of scale's maximum capacity and then 100% of scale's maximum capacity for the second test weight.

THREE LOADS CALIBRATION

Action
- o Put on the third weight, when the screen displays $LoAd3$
- o After pressing the HOLD key scale or ▣ on remote controller, the scale displays the second load's weight value, waiting for user's input of the third load's weight value.

- o After pressing HOLD key on scale or ▣ on remote controller, the scale will detect the third weight and will display the below detection message.

- o **THREE LOADS CALIBRATION** is finished when the below message is displaying. The scale will exit **CALIBRATION MODE** automatically and will return to **WEIGHING MODE.**

Condition
- o The third load must be heavier than the second load otherwise an error message ⌐_ _ _ _ ⌐ will display.
- o The third load must not be heavier than the scale's maximum capacity otherwise an error message ⌐‾ ‾ ‾ ‾⌐ will display.
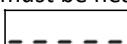
> *NOTE:*
>
> *If the scale will be calibrated with three loads, it is recommended to use a first test weight of 33% of scale's maximum capacity, 66% of scale's maximum capacity for the second and then 100% of scale's maximum capacity for the third.*

POWER ADJUSTMENT MODE

Action
- o To enter **POWER ADJUSTMENT MODE**, press 2ND key on scale or [icon] on remote controller twice.
- o To input **POWER ADJUSTMENT** password, press ZERO and TARE keys on scale or [icon] and [icon] on remote controller.
- o To confirm the password, press HOLD key on scale or [icon] on remote controller.
- o To save and exit **POWER ADJUSTMENT MODE**, press 2ND key on scale or [icon] on remote controller.
- o To exit **POWER ADJUSTMENT MODE** without saving, press ON/OFF key on scale or [icon] on remote controller.

To learn more on how to input values or change the option, refer to User Input section in User's Guide.

Function
- o System power needs to be adjusted when the scale is reset manually. User can adjust the system voltage in **POWER ADJUSTMENT MODE.**
- o The screen displays the welcome message:

- o After pressing HOLD key on scale or [icon] on remote controller, the scale displays current system voltage (or 6.50V if the scale has been reset), waiting for user's input of new voltage.
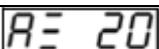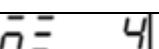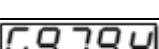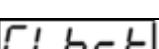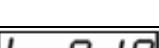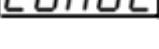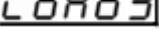
o After pressing HOLD key on scale or ⬛ on remote controller, the scale will save the new voltage and will return to **WEIGHING MODE**.

$$End$$

3.   Messages Illustration
Possible messages the scale displays are listed here

|		
5CALE	**scale** configuration	**SCALE CONFIGURATION** welcome message
A= 20	**a**uto-**z**ero range	**AUTO-ZERO RANGE**
n= 4	**m**anual-**z**ero range	**MANUAL-ZERO RANGE**
=t0.0E	**z**ero-**t**racking range	**ZERO-TRACKING RANGE**
G9.794	**g**ravity acceleration	**GRAVITY ACCELERATION** welcome message
CLbrt	**c**ali**bra**tion	**CALIBRATION**
FS 2	**f**ull **s**cale	**MAXIMUM CAPACITY**
LoAd0	**load 0**	**ZERO WEIGHT CALIBRATION**
LoAd1	**load 1**	**ONE LOAD CALIBRATION**
LoAd2	**load 2**	**TWO LOADS CALIBRATION**
LoAd3	**load 3**	**THREE LOADS CALIBRATION**
End	**end**	Save and exit
U AdJ	power **adj**ustment	**POWER ADJUSTMENT** welcome message

4. **Appendix**

OCS Series Crane Scale Passwords

Below is a list of modes that require password to access the scale functions.

Mode	Password
Scale Configuration	0258
Calibration	8416
System Info	1860
Power Adjustment	1123
Clear Overload Records	4321

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