



MODEL M690-SC
PORTABLE CADAVER SCISSOR LIFT
with ROLLERS & SCALE

CAUTION

Inspect unit and all components for any loosening that may have occurred during shipping

CAUTION

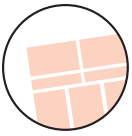
DO NOT USE CLEANERS CONTAINING CHLORINE WHEN CLEANING STAINLESS STEEL

ATTENTION

Review entire manual before starting assembly

ATTENTION

All images and Drawing in this manual may not represent your model. Refer to your particular project for exact specifications



Safety information

It is important that the information provided in this manual is observed. These instructions should be read carefully and observed fully before installation and initial operation.

WARNING

It is crucial that any work performed on Mortech Manufacturing Inc. manufactured items are carried out exclusively by skilled professionals who have the respective training. Improper use, maintenance, parts and service, or modification to the equipment may cause injury and/or damage. Use and maintain the equipment only for the purpose described in this manual. Use only Mortech Manufacturing Inc. prescribed approved parts and service. Use the equipment only as designed by Mortech Manufacturing Inc.

BLOODBORNE DISEASE NOTICE

To reduce the risk of exposure to bloodborne diseases such as HIV-1 and hepatitis when using the equipment, follow the disinfecting and cleaning instructions in this manual.

RECOMMENDED OPERATING SKILLS AND TRAINING

- SKILLS

Operators using the equipment need:

- ☐ A working knowledge of necessary procedures.
- ☐ The ability to carry out necessary service procedures.
- ☐ A complete understanding of the procedures described in this manual.

- TRAINING

- ☐ Read the this manual as prescribed
- ☐ Be trained on the use of the equipment.
- ☐ Practice with the equipment before using it in regular service.
- ☐ Be tested on their understanding of the equipment operation.
- ☐ Record their training.

BEFORE USING THE EQUIPMENT

Personnel working with this equipment needs to read this manual. Assemble of the unit following set instructions, and perform any pre-service checks to confirm the units operates properly.

INSPECTING THE UNIT BEFORE USE

Please take time to inspect all shipment prior to signing delivery ticket. If concealed damage is discovered, save the carton and immediately contact carrier agent to initiate claim of damage.

BE SURE TO CHECK!

- Are all components present?
 - Do the moving parts operate smoothly?
 - Is unit draining properly?
 - Are all nuts, bolts, and pins secured in place?
- If unit has an issue contact Mortech Manufacturing Inc.

INSTRUCTION FOR HANDLING

Adhere to state and/or local certification and regulations for operation of forklift and/or pallet jack. Cargo is extremely heavy, be sure to have the necessary manpower as well as equipment to successfully unload shipment from transport. We recommend a forklift and/or pallet jack with the capacity to lift up to 2000 lbs. to remove cargo from transport.

The forklift can be used to unload receiving products safely by placing the load on the floor, maneuvering the forklift into position, tilting the mast forward to vertical position so the load will be level, lowering the load, and smoothly backing away without dragging. Once cargo is unloaded, positioning equipment for installation will once again require a forklift. Read all manual and note on installation of the unit before attempting installing.

The pallet jack can be used (with a loading dock and maneuverability on and off the transport vehicle) to unload receiving products safely. Maneuvering the pallet jack into position (in the appropriate position within the pallet), lifting the pallet then driving the pallet jack off the transport and safely into the place of installation.

Range of Environmental Condition

Mortech Manufacturing, Inc. equipment shall be placed in a controlled environment (housing or housed unit) hindering the weathering effects on the installed units. The equipment will have minimal corrosive and eroding factors that can break down the stability and operation of Mortech Manufacturing Inc. equipment. The impact on the equipment by the operator utilizing water or corrosives in the medical procedures can be controlled and responsibility for the cleaning and maintenance placed upon that person. The effects of anthropogenic (man-made) gasses on the environment, such as carbon dioxide (CO₂) that will be omitted from the unit should be minimal.

Due to continuous innovation and product development this installation guide is subject to change without notice.

Please save these instructions for later use.

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Parts listing



M690



M690-SL

Allows Safe Loading And Unloading

Easy-to-operate, highly maneuverable system eliminates need for manual lifting. Accommodates both standard and bariatric body trays.

M690 Standard End Load

M690SC Standard End Load w/Scale

M690SE Standard Side/End Load

M690SE-SC Standard Side/End Load w/Scale

Capability

- Scale with Indicator
- Lift control system incorporates a scissor action, hydraulic power lifting system and integral battery charger
- Battery-operated hydraulic lifting system is activated by two control switches to raise and lower body laden trays
- Lift is supplied with an integral dual-voltage battery charger which can be connected to a standard mains socket, eliminating the need for charging stations
- Lift is manufactured using heavy-duty stainless-steel tubular sections
- Locking device secures loads and helps prevent shifting
- Tables can carry up to 500 lbs./226 kg.
- The conveyor platform has five rollers for smooth loading action
- The narrow frame and four 5 in./12 cm. full-swivel solid casters provide smooth maneuverability into and out of tight spaces

CAUTION

When operating lift keep hand and feet clear of moving parts. Severe injury can occur

ATTENTION

When lift is not in operation, the unit's battery must be recharging

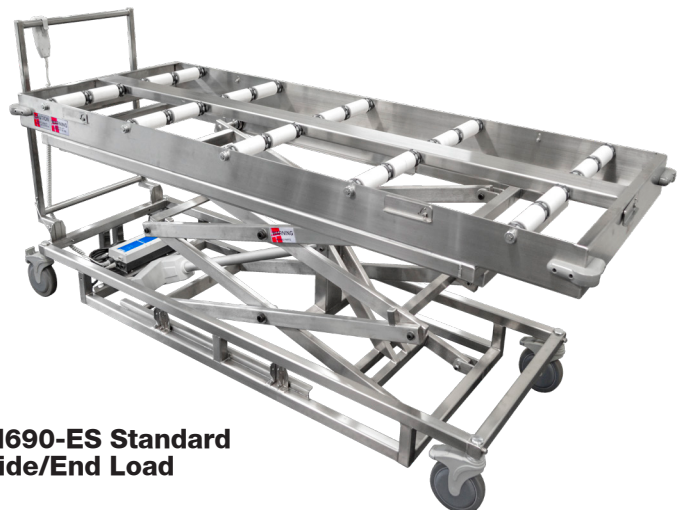
Specifications

Maximum Elevation - 93 in./236 cm.
Minimum Elevation - 16 1/8 in./40 cm.

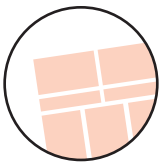
- Accommodates body trays that are 23 to 30 in. (58 to 76 cm) wide with flat bottoms
- Designed to extend from a minimum height of 15 in. (38 cm) and provide access to the fifth tier of storage racks at 79 in. (200cm)
- To aid in steering, (1) wheel has the ability to lock by using a manual pin swivel lock

Optional items

- Wall Mount Charging Station



**M690-ES Standard
Side/End Load**



Installation

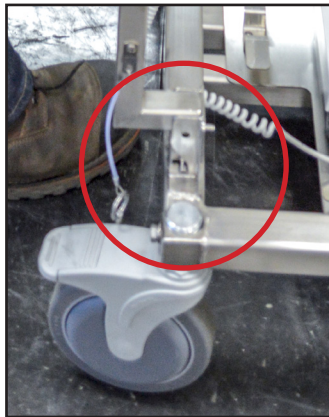
M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

SIDE-HANDLE OPERATION



Remove quick-release pins securing handle from handle bracket

HANDLE REMOVAL



After removing quick-release pins, pull handle gently up and away from bracket and frame



Gently lift up and away



Side handle brackets



HANDLE REPLACEMENT



Gently place handle into bracket guides

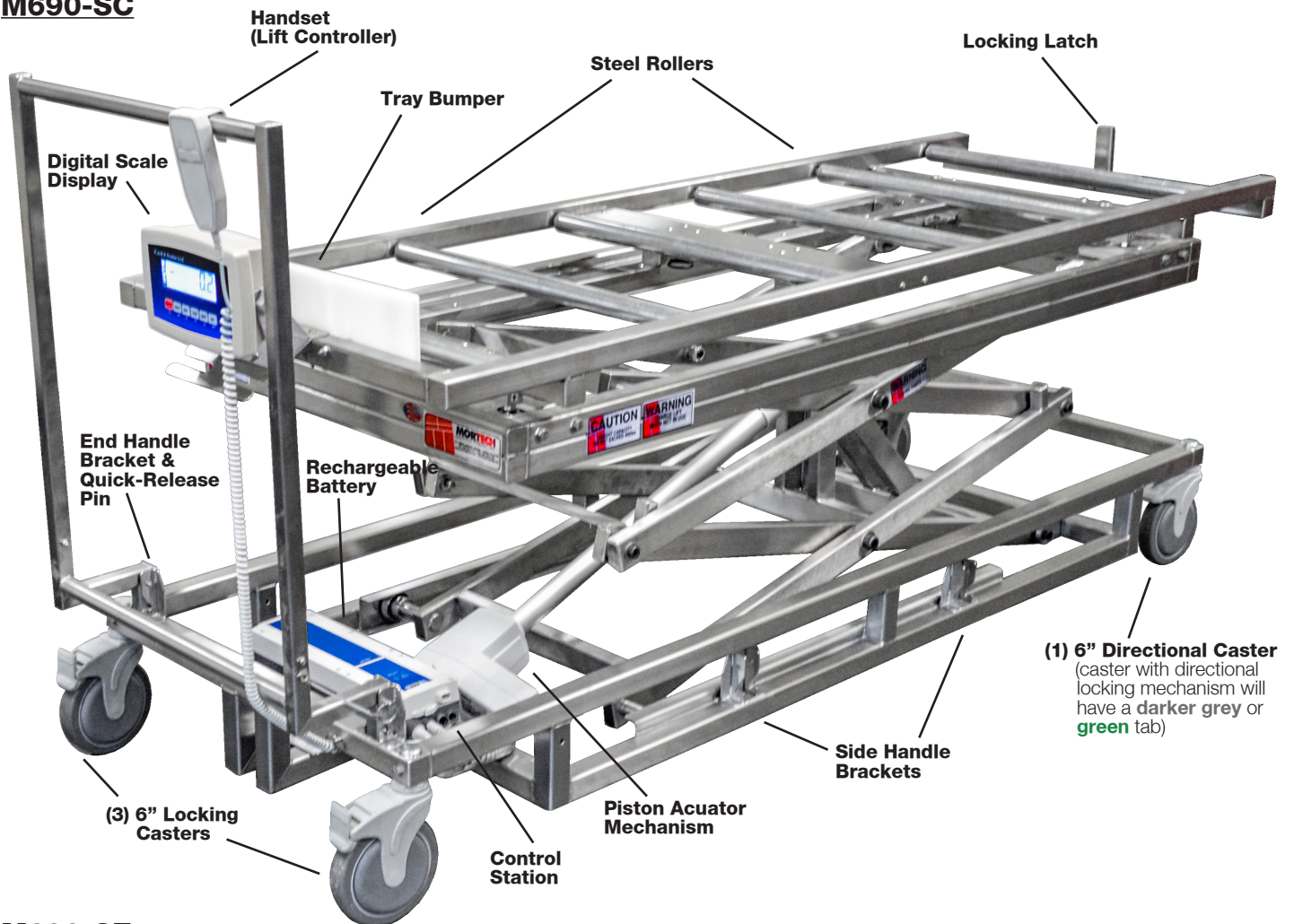


Insert quick-release pins to secure handle

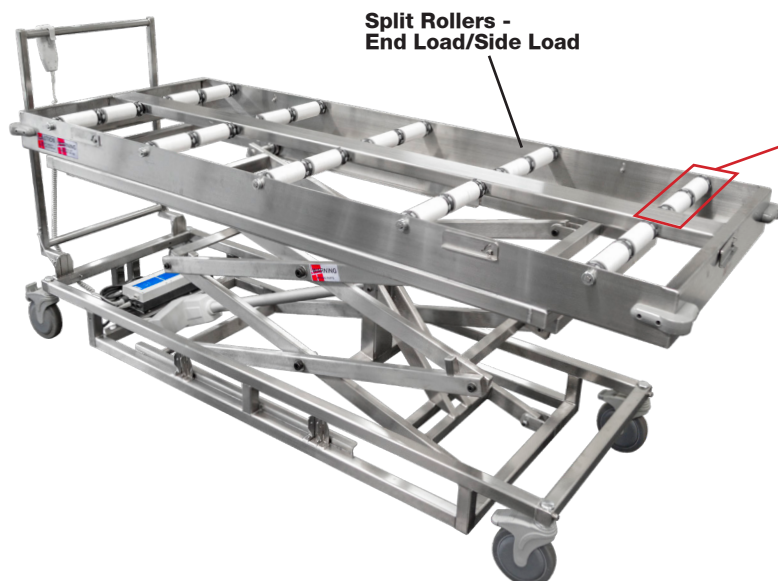
M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Parts listing

M690-SC



M690-SE Side/End Load

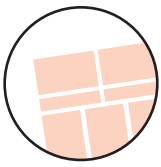


CAUTION

When operating lift keep hand and feet clear of moving parts. Severe injury can occur

ATTENTION

When lift is not in operation, the unit's battery must be recharging

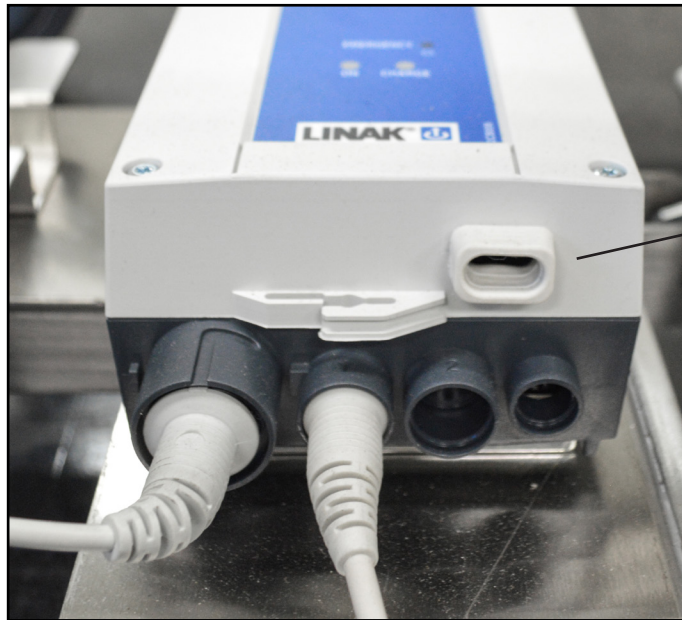


Operation

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Charging and Control Station

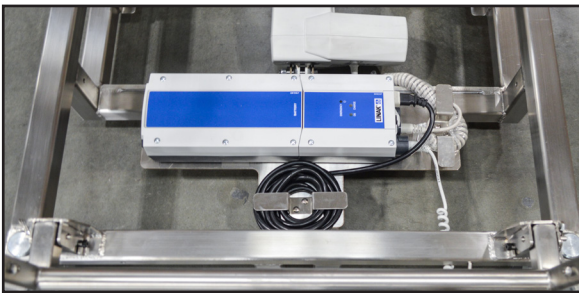
Hand Held Push
Button Lift Controller



Rechargeable
Battery Cord
Plug-in

Piston Acuator
Cord

CAUTION
When lift is not in operation, the
unit's battery must be recharging



Rechargeable Battery Cord

To charge battery, plug cord into any
wall receptacle.



Red light is
illuminated
when unit is
charging

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Operation

Hand Held Push Button Lift Controller

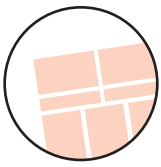
To operate lift, press arrow **UP** button to elevate.

Press arrow **DOWN** button to lower lift.



CAUTION

When operating lift, keep hands and feet clear of moving parts. Severe injury can occur



LIFTING COMPONENTS

SYSTEM DESCRIPTION:

Usage/type of applications:

Actuators, lifting columns and electronics have been developed for use in all places where a linear movement is required.

Attention should be paid to the following:

- Control boxes must only be connected to the mains voltage specified on the label. All DIN, jack, or minifit plugs from the unit should be locked by using a locking mechanism.
- The control box must be connected in such a way that the cables are not trapped, exposed to tension or sharp objects when the application is moved in different directions.

Prior to first use of batteries, please make sure that they are being charged 24 hours in order to reach proper function and prolong the lifetime of the batteries.

If the customer uses another manufacturer's battery, it is important to check that the current is not reversed (plus and minus swapped over). This applies to both control boxes, which always run off battery and control boxes with battery backup. Contact your Mortech for specification of type, size etc.

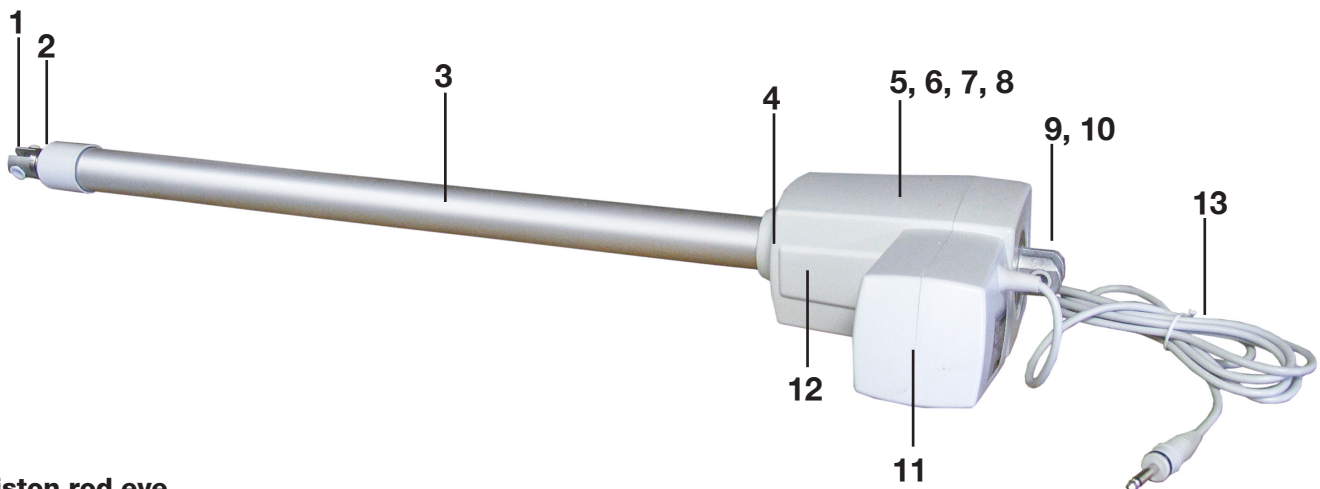
The control current in the handset cable must not exceed 100 mA.

The control station is the heart of the system and connects the various outlying units (actuators, handsets). Control stations are only able to convert control signals from the handset into operating voltage for the actuator. Most control boxes provide an Electronic Overload Protection (EOP), designed to protect the actuator against overload by disconnecting the current when the actuator is fully extended or retracted. If an actuator is used, the built-in limit switches stop the actuator when fully extended or retracted, and the control box only disconnects when the maximum current is exceeded. When using a control box it is important to note that not all types have electronic overload protection.

The actuator is the unit, which converts the operating voltage from the control box into a linear movement. The principle of the actuator's mode of operation is that a low voltage DC motor (5), via a gear system (12), rotates a threaded spindle, onto which a nut is fitted. As this nut cannot rotate, since the piston rod (2) is restrained, the piston rod will move forwards or backwards, when the threaded spindle rotates.

On the basis of motor type, gearing, and the threaded spindle's pitch, the actuator's thrust and speed are determined.

The handset is the unit to be used when you want the to perform a movement. It determines whether the control box will make the actuator move in or out.



1. Piston rod eye
2. Piston rod
3. Location of mechanical splines
4. Location of brake
5. Motor
6. Motor with optical switch
7. Motor with potentiometer
8. Motor with reed-switch
9. Back fixture

10. Back fixture with electrical splines
11. Quick release mechanism
12. Transmission between motor and spindle
13. Cable for connection to 12/24/36V DC by means of plug via control box

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Operation

- The products must be cleaned at regular intervals to remove dust and dirt and inspected for mechanical damage, wear and breaks.
- The products are closed units and require no internal maintenance.
- Actuators/lifting columns must be inspected at attachment points, wires, piston rod, cabinet, and plugs, as well as checking that the actuator/lifting columns function correctly.
- To ensure that the pregreased inner tube remain lubricated the actuator must only be washed down when the piston rod is fully retracted.

Valid for control box and handset

- Electronics must be inspected at attachment points, wires, cabinet, and plugs.
- Inspect the connections, cables, cabinet, and plugs, and check for correct functioning (does not apply to battery versions).
- The control box is sealed and maintenance free.
- Inspect at regular intervals that the ventilation aperture on the external battery is positioned correctly and is intact throughout its length, approx. 20 mm., see figure 1.

Environmental conditions:

Storage and transport	
Operating:	
Temperature	5°C to 40°C
Relative humidity	20% to 90% @ 30°C – not condensing
Atmospheric pressure	700 to 1060 hPa
Storage:	
Temperature	10°C to +50°C
Relative humidity	20% to 90% @ 30°C – not condensing
Atmospheric pressure	700 to 1060 hPa

-Valid where nothing otherwise is stated under the specific products in a later section.

IP Protection degree:

The products can be cleaned as follows according to their IP protection, which is stated on the product label. The IP code specifies the degrees of protection provided by the enclosures. For most products only the protection against ingress of water (second characteristic numeral) is specified, ingress of solid foreign objects or dust (first characteristic numeral) is not specified and therefore replaced by the letter X in the code. For some special industrial products both the first and second characteristic numerals are specified. This is a demand from the marked and will only be specified if tested and approved.

IP protection	Cleaning instructions
IPX4	Clean with a damp cloth

Warning!

The systems must not be sprayed directly with a highpressure cleaner.

Warning!

Interconnecting cables must remain plugged in during cleaning to prevent the ingress of water.

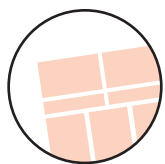
Warning!

Cleaning with a steam cleaner is not permitted.

Warranty and service life

Warranty covers manufacturing defects in the products, starting from the date of manufacture. There is 36 months' warranty on the HOMELINE products, 18 months' for MEDLINE and CARELINE products, and 12 months' for the TECHLINE products. The warranty is limited to the value of the product. Guarantee is only valid so far as the products have been used and maintained correctly and has not been tampered with. Furthermore, the products must not be exposed to violent treatment. In the event of this, the warranty will be ineffective / invalid. Warranty is only valid if the system is unopened and has been used correctly.

All products are designed to have an optimum service life as a matter of course, but the expected service life in a specific application is very dependent on how the products are used.



Operation

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

4H-1000 lb.

DIGITAL SCALE INDICATOR

User friendly indicator with an easy to read 1" tall ultra bright screen and can handle all your standard weighing needs. Multiple weighing units and standard, gross, tare and zero functions as well as 4 different hold functions. Comes with rechargeable batteries computer/ printer connections and RS232 ports.

Standard Features:

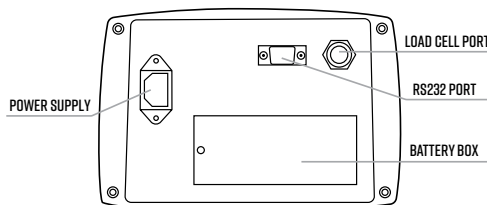
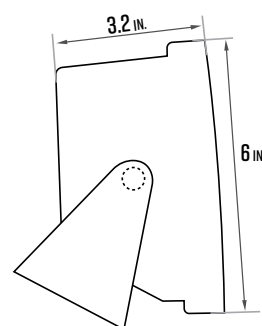
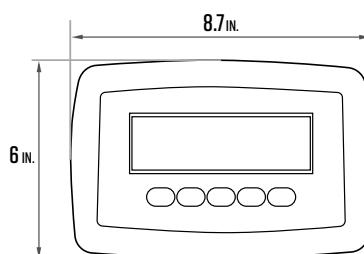
- Multiple weighing units: (lb/kg)
- Gross/Tare/Tare/Zero
- Multiple Hold functions
- Overload / Underload alarm
- Power saving mode
- 100% manual zero range setting
- Automatic error warning alarm
- Splash proof keyboard and display
- Connects to a remote display
- Connects to optima printers
- Displays up to 50,000 graduations
- 1" LED or LCD display with backlight
- Mounting bracket and Hardware (included)
- Operates on 110V AC adapter (included)
- Full Duplex RS-232 Serial Port
- Drives up to 6 350Ω load cells
- 1 Year Warranty

Optional Features:

- LED or LCD display option
- Wireless capability

Accessories

- Thermal Ticket Printer
- Label Printer
- Zebra Label Printer
- Remote Display
- Stainless Steel Stand
- Painted Mild Steel Stand



Specifications:

Display	LCD or LED 1-inch x 6-digit numeric	Operating Temp.	14 °F to 104 °F (-10 °C to +40 °C) ≤90%RH
Units	lb, kg (primary); oz, g (secondary)	Weight	4.3 lbs (1.95 kg)
Accuracy Class	3000 e	Internal Resolution	24 bit A/D Sigma-Delta; 1,048,000 d
Resolution	120,000 dd industrial; 10,000 dd HB44	Display Resolution	120,000 dd industrial; 10,000 dd HB44
Excitation Voltage	5V DC	Display Increment	Selectable 1, 2, 5, 10, 20, 50
Largest Output Current	120 mA	Decimal Point	Selectable 0, 1, 2, 3, 4 decimal places
Excitation Circuit	5 VDC, 4 wire connections	Conversion Rate	12 samples/second typical
Load Cell	6 load cells of 350 Ω maximum	Analog Signal Input Range	1mV/V to 3mV/V
Load Cell Excitation	5 ± 0.5VDC	Analog Signal Sensitivity	0.1 uV/graduation (min)
Display Resolution	30,000 ; ADC: 2,000,000	Measurement Rate	0~15mV
Zero Stability Error	TKspn < ± 6 ppm/K	Auto Zero Tracking	0 - 5 dd increments
Sensitivity (internal)	0.3 μV / d	Auto Zero Delay	0 - 3 second increments
Input Voltage	-30 to +30mV DC	Motion Detect	1 - 10 dd
Power	100~240VAC @ 50/60Hz	Motion Delay	0 - 55 dd
Power Consumption	5W @9VDC		

SAFETY PRECAUTIONS

For safe operation of the weighing indicator, please follow these instructions:

- Calibration inspection and maintenance of the indicator are prohibited by non-professional staff
- Please ensure that the indicator rests on a stable surface
- The indicator is a piece of static sensitive equipment; Please cut off power during electrical connections
- Touching the internal components by hand is prohibited
- DO NOT exceed the rated load limit of the unit
- DO NOT step on the unit
- DO NOT jump on the scale
- DO NOT use this product if any of the components are cracked
- DO NOT use for purposes other than weight taking
- To avoid damaging the battery do not keep charger plugged in once battery is fully charged
- Make sure the weight is not over the Max capacity as it could damage the load cell inside
- Material that has a static electric charge could influence the weighing. Discharge the static electricity of the samples, if possible. Another solution to the problem is to wipe both sides of the pan and the top of the case with an anti-static agent

Please take anti-static prevention measures

Any accumulated charge on the body of the human operator should be discharged first before opening the protective container with ESDS devices inside. The discharge can be accomplished by:

- Putting a hand on a grounded surface or, ideally, by wearing a grounded Anti-static Wrist Strap and an Anti-static Mat

PREPARATION & SET UP

- Plug into a wall outlet to avoid interference with other wirings
- Turn on the balance while there is no load
- We suggest to warm-up the balance by powering on 5 minutes before use for accurate weighing
- Calibration may be required before weighing when the balance is initially installed or moved from a location

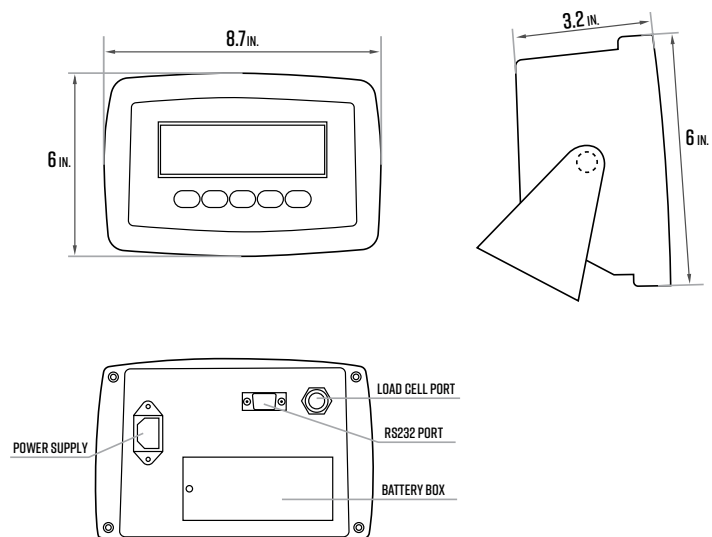
FEATURES

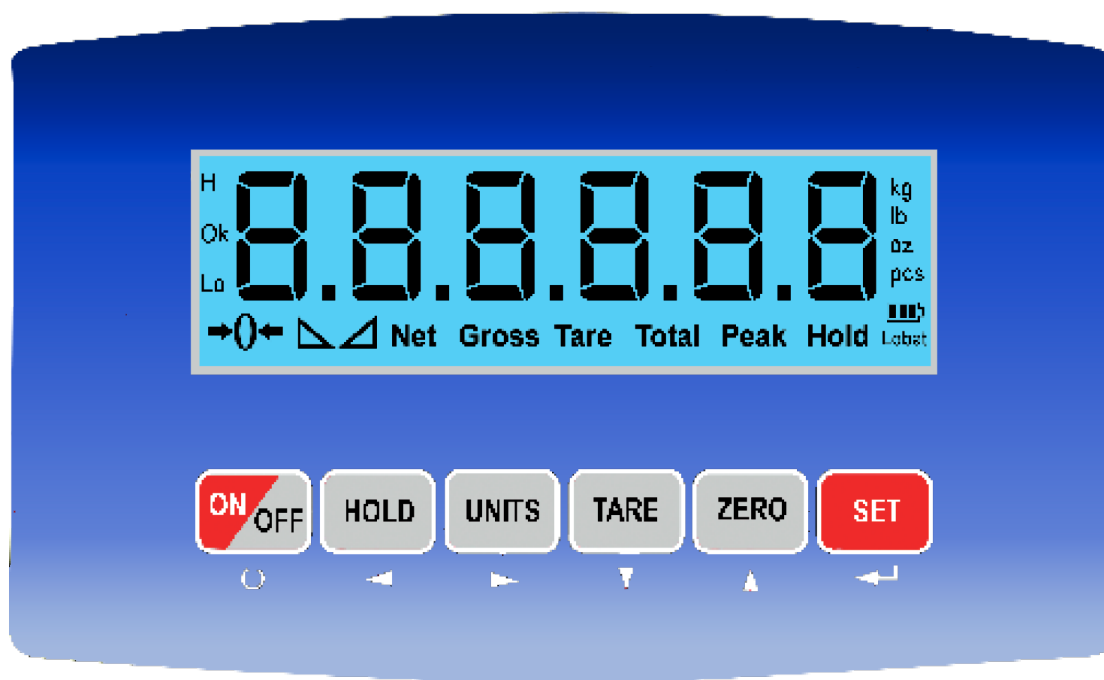
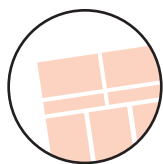
Main Functions

- Multiple weighing units: (kg/lb)
- General weighing: Gross/Tare/Zero
- Multiple Hold functions (animal weighing, peak-hold, manual-hold, auto-hold)
- Overload / Underload indication
- Print option
- Low battery reminder
- Automatic Power off (power saving mode)

Technical Parameters

- Accuracy class: 3000 e
- Stimulating voltage: +3.3 VDC
- A/D converting speed 10 SPS
- Load signal range: 0~12.8mV
- Load capacity: can connect 4 pcs 350Ω load cell at most
- Interval: 1/2/5/10/20/50
- Display: 6 digits LED/LCD, word height 20.3mm
- Interface: RS232C
- Baud rate: 1200/2400/4800/9600
- Battery: 4V/4Ah rechargeable battery; 110/220VAC
- AC power: AC 100-250V (use only the included 9V adapter supplied)
- Operation temperature: -10 °C ~ +40 °C
- Operation humidity: ≤90%RH
- Storage temperature: -40 °C ~ +70 °C (32-104°F)





ON/OFF	Powers the Indicator On or Off if held for 2 seconds
HOLD	1. Peak hold - Grabs the highest weight (for tension and pulling force) 2. Data hold - Holds the current weight value (ex. for use with weighing moving animals)
UNITS	Shifts between weighing units (kg/lb)
TARE	1. Zero's the scale. Used when using a container to hold objects 2. Clears the tare to see the gross weight
ZERO	Zero's the scale
SET	Works with the "On/Off" button to enter and exit calibration
→0←	The scale is at zero
▲▲	The scale is stable
Gross	Shows you are in Gross weight mode (includes tare); default mode
NetS	Shows you are in Net weight mode (without tare)
TaredS	Shows you are in Counting mode
HoldS	Shows you are in Hold mode
lb	The weight is shown in pounds
kg	The weight is shown in kilograms
Battery	Flashes red = low battery, Solid red = charging, Green = fully charged
Over	Flashes when weight is higher than set alarm parameter
Accept	Flashes when weight is within the set alarm parameters
Under	Flashes when weight is lower than set alarm parameter
⏻	Power
◀▶▲	Arrow keys
↵	Enter/Return

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Operation

POWER SUPPLY

AC Adapter

The indicator is charged by an ac adapter, plug the adapter directly into the “DC” pin located at the back of the indicator. We recommend to plug into a wall outlet to avoid interference with other wirings. A 110 to 220V AC adapter should be provided with your indicator. Please use only the AC adapter provided to prevent damage to your indicator.

Battery

OP-901 comes with a rechargeable battery, please charge the internal battery fully before first time use for 10-12 hours to prevent low voltage resulted from self leakage of batter. Once charged the battery should last for 45 hours. To keep the battery in best condition, fully discharge the battery every month by leaving the indicator on until the indicator powers off, and then recharge fully. If the battery is not going to be used for a long period of time it is recommended to remove it to avoid leakage.



symbol will indicate battery is fully charged



symbol indicates battery needs charging

OPERATING INSTRUCTIONS

Power On

- Turn on the power by pressing the power button for 2 seconds. Once on, the scale will flash the voltage and then begin to auto-check and count down from 0-9 sequentially before entering the weighing mode

Note: Anything on the scale before powering on will automatically be tared out.

Zeroing

- The zero function is used only when the scale is empty and is not at gross zero due to material build up
- Pressing the ZERO key will reset your scale to 0
- Depending on what your manual zero range parameter is set to, you can zero out any number within your set selection, after that you will receive an error and will need to tare out the weight

Unit Selection

- To switch between measuring units (kg, lb, oz) press the UNITS key

Tare Function

- The Tare function is used when you only wish to see the current change in weight, not the entire amount of weight that is on the scale
- When the indicator is in gross mode (gross light is shown) pressing the TARE key will Tare the current weight on the scale and enter the net mode (net light shown)

- For example if you are using a container add the container to the scale, press tare and the display will show the tare symbol →0← and reset back to 0
- Add your item to the scale to weigh without the weight of the container
- To exit Tare mode press the TARE key again to enter gross mode and you will see the total weight of the container and the item

Note: If you remove the container the scale will show the minus weight of the container

Hold

In the parameter settings you can choose one of these 5 hold options

1. Peak Hold: Grabs the highest weight (for materials testing, ie. tension and pulling force)

- Press the HOLD key then add weight to the scale
- The indicator will show the highest weight it recorded and hold it on the screen until a higher weight is placed on the scale

2. Manual Hold: Grabs the current weight and holds it so it will not change/fluctuate

- While weighing, press HOLD and the indicator will hold the current weight on the screen until HOLD is pressed again

3. Auto Hold: If the weight on the scale is above 20d and is stable, the indicator will hold that weight on the screen for 3 seconds then go back to general weighing

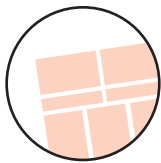
- Pressing the hold key is unnecessary, holding is done automatically when the scale is stable

4. Average Hold: Used for animal weighing, the indicator will display the average weight sampled from 3 or 5 seconds (Set in the C12 Parameter)

- Add animal to scale and press HOLD
- Indicator screen will show “L0E” for 3 or 5 seconds, then display the average weight from those 3 seconds
- Press HOLD again to exit holding mode

5. Auto Average Hold: Used for animal weighing, the indicator will display the average weight sampled from 3 or 5 seconds without the need to press the HOLD key. If the weight on the scale is above 20d and is stable, the indicator will start grabbing the average weight sampled from 3 seconds.

- Begin loading animal to scale, after 5 seconds the Indicator screen will show “L0E” for 3 seconds
- It will then display the average weight from those 3 seconds for 3 seconds and then repeat the process



Operation

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Print

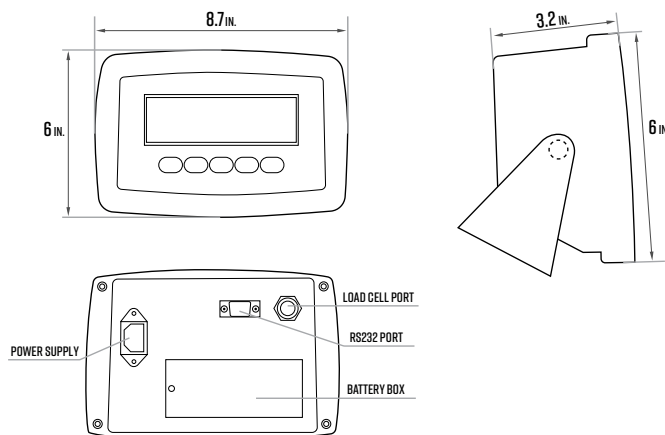
- If the indicator is connected to a printer and the communication mode is set to print mode (C18 =2) and the weight on the scale is stable press and hold the SET key to print the current weight

Print out example:

N.W.:	25.6lb	Net weight
T.W.:	10.3lb	Tare weight
G.W.:	35.9lb	Gross weight
NO.	01	Print out number

CALIBRATION PROCEDURE

Turn on the scale by holding ON/OFF  for 2 seconds.	The C5 channel calibrates zero on the scale. Make sure the scale is empty.
Press ON/OFF  and SET  together to access the setup menu.	Press ZERO  to change the value to 1.
If done correctly, the display should now show  .	Press SET  . The display will count down from 10-1 while the scale is calibrating zero. When the display shows 0 the zero calibration is complete.
Press SET  to access the C1 channel. The display should show  .	Press SET  to continue. The display will now show  .
Press ZERO  to change the value of C1 to  . (The value of 2 sets the scale up in pounds.)	Press SET  to access the C06 channel. The display will show  .
Press SET  to set the value. The display will now show  .	The C6 channel is used to calibrate the scale with a known weight. Press ZERO  to set the value of C6 to  . Press SET  . The display will flash SPAN, and then show  .
Press SET  to access the C2 channel. The display should show  .	Enter the calibration weight value you will use (at least 10% of max capacity you set in C04 by using HOLD  and UNITS  to move the cursor left and right, and TARE  and ZERO  to move the values down and up.
Press ZERO  to change the setting to the decimal places desired. (The C2 channel is used to adjust the decimal point on the scale. A value of 1 means there is one digit behind the decimal point.)	Place the calibration weight you have on the empty scale and press SET  . The scale will count down from 10 to 0. Once 0 has been reached, the display will show  .
Press SET  to set the value. The display will now show  .	Press SET  to continue. The display will now show  .
Press SET  to access the C3 channel. The display should show  .	Press ON/OFF  to save and exit the setup menu.
Press ZERO  to cycle through the values until the desired graduation appears. (The C3 channel adjusts the divisions on the scale. A value of 1 selected and C2 set to 1, the scale will read in 0.1 lb. increments.)	The scale has now been calibrated. The display will show the value of the calibration weight on the scale.
Press SET  to set the value. The display will now show .	If the scale does not show the value of the calibration weight, check that the feet on the platform are not screwed in too tightly, and verify that the platform is level.
Press SET to access the C4 channel. The display will show .	Unload the scale; the display should read 000000.
Enter in the maximum capacity you want to use for this scale by using HOLD and UNITS to move the cursor left and right, and TARE and ZERO to move the values down and up. (The C4 channel is used to enter in the max capacity of the scale; Make sure this doesn't exceed the max capacity of the scale; Max capacity divided by the increment set in C02 and C03 above cannot exceed 5000)	If the scale does not display 00000, check that the feet on the platform are not screwed in too tightly, and verify that the platform is level.
Press SET to set the value. The display will now show .	
Press SET to access the C5 channel. The display should show .	



INDICATOR PARAMETER SETTINGS

The parameter settings menu has a calibration section (C01 to C06 explained above) and a parameter settings section (C07 and up).

To access the calibration section the seal switch (located at one corner of the PCB) must be OFF. This will allow access to all C01 and up settings. If the seal switch is ON, then only C08 and up can be accessed by the user. If you break the official seal by opening the back of the indicator to access the seal switch, you may need to have the indicator recertified. Be sure to adjust the seal switch back to the original setting after calibration/configuration has been performed.

To enter calibration/parameter settings, follow the procedure below:

1. Press and hold the ON/OFF and SET key at the same time for 2 seconds
2. Navigate through the settings (C01 to C45) as shown in the table 4 below by using the arrowkeys and enter key as labeled under each indicator button
3. Press the SET  key to enter/edit the parameter setting
4. Press the ON/OFF key to save and exit settings at any time

Table 1. Calibration Parameter Settings

Function	Parameter	Settings/Options
Weighing Unit	C01	1 = kg 2 = lb
Decimal Setting	C02	0 = no decimal 1 = #.# 2 = #.## 3 = #.### 4 = #.####
Division/ Graduation Setting (readability of the least significant digit)	C03	options: 1/2/4/10/20/50 Example with no decimal places (ie C02=0) 1 = 1 lb 2 = 2 lb 5 = 5 lb 10 = 10 lb 20 = 20 lb 50 = 50 lb
Maximum Capacity	C04	set max capacity ex. 100kg = [0100.00]
Zero Calibration	C05	0 = zero calibration 1 = set the zero calibration Note: Before calibrating please ensure scale is empty and the stable light is on. When calibrating the Indicator will count down from 10 to 0
Calibration	C06	0 = calibration not needed 1 = ready to calibrate with calibration weight Note: When calibrating the display will flash SPAn, telling you to input the value of the calibration weight you will be using. Once set the scale will count down from 10 to 0 and display Cal-End, and the calibration will be complete.

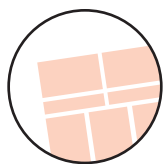


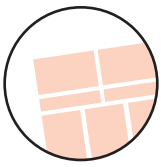
Table 2. Indicator Parameter Settings

Function	Parameter	Settings/Options
Restore Default Settings	C07	0 = do not restore 1 = restore to default settings
Warning Tone	C08	0 = turn off warning tone 1 = turn on warning tone
Power Off Automatically	C09	0 = turn off auto power off 10 = power off automatically if no change within 10 minutes 30 = power off automatically if no change within 30 minutes 60 = power off automatically if no change within 60 minutes
Power Saving Mode	C10	LED Version OP901A: 0 = turn off power saving setting 3 = turn off display if no change within 3 minutes 5 = turn off display if no change within 5 minutes LCD Version OP901B: 0 = turn off the backlight 1 = backlight only when the weight changes or keyboard is pressed 2 = constant backlight
Hold Function	C11	0 = turn off hold function 1 = Peak hold - Grabs the highest weight 2 = Manual hold - Grabs the current weight 3 = Auto hold - Automatically holds data when stable 4 = Average hold - for animal weighing, averages the weight from a sample of 3 or 5 seconds (Set in parameter C12) 5 = Auto Average hold - Average hold without the need to press the hold key
Hold Time	C12	If you chose C11=4 this setting allows you to set how many seconds it samples to obtain an average weight 3 = 3 seconds 5 = 5 seconds
Upper Limit Alarm	C13	Set upper limit within the max. capacity
Lower Limit Alarm	C14	Set lower limit within the max. capacity
Inner Code Display	C15	Check the inner code (raw data)
Communication Setting	C18	Set the serial interface data output method: 0 = Turn off serial interface data output 1 = Continuous sending mode, connect remote display 2 = Print mode, connect printer 3 = n/a 4 = PC continuous sending mode, connect computer
Baud Rate	C19	0=1200 (for remote display) 1=2400 2=4800 3=9600
Manual Zero Range	C20	0 = turn off manually zero setting 1 = $\pm 1\%$ max capacity 2 = $\pm 2\%$ max capacity 4 = $\pm 4\%$ max capacity 10 = $\pm 10\%$ max capacity 20 = $\pm 20\%$ max capacity 100 = $\pm 100\%$ max capacity

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Operation

Function	Parameter	Settings/Options
Initial Zero Range	C21	0 = no initial zero setting 1 = $\pm 1\%$ max capacity 2 = $\pm 2\%$ max capacity 5 = $\pm 5\%$ max capacity 10 = $\pm 10\%$ max capacity 20 = $\pm 20\%$ max capacity
Zero Tracking	C22	0 = turn off zero tracking 0.5 = $\pm 0.5d$ 1.0 = $\pm 1.0d$ 2.0 = $\pm 2.0d$ 3.0 = $\pm 3.0d$ 4.0 = $\pm 4.0d$ 5.0 = $\pm 5.0d$ Note: the zero tracking range can not be bigger than manual zero range d = division
Zero Tracking Time	C23	0 = turn off zero tracking time 1 = 1 second 2 = 2 seconds 3 = 3 seconds
Overload Range	C24	00 = turn off overload range 01-99d = overload range setting d = division
Negative Display	C25	0 = -9d 10 = -10% max. capacity 20 = -20% max. capacity 50 = -50% max. capacity 100 = -100% max. capacity
Standstill Time	C26	0 = quick 1 = medium 2 = slow
Standstill Range	C27	1 = $\pm 1d$ 2 = $\pm 2d$ 5 = $\pm 5d$ 10 = $\pm 10d$ d = division
Digital Filter (for filtering moving weight, such as animals)	C28	0 = turn off dynamic filter 1 = Low dynamic filter 3 = Medium dynamic filter 5 = High dynamic filter
Noise Filter	C29	0 = turn off noise filter 1 = Low 2 = Medium 3 = High
Print Time and Date	C30	0 = yy.mm.dd 1 = mm.dd.yy 2 = dd.mm.yy 3 = yy.mm.dd
Gravity of Calibration Location	C36	9.7000 - 9.9999
Gravity of Destination	C37	9.7000 - 9.9999
Version No.	C38	
Input Signal	C39	0 = Input Signal Direction Normal 1 = Input Signal Direction Reversed



HELPFUL DEFINITIONS

Division: The amount of increments a scale offers. How accurate the scale can be

Capacity: the maximum amount the scale can contain

Initial Zero Range: The percentage of weight allowed on the scale when indicator is powered on that will automatically zero.

example: If initial zero range is set to 10% of the max. capacity and your max. capacity is 100lbs, you can place up to 10lbs of weight on the scale and when the indicator is powered on, it will automatically zero out the weight.

Manual Zero Range: The percentage of weight allowed on the scale where the indicator will let you manually zero (anything above this percent will be tared)

Zero Tracking Range: A subset to the manual zero range; if the weight on the scale is not stable, the zero tracking range still allows you to zero within a set division of the scale

Zero Tracking Time: A subset to the zero tracking range, it is the time allowed for the scale to fall within the zero tracking range tolerance and still qualify to be zeroed

Overload Range: Weight allowance that is out of the set calibrated range. Adds a tolerance to the calibrated max. capacity without having to recalibrate.

example: If your scale has a max. capacity of 1000lbs with a division of 1 and you set the overload range to 60, you can add 1060lbs of weight to the scale without it displaying an error code

Negative Display: How far you can go in the negative direction before displaying an error code

Standstill Time: How fast the scale will stabilize

Standstill Range: How much the scale can fluctuate before being determined stable

Digital Filter: For filtering moving weight, such as animals, it changes how sensitive the scale is to variations in movement.

Noise Filter: A filter for how susceptible the scale is to general variations

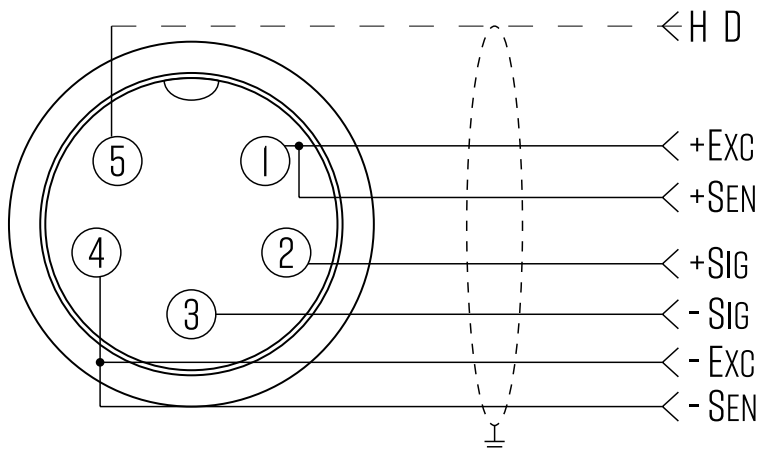
Baud Rate: The rate at which information is transferred in a communication channel. example: In the serial port context, "9600 baud" means that the serial port is capable of transferring a maximum of 9600 bits per second.

CONNECTORS

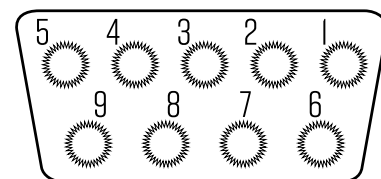
Connecting load cells to the indicator

- The indicator can connect with 4 pcs load cells of 350Ω at most
- 4 wire or 6 wire load cell connections are both okay
- Please contact us directly if you have other special needs for your application

Quick Disconnect as shown below:



QUICK DISCONNECT CONNECTION DIAGRAM



DB9 SERIAL CONNECTOR PINOUT

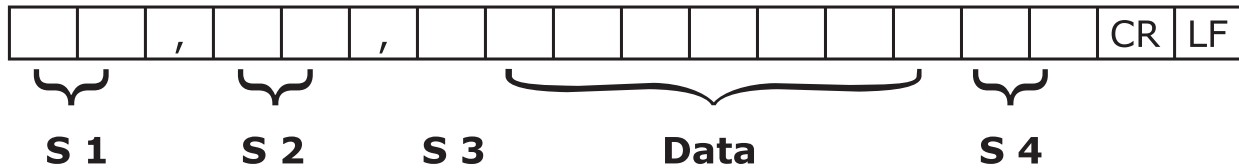
DB9 Pin Description

DB9 Pin	Definition	Function
2	TXT	Transmit Data
3	RXD	Receive Data
5	GND	Ground Interface

COMMUNICATION MODE

Continuous sending mode for PC: the indicator continuously sends the data to the RS232 port

Communication Format is done using ASCII as shown below:



S1: weight status, ST=standstill, US=not standstill, OL=overload

S2: weight mode, GS=gross mode, NT=net mode

S3: weight of positive and negative, "+" or "-"

Data: weight value, including decimal point

S4: "kg" or "lb"

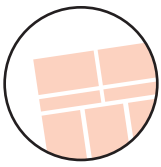
CR: carriage return

LF: line feed

TROUBLESHOOTING

Error Codes

Error	Reason	Solution
UUUUUU	1. Overload 2. Wrong connection with load cell 3. Load cell has quality problem	1. Reduce the weight 2. Check load cell connection 3. Inspect load cell; Check the input/output
NNNNNNNN	1. Calibration is no good 2. Wrong connection with load cell 3. Load cell has quality problem	1. Make sure scale is level 2. Check load cell connection 3. Check load cell input and output resistance
ERR1	During calibration, weight is not used or the weight is above the max. capacity	Use correct weight within the defined range
ERR2	During calibration, the weight is below the minimum required weight	The calibration weight minimum is 10% of the max. capacity set in C04. Recommended to use 60%-80% of max. capacity if possible
ERR3	During calibration, the input signal is negative	1. Check all wire connections 2. Check load cell 3. Recalibrate 4. PCB replacement needed if steps 1-3 fail
ERR4	During calibration signal is unstable	After the platform is stable, start calibration
ERR5	EEPROM Error	Change PCB

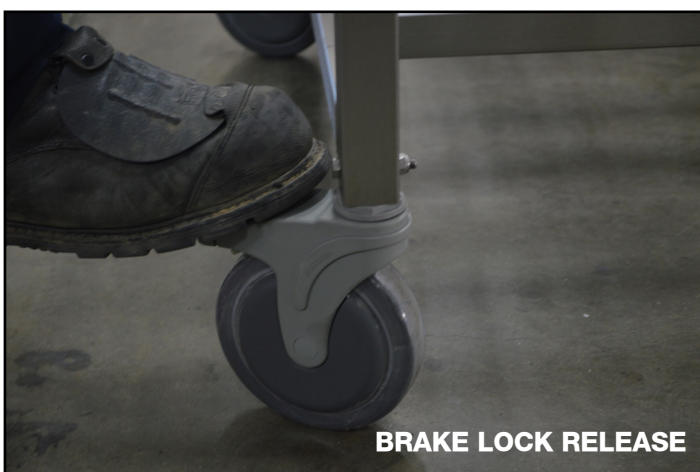


Maintenance

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

USE AND CARE FOR CASTERS

1. To engage brake mechanism, depress brake mechanism down, until you feel it lock. To release brake mechanism press forward to return for range of motion. Mechanisms are located on all (4) wheels.
2. When unit is in use, all necessary wheels should be locked when transferring to avoid injury.
3. To maintain life of caster, all wheels should be checked periodically to insure each wheel is secure to all leg up rights. Loose wheels can be tightened with a 13mm wrench. A bolt is located leg up rights above the wheel (show right).
4. Wheels should be cleaned if any hair or string like material is attached to top swivel mount or center axis. **Debris in this area will cause the wheel to not function properly.**



TIGHTEN AND SECURE

M690-SC Portable Cadaver Scissor Lift with Rollers & Scale

Maintenance

DIRECTIONAL CASTERS

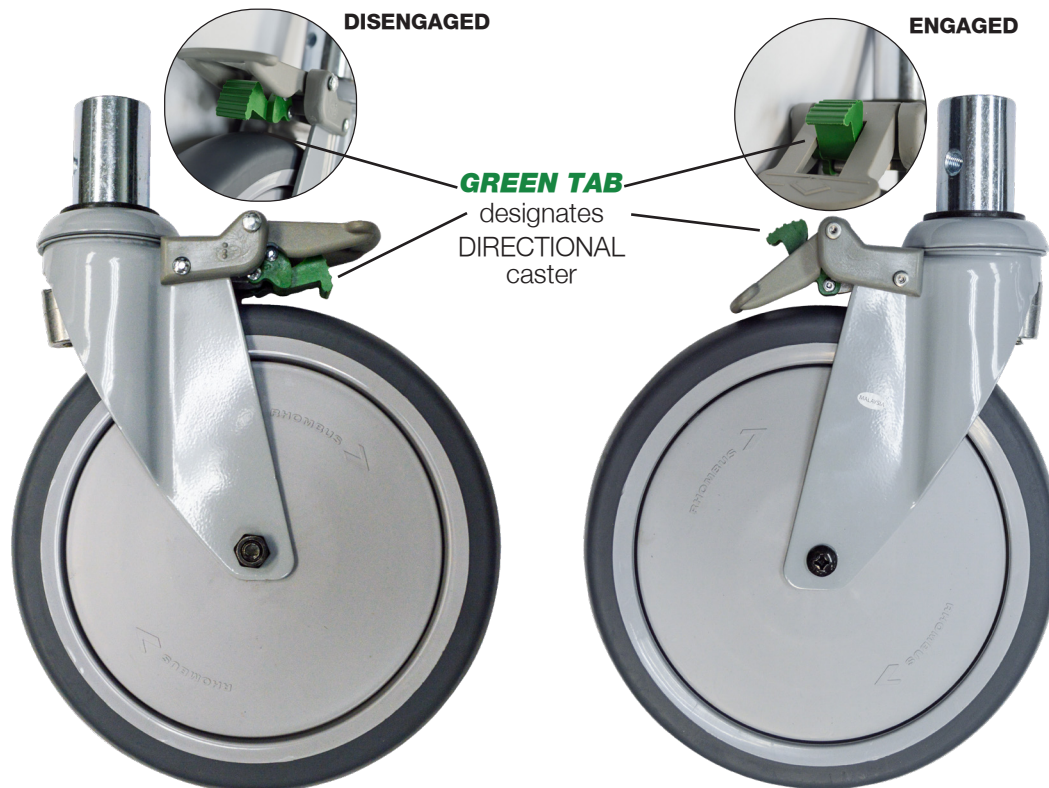
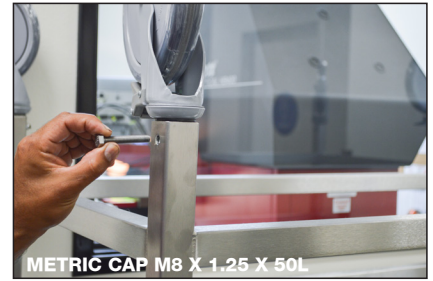
USE & CARE:

1. To engage directional locking mechanism, press **GREY** tab down and straighten/adjust wheel to lock in direction. To disengage multi-directional movement, PUSH down **GREEN** tab located on wheel.

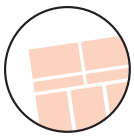
2. When unit is in use, all necessary wheels should be locked when transferring to avoid injury.

3. To maintain life of caster, all wheels should be checked periodically to insure each wheel is secure to all leg uprights. Loose wheels can be tightened with a 13 mm wrench. Bolt is located on leg uprights above the wheel (shown right).

4. Wheels should be cleaned if any hair or string like material is attached to top swivel mount or center axis. **Debris in this area will cause the wheel to not function properly.**



Directional locking mechanism. Disengage **GREEN** tab by pushing down for multi-directional movement.



Stainless steel equipment maintenance

MAINTENANCE INSTRUCTIONS

The unit requires regular maintenance and follow the manufactures directions.

DISINFECTING AND CLEANING

Clean all surfaces of the stainless steel with a hard surface disinfectant/cleaner such as Sheila Shine® or SaniZene®. Follow instructions on container.

DISINFECTING, CLEANING COMPONENTS & ACCESSORIES

Hand wash with disinfecting soap and warm water. Rinse well with clear water and dry with a towel. (Clean on a regular basis to prolong work life).

WARNING Improper maintenance can cause injury. Maintain only as prescribed in this manual. Overall, it is very simple to maintain. If you use for its intended purpose, it will provide many years of reliable service.

CARE OF STAINLESS STEEL

Stainless steel products have a directional #4 brushed finish. This finish is produced using a very fine abrasive cloth. Dragging heavy equipment across the stainless steel surfaces will cause noticeable scratching. Pitting/corrosion can occur when carbon steel products are allowed to remain in contact with the stainless steel in the presence of moisture. (Examples- Steel Wool pads left in the bottom of the sink). Stainless steel can be damaged by exposure to acids.

TYPES OF SURFACE CONTAMINANTS

Dirt - Consist of accumulated dust and a variety of contaminants. Warm water with or without a gentle detergent is sufficient. Next in order are mild non-abrasive powders such as typical household cleaners. These can be used with warm water, bristle brushes, sponges, or cleaning cloths. (Do not use carbon steel brushes or steel wool they may leave particles embedded on the surface which can lead to RUSTING.) For more aggressive cleaning, a small amount of vinegar can be added to the scouring powder. When water contains mineral solids, which leave water spots, it is advisable to wipe the surface completely with dry towels.

Fingerprints and Stains - Fingerprints and mild stains resulting from normal use are the most common surface contaminates. This affect the appearance and seldom have an effect on corrosion resistance. They can be removed with a glass cleaner or by gentle rubbing with a paste of soda ash (sodium carbonate) and water applied with a soft rag. Followed by a thorough warm water rinse and towel dry.

Shop Oil and Grease - These soils may be corrosive and may not allow the surface to maintain passivity, and so removal is a necessity. Soap or detergent and water may be used or a combination of detergent and water plus a solvent.

TYPES OF CLEANERS AND METHODS

General Precautions Avoid using abrasive cleaners unless absolutely necessary. A "soft abrasive," such as pumice, should be used. Many cleaners contain corrosive ingredients, rinse with clean water.

Clean Water and Wipe - A soft cloth and clean warm water should always be the first choice for mild stains, loose dirt and soils. A final rinse with clean water and a dry wipe will eliminate the possibility of water stains.

Solvent Cleaning - Organic solvents can be used to remove fresh fingerprints, oils and greases that have not

had time to oxidize or decompose. The preferred solvent is one that does not contain chlorine, such as acetone, methyl alcohol, and mineral spirits.

EFFECTIVE CLEANING METHODS

Commercial Cleaners - Many commercial cleaners compounded from phosphates, synthetic detergents, and alkalis are available for the cleaning of severely soiled or stained stainless surfaces. When used with a variety of cleaning methods, these cleaners can safely provide effective cleaning.

SCRATCH REPAIR

Surface scratches can be repaired using the following technique. Depending on the severity of the scratch, it may be possible to completely remove it. Sand the scratch using 120 grit emery cloth or paper and firm pressure. Always sand in the direction of the grain. Avoid the natural tendency to sand in an arc, instead sand in a perfectly straight line. Sand until the scratch is gone.

Polish using 3M Scotch Brite pads - Very Fine Grade. Use the same motions as with sanding. Polish until the original finish is restored. Wash and wipe the surface completely with dry towels.

RUST REMOVAL

Rust can be repaired using the following technique. Sand the scratch using 120 grit emery cloth or paper and firm pressure. Always sand in the direction of the grain. Avoid the natural tendency to sand in an arc, instead sand in a perfectly straight line. Sand until the rust is gone. Polish using 3M Scotch Brite pads - Very Fine Grade. Use the same motions as with sanding. Polish until the original finish is restored. Wash and wipe the surface completely with dry towels.

5 Stainless Steel Mistakes NOT to Make When Cleaning

1. Do not use abrasive cleaners that will scratch the surface. Depending on the surface finish of your stainless steel, abrasive cleaners can cause scratching. A dull finish, probably will not show scratching as much as mirror or highly polished finishes. Test the cleaner in a hidden spot. It's also a good idea to work from the least risky type (water) of cleaning to the heavy duty stuff.

2. Do not forget to rinse. Gritty or dirty water can leave a residue on your finish. It can also stain or pit the surface of your stainless steel. Rinse completely. Residue from cleaning solutions left on a stainless steel surface can stain or damage finish.

3. DO NOT USE CLEANERS CONTAINING CHLORINE.

While it may be second nature to bleach everything, stainless steel and chlorine do not mix. Stay away from the bleach when you clean stainless steel. Be aware that bleach can be included in different types of cleaners. If you accidentally get a cleaner on your stainless steel you'll need to rinse it off and quickly.

4. DO NOT USE STEEL WOOL OR STAINLESS BRUSH

These products leave little particles in the surface of the steel and inevitably these particles begin rusting and staining the surface of the steel. They also can excessively scratch the surface of your stainless steel. *Stay completely away from steel wool and steel brushes.*

5. Do not assume it's the cleaner. If you do have some spotting or staining, and you've followed all of the rules, it may not be the stainless steel cleaner. Water, especially hard water, can leave spotting and staining on stainless steel surfaces. Towel dry after rinsing can end the problem. Sometimes, even water is an enemy to stainless steel.

[illegible]

[illegible]

WARRANTY

Mortech Manufacturing, Inc. warrants all fabrications to be free of defects due to its own workmanship and materials.

CONTINENTAL UNITED STATES:

Repair and/or replacement of materials furnished that may develop such defects, will be warranted for a period of one year from the date of shipment. Items not manufactured by Mortech Manufacturing, Inc. will receive the manufacturer's warranty.

INTERNATIONAL:

(For validation of warranty, installation location (physical address) required) Replacement of parts furnished that may develop such defects, will be warranted for a period of (18) months from the date of shipment. Shipping and Labor is not warranted. Items not manufactured by Mortech Manufacturing, Inc. will receive the manufacturer's warranty.

PARTS AND SERVICE

Customer relations and product support are important aspects of Mortech Manufacturing, Inc.

For assistance with this or any of our fine products please contact us below:

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info@mortechmfg.com

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CAUTION

**Inspect unit and all components
for any loosening that may have
occurred during shipping**

ATTENTION

All images and Drawing in this manual
may not represent your model.
Refer to your particular project for
exact specifications

DISCLAIMER

This manual contains general instructions for the use, operation, and care of this product. The instructions are not all inclusive. Safe and proper use of this product is solely at the discretion of the user. Safety information is included as a service to the user. All other safety measures taken by the user should be within and under consideration of applicable regulations. It is recommended that training on the proper use of this product be provided before using this product in and actual situation.

Retain this manual for future reference. Include it with the product in the event of transfer to new users. Additional free copies are available upon request from Customer Relations.

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