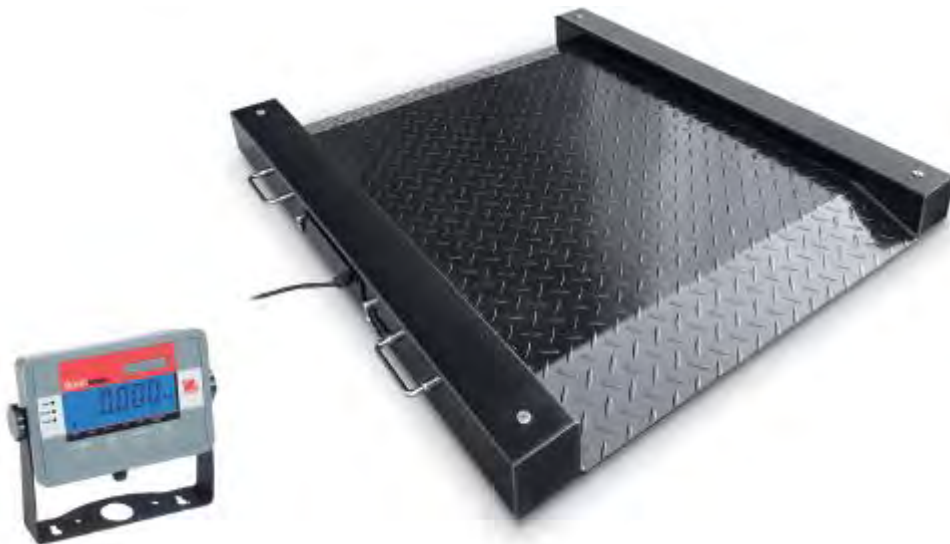




## DEFENDER 3000 Series Drum Scale Instruction Manual



## INTRODUCTION

This manual contains installation, operation and maintenance instructions for the DEFENDER 3000 Series Drum Scale.

## SAFETY PRECAUTIONS



**CAUTION:** Read all safety warnings before installing, making connections, or servicing this equipment. Failure to comply with these warnings could result in personal injury and/or property damage. Retain all instructions for future reference.

- Verify that the AC adapter's input voltage range and plug type are compatible with the local AC mains power supply.
- Make sure that the power cord does not pose a potential obstacle or tripping hazard.
- Do not position the equipment such that it is difficult to reach the power connection.
- Operate the equipment only under ambient conditions specified in these instructions.
- Do not operate the equipment in wet, hazardous or unstable environments.
- The foundation at the installation site must be capable of safely supporting the weight of the Drum Scale plus the weight of the maximum load.
- Ensure that vibrations due to machinery near the installation site are kept to a minimum.
- Disconnect the equipment from the power supply when cleaning.
- Use only approved accessories and peripherals.
- Service should only be performed by authorized personnel.

### Intended Use

Use the equipment exclusively for weighing, as described in these operating instructions. Any other type of use and operation beyond the limits of technical specifications, without written consent from OHAUS, is considered as not intended. This instrument complies with current industry standards and the recognized safety regulations; however, it can constitute a hazard in use. If the instrument is not used according to these operating instructions, the intended protection provided by the instrument may be impaired.

## INSTALLATION



**THE DRUM SCALE BASE IS HEAVY -- PLEASE MOVE THE DRUM SCALE CAREFULLY!**

### Unpacking

1. Remove the outer packaging materials from the Drum Scale.
2. Lift it up to vertical by handles.
3. Move it into the required position on its wheels.

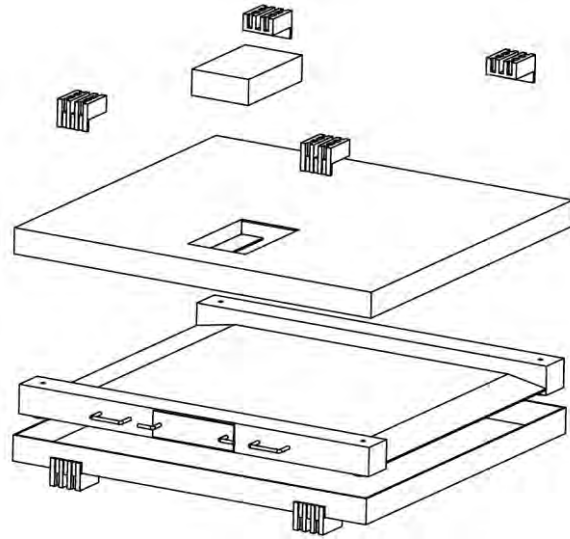


Figure 1.

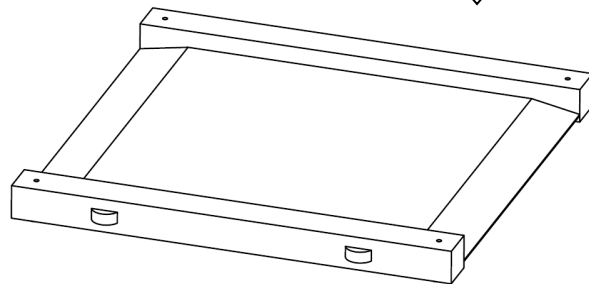
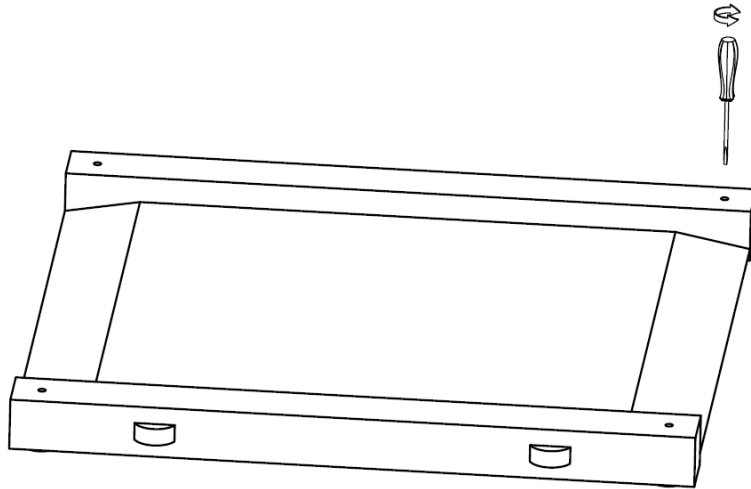


Figure 2.

## Positioning

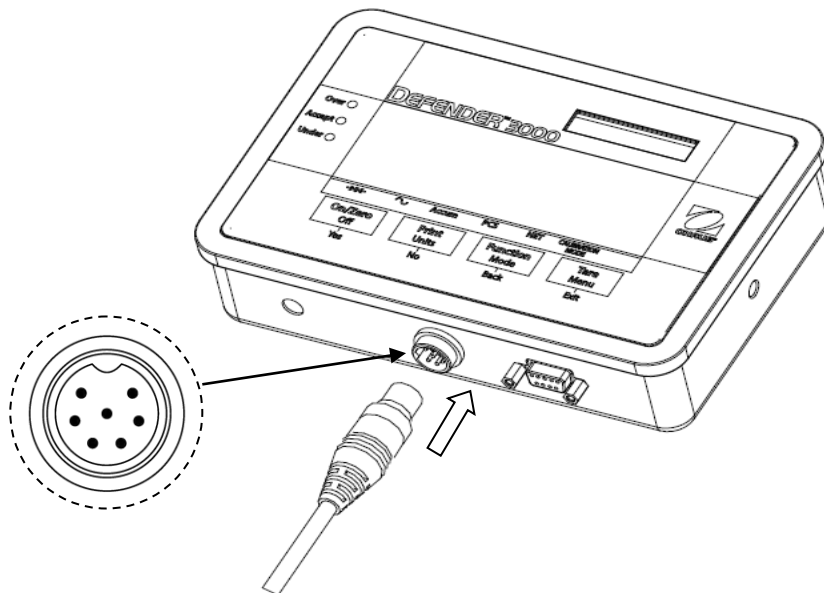
Ensure the surface is flat in the area where the scale will be positioned, especially in the region of the load cell feet. Small differences in height can be compensated by adjusting the load cell feet.

1. The Indicator is included with the Drum Scale. Ensure that it is kept with the Drum Scale during positioning and protected along with the attached connecting cable.
2. Lower the scale base carefully onto to the floor in the final work area.
3. Check that the Drum Scale is level; check that the 4 feet are in contact with the ground; make adjustments by rotating the nuts on the load cell feet or rotating the foot bolt head with slot with a screwdriver from the top (see the figure below). Use an external level.
4. Ensure that the Drum Scale's cables do not become trapped or crushed during lifting or positioning.



## Connecting an Indicator

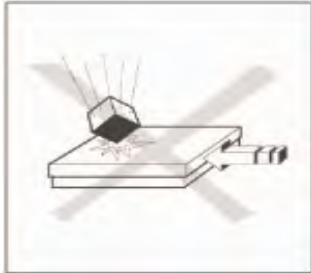
Align the tab on the inside of the loadcell connector socket on the indicator to the slot on the loadcell cable connector end. Insert the cable connector end into the indicator as shown below and then fasten it by rotating the locking collar.



**Caution:** Pay attention on PINs when connect to the indicator, otherwise connector may be broken. Ensure that the cable is protected against possible damage when routed to the indicator.

## OPERATION

For setup, calibration and proper operation, refer to the instruction manual supplied with the indicator. Refer to the specifications section of the Drum Scale for capacity and readability information.



For continued best operating performance:

- Avoid falling loads, shocks and hard lateral impacts
- When weighing, all items should be centrally located on the Drum Scale and not over hanging the sides or the ramps.
- Verify the calibration of the Drum Scale system at regular intervals.

## Operating Limits

Although the Drum Scales have extremely rugged construction, certain load limits must not be exceeded. Depending on the type of loading, the maximum safe static load, i.e. the maximum permissible loading, is shown in Table 2.

**TABLE 2. MAX ADMISSIBLE LOADING**

Model	Maximum Central Load <sup>1</sup> (80% Surface Area)	Maximum side Load <sup>2</sup> (30% Surface Area)	One Side corner load <sup>3</sup> (10% Surface Area)	
DFD32M500ES	825lb / 375 kg	660lb / 300 kg	440lb / 200 kg	
DFD32M1000ES	1650lb / 750 kg	990lb / 300 kg	660lb / 300 kg	
DFD32M2500ES	4125lb / 1870 kg	1650lb / 750 kg	1100lb / 500 kg	
DFD32M1000ER	1650lb / 750 kg	990lb / 300 kg	660lb / 300 kg	
DFD32M2500ER	4125lb / 1870kg	1650lb / 750 kg	1100lb / 500 kg	

## MAINTENANCE

### Daily Checks

- Check that the rocker feet are properly seated in the holes of each load cell.
- Check that the 4 feet are in contact with ground.
- Check that the scale is free from debris, especially under the edges of the scale.
- Check that there is no damage to the connecting cable.

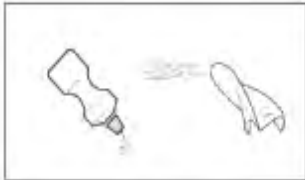
### Cleaning



#### Risk of Electrical Shock

**Disconnect the power source before cleaning the scale with any liquids.**

Maintenance of the Drum Scale is limited to regular cleaning.



- Wipe surfaces with a damp cloth.
- Use only common mild cleaning agents.
- Never use water spray or high pressure cleaners.
- Keep the air gap at the bottom of the Drum Scale free of debris.



## TECHNICAL DATA

The technical data is valid under the following conditions:

- Pollution degree 2
- Installation category II
- Altitude 4000m
- Humidity: Maximum 80% for temperatures up to 31°C decreasing linearly to 50% at 40°C; non-condensing
- Electrical supply: 9-12VDC 500mA
- Indoor use only
- Temperature range: -10°C to 40°C
- The mains supply voltage fluctuations are not to exceed  $\pm 10\%$  of the nominal supply voltage

## Specifications

**TABLE 3. DRUM SCALE SPECIFICATIONS**

Model	DFD32M500ES	DFD32M1000ES	DFD32M2500ES	DFD32M1000ER	DFD32M2500ER
Capacity × Readability	500 lb × 0.1 lb / 250 kg × 0.05 kg	1,000 lb × 0.2 lb / 500 kg × 0.1 kg	2,500 lb × 0.5 lb / 1,250 kg × 0.2 kg	1,000 lb × 0.2 lb / 500 kg × 0.1 kg	2,500 lb × 0.5 lb / 1,250 kg × 0.2 kg
Platform Dimensions	30 x 30 in. / 762 x 762 mm			36 x 36 in. / 914 x 914 mm	
Deck Material	Painted Carbon Steel, treaded surface, fixed top plate				
Feet	4 × swivel design, screw-in, carbon steel with rubber bottom cap, top adjustable				
Maximum Central Load	100% of maximum capacity				
Load Cell	4 × IP67 nickel plated alloy steel load cells, shear beam				
Junction Box	IP65, Die-cast Aluminum, with 6m(20') indicator cable				
Operating Temperature	14 °F to 104 °F / -10 °C to 40 °C				
Indicator	T32M, ABS plastic face plate, painted metal rear housing				
Weighing Units	lb, kg				
Modes	Weighing, Parts Counting, Dynamic Weighing, Display Hold, Check Weighing, Accumulation				
Display	6-digit, 7-segment LCD, 25mm digit height, high-contrast white LED backlight				
Keypad	4 function mechanical switches, raised tactile keys				
Stabilization Time	Within 2 seconds				
Auto-zero Tracking	Off, 0.5, 1 or 3d				
Zeroing Range	2% or 100% of capacity				
Span Calibration	5 lb or kg to 100% of capacity				
Interface	RS232, bi-directional				
Power	9-12 VDC, 0.5A, AC adapter (output)				
Indicator Dimensions (W × D × H)	7.8 x 1.8 x 5.2 in. / 198 x 46 x 132 mm				
Scale Shipping Dimensions (W × D × H)	41.1 × 40.2 × 7.9 in. / 1,044 × 1,022 × 200 mm			46.9 × 46.3 × 7.9 in. / 1,190 × 1,175 × 200 mm	
Scale Net Weight	101 lb / 46 kg			126 lb / 57 kg	
Scale Shipping Weight	110 lb / 50 kg			135 lb / 61 kg	

DRAWINGS

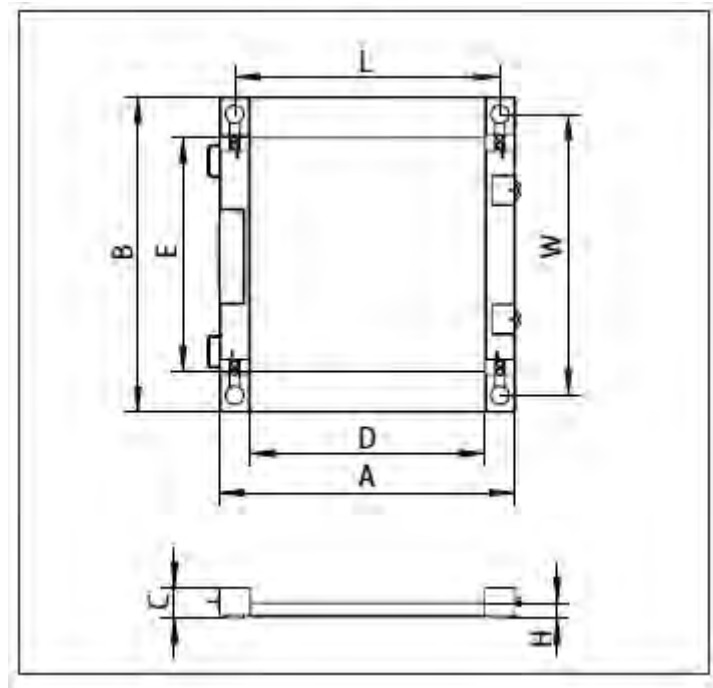


Figure 2. Drum Scale Dimensions

TABLE 4. DRUM SCALE DIMENSIONS

MODELS	DIMENSIONS(in. /mm)				
	DRUM SCALE PLATFORM			FOOT CENTERS	
	A	B	C	W	L
DFD32M500ES	37.9 in. / 962 mm	40.4 in. / 1024 mm	4 in. / 100 mm	34 in. / 862 mm	36 in. / 914.4 mm
DFD32M1000ES	37.9 in. / 962 mm	40.4 in. / 1024 mm	4 in. / 100 mm	34 in. / 862 mm	36 in. / 914.4 mm
DFD32M2500ES	37.9 in. / 962 mm	40.4 in. / 1024 mm	4 in. / 100 mm	34 in. / 862 mm	36 in. / 914.4 mm
DFD32M1000ER	43.9 in. / 1114.4 mm	46.1 in. / 1170 mm	4 in. / 100 mm	41.8 in. / 1060.4 mm	40 in. / 1014.4 mm
DFD32M2500ER	43.9 in. / 1114.4 mm	46.1 in. / 1170 mm	4 in. / 100 mm	41.8 in. / 1060.4 mm	40 in. / 1014.4 mm

MODELS	DIMENSIONS(in. /mm)		
	D	E	H
DFD32M500ES	30 in. / 762 mm	30 in. / 762 mm	2 in. / 50 mm
DFD32M1000ES	30 in. / 762 mm	30 in. / 762 mm	2 in. / 50 mm
DFD32M2500ES	30 in. / 762 mm	30 in. / 762 mm	2 in. / 50 mm
DFD32M1000ER	36 in. / 914.4 mm	36 in. / 914.4 mm	2 in. / 50 mm
DFD32M2500ER	36 in. / 914.4 mm	36 in. / 914.4 mm	2 in. / 50 mm

## COMPLIANCE

### ISO 9001 Registration

Ohaus Corporation, USA, was registered to the ISO 9001:2015 standard.

### FCC Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Please note that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## WARRANTY

Ohaus products are warranted against defects in materials and workmanship from the date of delivery through the duration of the warranty period. During the warranty period Ohaus will repair, or, at its option, replace any component(s) that proves to be defective at no charge, provided that the product is returned, freight prepaid, to Ohaus.

This warranty does not apply if the product has been damaged by accident or misuse, exposed to radioactive or corrosive materials, has foreign material penetrating to the inside of the product, or as a result of service or modification by other than Ohaus. In lieu of a properly returned warranty registration card, the warranty period shall begin on the date of shipment to the authorized dealer. No other express or implied warranty is given by Ohaus Corporation. Ohaus Corporation shall not be liable for any consequential damages.

As warranty legislation differs from state to state and country to country, please contact Ohaus or your local Ohaus dealer for further details.