

Generation

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RON **4000** ANALOG LOAD CELL

Eilon Engineering Weighing Systems Ltd.

Instruction Manual

Version 4.2

USER'S GUIDE AND INSTRUCTION MANUAL FOR

The Ron 4000



© Eilon Engineering Industrial Weighing Systems Ltd.
Phone 866.669.6122 • Web www.eilon-engineering.com
E-mail: info@eilon-engineering.com

Table of Contents

General Cautions and Warnings	1
IMPORTANT:	3
Eilon Engineering Limited Warranty	3
1. General Description.....	4
2. Installation	5
3. Suitable Shackles.....	6

General Cautions and Warnings

The following cautions and warnings, system specifications, and user instruction sheets should be read carefully before attempting to use this Eilon Engineering product.

Products are supplied with the express understanding that the purchaser and/or user are thoroughly familiar with their correct application and proper use. Eilon Engineering will assume no responsibility for the misuse or misapplication of any of its products.

In addition to these guidelines, the user must also comply with general safe operating practices when using the system e.g. when weighing during lifting.

The load limit rating, a.k.a. capacity, indicates the maximum force or load a system can carry under normal working conditions. Overloading or placing a load on the system above its rated capacity is dangerous and is therefore **STRICTLY PROHIBITED** except during the system's annual safety testing. This testing must be performed by qualified personnel and allows the system to be overloaded up to 25% of its rated capacity, no more than once per year.

Eilon Engineering will accept no liability for damage caused by the product being used in excess of the working load limit or from abuse.

Opening, attempting to open, or any attempt to repair the system by unauthorized personnel (without written authorization) will nullify the warranty as well as the manufacturer's liability and could be dangerous. Refrain from doing so and contact an Eilon representative should any problem with the system arise.

When measuring loads using a shifted zero with the tare function, the actual load is the value indicated on the readout plus that of the shifted zero or tare.

The system is designed for static loading. Eilon Engineering or other qualified engineering personnel should be consulted before using the system to measure dynamic loads.

Avoid bending, twisting, side loading and off-axis loading.

When connecting the load cell in order to measure forces or loads, special care should be taken in choosing appropriate shackles or other connecting accessories that will permit free movement and prevent bending moments and twisting in the load cell.

Always use shackles with a S.W.L. (Safe Working Load) equal to, or greater than the system's rated capacity.

Check the system thoroughly before use, including the lifting accessories which are included with some Ron systems. Do not use a damaged system.

We recommend that the system is checked occasionally by lifting a known weight. Further, the system should be sent back to the manufacturer or to an authorized service center for general examination once every year.

System calibration should at first be performed annually in an authorized laboratory unless local laws, regulations, or other policies require alternative intervals. Once the user becomes familiar with the particular needs of their system, the need for calibration may vary.

Between calibrations, the user can verify whether the systems are still calibrated correctly by using a known weight.

Calibration verification and adjustment must be performed with extreme care. An erroneous calibration adjustment will result in false readings, which could be dangerous.

If there is any doubt as to the reliability of the load indication, do not use the system with an unknown load. To check its reliability, use a known load with a value of more than 50% and less than 100% of the system's rated capacity.

The permitted temperature range appears in the Ron system specifications.

Do not allow the system to overheat or fall below the minimum permitted temperature, as doing so may be dangerous and cause damage.

Take particular care not to expose the system to nuclear radiation.

Local environmental conditions such as extreme temperatures (those that exceed the stated temperature range in the system specifications), chemical materials, radio transmissions or other magnetic radiation may interfere with the

system's reliability causing a false reading which could prove dangerous. Avoid using the system under such conditions.

The system is not explosion-proof and should not be used in hazardous areas.

Unless otherwise specified, Eilon Engineering products are not legal for trade.

Each system consists of a load cell with its own indicator (excluding 1000 & 4000 models).

Important: If you own several systems, make sure that each load cell is used with its original indicator. Load cells and indicators are calibrated as matched pairs and are non-interchangeable.



IMPORTANT:

At all times, it is the responsibility of the user of this equipment to ensure that normal safety precautions are observed. No amount of safety features and engineering can be a substitute for common sense and a desire to work safely.

Ron systems are prohibited by the manufacturer and/or seller to be used in any nuclear or similar site where nuclear and/or radioactivity and/or ionizing radiation (henceforth radiation) exists. Ron systems may not function well in any space where radiation exists. If despite this warning the user uses the system in radiation, he/she is waiving any right of claim against the manufacturer and/or seller concerning direct or consequential damages or loss resulting from use of Ron systems in violation of the above restrictions, and the user assumes full responsibility and liability to waive any subrogation claim rights by the insurer to such claim against the manufacturer and/or seller.

Eilon Engineering Limited Warranty

Eilon Engineering Ltd. load meters and overload detectors are built in accordance with listed specifications. Eilon Engineering Ltd. also guarantees that all its products are thoroughly inspected and performance tested prior to shipment.

If any appropriately maintained part proves to have been originally defective in materials or workmanship within the Warranty Period explicitly stated in

the Eilon Engineering Ltd. literature that accompanies the product, Eilon Engineering Ltd. will replace or repair the part at no charge at the sole discretion of Eilon Engineering Ltd.

This warranty specifically excludes shipping costs.

The warranty shall be null and void if any repair or modification is performed on the system, or if any attempt has been made to open any part of the system by any parties other than those specifically authorized by Eilon Engineering Ltd.

Batteries are not covered by this warranty.

The system supplied comes factory calibrated and is accompanied by the relevant certification. All Eilon systems are built to enable user adjustment and recalibrate. As such, our accountability for the state of calibration is limited to the time when the system is received by the user, thus excluding calibration from this warranty.

Eilon Engineering Ltd. reserves the right to change materials or designs without notice when in its opinion such changes will improve its product.

These warranties exclude all other warranties, express or implied.

Eilon Engineering Ltd. will not, in any event, be liable for incidental or consequential damages.

The distributor is solely responsible for ensuring that this warranty is delivered to his sub-distributors and to their ultimate customers or users.

1. General Description

Ron Crane Scale and dynamometer basic information.

The Ron 4000 is a load cell with a built-in analog amplifier. The system is specially designed to transmit load or force information to a controller/computer. An example would be for controlled tensioning of a rubber belt conveyor or continuous weighing of steam piping in a power station to detect water condensation in pipes and drain them when the maximum permitted level is reached.

2. Installation

2.1. Mechanical connection: The load cell should be mechanically connected in such a way that allows free movement in all directions, otherwise the load cell will be exposed to bending moments and/or torsional stresses. This will cause braking hazards and will reduce accuracy.

2.2. Electrical connection:

Input: 6÷12 VDC. Max. input current: 100mA.

Output: Standard 0÷2V.
Option 1: 4÷20mA.
Option 2: 4÷20mA + 0÷2V.

Calibration: Supplied with rough calibration.
(Final calibration should be done by the customer, after connecting the load cell to the measuring / control system).
Zero load = $0^{+0.03}$ V, $4^{+0.1}$ mA.
Full load = $2^{-0.1}$ V, 20^{-1} mA.

<u>Wiring</u> :	Input voltage (6÷12 VDC)	Red.
	Common	Black.
	Output V	White.
	Output A	Green.
	Body	Without insulation.

3. Suitable Shackles

The following table lists suitable shackles for various capacities of Ron dynamometers and load cells

Capacity in metric tons	Crosby shackles (USA)	C.M. shackles (short tons) (USA)			Van Beest (The Netherlands)
		size	cap. in short tons	model	
	G209A				
1	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{3}$	M650A	
2	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{3}$	M650A	
3	$\frac{1}{2}$ "	$\frac{1}{2}$ "	$\frac{3}{3}$	M650A	
5	$\frac{5}{8}$ "	$\frac{3}{4}$ "	7	M652A	
10	1"	$1\frac{1}{8}$ "	15	M655A	
12	1"	$1\frac{1}{8}$ "	15	M655A	
15	$1\frac{1}{8}$ "	$1\frac{1}{4}$ "	18	M656A	
20	$1\frac{3}{8}$ "		-		
	G-2140				G-5263
25	$1\frac{1}{2}$ "	$1\frac{1}{2}$ "	30	M857A	30
30	$1\frac{1}{2}$ "	-	-		30
40	$1\frac{3}{4}$ "	2"	50	M858A	40
50	2"				50
80	$2\frac{1}{2}$ "				80
	G-2160				P6033
125	125t				125t
200	200t				200t
250	250t				
300	300t				300t

TABLE 1: always use shackles with a S.W.L (safe working load) equal to or greater than the system's maximum capacity.