

# REPORT

**Nº 1.12-4062813**

21.05.2013

on the

Type Examination of a

Load cell family

Model: ERS

Manufacturer: Elicom electronic - Georgiev KD  
5th Saedienie sq.  
Silsitra 7500  
Bulgaria

The types were tested under the following requirements:

R 60-1, edition 2000

This report belongs to the OIML Certificate Nº R60/2000-DE1-13.01  
The report includes 6 pages

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**Annex 1: TEST REPORT N° 1.12-4062813-1: TYPE ERS**

See separate test report (36 pages)

## Summary of the examination

The metrological characteristics of the load cells type ERS are listed in Table 1. Further technical data are listed in the data sheet of the manufacturer in section "Data sheet and dimensions" of this annex.

Accuracy class		C3
Maximum number of load cell intervals $n_{LC}$		3000
Rated output	mV/V	2
Maximum capacity $E_{max}$	kg	8 / 10 / 15 / 20 / 30 / 35 / 40
Minimum load cell verification interval $v_{min} = (E_{max} / Y)$		$E_{max} / 10000$

Dead load:  $0\% \cdot E_{max}$ ; Safe overload:  $150\% \cdot E_{max}$ ; Input impedance:  $404 \Omega$

The determination of the load cell error, the stability of the dead load output, repeatability and creep in the temperature range of  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$  as well as the tests of barometric pressure effects and the determination of the effects of static damp heat have been performed according to OIML R60 (2000) with fraction  $p_{LC} = 0.7$  as shown in Table 2 and provided in the following test report:

- Test Report No. PTB 1.12-4062813-1, dated April 10, 2013; C3; Y=10000; Z=3000;  $E_{max}=8$  kg; SN: 8342731

Table 2: Tests performed

Test	R60 (2000)	Tested samples	Result
Temperature test and repeatability at ( $20^{\circ}\text{C}$ / $40^{\circ}\text{C}$ / $-10^{\circ}\text{C}$ / $20^{\circ}\text{C}$ )	5.1.1; 5.4      A.4.1	8 kg	+
Temp. effect on min. dead load output at ( $20^{\circ}\text{C}$ / $40^{\circ}\text{C}$ / $-10^{\circ}\text{C}$ / $20^{\circ}\text{C}$ )	5.5.1.3      A.4.1.16	8 kg	+
Creep test at ( $20^{\circ}\text{C}$ / $40^{\circ}\text{C}$ / $-10^{\circ}\text{C}$ / $20^{\circ}\text{C}$ )	5.3.1      A.4.2	8 kg	+
Minimum dead load output return at ( $20^{\circ}\text{C}$ / $40^{\circ}\text{C}$ / $-10^{\circ}\text{C}$ / $20^{\circ}\text{C}$ )	5.3.2      A.4.3	8 kg	+
Barometric pressure effects at room temperature	5.5.2      A.4.4	8 kg	+
Damp heat test, static, marked SH	5.5.3.2      A.4.6	8 kg	+

### Result

On the basis of the performance tests and the examination of the instruments mentioned above and the documentation, the weighing instruments are permitted to comprise the functions, devices and characteristics features stated in the "general information concerning the pattern"; they fully meet the requirements of R 60-1.

Date of report: 21.05.2013

Signature: \_\_\_\_\_

## GENERAL INFORMATION CONCERNING THE PATTERN

### 1. Description of the load cell

The load cells of the series ERS are double bending beam load cells. They are made of aluminium, the strain gauge application is covered with silicone. Further essential characteristics are given in the data sheet, see section 4 of this annex.

The load cells of the series ERS are not suited as single point load cell.

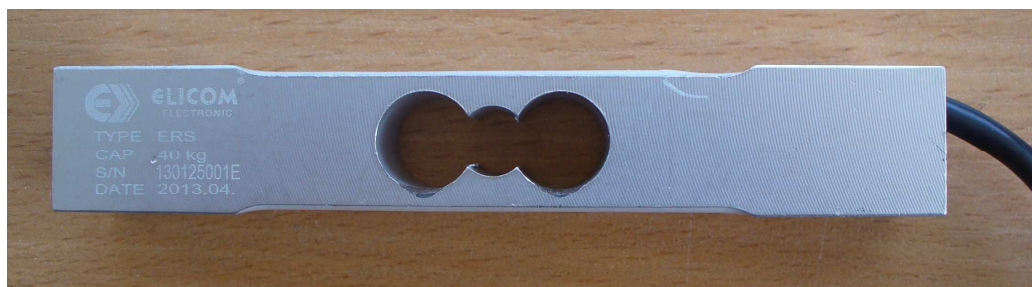


Figure 1: Load cell type ERS / 8 kg

The type designation is indicated as follows in the example on the name plate:



### 2. Documentation

The documents appendant to this certificate are deposited at the notified body in the set of certification documentation No. ZDS- R60/2000-DE1-13.01. The index of the set of certification documentation has been stamped by the notified body and it has been sent to the owner of the certificate.

### 3. Further information

The manufacturing process, material and sealing of the produced load cells have to be in accordance with the tested patterns; essential changes are only allowed with the permission of the PTB.

The typical errors related to linearity, hysteresis and temperature coefficient as indicated in the data sheet point out possible single errors of a pattern; however the overall error of each pattern is determined by the maximum permissible error according OIML R60 No. 5.1.

The technical data, the dimensions of the load cell and the principle of load transmission, given on page 5 to 6 of this annex, have to be complied with. The load cells also can be used in weighing instruments class (III) in accordance with DIN/EN 45501 No. 4.12.

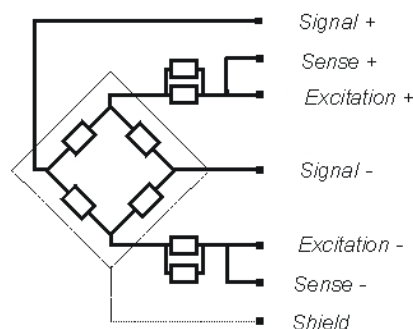
#### 4. Data sheet and dimensions

##### Specifications of the Load Cell Family

Accuracy class acc. to OIML R60			C3
Rated output	$C_n$	mV/V	$2,0 \pm 0,2$
Maximum capacity	$E_{max}$	kg	8 / 10 / 15 / 20 / 30 / 35 / 40
Max. number of load cell intervals	$n_{LC}$		3000
Min. load cell verification interval	$v_{min}$		$E_{max} / 10000$
Minimum dead load		$\% \cdot E_{max}$	0
Safe load limit		$\% \cdot E_{max}$	150
Ultimate load		$\% \cdot E_{max}$	300
Zero balance		$\% \cdot RO$	$< \pm 3$
Excitation voltage, recommended		V	10 DC
Excitation voltage, maximum		V	15 DC
Input resistance	$R_{LC}$	$\Omega$	$404 \pm 10$
Output resistance	$R_{out}$	$\Omega$	$350 \pm 3$
Insulation resistance		M $\Omega$	$\geq 2000$
Compensated temperature range		$^{\circ}\text{C}$	- 10 ... + 40
Load cell material			Aluminium
Cable length		m	1
Degree of protection according to IEC529			IP65
Coating			Silicone rubber

#### 5. Wiring

The load cell is provided with a shielded 4 or 6 conductor cable. The cable length is indicated in the accompanying document. The shield will be connected or not connected to the load cell according to customers preference.



#### 6. Connections

Connections		4-wires	6-wires
Excitation	+	red	red
Excitation	-	black	black
Signal	+	green	green
Signal	-	white	white
Sense	+	--	blue
Sense	-	--	yellow
Shield		purple	purple
Cable length		1 m	

## 7. Load cell dimensions in mm

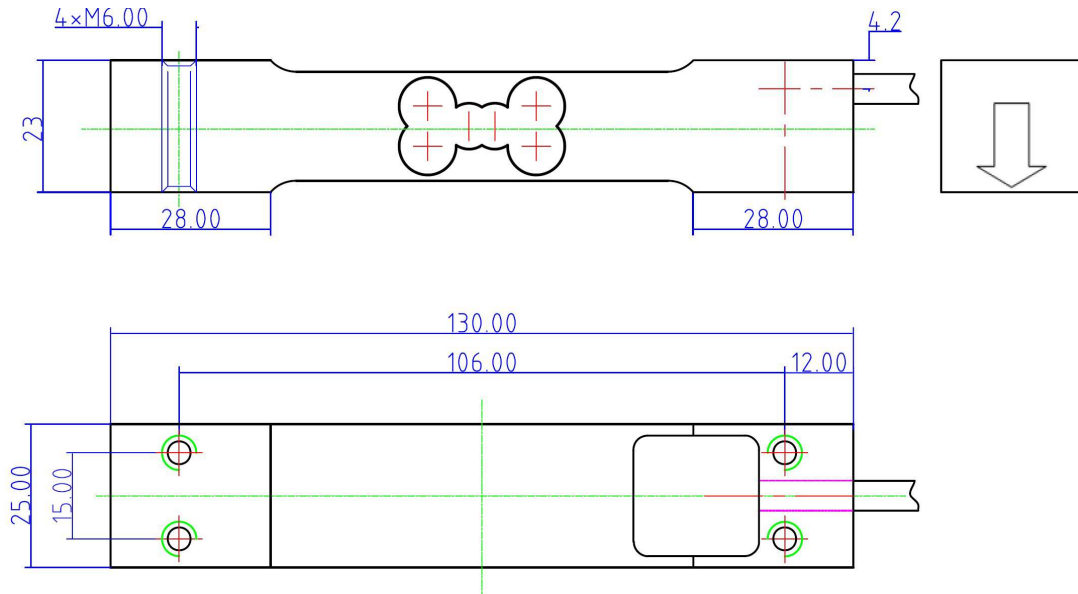


Figure 2: Dimensions of the load cell type ERS

## 8. Force introduction

A ball joint has to be used for force introduction. Examples in Figure 3.



Figure 3: Examples for a force introduction of the load cell type ERS