

# Operation Manual SERIES IZ15E

Battery powered Length measuring System

Predestined for the mobile assembly on manual sledges, carriage and back stop systems



- Battery powered indicator
- LCD Display



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## 1. General Information

## 1.1. Information Operation Manual

The manual contains important information regarding the handling of the indicator.

Precondition for safe operation is the compliance with the specified safety and handling instructions.

Moreover, observe the existing local accident prevention regulation and general safety rules.

Please read the operation manual carefully before starting to work. The manual should be kept accessible at anytime. The illustrations in the manual are for better representation of the facts they are not necessarily to scale and can be slightly different to the actual construction.

## 1.2. Explanation of Symbols

#### Warning notices

Warning notices are characterised by symbols in the operation manual. The notes will be introduced by signal words to express the magnitude of the danger.

Follow these advices in order to avoid accidents and injuries to persons and property.



#### DANGER!

... adverts to direct dangerous situations that can lead to death or severe injuries.



#### CAUTION!

... advices to potentially dangerous situations that can lead to death or severe injuries.



#### ATTANTION!

... advices to potentially dangerous situations that can lead to damages on property.



#### Hints and commendations

° T

## ADVERT!

...highlights helpful hints and recommendations for efficient and failure-free operation.

#### Specific safety instructions

The following symbols in conjunction with safety instructions are used in order to point out possible hazards:



#### DANGER!

...marks perilous situations by electricity. By non-observance of the safety instructions the possibilities of death or severe injuries exist. The operations have to be carried out only by an electrician.

#### 1.3. Statement of Warranties

The warranty conditions are in a separate document.

#### Guarantee

The producer guarantees the functional capability of the process engineering and the selected parameter. The period of warranty is one year and begins with the date of delivery.



## 1.4. Demounting and Disposal

Unless otherwise authorized, dispose the item considering the safety instructions.

#### Before demounting

- Disconnect the power supply
- Secure against re-start
- Disconnect supply lines physically and discharge remaining energy
- Dispose operating supplies with respect to the environment

#### Disposal

Recycle the decomposed elements:

- Scrap metal elements
- Recycle plastic parts
- Dispose the rest of the components according to their material consistence



#### ATTENTION!

Wrong disposal → damage caused to the environment!

Electronic waste, electronic components, lubricants and operating supplies are liable to treatment of hazardous waste.

Only approved specialized companies should perform disposal.

Local authorities and waste management facilities provide information about environmentally suitable disposal.



# 2. Safety

## 2.1. General Cause of Risks

This chapter gives an overview about all important safety aspects to guarantee an optimal protection of employees.

Non-observance of the instructions mentioned in this operation manual can result in hazardous situations.

## 2.2. Personal Protective Equipment

Employees should wear protective clothing during installation of the device to minimize the risk of accidents.

#### Therefore:

Change into protective clothing before beginning the work process. Also observe any labels in the operating area regarding protective clothing.

#### Protective clothing



#### Safety working clothing

- ... is close-fitting
- ... is tear proof
- ... has tight sleeves without distant parts

Also wear no rings, necklaces or other jewellery.



#### Protective gloves

... for protecting the hands against abrasion and cuts



#### 2.3. Conventional Use

The indicator **IZ15** is for the limited purpose as described in this manual:

The indicator **IZ15** is constructed for positioning uses only.



#### CAUTION!

Danger through non-conventional use!

Non-intended use and non-observance of this operation manual can lead to dangerous situations

#### Therefore:

- Use IZ15 only as described
- Strictly follow this manual

Avoid in particular:

Remodelling, refitting or changing of the device or parts of it with the intention to alter functionality or scope of the position indicator.

ELGO is not liable for any damages resulting from improper use of the product.

# 3. Transport and Storage

## 3.1. Safety Instructions for Transport/Unpacking and Loading



#### ATTENTION!

Professional transport only.

Do not throw, hit or fold the package.

## 3.2. Handling of Packaging Material

Adverts for proper disposal refer to 1.4.



## 3.3. Check of Transport

Examine delivery immediately after receiving for completeness and transport damages.

In case of externally recognizable transport damages:

- Do not accept the delivery or do accept under reserve
- Note extent of damages on the transportation documents or on the delivery note
- File complaint immediately



#### ADVERT!

Claim any damages you recognize as soon as possible. The claims for damage must be filed in the lawful reclaim periods.

## 3.4. Storage

Store device only under following conditions:

- Do not store outside
- Keep dry and dust-free
- Do not expose to aggressive media
- Protect from direct sun light
- Avoid mechanical shocks
- Storage temperature: 20 to + 50 °C
- Relative humidity: 60% non-condensing
- Inspect packages regularly if stored for an extensive period of time (> 3 months)



## 4. Product Features

The length measuring system **IZ15** is a combination of a magnetic sensor, which has a cable (0.1 ... 2m lengths) with a display device. Therefore, no wiring or connections are necessary.

The **IZ15** is particularly suitable for mounting on the sledge and stop moving systems, cause no cable need to be carried.

In order to be able to measure along the way a magnetic strip is glued (ELGO MB20-25-10-1-R, 2.5 mm Pole pitch) in respect of which the sensor the necessary information (current position) returns. The sensor head is with its high-class protection against any kind of dust, dirt and water jets and absolutely wear-resistant. The distance to the magnetic tape to the sensor may be up to 0.8 mm.

The display has extensive programming (including pulse, temperature, decimal places, Counting, chain level and set function, adjustable reference value and a switch for mm-inch or operation).

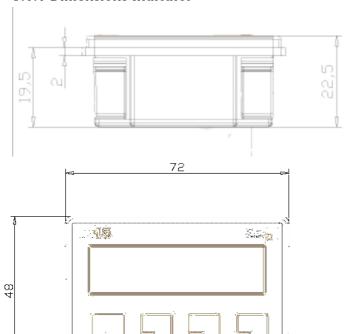
The resolution of the magnetic sensor is 0.1 mm. Its maximum speed is 2.5 m / s.

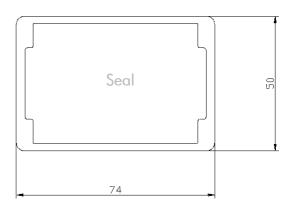


# 5. Technical Data

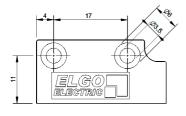
## 5.1. Dimensions

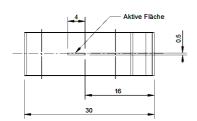
## **5.1.1 Dimensions Indicator**



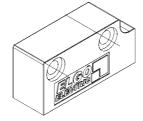


## **5.1.2 Dimensions Sensor**











## **5.1.3 Accessories**

#### 5.1.3.1 IZ15E-000-3-XX.X-0

Version with standard cable outlet

- Display with external sensor (fixed cable outlet)
- standard sensor cable length: 1.0 m
- supply via cable outlet (Length: 200m) for external battery compartment (not included, available as accessory

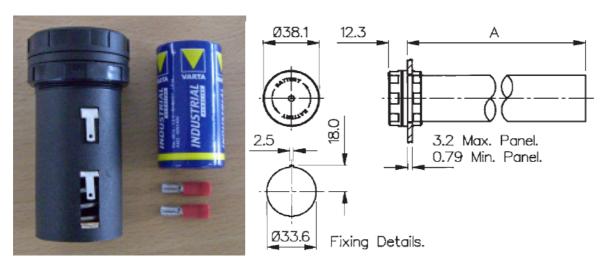




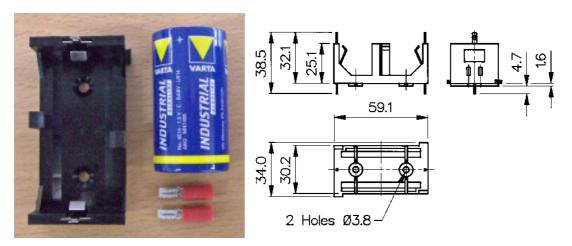


## 5.1.3.2 Battery Sets for IZ15E-000-3-XX.X-0

a) "Battery - Set 1xC Installation"



## b) "Battery - Set 1xC Open"





## 5.1.3.3 IZ15E-000-4-XX.X-0

- Display with external sensor (fixed cable outlet)
- standard sensor cable length: 1.0 m
- supply of Type 2AA battery compartment on the back (batteries are included)





## 5.2 Technical Data

Display IZ15	
LCD-Display	7 Decades (Digit height 9mm)
Power supply	Status of Battery and Unit 1 x Battery (1,5 V) or 2 x Battery (3V) *
Consumption with encoder	< 1 mA at 1,5 V
Operation temperature	$+5$ $^{\circ}$ up to $+50$ $^{\circ}$ C
Drive speed	max. 2,5 m/sec
Housing	Material: Plastic, black
Housing dimensions	$W \times H \times D = 72 \times 48 \times 23 \text{ mm}$
Installation depth	30 mm (incl. cable)
Front panel outbreak	$W \times H = 68 \times 45 \text{ mm}$
Protection class	IP 43 (installed)

# Magnetic Sensor MS20.25

Sensor cable length	0,1 m up to max. 2,0 m (more on request)
Resolution	0,1mm
Protection class	IP66 Zinc die cast
Operation temperature	$+5^{\circ}$ up to $+50^{\circ}$ C
min. Radius to bend	min. 60 mm
Distance Sensor/Tape	max. 0,8 mm (without cover tape "C")

# Magnetic Tape MB 20-25-10-1-R

Operation temperature	$0^{\circ}$ up to $+$ $50^{\circ}$ C
Accuracy at 20° C in mm	+/- (0,025 + 0,02 x L) L = effective Measuring length in m
Length expansion coefficient	$\approx 16 \times 10-6 \times 1/K$

1 x Battery Type C or Type D ( 1,5 V) 2 x Battery Type AAA / AA / C / D ( 3,0 V) \* e.g.:



## 6. Installation

#### 6.1. Qualifications of the Staff



Improper maintenance

... can lead to serious personal injuries or property damage.

#### Therefore:

Maintenance work should be referred to qualified and authorized by the operator and instructed personnel.

## 6.2. Description of the assembly / Installation

The lock of the device in the front panel made four lateral clips. Using a simple angle plate is also an assembly possibility. The device IZ15 comes with a seal. This is necessary to guarantee spray- and dust protection.

## 6.3 The Sensor

The sensor integrates the magneto resistance test bridges from which, addicted to the track, the counts for the signal processing electronic are formed. The distance between the sensor and band within the range X may not be larger than 1.0 mm. Each smaller value is permitted. The sensor cable has 6 cores and is highly flexible. The cores are stranded in pairs and shielded. The sensor cable can be used in a dragline.



## 7. Structure and Function

## 7.1. Selecting parameters and input

#### 7.1.1 Parameter level activate



For 3 seconds / 1 each x then press

With this key the parameter level will be activated. After about 3 seconds, the display shows "P 01" for the first parameter. When you press the button again, the parameter value can be changed. In that way all available parameters can be successive selected.

#### 7.1.2 Accessing the Decade



1x press

With this button the Decade will be forwarded at 1 point from the left to the right. The selected Decade is blinking.

## 7.1.3 Change the value



1x press

With this button the value of the selected decade will be increased at 1 (0...9 or 0...1).

#### 7.1.4 Sign



lx press

With this button you can adjust at some parameters the sign (+/-)

### 7.1.5 Leaving Parameter level



Hold for 3 seconds in the parameter level

All parameters will be stored while leaving this level.



## 7.1.6 Parameters

Parameter	Description	Default Parameters
P01: A	Counting direction: A = 0: positive A = 1: negative	0
P02: A	mm / inch Switching A = 0: mm – Mode A = 1: Inch – Mode (Resolution 0,001 Inch )	0
P03: A	Decimal point ( 0 3 )	1
P05: ABC	Key lock: A: Button "SET " (0 = active / 1 = not active) B: Button "Incr / Abs " (0 = active / 1 = not active) C: Button "* " (0 = active / 1 = not active)	000
P08:	Multiplication factor (0,0001 9,9999 )	1,0000
P09:	Reference value( -999999,9 + 999999,9 )	0,0
P10:	Offset 1 (-999999,9 + 999999,9)	0,0
P11:	Offset 2 ( -999999,9 + 999999,9 )	0,0
P12:	Offset 3 ( -999999,9 + 999999,9 )	0,0
P99:	Displays the Firmware – Version	X.XX



## 7.2. Default Parameter / Calibration

#### 7.2.1 Calibration

(The Sensor must be installed on the Magnetic tape!)

⇒ Switch off the unit.



press this button

⇒ While pressing this button switch the unit on again

Here, the calibration of the sensor is triggered and "CAL 0" is shown in the display. Now, move the sensor slowly in one direction on the tape. After the calibration (display "CAL 0"... "CAL 4") is the display again in normal mode.

#### 7.2.2 Loading the Default Parameter

(The Sensor must be installed on the Magnetic tape!)

⇒ Switch off the unit.



press this button

⇒ While pressing this button switch the unit on again

Here, all parameters will be reset to default parameters. Also herewith the calibration of the sensor is triggered and "CAL 0" is shown in the display. Now, move the sensor slowly in one direction on the tape. After the calibration (display "CAL 0"... "CAL 4") is the display again in normal mode.



#### 7.3 Functions in Normal mode

#### 7.3.1 Set datum value







1x press together

With this key combination the actual value will be set to the reference value. (Only in the ABS-mode possible, if no offset level is activated.) The reference value is entered in parameter P09.

#### 7.3.2 Switching incremental / absolute



1x press

With this key the unit switch from absolute mode to incremental mode: The display value is set to zero, and display the symbol "INC". Pressing the button again the display set again into absolute mode and "abs" is shown again.

#### 7.3.3 Activate offsets



lx press

This button activates the three adjustable offsets. Herewith an offset will be added to the actual shown value (Only in the ABS mode possible). The activation of an offset will be displayed by the symbols 1, 2 or 3. The offsets will be set in the parameters P10, P11 and P12.

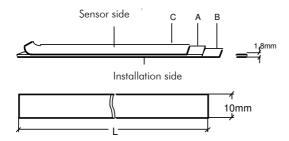


## 7.3. Accessories

## 7.3.1 Magnetic tape

The magnetic tape MB 20-25-10-1-R

The magnetic tape consists of 3 components:



available lengths 0,5 - 32 m



## 8. Interferences

The following chapters describe possible causes for malfunction and the instructions to correct them.

If you encounter problems check for proper installation first. Make sure that power is supplied to the system. If you observe recurring errors you might consider electrical interference suppression measures as described in section 7.

If errors cannot be corrected with the following instructions please contact the manufacturer (see last page).

## 8.1. Security

#### **Basics**



#### CAUTIONI

#### Risks of injury from improper fault clearances!

Improper fault clearances can cause serious personal or property damage. Therefore:

- Fault clearance may only be carried out by qualified and instructed personnel
- Prior to the beginning of work provide sufficient room to assemble the equipment
- Please look for cleanliness at the place of installation; loosely around laying parts and tools are sources of accidents

If components have to be replaced:

- Look for correct installation of spare parts
- All mounting elements have to be assembled correctly
- Before resetting please ensure that all covers and protective devices are installed correctly and function properly

To ensure a perfect operation of the indicator the following (external) measures have to be taken additionally:

#### Place of installation:

The indicator should not be installed near to sources of interference generating strong inductive or capacitive interferences or strong electrostatic fields. Install the external power supply directly beside the indicator to avoid long low voltage wires.



# 8.1 Electrical interference suppression



Signal wires should be installed separately from load power lines and with a safe distance of at least 0.5 m to capacitive and inductive interferences such as contactors, relays, motors, switching power supplies, timed controllers.

If interferences occur in spite of applying all above mentioned measures proceed as follows:

- 1. Add RC elements over contactor coils of AC contactors (for example 0,1  $\mu\text{F}/100$   $\Omega)$
- 2. Add recovery diodes over DC inductances
- 3. Add RC elements over each drive phase (in connector box of the drive).
- 4. Do not connect the GND potential with PE (earth potential)! Install a power filter before the external power supply

## 8.2 Restart after fault clearance

After fault clearance:

- 1. Reset emergency stop switch.
- 2. Quit disturbance on indicator.
- 3. Make sure that no person is located in the danger zone.
- 4. Start operating as explained in the instructions.



### 8.3 EMC information

A trouble-free operation of the control devices of the company ELGO Electric GmbH can only be guaranteed if in assembly, wiring and operating the following basic rules are observed and adhered to:

- use only shielded signal lines with a minimum diameter of 0.15 mm<sup>2</sup>
- to protect against electrical fields, connect the cable shield unilaterally, low resistance and low inductive with the operating lightning protection.
- unused arteries in signal lines should be isolated from each other separately
- isolate signal and power lines separately in long parallel lines (a distance of 300 mm is respected) therefore, should never be different voltage levels, e.g. 230V/50 Hz power supply and measuring signal 24V DC in one cable together
- low the emission by the Installation of filter networks in plants with frequency. In the operating instructions of the manufacturer FU find the appropriate instructions.
- wireless phones and Walky-talkies should never be used in the immediate vicinity of electronic devices

## 9. Maintenance

The unit works maintenance-free.



# 10. Type Designation

Tape build

R = Standard: Magnetic tape on inference material

Γ	1715 V 004	. v v		v
L	IZ15 X- 000	J – X – X	X.X – X	- X
Series (Type)				
SN-Number  000 = Standard  001 = first special version				
Supply 3 = cable outlet for external battery compartment 1,5 V ( 4 = Battery type (open) Type 2AA on the backside (batteri				
Sensor cable length e.g. 02.0 = 2,0 Meter max. length 2,0 Meter				
cable options  0 = hard cable outlet (Standard )  1 = Sensor plug in ( in preparation )				
Options( if needed )				
11. Accessories		MR20 2	5-10-1-R	
Magnetic tape MB 20-25-10-1-R:		WID20-2	J-10-1-k	
Designation  MB20 = incremental Magnetic tape				
Pole pitch 25 = 2,5 mm				
Tape width 10 = 10 mm				
Tracks 1 = One Track System				



# 12. Register

## 12.1. Index

D	
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	1 /
Enter the parameter	I C
G	
Guarantee	<i>D</i>
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Storage	
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Measure - Control - Position

Carl - Benz - Straße 1, D-78239 Rielasingen Fon: +49 (7731) 9339-0, Fax: +49 (7731) 28803 Internet: www.elgo.de. Mail: info@elgo.de

