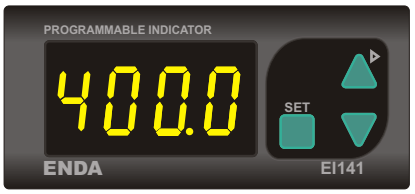
Read this document carefully before using this device. The guarantee will be expired by damaging of the device if you don't attend to the directions in the user manual. Also we don't accept any compensations for personal injury, material damage or capital disadvantages.

ENDA EI141 PROGRAMMABLE INDICATOR

Thank you for choosing ENDA EI141 INDICATOR.

* 35x77mm sized.
* 4 digits display.
* Easy to use by front panel keypad.
* Display scale can be adjusted between -1999 and 4000.
* Decimal point can be adjusted between 1. ile 3. digits.
* Measurement unit can be displayed.
* Selectable four different standard input types (0-20mA, 4-20mA, 0-1V, 0-10V)
* User can calibrate the device according to his/her own specified input type.
* Sampling time can be adjusted in four steps.
* Maximum and minimum measurement values are registered.
* The maximum or the minimum values can be hold on the display.
* Current and voltage calibration can be made..
* Parameter access protection on 3 levels.
* Easy connection by removable screw terminal.



CE RoHS Compliant

Order Code : EI141-□□□
1

1 - Supply Voltage
230VAC...230V AC
24VAC.....24V AC
SM.....9-30V DC / 7-24V AC

TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CONDITIONS	
Ambient/storage temperature	0 ... +50°C/-25 ... +70°C (with no icing)
Max. relative humidity	80% up to 31°C decreasing linearly 50% at 40°C.
Rated pollution degree	According to EN 60529 Front panel : IP65 Rare panel : IP20
Height	Max. 2000m

Do not use the device in locations subject to corrosive and flammable gases.

ELECTRICAL CHARACTERISTICS	
Supply	230VAC +10%/-20%, 50/60Hz, 24VAC±10%,50/60Hz or 24Vac/dc (9-30Vdc or 7-24Vac)
Power consumption	Max. 7VA
Wiring	2.5mm² screw-terminal connections
Date retention	EEPROM (Min. 10 years)
EMC	EN 61326-1: 1997, A1: 1998, A2: 2001 (Performance criterion B for the EMC standard)
Safety requirements	EN 61010-1: 2001 (pollution degree 2, overvoltage category II, measurement category I) EI141 must not be used in location where measurement category is II, III or IV.

Input type	Measurement range		Measurement accuracy	Input empedance
	Min.	Max.		
0-1V DC voltage	0V	1.1V	±0,5% (of full scale)	Approx. 11k (terminal voltage limits: min. = -2V, max. = 30V)
0-10V DC voltage	0V	14V	±0,5% (of full scale)	Approx. 11k (terminal voltage limits: min. = -2V, max. = 30V)
0-20mA DC current	0mA	25mA	±0,5% (of full scale)	Approx. 5 (applicable terminal voltage is max. 50mA.)
4-20mA DC current	0mA	25mA	±0,5% (of full scale)	Approx. 5 (applicable terminal voltage is max. 50mA.)

In the current measurement mode input impedance is 5 Therefore, in the current measurement mode, any voltage input should not be connected to the input terminals. Otherwise, the device will be broken down. To change the input type from voltage to a current measurement mode while the device is operating, first, leave out the voltage inputs. Then, change input type to one of the current measurement modes.

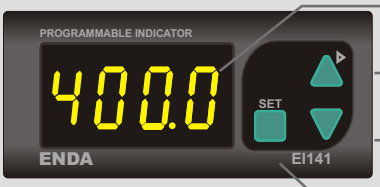
HOUSING	
Housing type	Suitable for flush-panel mounting according to DIN 43 700.
Dimensions	W77xH35xD71mm
Weight	Approx. 250g (after packing)
Enclosure material	Self extinguishing plastics

While cleaning the device, solvents (thinner, benzine, acid etc.) or corrosive materials must not be used.

up to date: 03072010, modification reserved and can be change any time previous notice !

SURAN Industrieelektronik
Dettinger Str. 9 / D-72160 Horb a.N
Tel.: +49 (0)7451 / 625 617
Fax: +49 (0)7451 / 625 0650
E-mail : info@suran-elektronik.de
Internet : www.suran-elektronik.de

TERMS



1) Measurement value, measurement unit, the minimum or the maximum measured values are displayed in the run mode.
Parameter name, parameter value or a user defined unit is displayed in the programming mode.

2) Increment or parameter selection key in the programming mode.
Used for displaying measurement unit or the max. measured value in the run mode.

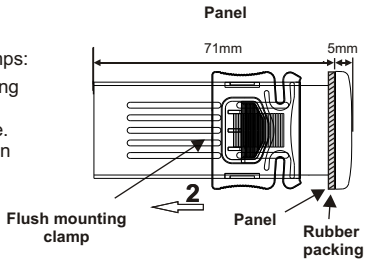
3) Decrement or parameter selection key in the programming mode.
Used for making the minimum and the maximum measured values equal in the run mode.

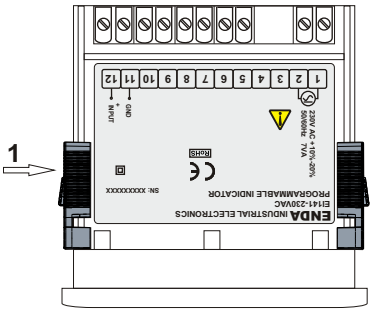
4) Used for selecting run and programming modes, adjusting parameters, displaying measurement unit or making the minimum and the maximum measured values equal.

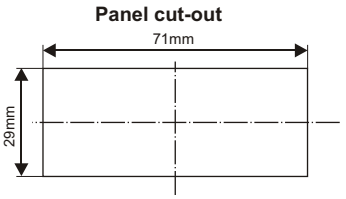
(1) Digital display	4 digits 7 segment yellow LED display
Character height	9.1mm
(2),(3),(4),(5) Keypad	Micro switch

DIMENSIONS

For removing mounting clamps:
- Push up the flush-mounting clamp in direction **1** as shown in the figure above.
- Then, pull out the clamp in direction **2.**



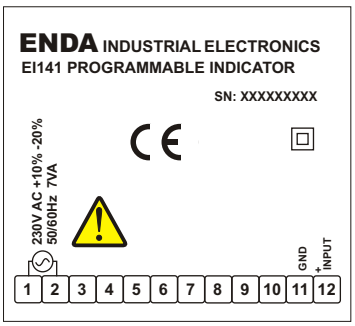


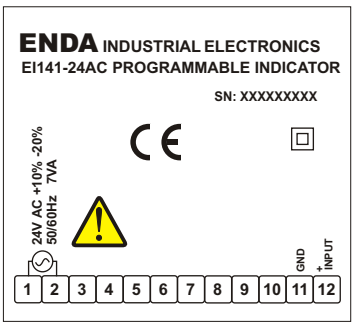


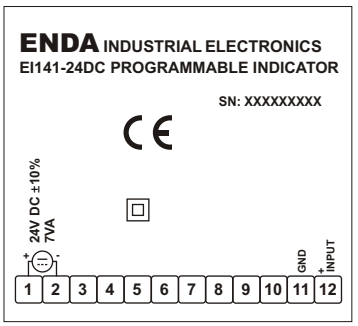
Note : 1) Panel thickness should be maximum 7 mm.
2) If there is no 60mm free space at the back side of the device, it would be difficult to remove it from the panel.

CONNECTION DIAGRAM

ENDA EI141 is intended for installation in control panels. Make sure that the device is used only for intended purpose. The shielding must be grounded on the instrument side. During an installation, all of the cables that are connected to the device must be free of energy. The device must be protected against inadmissible humidity, vibrations, severe soiling and make sure that the operation temperature is not exceeded. All input and output lines that are not connected to the supply network must be laid out as shielded and twisted cables. These cables should not be close to the power cables or components. The installation and electrical connections must be carried on by a qualified staff and must be according to the relevant locally applicable regulations.

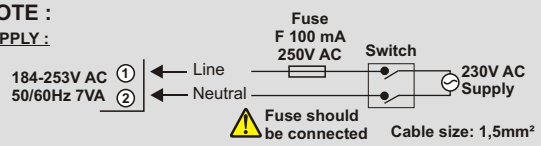






NOTE :

SUPPLY :



Holding screw 0.4-0.5Nm

Equipment is protected throughout by DOUBLE INSULATION.

Note : 1) Mains supply cords shall meet the requirements of IEC 60227 or IEC 60245.
2) In accordance with the safety regulations, the power supply switch shall bring the identification of the relevant instrument and it should be easily accessible by the operator.

Running Mode

1000 — Measurement value

SET & ▲ — If first SET and then ▲ keys are pressed together , measurement unit appears. See Un it parameter For programming.

bAr. — Measurement unit

▼ — Pressing this key the minumum measured value up to that time appears.

870 — The minumum measured value

▲ — Pressing this key the maximum measured value up to that time appears

1453 — The maximum measured value

SET & ▼ — If first SET and then ▼ keys are pressed together, the maximum and the minumum measurement values become equal to the measured value at that time and the message rES. appears on display.

rES.

SET — If SET key is pressed and held for 5 seconds programming mode is entered

Entering from programming mode to run mode:
If no key is pressed within 20 seconds during programming mode data is stored automatically and the run mode is entered. Alternatively the same function occurs by pressing SET key and holding for 5 seconds

Programming Mode

d.CnF. → U.oPt. → d.CAL. → SECU. → ▲

d.CnF.

▼ i.tYP.

i.tYP. = Input type.
Input type can be selected as 0-20mA, 4-20mA, 0-1V or 0-10V.
See NOTE 1 for programming.

▼ dSP.C.

dSP.C. = Display configuration.
Selectable as PrcS. or PrUn. . If PrcS. is selected, process value appears. If PrUn. is selected, process value and then measurement unit are displayed 4 and 2 seconds successively.
See NOTE 1 for programming.

▼ rAtE

rAtE = Sampling rate.
Measurement is performed at each 200ms. However,
for FASt rate, each measurement is displayed.
for Slo.1 rate, the average of 4 successive measurements is displayed.
for Slo.2 rate, the average of 8 successive measurements is displayed.
for Slo.3 rate, the average of 16 successive measurements is displayed.
See NOTE 1 for programming.

▼ HoLd

HoLd = Display holding parameter.
Selecting nonE , this parameter becomes inactive.
Selecting Lo. , always the minimum measured value is displayed.
Selecting Hi. , always the maximum

▼ Un it

Un it = Measurement unit.
A constant, a message etc. to be displayed can be entered. If a decimal point is desired, it should be included before entering the character.

For including decimal point first, SET then, ▲ keys are pressed and held together. And then, by using ▼ key decimal point can be

U.oPt.

▼ CALt.

CALt. = Calibration type.
Selectable as S. inP. or U. inP.
If S. inP. is selected, input type is one the four standard input types. If U. inP is selected, input types can be modified.
See NOTE 1 for modification.

▼ d.Pnt.

d.Pnt. = Decimal point.
Decimal point can be adjusted between 1. and 3. digits or without dp.
See NOTE 1 for programming.

▼ L.SCL.

L.SCL. = Lower limit for the scale.
It can be adjusted between -1999 and (H.SCL. -100).
See NOTE 1 for programming.

▼ H.SCL.

H.SCL. = Upper limit for scale.
It can be adjusted between (L.SCL. +100) and 4000.
See NOTE 1 for programming.

▼ CAL.t=U.inP. — No → H.SCL.; Evet ↓

▼ L. inP.

At this state, the reference voltage or current that corresponds to L.SCL. Parameter is applied to the input.
To initialize calibration, first SET then ▲ keys are pressed together and held until 'CAL' message appears. See NOTE 2.

▼ H. inP.

At this state, the reference voltage or current that corresponds to H.SCL. parameter is applied to the input.
To initialize calibration, first SET then ▲ keys are pressed together and held until 'CAL' message appears. See NOTE 2.

d.CAL.

▼ S.Cod.

S.Cod. = Access code for calibration menu.
This parameter should be 222.
See NOTE 1 for programming.

▼ A.CAL.

A.CAL. = Current calibration.
At this state, 20.000 mA current is applied to the input of the device.
For initializing calibration, first SET then ▲ keys are pressed together and held until 'CAL' message appears. See NOTE 3.

▼ 1.CA.

1.CA. = 1V input calibration.
At this state, 1.0000V is applied to the input of the device.
To initialize calibration, first SET then ▲ keys are pressed together and held until 'CAL' message appears. See NOTE 3.

▼ 10.CA.

10.CA. = 10V input calibration.
At this state, 10.000V is applied to the input of the device.
To initialize calibration, first SET then ▲ keys are pressed together and held until 'CAL' message appears. See NOTE 3.

SECU.

▼ S.Cod.

S.Cod. = Access code for safety menu.
This parameter should be 333.
See NOTE 1 for programming.

▼ d.C.Sc.

d.C.Sc. = ConF. menu protection level parameter.
nonE = No menu is seen.
P. no = Menu is seen but can not be programmed.
P.YES. = Menu is seen and programming is possible.
See NOTE 1 for programming.

▼ Uo.Sc.

Uo.Sc. = U.oPt. menu protection level parameter.
nonE = No menu is seen.
P. no = Menu is seen but can not be programmed.
P.YES. = Menu is seen and programming is possible.
See NOTE 1 for programming.

▼ d.CA.S.

d.CA.S. = d.CAL. menu protection level parameter.
nonE = No menu is seen.
P. no = Menu is seen but can not be programmed.
P.YES. = Menu is seen and programming is possible.
See NOTE 1 for programming.

Parameter adjustment method

NOTE 1

For adjusting a selected parameter first press and hold SET key. Then, by using ▼▲ keys adjustment can be made.
If increment key ▲ is pressed and held 0.6 seconds, the value of the selected parameter changes rapidly.
If

NOTE 2

CAL. — The message on the left flashes approximately 5 seconds and calibration is completed.

CAL okey? — Yes → C.End; No → S.Err.

If calibration is error free, the message C.End appears for 1 seconds. However, if it is wrong, the message S.Err. appears for 1 seconds and the program is shifted to the next step.

NOTE 3

CAL. — The message on the left flashes approximately 5 seconds and calibration is completed.

CAL okey? — Yes → C.End; No → C.Err.

If calibration is error free, the message C.End appears for 1 seconds. However, if it is wrong, the message C.Err. appears for 1 seconds and the program is shifted to the next step.

ERROR MESSAGES

S.Err. — If the difference between the reference voltages or currents applied for the calibration of H. inP. and L. inP. is lower than one half of the full scale, this error message appears on the display.
For example: Assume that the selected input type is 0-1V. In this case, if the difference between the reference voltages applied for calibration of H. inP. and L. inP. is lower than 0.5V, this error message appears.

C.Err. — If the reference voltage or current applied to the input for calibration is too high or too low, this error message appears.