



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 EPA241A PROGRAMMABLE AC/DC AMMETER

Thank you for choosing ENDA EPA241A programmable AC/DC ammeter.

- * 77 x 35mm sized.
- * 4 digits display.
- * Easy to use with front panel keypad.
- * Can be used with current transformer or shunt.
- * Programmable scale between 5A and 9999A.
- * Multifunctional alarm output (NO+NC) for upper and lower limits.
- * optional Rs485 Communication interface (isolated, using ModBus RTU Protocol).
- * Measuring type can be selected as AC, DC or true RMS.
- * Key lock feature.
- * CE marked according to European Norms.



RoHS
Compliant



Order Code: EPA241A - -

1 - Output
R.....Relay
None...No Relay

2 - Supply Voltage
230VAC...230V AC
110VAC...110V AC
24VAC.....24V AC
SM.....9-30V DC / 7-24V AC

3 - Isolated ModBus
RSI...Isolated ModBus (Optional)

TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CONDITIONS	
Ambient/stroge temperature	0 ... +50°C/-25 ... 70°C
Max. Relative humidity	80% Relative humidity for temperatures up to 31°C, decreasing linearly to 50% at 40°C.
Rated pollution degree	According to EN 60529 Front panel : IP65 , Rear panel : IP20
Height	Max. 2000m
Do not use the device in locations subject to corrosive and flammable gases.	

ELECTRICAL CHARACTERISTICS					
Supply	230V AC +10% -20%, 50/60Hz or 24V AC ±10% , 50/60Hz or optional 9-30V DC / 7-24V AC ±10% SMPS				
Power consumption	Max. 5VA				
Wiring	2.5mm ² screw-terminal connections				
Scale	AC and RMS 0A...9999A (Specified by <i>c.t.r.r</i> parameter. For example:scale is 0A...5A for <i>c.t.r.r</i> =5.00) DC -999A...9999A (Specified by <i>c.t.r.r</i> parameter. For example:scale is -5A...5A for <i>c.t.r.r</i> =5.00)				
Sensitivity	0.002A x <i>c.t.r.r</i> (For example , 0.01A for <i>c.t.r.r</i> =5.00)				
Accuracy	AC ± 1% (full scale) (± 2% For square wave form) DC ± 1% (full scale) RMS ± 1% (full scale) (± 2% For square wave form)				
Input Range	<table border="1"> <tr> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>-5A...5A (Device may be damaged at 10A and above currents.)</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>-60mV...60mV (Device may be damaged at 50V and above voltages.)</td> </tr> </table>	<input type="checkbox"/> <input type="checkbox"/>	-5A...5A (Device may be damaged at 10A and above currents.)	<input type="checkbox"/> <input type="checkbox"/>	-60mV...60mV (Device may be damaged at 50V and above voltages.)
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Input Impedance	<table border="1"> <tr> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>12mΩ</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/></td> <td>40kΩ</td> </tr> </table>	<input type="checkbox"/> <input type="checkbox"/>	12mΩ	<input type="checkbox"/> <input type="checkbox"/>	40kΩ
<input type="checkbox"/> <input type="checkbox"/>	12mΩ				
<input type="checkbox"/> <input type="checkbox"/>	40kΩ				
Frequency Range	DC , 10Hz - 200Hz (10Hz - 70Hz For square wave form)				
EMC	EN 61326-1: 2006 (Performance criterion B for the EMC standards)				
Safety requirements	EN 61010-1: 2010 (Pollution degree 2, overvoltage category II)				

OUTPUTS	
Alarm output	Relay: 250V AC, 8A (for resistive load), NO+NC
Life expectancy for relay	Mechanical 30.000.000 ; Electrical 100.000 operation.

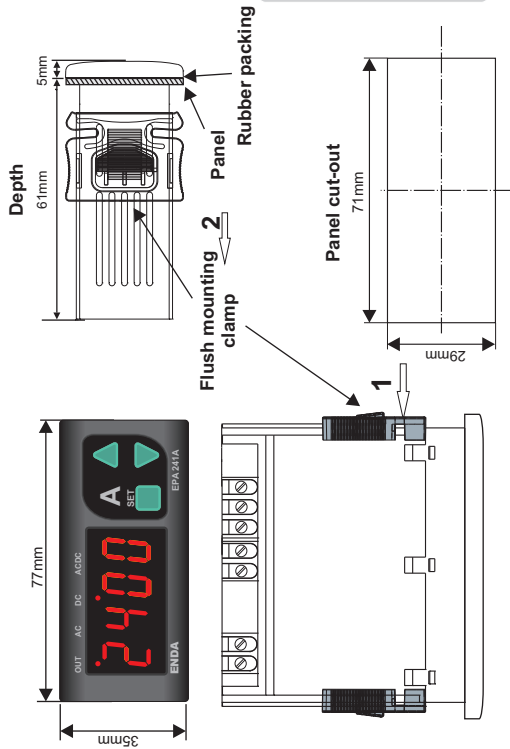
HOUSING	
Housing type	Suitable for flush-panel mounting. (According to DIN 43 700)
Dimensions	W77xH35xD71mm
Weight	Approx. 250g (after packing)
Enclosure material	Self extinguishing plastics.



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

up to date: 01022014, modification reserved and can be change any time previous notice !

DIMENSIONS



CONNECTION DIAGRAM

ENDA EPA241A is intended for installation in control panels. Make sure that the device is used only for intended purpose. The electrical connections must be carried on by a qualified staff and must be according to the relevant locally applicable regulations. During an installation, all of the cables that are connected to the device must be free of electrical power. The device must be protected against inadmissible humidity, vibrations and severe soiling. Make sure that the operation temperature is not exceeded. The cables should not be close to the power cables or components.



Caution:

If 5A and 60mV inputs are connected at the same time, the measurement will be incorrect.

For removing mounting clamps:

- Push the flush-mounting clamp in direction 1 as shown in the figure left.
- Then, pull out the clamp in direction 2.

Note :

- 1) Panel thickness should be maximum 7mm.
- 2) There must be at least 60mm free space behind the device, otherwise it would be difficult to remove it from the panel.

NOTE :

SUPPLY:
184-253V AC
50/60Hz 7VA

4 Line
5 Neutral

Fuse
F 100mA
250V AC

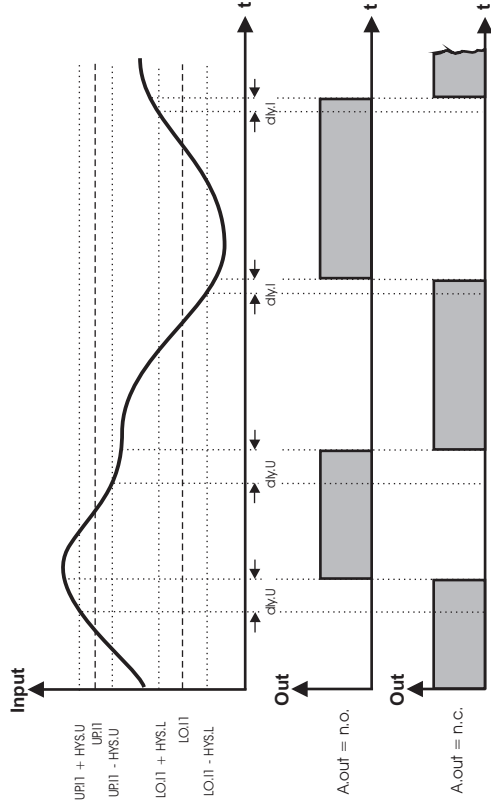
Switch
230V AC
Supply

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.

⚠ Fuse should be connected. Cable size: 1,5mm²

Equipment is protected throughout by DOUBLE INSULATION

Holding screw 0.4-0.5Nm.



AC	DC	AC.d.c (rms)
$A \frac{1}{\sqrt{2}}$	0.000	$A \frac{1}{\sqrt{2}}$
0.308 A	$A \frac{2}{\pi}$	$A \frac{1}{\sqrt{2}}$
0.386 A	$A \frac{1}{\pi}$	$A \frac{1}{2}$
A	0.000	A
$A \frac{1}{2}$	$A \frac{1}{2}$	$A \frac{1}{\sqrt{2}}$
$A \sqrt{\frac{d}{T} - \frac{d^2}{T^2}}$	$A \frac{d}{T}$	$A \sqrt{\frac{d}{T}}$
$A \frac{1}{\sqrt{3}}$	0.000	$A \frac{1}{\sqrt{3}}$

ENDA INDUSTRIAL ELECTRONICS SN: XXXXXXXX
EPA241A-R-230VAC
PROGRAMMABLE
AC/DC AMMETER
8 680407 704309

RoHS 230V AC +10% -20%
50/60Hz 5VA

Max. 60mV
AC / DC
Max. 5A
AC / DC

CAT II Made in Turkey

OUTPUT 1 2 3 4 5 6 7 8 9 10 11 12

ENDA INDUSTRIAL ELECTRONICS SN: XXXXXXXX
EPA241A-R-230VAC
PROGRAMMABLE
AC/DC AMMETER
8 680407 704323

RoHS 230V AC +10% -20%
50/60Hz 5VA

Max. 60mV
AC / DC
Max. 5A
AC / DC

CAT II Made in Turkey

OUTPUT 1 2 3 4 5 6 7 8 9 10 11 12

ENDA INDUSTRIAL ELECTRONICS SN: XXXXXXXX
EPA241A-R-230VAC-RSI
PROGRAMMABLE
AC/DC AMMETER
8 680407 704316

RoHS 230V AC +10% -20%
50/60Hz 5VA

Max. 60mV
AC / DC
Max. 5A
AC / DC

CAT II Made in Turkey

OUTPUT 1 2 3 4 5 6 7 8 9 10 11 12

ENDA INDUSTRIAL ELECTRONICS SN: XXXXXXXX
EPA241A-R-230VAC-RSI
PROGRAMMABLE
AC/DC AMMETER
8 680407 704330

RoHS 230V AC +10% -20%
50/60Hz 5VA

Max. 60mV
AC / DC
Max. 5A
AC / DC

CAT II Made in Turkey

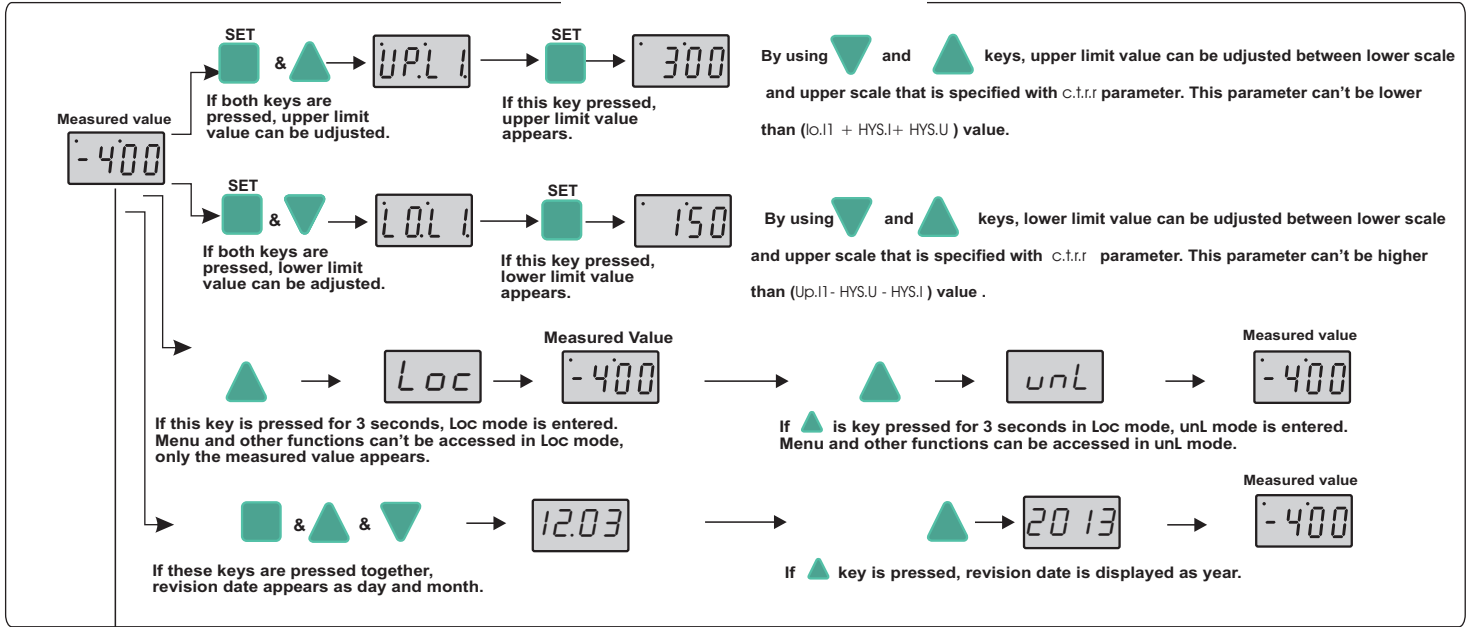
OUTPUT 1 2 3 4 5 6 7 8 9 10 11 12

EPA241A PROGRAMMING DIAGRAM



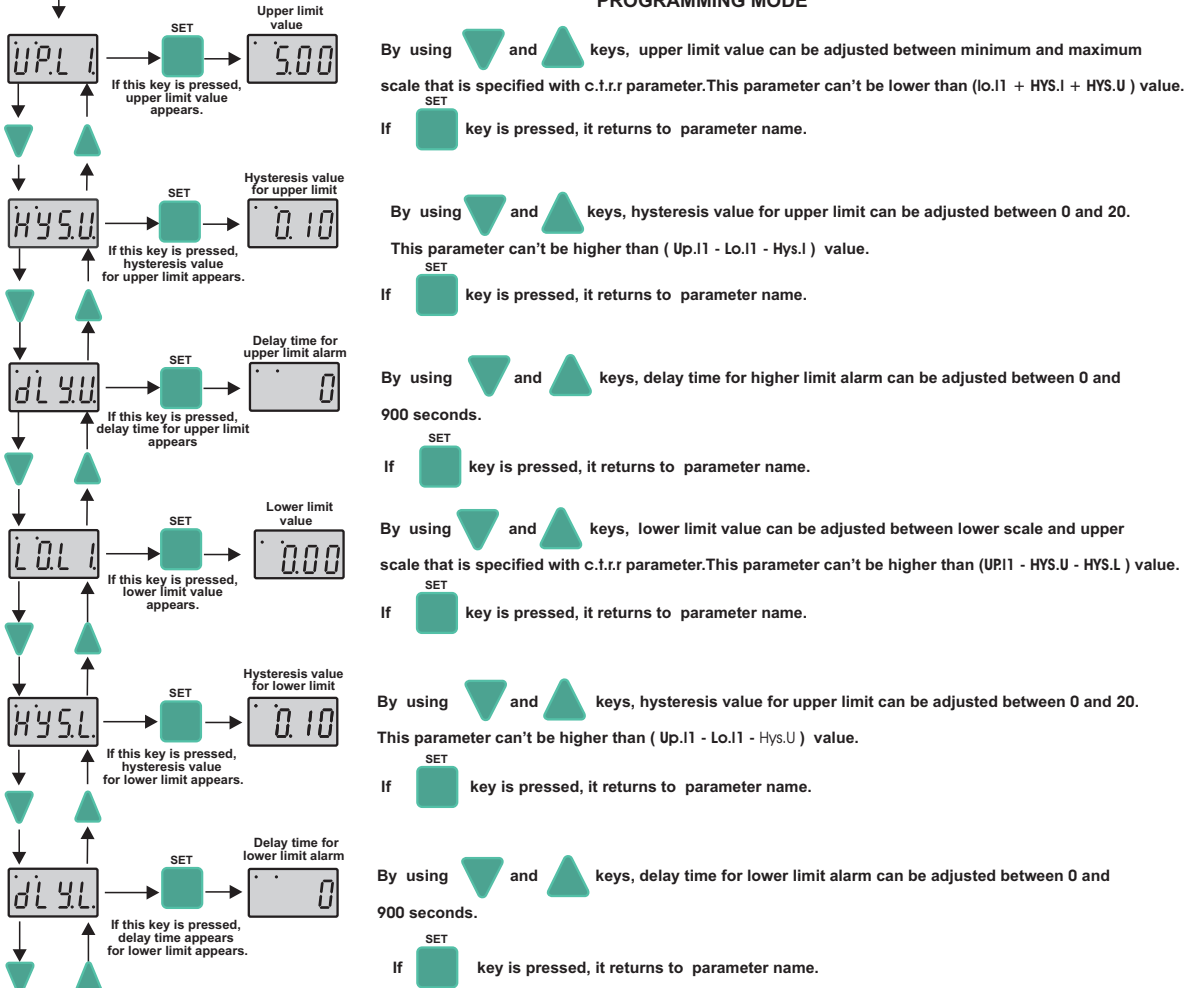
- Increment key** Used for increasing the setpoint value and changing parameters. When held down for a few seconds, configured numeric value increases faster.
- Decrement key** Used for decreasing the setpoint value and changing parameters. When held down for a few seconds, configured numeric value increases faster.
- Programming key** Used for displaying and configuring the selected parameter value.

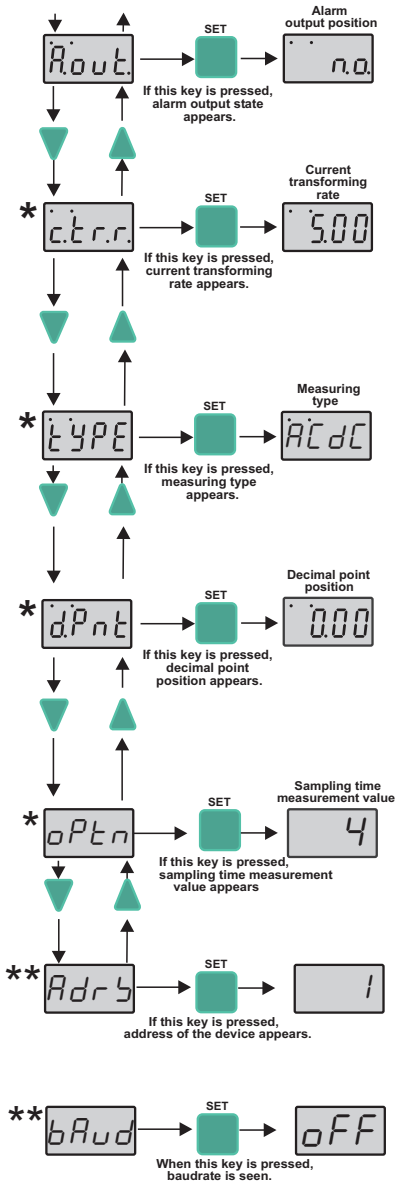
ADJUSTING THE ALARM VALUE



If these keys are pressed and held for 3 seconds, programming mode is entered or it returns to operating mode. If & keys are pressed while parameter names are displayed, then it returns to measured value mode

PROGRAMMING MODE





By using and keys, alarm output state can be adjusted to n.o. or N.c. If it is adjusted to no, output relay is powered at alarm condition.

If key is pressed, it returns to parameter name.

By using and keys, current transforming rate can be adjusted between 5.00(5) and 9999(5). If this parameter changes, upper limit value is set to maximum scale, minimum limit value is set to minimum scale and hysteresis values are set to 0.

If key is pressed, it returns to parameter name.

By using and keys, measuring type can be adjusted to ac, dc or acdc. Three leds at the top of the display show measuring type.

If key is pressed, it returns to parameter name.

By using and keys, decimal point state can be adjusted according to value of the c.t.r.r. parameter. If c.t.r.r. parameter is lower than 10, measured value can be shown as (0.00) or (0.0), if it is between 10 and 100, measured value can be shown as (0.0) or (0). If it is higher than 100, measured value can be shown as (0).

If key is pressed, it returns to parameter name.

Sampling time of the measurement value is shown on the screen. If 1 selected; sampling time of the measurement is 250ms, if 2 is selected, it is 500ms. If 3 is selected, it is 750ms. If 4 is selected, it is 1 second.

If key is pressed, it returns to parameter name.

By using and keys, address of the device can be adjusted between 1-247.

If key is pressed, it returns to parameter name.

By using and keys, baudrate value of the device can be adjusted to OFF, 1200, 2400, 4800, 9600, 19200.

If key is pressed, it returns to parameter name.

(*) There are only *c.t.r.r.*, *tYPE*, *dPnt*, *oPtn* parameters in the devices those have no relay.

(**) The *Adrs* and *bAud* parameters are only in the devices those have modbus.

If any key is pressed in 25 seconds or the device is powered down and powered up, then it returns to operation mode.

NOTE: If key is held down while the device is powered up, d.PAr message will appear and factory settings will be restored.

ERROR MESSAGES



Means, measured current value is higher than maximum scale.



Means, measured current value is lower than minimum scale.