



Read this document carefully before using this device. The guarantee will be expired by device damages 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 EPV742 PROGRAMMABLE AC/DC VOLTMETER

Thank you for choosing **ENDA EPV742** Programmable AC/DC voltmeter.

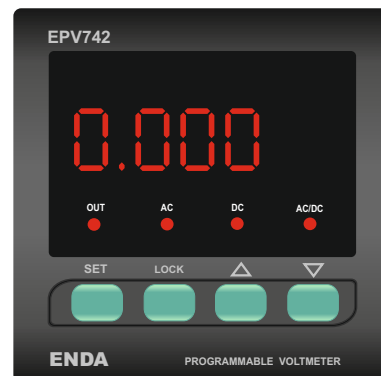
- ▶ 72 x 72 mm sized
- ▶ 4 digits display
- ▶ Selectable number of decimal point
- ▶ Can be displayed between -999 and + 9999V by using voltage transformer
- ▶ Easy to use front panel keypad
- ▶ Multi-function alarm output for lower and upper limits (NO + NC)
- ▶ Multi-function alarm setpoints with alarm output (NO)
- ▶ Communication feature over isolated RS485, using ModBus RTU protocol (Optional)
- ▶ Keylock feature
- ▶ Measuring type can be selected as AC, DC or true RMS (ACDC)
- ▶ CE Marked according to European Norms.

**Order Code : EPV742 -**        

**1 - Supply Voltage**  
UV.....90-250V AC  
  
LV.....10-30V DC /  
8-24V AC

**2 - Output**  
R.....08A Relay



**3 - Modbus**  
RSI.....RS485 Modbus Available  
(Specify at order)



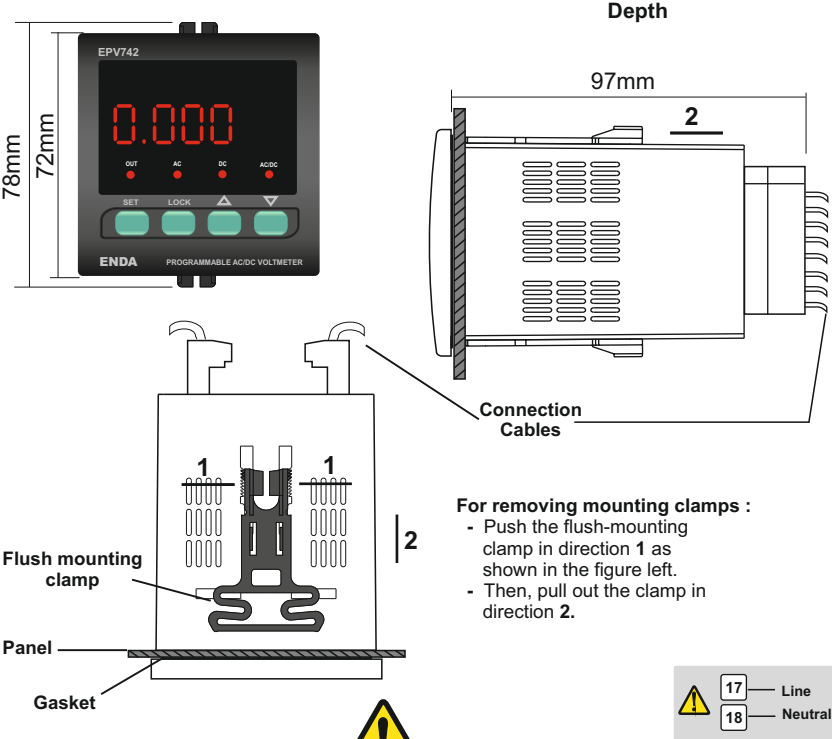
**RoHS**  
**Compliant**



## Technical Specifications

ENVIRONMENTAL CONDITIONS		
Ambient / Storage Temperature	0 ... +50°C/-25 ... +70°C (with no icing)	
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	
<div> Do not use the device in locations subject to corrosive and flammable gases.</div>		
ELECTRICAL CHARACTERISTICS		
Supply Voltage	90-250V AC 50/60Hz ; 10-30V DC / 8-24V AC SMPS	
Power Consumption	Max. 5VA	
Wiring	2.5mm² screw-terminal connections	
Scale	<b>AC and RMS DC</b>	For UTRR 0...9999V,                    for UI00 0.....100V,            for U500 0...500V For UTRR -999...9999V DC,    for UI00 -100...100V DC,    for U500 -500...+500V DC
Sensitivity	0,01V ( If, UI00 or UTRR is selected ) 0,1V ( If, U500 is selected and higher than -100V, lower from 100V for input values ) 1V ( If U500 is selected and lower than -100V, higher from 100V for input values )	
Accuracy	<b>AC</b> <b>DC</b> <b>RMS</b>	± %1 ( Full scale ) ( For square wave form ± 2% ) ± %1 ( Full scale ) ± %1 ( Full scale ) ( For square wave form ± 2% )
Input Range	-500V...500V ( If U500 is selected, device breaks down at more than ±1250 DC voltages.) -100V...100V (If UTRR or UI00 is selected, device breaks down at more than ±250 DC voltages. )	
Input Impedance	870k?	
Frequency Range	DC , 10Hz - 200Hz (For square wave form 10Hz-70Hz)	
EMC	EN 61326-1: 2013	
Safety Requirements	EN 61010-1: 2010 (Pollution degree 2, overvoltage category II)	
OUTPUTS		
Output	Relay: 250V AC, 8A (for resistive load), NO	
Life Expectancy for Relay	Mechanical 30.000.000 operation; 100.000 operation at 250V AC, 2A resistive load.	
HOUSING		
Housing Type	Suitable for flush-panel mounting. (According to DIN 43 700)	
Dimensions	W72xH72xD97mm	
Weight	Approx. 350g (after packing)	
Enclosure Material	Self extinguishing plastics.	
<div> While cleaning the device, solvents (thinner, gasoline, acid etc.) or corrosive materials must not be used.</div>		

DIMENSIONS



CONNECTION DIAGRAM

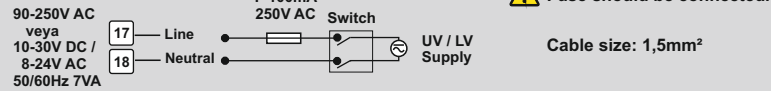
ENDA EPV742 is intended for installation in control panels. Make sure that the device is used only for intended purpose. The electrical connections must be carried on by a qualified staff and must be according to the relevant locally applicable regulations. During an installation, all of the cables that 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.

If ITYP input type "US00" is selected, the measurement terminals 13 and 16 of the terminals must be connected. Otherwise, measurement will be incorrect.

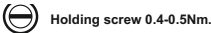
If ITYP input type "U000" or UTRR is selected, the measurement terminals 14 and 15 of the terminals must be connected. Otherwise, measurement will be incorrect.

NOTE :

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.

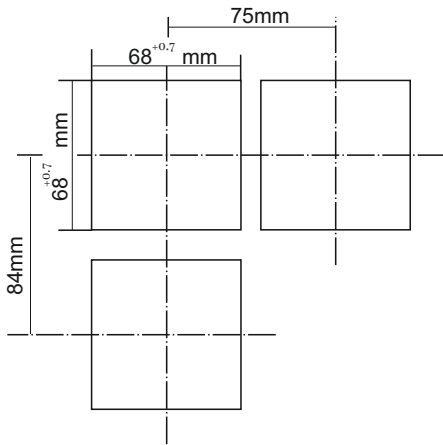


Holding screw 0.4-0.5Nm.

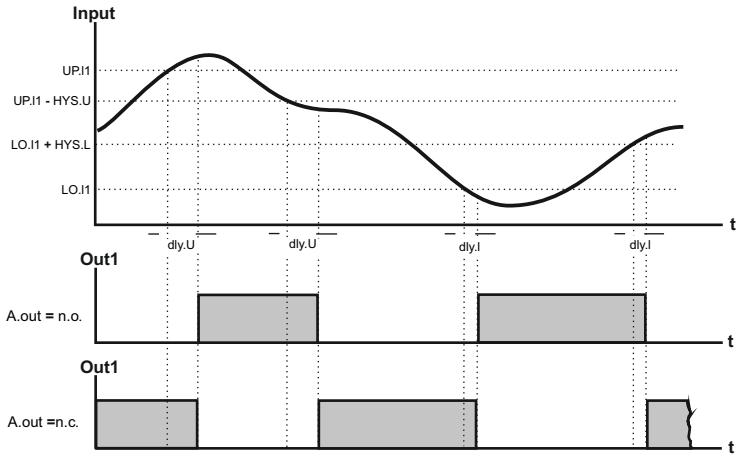


Equipment is protected throughout by DOUBLE INSULATION

Panel Cut-out



OUTPUT CHART



	ac	dc	Ac.dc (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	$A \frac{1}{\sqrt{3}}$



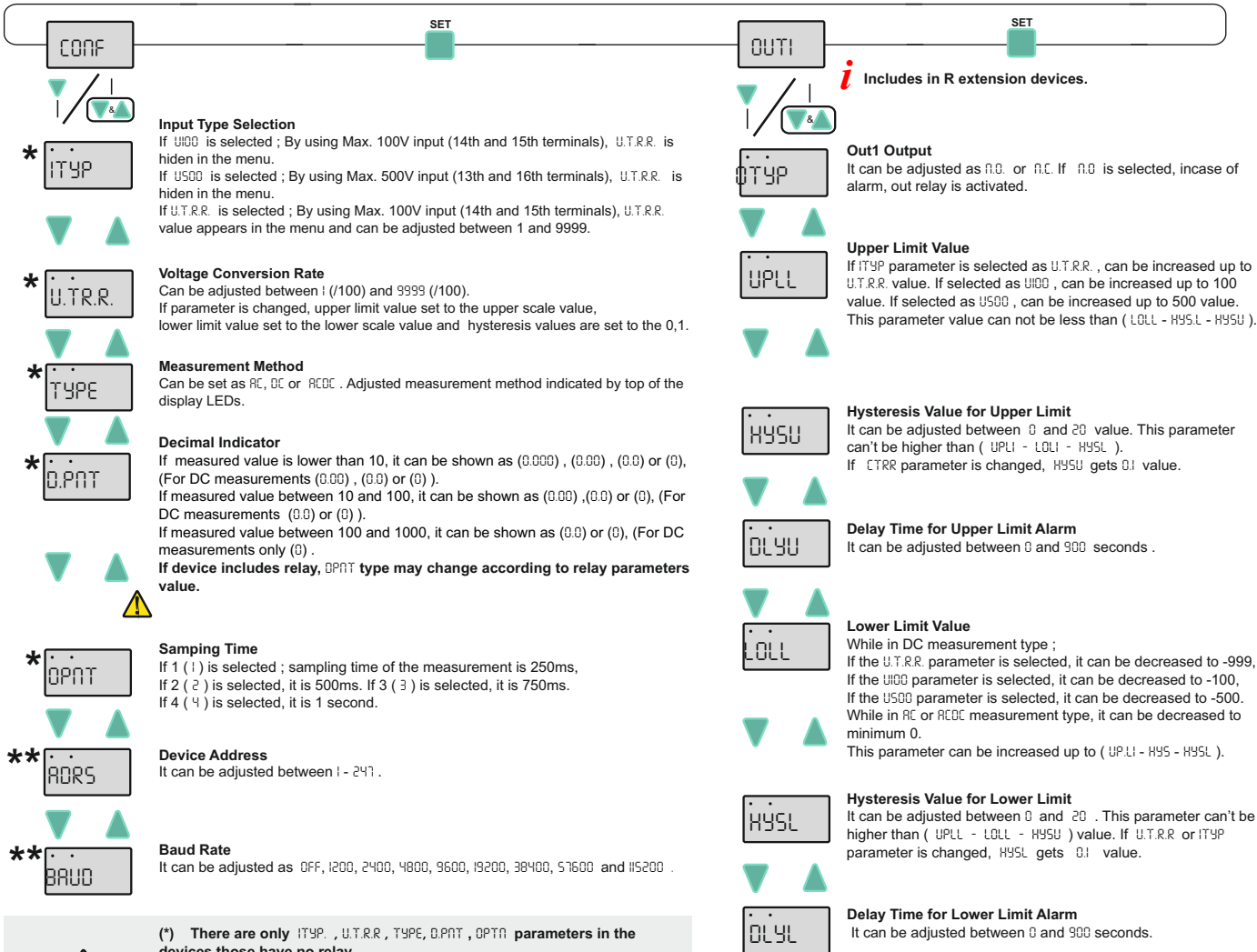
## EPV742 PROGRAMMING DIAGRAM

<b>Increment Key</b>		Used for increasing the setpoint value and changing parameters. When held down for a few seconds, configured numeric value increases faster.
<b>Decrement Key</b>		Used for decreasing the setpoint value and changing parameters. When held down for a few seconds, configured numeric value increases faster.
<b>Programming Key</b>		Used for displaying and configuring the selected parameter value.
<b>Lock / Unlock Keypad</b>		Locks / Unlocks keypad.



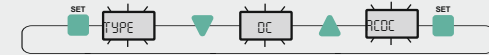
If these keys are pressed and held for 3 seconds, "Programming Mode" is entered or it returns to "Running Mode". If and keys are pressed while parameter names are displayed, than it returns to measured value.

## PROGRAMMING MODE



(\*) There are only ITYP, U.T.R.R., TYPE, DPAT, DPNT parameters in the devices those have no relay.  
(\*\*) The ADRS and BAUD parameters are only in the devices those have modbus.

## SETTING UP THE PARAMETERS

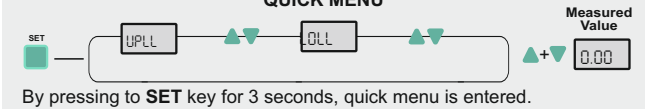


- If key is pressed, the current value of the parameter appears by flashing on the display.
- By using "UP" or "DOWN" navigation keys, selected parameter can be adjusted to the desired value.
- After the setting up the parameters, if set key is pressed again, adjusted parameter name appears on display.

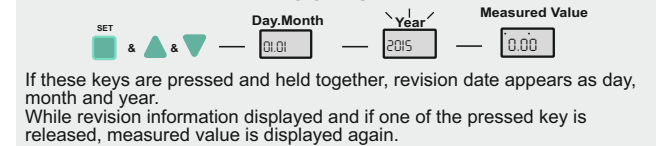
## LOCKING & UNLOCKING KEYPAD



## QUICK MENU



## REVISION NUMBER



## DEFAULT SETTINGS

Powered on device by pressing key DPAT message appears on display and device reset to default settings.

## ERROR MESSAGES

---	Measured current value is higher than maximum scale.
---	Measured current value is lower than minimum scale.

ENDA EPV742 DIGITAL VOLTMETER MODBUS PROTOCOL ADDRESS MAP						
HOLDING REGISTERS FOR R EXTENSION DEVICES						
Holding Register Addresses		Data Type	Data Content	Parameter Name	Read/Write Permission	Status Value
Decimal	Hex					
0000d	0x0000	word	Alarm output status	OTYP	Readable/Writable	00
0001d	0x0001	word	Input type selection	ITYP	Readable/Writable	U.T.R.R
0002d	0x0002	word	Voltage Conversion Rate	U.T.R.R	Readable/Writable	100
0003d	0x0003	word	The upper limit of the setpoint	UPLL	Readable/Writable	500.0
0004d	0x0004	word	The upper limit of the hysteresis value	HYSU	Readable/Writable	1 0
0005d	0x0005	word	Delay time for the upper limit alarm	OLYU	Readable/Writable	0
0006d	0x0006	word	The lower limit of the setpoint	LOLL	Readable/Writable	0 0
0007d	0x0007	word	The lower limit of the hysteresis value	HYSL	Readable/Writable	1 0
0008d	0x0008	word	Delay time for the lower limit alarm	OLYL	Readable/Writable	0
0009d	0x0009	word	Measurement method (0=AC, 1=DC, 2=ACDC)	TYPE	Readable/Writable	ACDC
0010d	0x000A	word	Decimal point. (0=X, 1=X.X, 2=X.XX, 3=X.XXX)	DPNT	Readable/Writable	0.0
0011d	0x000B	word	Sampling time of the measurement value. If 1 is selected, it is 250ms. If 2 is selected, it is 500ms. If 3 is selected, it is 750ms. If 4 is selected, it is 1 second.	OPTN	Readable/Writable	4
0012d	0x000C	word	Device address for RS485 network connection. Adjustable between 1-247.	ADDR5	Readable/Writable	1
0013d	0x000D	word	Baudrate (0=Off; 1=1200; 2=2400; 3=4800; 4=9600; 5=19200 6= 38400; 7= 57600; 8= 115200)	BAUD	Readable/Writable	OFF
*Holding Register Parameter Table (No Relay Models)						
0000d	0x0000	word	Input type selection	ITYP	Readable/Writable	U.T.R.R
0001d	0x0001	word	Voltage Conversion Rate	U.T.R.R	Readable/Writable	100
0003d	0x0003	word	Measurement method (0=AC, 1=DC, 2=ACDC)	TYPE	Readable/Writable	ACDC
0004d	0x0004	word	Decimal point. (0=X.XX, 1=X.X, 2=X)	DPNT	Readable/Writable	0.000
0005d	0x0005	word	Sampling time of the measurement value	OPTN	Readable/Writable	4
0006d	0x0006	word	Device address for RS485 network connection. Adjustable between 1-247.	ADDR5	Readable/Writable	1
0007d	0x0007	word	Baudrate (0=Off; 1=1200; 2=2400; 3=4800; 4=9600; 5=19200 6= 38400; 7= 57600; 8= 115200)	BAUD	Readable/Writable	9600
INPUT REGISTERS FOR EPV742-x-xxx-RSI DEVICES						
Input Register Addresses		Data Type	Data Content	Parameter Name	Read/Write Permission	
Decimal	Hex					
0000d	0x0000	word	Measured voltage value	--	Only Readable	
DISCRETE INPUTS FOR R EXTENSION DEVICES						
Discrete Input Addresses		Data Type	Data Content	Parameter Name	Read/Write Permission	
Decimal	Hex					
0000d	0x0000	Bit	Relay output state (0=OFF; 1=ON)	--	Only Readable	
COILS FOR R EXTENSION DEVICES						
Coil Addresses		Data Type	Data Content	Parameter Name	Read/Write Permission	Status Value
Decimal	Hex					
0000d	0x0000	Bit	Alarm output state (0=00; 1=01)	OTYP	Readable/Writable	no
* Coil and Discrete input parameters are not available in the devices those have no relay						
Note 1 : OTYP menu parameters can be used as “Holding Register” or “Coil.						
Note 2 : Received "ModBus input register value" is multiplying by 1000 (based on DPNT) and mV value reached.						
For example ;						
if modbus value is 2842, (for DPNT = 2 (0.00)) 28.42x1000 = 28420 mV, ie 28.42V						
if modbus value is 2842, (for DPNT = 3 (0.000)) 2.842x1000 = 2842 mV, ie 2.842V						