7. Specifications

Device Type	: AC/DC Ammeter
Housing & Mounting	: 76mm x 34.5mm x 71mm plastic housing for panel Mounting. Panel cut-out is 71x29mm.
Protection Class	: NEMA 4X(IP65 at front, IP20 at rear).
Weight	: Approximately 0.20 Kg.
Environmental Ratings	: Standard, indoor at an altitude of less than 2000 meters with none condensing humidity.
Storage / Operating Temperature	: -30 °C to +80 °C / -20 °C to + 70 °C
Storage / Operating Humidity	: 90 % max. (None condensing)
Installation	: Fixed installation
Overvoltage Category	: II.
Pollution Degree	: II,office or workplace, none conductive pollution
Operating Conditions	: Continuous
Supply Voltage and Power	: 230V∼ (±%15) 50/60Hz - 1.5VA, 115 V∼ (±%15) 50/60Hz - 1.5VA, 24V∼(±%15) 50/60Hz - 1.5VA,10...30V⎓1.5W
Sampling Cycle	: According to parameter value
Accuracy	: ±%1
Scale	: AC and RMS 0 - 9999 DC (-1999) - 9999
Input impedance	: 20mΩ 1K2Ω
Control Form	: ON / OFF
Relay Outputs	: 8A@250V∼ for Resistive load (Alarm output) (Electrical life : 100.000 switching at full load)
Display	: 14 mm Red 4 digits LED Display
LED	: AC(Red), DC(Red),Alarm (Red),Program(Green)
Approvals	: EHC , CE

8. Ordering Information

EDA-3700 (77x35 DIN Size)	A	BC	D	E	/	FG	HI	/	U	V	W	Z
		09			/	00	00	/	0	0	0	0

A	Supply Voltage
3	24V∼ (±%15) 50/60Hz - 1.5VA
4	115V∼ (±%15) 50/60Hz - 1.5VA
5	230V∼ (±%15) 50/60Hz - 1.5VA
8	10 - 30 V ⎓

D	Communication
0	None
1	RS485

E	Alarm Output
0	None
1	Relay Output 8A@250V∼ at resistive load ,NO+NC)

All order information of EDA-3700 AC/DC Ammetre are given on the table at left. User may form appropriate device configuration from information and codes that at the table and convert it to the ordering codes. Firstly, supply voltage then other specifications must be determined. Please fill the order code blanks according to your needs.
Please contact us, if your needs are out of the standards.

⚠ Before commissioning the device, parameters must be set in accordance with desired use. Incomplete or incorrect configurations can cause dangerous situations.

⚠
∼ Vac
⎓ Vdc
≁ Vdc or Vac can be applied

EMKO

CE EHC

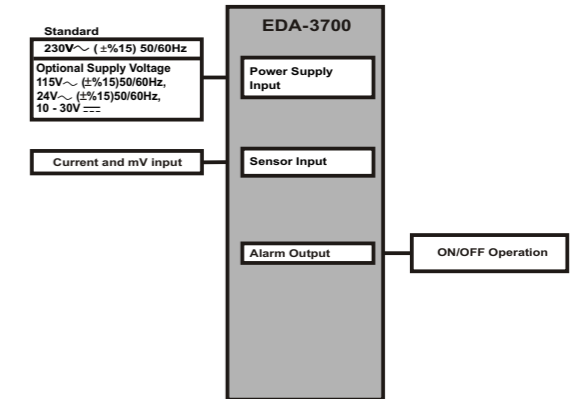### EDA-3700 x 35 DIN Size Programmable AC / DC Ammeter

- 4 digits display
- Easily changeable from front panel
- 5A or 60 mV AC, DC, AC/DC input
- Programmable scale from 5A to 9999A
- Alarm parameters
- Password protection for programming mode
- Remote access,data collecting and controlling with Modbus RTU
- AC, DC or True RMS measuring feature
- Having CE mark according to European Norms

Instruction Manual. ENG EDA-3700 01 V00 09/17

1. Environmental Ratings

🌡 **Operating Temperature** : 0 to 50 °C

💧 **Max. Operating Humidity** : %90 Rh (Yoğunlaşma olmaksızın)

⛰ **Altitude** : Up to 2000 m.

⚠ **Forbidden Conditions:**
Corrosive atmosphere
Explosive atmosphere
Homeapplications (The unit is only for industrial applications)

1.1 General Specifications

Standard 230V∼ (±%15) 50/60Hz	EDA-3700

Optional Supply Voltage
115V∼ (±%15)50/60Hz,
24V∼ (±%15)50/60Hz,
10 - 30V ⎓

Power Supply Input
Current and mV input
Sensor Input
Alarm Output → ON/OFF Operation

1.2 Installation

A visual inspection of this product for possible damage occurred during shipment is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product.

If there is danger of serious accident resulting from a failure or defect in this unit, power off the system and separate the electrical connection of the device from the system.

The unit is normally supplied without a power supply switch or a fuse. Use power switch and fuse as required.

Be sure to use the rated power supply voltage to protect the unit against damage and to prevent failure.

Keep the power off until all of the wiring is completed so that electric shock and trouble with the unit can be prevented.

Never attempt to disassemble, modify or repair this unit. Tampering with the unit may results in malfunction, electric shock or fire.

Do not use the unit in combustible or explosive gaseous atmospheres.
During putting equipment in hole on the metal panel while mechanical installation some metal burrs can cause injury on hands, you must be careful.

Montage of the product on a system must be done with it's fixing clamps. Do not do the montage of the device with inappropriate fixing clamp. Be sure that device will not fall while doing the montage.

It is your responsibility if this equipment is used in a manner not specified in this instruction manual.

1.3 Warranty

EMKO Elektronik warrants that the equipment delivered is free from defects in material and workmanship. This warranty is provided for a period of two years. The warranty period starts from the delivery date. This warranty is in force if duty and responsibilities which are determined in warranty document and instruction manual performs by the customer completely.
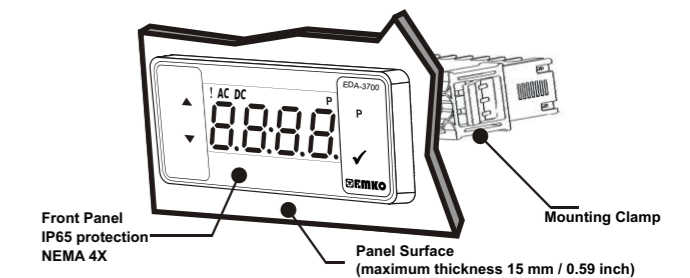
1.4 Maintenance

Repairs should only be performed by trained and specialized personnel. Cut power to the device before accessing internal parts.
Do not clean the case with hydrocarbon-based solvents (Petrol, Trichlorethylene etc.). Use of these solvents can reduce the mechanical reliability of the device. Use a cloth dampened in ethyl alcohol or water to clean the external plastic case.

1.5 Manufacturer Company

Manufacturer Company Name:
Emko Elektronik A.S. DOSAB Karanfil Sk.No:6 16369 BURSA/TURKEY
Phone:+90 224 261 19 00
Fax :+90 224 261 19 12
Repair and maintenance service information:
Emko Elektronik Sanayi ve Ticaret A.Ş.
Demirtaş Organize Sanayi Bölgesi Karanfil Sk.No:6 16369 BURSA/TURKEY
Phone:+90 224 261 19 00
Fax :+90 224 261 19 12

2. General Description

Front Panel
IP65 protection
NEMA 4X

Panel Surface
(maximum thickness 15 mm / 0.59 inch)

Mounting Clamp

2.1 Front View and Dimensions of EDA-3700 AC/DC Ammeter

Maksimum 15 mm / 0.59 inch
34,5 mm / 1.36 inch
76 mm / 3 inch
6 mm / 0.24 inch
65 mm / 2.56 inch

2.2 Panel Cut-Out

110 mm / 4.33 inch (min)
50 mm / 1.97 inch (min)
29 mm / 1.14 inch
71 mm / 2.79 inch
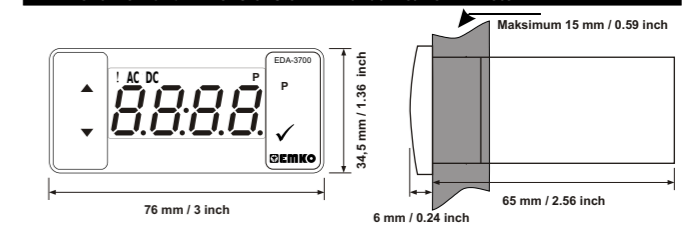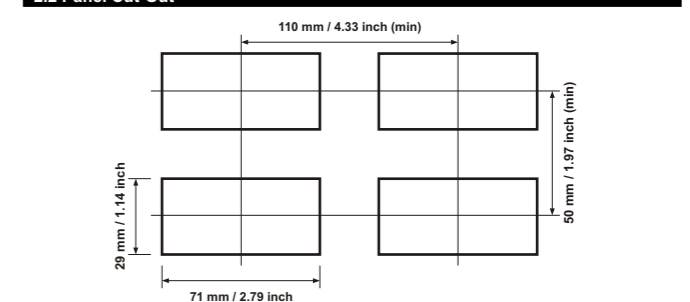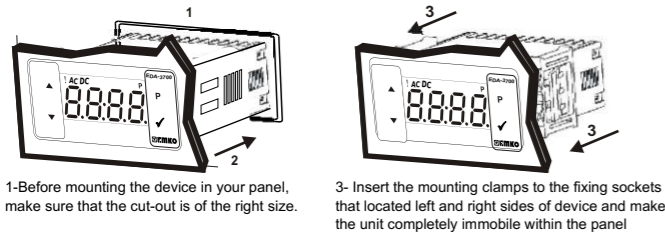
2.3 Panel Mounting

1-Before mounting the device in your panel, make sure that the cut-out is of the right size.

2-Insert the device through the cut-out. If the mounting clamps are on the unit, put out them before inserting the unit to the panel.

3- Insert the mounting clamps to the fixing sockets that located left and right sides of device and make the unit completely immobile within the panel

2.4 Removing from the Panel
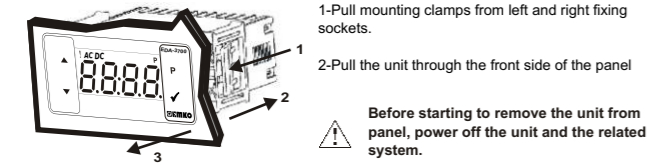
1-Pull mounting clamps from left and right fixing sockets.

2-Pull the unit through the front side of the panel

⚠ Before starting to remove the unit from panel, power off the unit and the related system.

3. Electrical Wiring Diagram

Supply Voltage Input
230V∼(± %15) 50/60Hz
115V∼(± %15) 50/60Hz
24V∼ (±%15) 50/60Hz
24V⎓ (±%15) 50/60Hz
Must be determined in order.

Relay Output
(This output is available on alarm output devices)

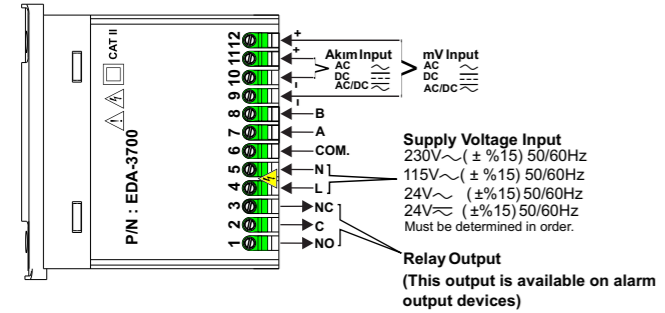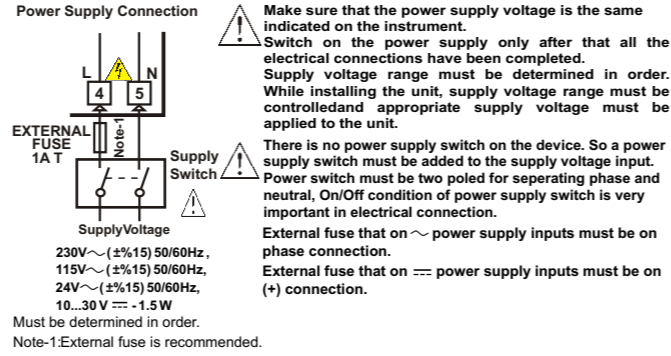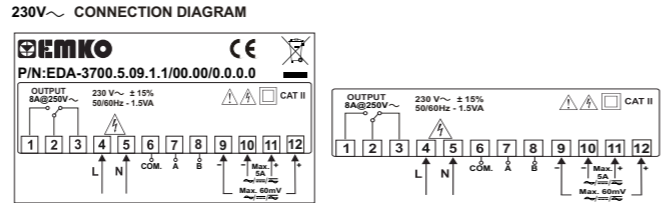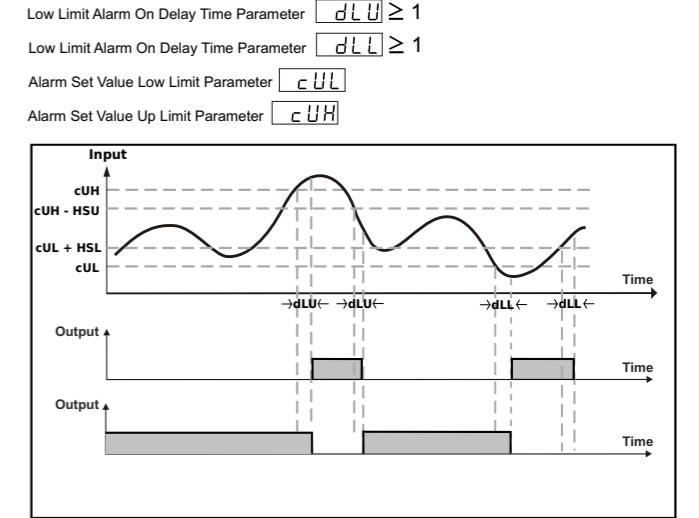## 3.1 Supply Voltage Input Connection of the Device

Power Supply Connection

EXTERNAL FUSE 1A T

Supply Switch

SupplyVoltage
230V∼(±%15) 50/60Hz,
115V∼(±%15) 50/60Hz,
24V∼(±%15) 50/60Hz,
10...30 V⎓ - 1.5 W
Must be determined in order.
Note-1:External fuse is recommended.

⚠ Make sure that the power supply voltage is the same indicated on the instrument.
⚠ Switch on the power supply only after that all the electrical connections have been completed.
Supply voltage range must be determined in order. While installing the unit, supply voltage range must be controlledand appropriate supply voltage must be applied to the unit.
⚠ There is no power supply switch on the device. So a power supply switch must be added to the supply voltage input. Power switch must be two poled for seperating phase and neutral, On/Off condition of power supply switch is very important in electrical connection.
External fuse that on ∼ power supply inputs must be on phase connection.
External fuse that on ⎓ power supply inputs must be on (+) connection.

3.2 Device Label and Connection Diagram

230V∼ CONNECTION DIAGRAM

P/N:EDA-3700.5.09.1.1/00.00/0.0.0.0

5.1 Operations Graphics of EDA-3700 AC/DC Ammetre

	AC/DC(rms)	AC	DC
	$A\dfrac{1}{\sqrt{3}}$	$A\dfrac{1}{\sqrt{3}}$	0.000
	A	A	0.000
	$A\dfrac{1}{\sqrt{2}}$	$A\dfrac{1}{2}$	$A\dfrac{1}{2}$
	$A\sqrt{\dfrac{d}{T}}$	$A\sqrt{\dfrac{d}{T}\cdot\dfrac{d}{T}}$	$A\dfrac{d}{T}$
	$A\dfrac{1}{\sqrt{2}}$	$A\dfrac{1}{\sqrt{2}}$	0.000
	$A\dfrac{1}{\sqrt{2}}$	0.308A	$A\dfrac{2}{\pi}$
	$A\dfrac{1}{2}$	0.386A	$A\dfrac{1}{\pi}$

5.2 EDA-3700 AC/dC Ampermetre Cihazı Alarm Çalışma Grafikleri

Low Limit Alarm On Delay Time Parameter $\boxed{dLU} \geq 1$

Low Limit Alarm On Delay Time Parameter $\boxed{dLL} \geq 1$

Alarm Set Value Low Limit Parameter $\boxed{cUL}$

Alarm Set Value Up Limit Parameter $\boxed{cUH}$

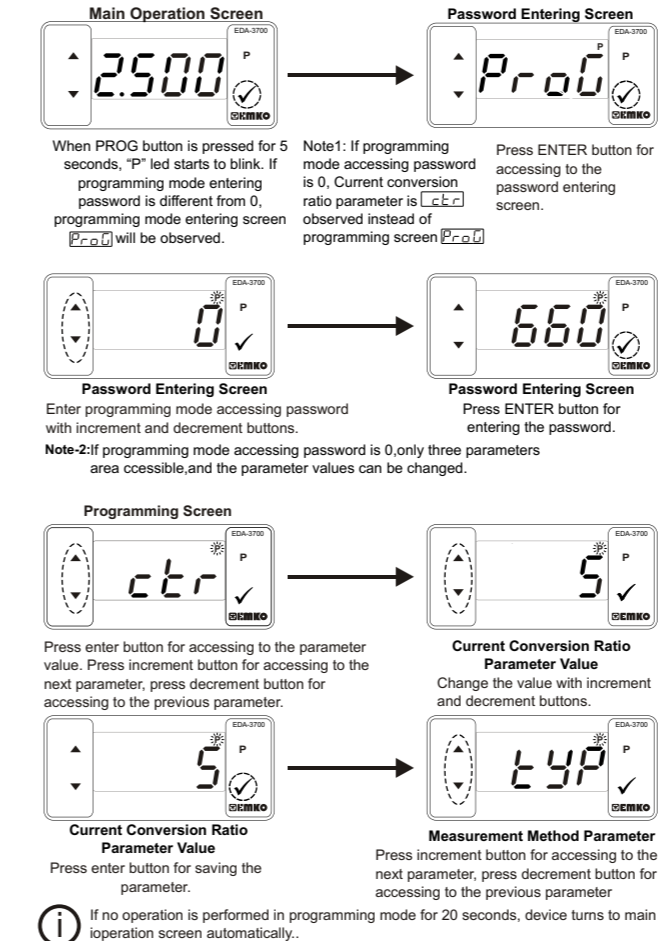## 4.Front Panel Definition and Accessing to the Menus
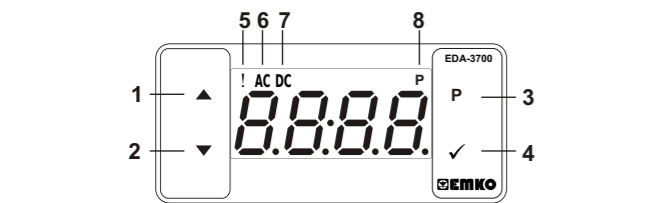
BUTTON DEFINITIONS1.

1. Increment Button :
** It is used to increase the value in the Programming mode.

2. Decrement Button :
** It is used to decrease the value in the Programming mode.

3. Program Button:
** To access the programming screen; in the main operation screen, press this button for 5 seconds.

4. Enter Button:
It is used to saving value in the programming screen.

LED DEFINITIONS
5. Alarm Output Led :
** The led is active when the alarm relay is active.
6. AC Measurement Led :
** The led is active when the measurement method AC is selected.
7. DC Measurement Led:
** The led is active when the measurement method DC is selected.
** If AC / DC is selected, AC and DC will be active at the same time.
8. Program led:
** Blinks in programming mode .
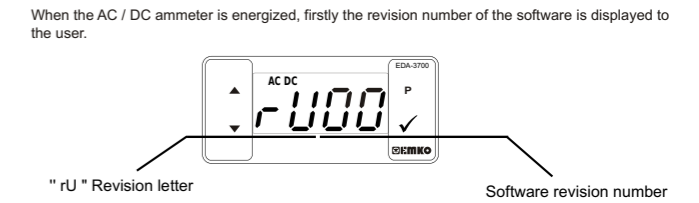
5. Programming Mode Parameter List

$\boxed{ctr}$ **Current conversion ratio parameter (Default = 5)**
It can be set from 5 to 9999. If this parameter is changed, these parameters ($\boxed{cUH}$, $\boxed{cUL}$, $\boxed{HSU}$, $\boxed{HSL}$) must be updated again.

$\boxed{tYP}$ **Measurement Metod Parameter(Default = AC/dC)**
Can be set to AC, DC, AC/DC.
$\boxed{AC}$ Measurement method is AC.
$\boxed{dC}$ Measurement method is DC.
$\boxed{ACdC}$ Measurement method is AC/DC.

$\boxed{Pnt}$ **Decimal Point Position Parameter (Default = 0.000)**
Decimal Point Position is determined by this parameter. It can be adjusted from 0 to 3.
$\boxed{0}$ No point "0"
$\boxed{0.0}$ Between first and second digits "0.0"
$\boxed{0.00}$ Between first and second digits "0.00"
$\boxed{0.000}$ Between first and second digits "0.000"

$\boxed{SPt}$ **Sampling Time Parameter (Default = 4)**
Sampling time is set with this parameter. It can be adjusted from 0 to 3.
$\boxed{1}$ Sampling time : 250ms
$\boxed{2}$ Sampling time : 500ms
$\boxed{3}$ Sampling time : 750ms
$\boxed{4}$ Sampling time: 1sn

$\boxed{cUH}$ **Up Limit Alarm Set Parameter(Default = 5.000)**
It can be adjusted between minimum and maximum scale that is specified with $\boxed{ctr}$ parameter. This parameter can't be lower than $\boxed{cUL}$ + $\boxed{HSU}$ + $\boxed{HSL}$

$\boxed{HSU}$ **Up Limit Alarm Hysteresis Parameter (Default = 0.100)**
It can be adjusted from 0 to $\boxed{ctr}$ / 5.
This parameter can not be greater than $\boxed{cUH}$ - $\boxed{cUL}$ - $\boxed{HSL}$

$\boxed{dLU}$ **Up Limit Alarm On Delay Time Parameter (Default = 0)**
It can be adjusted from 0 to 999.

$\boxed{cUL}$ **Low Limit Alarm Set Parameter(Default = 0.000)**
It can be adjusted between lower scale and upper scale that is specified with $\boxed{ctr}$ parameter. This parameter can't be higher than $\boxed{cUH}$ - $\boxed{HSU}$ - $\boxed{HSL}$

$\boxed{HSL}$ **Low Limit Alarm Hysteresis Parameter(Default = 0.100)**
It can be adjusted from 0 to $\boxed{ctr}$ / 5.
This parameter can not be greater than $\boxed{cUH}$ - $\boxed{cUL}$ - $\boxed{HSU}$

$\boxed{dLL}$ **Low Limit Alarm On Delay Time Parameter (Default = 0)**
It can set from 0 to 999 seconds.

$\boxed{SdL}$ **Up Limit Alarm Delay Time Parameter After Power On**
It can set from 0 to 999 seconds.

$\boxed{SAd}$ **Slave ID Parameter**
Device communication address parameter (1 to 247).

$\boxed{PAS}$ **Programming SectionAccessing Password (Default = 0)**
It is used for accessing to the programming section. It can be adjusted from 0 to 9999.
If it is selected 0, password will not be asked.

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5. 3 Entering to the Programming Mode, Changing and Saving Parameters

Main Operation Screen

When PROG button is pressed for 5 seconds, "P" led starts to blink. If programming mode entering password is different from 0, programming mode entering screen $\boxed{ProG}$ will be observed.

Note1: If programming mode accessing password is 0, Current conversion ratio parameter is $\boxed{ctr}$ observed instead of programming screen $\boxed{ProG}$

Password Entering Screen

Press ENTER button for accessing to the password entering screen.

Password Entering Screen

Enter programming mode accessing password with increment and decrement buttons.

Note-2: If programming mode accessing password is 0,only three parameters area ccessible,and the parameter values can be changed.

Password Entering Screen

Press ENTER button for entering the password.

Programming Screen

Press enter button for accessing to the parameter value. Press increment button for accessing to the next parameter, press decrement button for accessing to the previous parameter.

Current Conversion Ratio Parameter Value

Change the value with increment and decrement buttons.

Current Conversion Ratio Parameter Value
Press enter button for saving the parameter.

Measurement Method Parameter

Press increment button for accessing to the next parameter, press decrement button for accessing to the previous parameter

ℹ If no operation is performed in programming mode for 20 seconds, device turns to main ioperation screen automatically..

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6. Monitoring of Software Revision of EDA-3700 Devices

When the AC / DC ammeter is energized, firstly the revision number of the software is displayed to the user.

" rU " Revision letter

Software revision number

6.1 Error Messages on EDA-3700 AC / DC Ammeter

When the measured current value exceeds the upper scale, "nnnn" and "9999" are alternately displayed on the screen.

When the measured current value exceeds the subscale, "uuuu" and "-1999" are alternately displayed on the screen.