

**USER GUIDE**



**DIGITAL METER  
- 96x48**



- accuracy class D.C.  $\leq 0,2$  , A.C.  $\leq 0,5$
- resolution A/D converter  $\pm 20000$  count
- 6 digits high efficiency 7 segments led displays
- settings protected with password
- cont DIN 43700 panel mounting case (96 x 48)

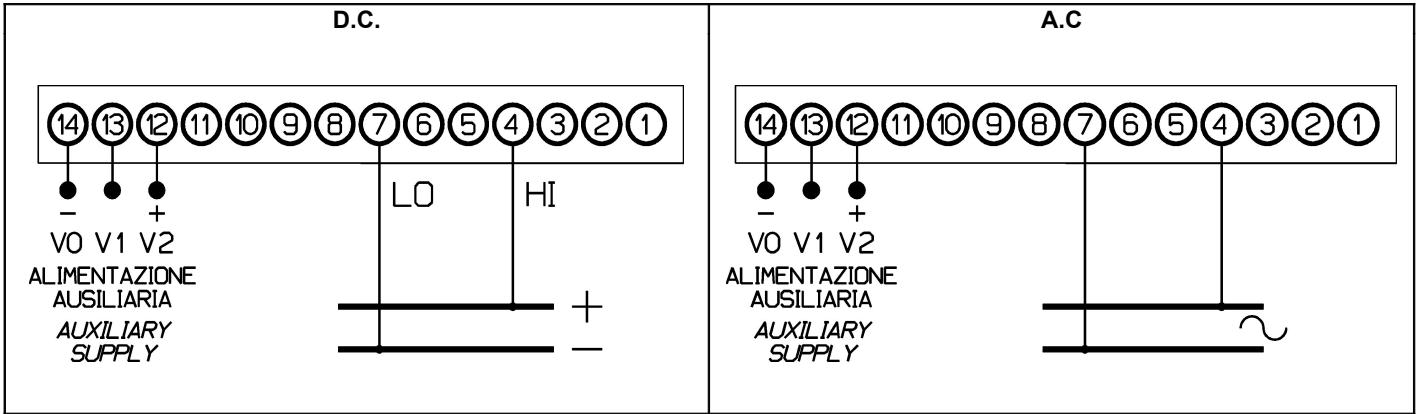
The digital meter **ID450x** designed and developed wholly by **ESAM** - is built to comply with all the requirements of measure . Adoption of the latest generation microprocessor, of a new measuring circuit, the careful choice of every component and the calibration with **EAL-SIT** certificated devices, provide the highest prec

Decription	Models
D.C. VOLTMETERS	ID4501
A.C. VOLTMETERS	ID4502
A.C. VOLTMETERS RMS	ID4502-TRMS
D.C. AMMETERS	ID4501
A.C. AMMETERS	ID4504
A.C. AMMETERS RMS	ID4504-TRMS
OHMMETERS	ID4505
FREQUENCY METERS	ID4506
THERMOMETERS	ID4507
TACHYMETERS	ID4508

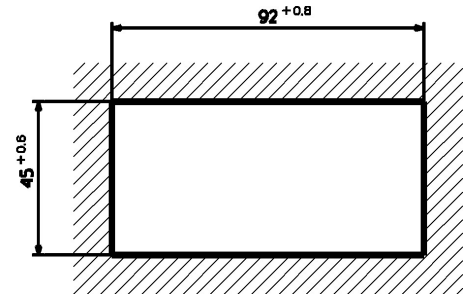
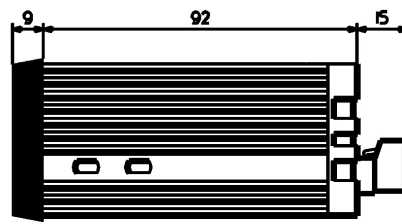
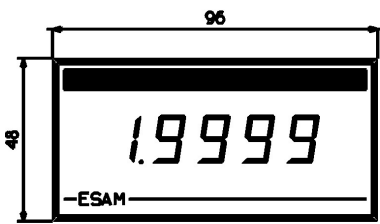
**Technical data**

- password: 4 digits
- 6 digits high efficiency 7 segment led displays, digit height: 15 mm (0,42")
- accuracy class for  $dc \leq 0,2\%$
- accuracy class for dc input  $\leq 0,5\%$
- number of decimal digits: 0 ...6
- programmable low range, high range
- temperature measurement: RTD Pt100 (100 $\Omega$  a 0°C)
- a.c. auxiliary power (standard): 115 - 230V  $\pm 10\%$  50/60Hz, on request: 24V
- d.c. auxiliary power (on request): 12V or 24V or 48V or 110V or 220V  $\pm 10\%$
- self-consumption  $\leq 5VA$  a.c., 5W d.c
- connections through screw terminal boards
- DIN 43700 panel mounting case in Noryl self-extinguishing material (UL94 V-0)

**Wiring diagrams**



**Overall dimensions**



**Reference standards**

Electrical features are according to the standards: CEI 85-15, EN60688, IEC688.  
 Safety features are according to the standards: CEI 66-5, EN61010-1, IEC 348, VDE 0411.  
 Standards for the electromagnetic compatibility: EN 50081-2 EN 50082-2, EN 55011

**Environmental conditions**

Operating temperature: -10°C ... +55°C  
 Working temperature: +5°C ... +40°C  
 Storage temperature: -30°C ... +70°C  
 Reference temperature: +20°C  
 Temperature coefficient: ±0,01%/°C

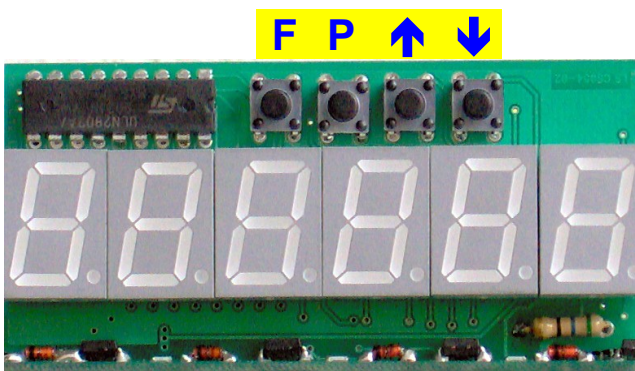
Environmental humidity 85% without condensation with 35°C temperature for maximum 60 gg./year; average year humidity must not exceed 65% (DIN40040).

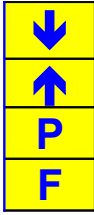
**Galvanic insulation**

Insulation between:

- analog inputs and auxiliary power 2kV/60 sec. 50Hz
- digital inputs and auxiliary power 2kV/60 sec. 50Hz
- digital inputs and analog inputs 1kV/60 sec. 50Hz

**KEY POSITION**



**FUNCTION OF THE BUTTONS DURING CONFIGURATION**

- CHOOSE THE PARAMETER TO CHANGE / DECREMENT THE BLINKING DIGIT
- CHOOSE THE PARAMETER TO CHANGE / INCREMENT THE BLINKING DIGIT
- EDIT THE DISPLAYED VALUE / SAVE THE MODIFICATIONS
- EXIT PROGRAMMING

**FUNCTION OF THE BUTTONS DURING NORMAL OPERATION**

+



ENTER ADVANCED CONFIGURATION MENU (parameters protected with password)

**NOTE 1: THE VALUE SELECTED WITH “↑↓” KEYS WILL BE DISPLAYED FOR 60 SECONDS, AFTER THIS TIME**

**GENERAL SETTING OF A NUMBER**

To modify any value, no matter its length, it is possible to use the following command sequence:

The blinking cursor can be moved right with “F” key. The number indicated by the cursor can be incremented with “↑” key or decremented with “↓” key.

In case of numbers with sign, The positive is indicated by “P” letter, the negative by “-” sign.

To modify the sign press “↑” or “↓” keys.

Set the first digit then move the cursor right to the next digit with “F” key; repeat until all digits have been set.

To modify non numerical value press “↑” or “↓” keys and choose among the proposed choices

At the end of the setting press “P” key to confirm the modification.

Key “F” allows to come back to normal measuring at any time and from any sub menu

If you set a number greater than the maximum number allowed, the label “tooHi” will be displayed for a few seconds and the number replaced with the maximum valid value.

If you set a number lower than the minimum number allowed, the label “tooLo” will be displayed for a few seconds and the number replaced with the minimum valid value.

**SWITCHING ON THE DEVICE**

At power on, the following message will be displayed for 2 seconds


The label **id4500...** indicates the model and the options (if present), the number **x.x** indicates software version.

**CONFIGURATION MENU**

Press in sequence “F” and “P” keys to enter the advanced configuration menu (password protected).

The default password is 0000, which disables password requests.

If any other password value has been previously set (see in the following how to do it), the message **ConFig Enter Password** will be displayed: enter the correct one and press “P” key to confirm.

All the parameters marked with  are accessible only in the **advanced configuration menu**

- SETTING THE NUMBER OF DECIMAL DIGITS OF DISPLAYED MEASURE**



Valid values: 0 ... 4

To skip the setting press “↓” key; save the data pressing “P” key, change the value with “↑” and “↓” key. “F” key allows to exit.


- SETTING ZERO THRESHOLD**



If value &lt; Min, value is zero.


To skip the setting press “↓” key; save the data pressing “P” key, change the value with “↑” and “↓” key. “F” key allows to exit.

• **SETTING THE LOW LIMIT OF THE MEASURING RANGE**

 **irnGL** To set the beginning of the measuring range.


To skip the setting press “↓” key; save the data pressing “P” key, change the value with “↑” and “↓” key. “F” key allows to exit.

• **SETTING OF THE HIGH LIMIT OF THE MEASURING RANGE**

 **irnGH** To set the end the measuring range.


To skip the setting press “↓” key; save the data pressing “P” key, change the value with “↑” and “↓” key. “F” key allows to exit.

• **SETTING DISPLAYED RANGE LOW LIMIT**

 **rnGL** To set the DISPLAYED value corresponding to a measured value equal to the beginning of the measuring range


To skip the setting press “↓” key; save the data pressing “P” key, change the value with “↑” and “↓” key. “F” key allows to exit.

• **SETTING DISPLAYED RANGE HIGH LIMIT**

 **rnGH** To set the DISPLAYED value corresponding to a measured value equal to the end of the measuring range.


To skip the setting press “↓” key; save the data pressing “P” key, change the value with “↑” and “↓” key. “F” key allows to exit.

• **SETTING OF MEASURE FILTER**

 **FiLteR** This setting allows to stabilize the reading.  
Valid values: from 1 to 20 (1 ≅ 100msec, 20 ≅ 2 sec ).


To skip the setting press “↓” key; save the data pressing “P” key, change the value with “↑” and “↓” key. “F” key allows to exit.

• **PASSWORD SETTING**

 **PASS** To change the password required to enter advanced configuration menu

To skip the setting press “↓” key; save the data pressing “P” key, change the value with “↑” and “↓” key. “F” key allows to exit.

• **LOADING OF DEFAULT PARAMETERS**

 **LoAd dEF** Load default factory values for all parameters (see Table 2 “DEFAULT VALUES”).  
Press “P”, then “CR” to confirm. Press any other keys to exit

**Table 2 DEFAULT VALUES**

Description	Description	Default values	Parameters	Description	Default values
ndec	measure, number of decimals	0	FiLteR	filter for measured value	1
Min	zero threshold	0	PASS	password setting	0000
irnGL	beginning of measuring range	0			
irnGH	end of measuring range	20000			
rnGL	low scale displayed value	0			
rnGH	high scale displayed value	20000			

ESAM reserves the right to make modifications in every moment to improve the project and to give the best product.