

# Revalco®

Made in Italy

## digital measuring instruments










2011

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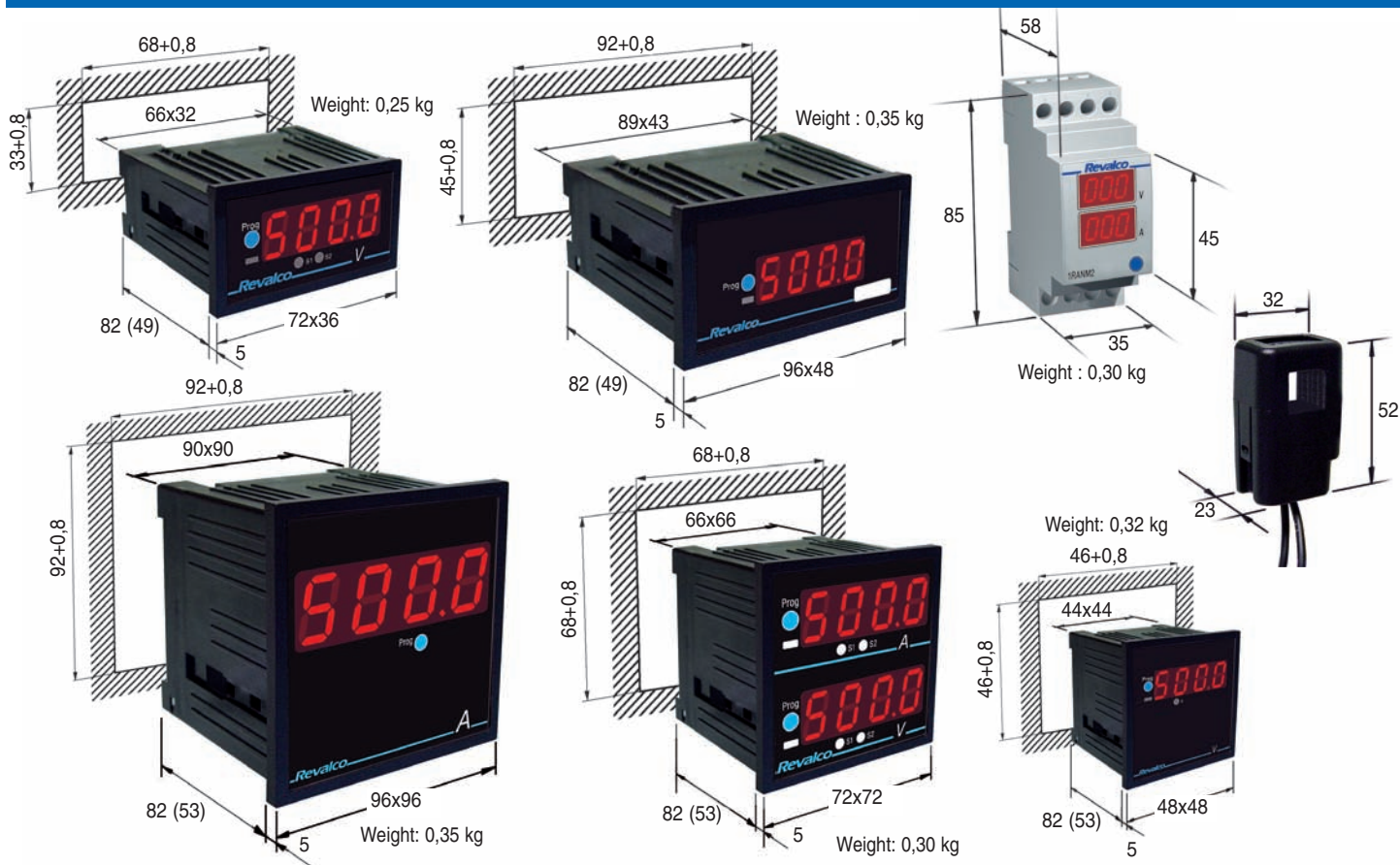
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# DIGITAL INSTRUMENTS TABLE

		<div></div> <div>SWITCHBOARD VERSION 4 DIGIT</div> <div></div> <div></div> <div>MODULAR VERSION 3 DIGIT</div>									
		STANDARD max depth 82 mm		TRUE RMS max depth 53 mm				TRUE RMS max depth 82 mm		TRUE RMS 2 DIN modules	
		A.C. current	D.C. current	A.C. current		D.C. current		A.C. and D.C. current		A.C. and D.C. current	
Alarm thresholds				NO	1 threshold	NO	1 threshold		2 thresholds (1 for 48x48)	NO	1 MIN + 1 MAX
VOLTMETERS	96X96								2RCD96V...-800		
	72X72								2RCD72V...-800		
	end scale 48X96								2RCD48V...-800		
	800V 36X72								2RCD36V...-800		
	Option RS485								...-800RS		
	Option 4/20mA								...420		
	With alarms								...S800		
	96X96							2RID96V...-600			
	72X72							2RID72V...-600			
	end scale 48X96							2RID48V...-600			
	600V 36X72							2RID36V...-600			
	Option RS485							...-600RS			
	Option 4/20mA							...420			
	With alarms							...S600			
	96X96	2ERID96V...	2ERCD96V...	2RID96SV...	2RID96SV...S	2RID96SV...	2RID96SV...S				
	72X72	2ERID72V...	2ERCD72V...	2RID72SV...		2RID72SV...					
end scale 48X48	2ERID488V...	2ERCD488V...									
48X96	2ERID48V...	2ERCD48V...	2RID48SV...	2RID48SV...S	2RID48SV...	2RID48SV...S					
36X72	2ERID36V...	2ERCD36V...	2RID36SV...		2RID36SV...						
2DIN									1RIMD2V...		
96X96							2RD96V...G100	2RD96V...GS100			
72X72							2RD72V...100	2RD72V...-S100			
48X48								2RD488V...-S100			
end scale 48X96							2RD48V...G100	2RD48V...GS100			
500V or 100V 36X72							2RD36V...100	2RD36V...-S100			
2DIN									1RMD2V...		
Option RS485							...100RS				
Option 4/20mA							...420				
96X96	2ERID96A...		2RID96SA...	2RID96SA...S							
72X72	2ERID72A...		2RID72SA...								
48X48	2ERID488A...										
input 5A 48X96	2ERID48A...		2RID48SA...	2RID48SA...S							
36X72	2ERID36A...		2RID36SA...								
2DIN									1RIMD2A...	1RSDI	
Option split current CT			...C100	...C100							
96X96		2ERCD96A...			2RCD96SA...	2RCD96SA...S					
72X72		2ERCD72A...			2RCD72SA...						
input 60mV 48X48		2ERCD488A...									
48X96		2ERCD48A...			2RCD48SA...	2RCD48SA...S					
36X72		2ERCD36A...			2RCD36SA...						
96X96							2RD96A...G	2RD96A...GS			
72X72							2RD72A...	2RD72A...-S			
48X48								2RD488A...-S			
input 5A (1A) or 60mV 48X96							2RD48A...G	2RD48A...GS			
with "Imax demand" 36X72							2RD36A...	2RD36A...-S			
2DIN									1RMD2A...		
Option RS485							...RS				
Option 4/20mA							...420				
96X96	2ERID96SF...						2RD96F...G	2RD96F...GS			
72X72	2ERID72SF...						2RD72F...	2RD72F...-S			
48X48	2ERID488SF...							2RD488F...-S			
48X96	2ERID48SF...						2RD48F...G	2RD48F...GS			
36X72	2ERID36SF...						2RD36F...	2RD36F...-S			
2DIN									1RIMD2F...		
Option RS485							...RS				
Option 4/20mA							...420				
DIGIT height		14 mm (8 mm 48x48)		14 mm				8 mm (48x48); 14 mm (36x72 e 72x72), 20 mm (96x96 e 48x96)		10 mm	

	<div>  <b>SWITCHBOARD VERSION 4 DIGIT</b>   <b>MODULAR VERSION 3 DIGIT</b> </div>									
	<b>STANDARD</b> max depth 82 mm		<b>TRUE RMS</b> max depth 53 mm				<b>TRUE RMS</b> max depth 82 mm		<b>TRUE RMS</b> 2 DIN modules	
	A.C. current	D.C. current	A.C. current		D.C. current		A.C. and D.C. current		A.C. and D.C. current	
<b>Alarm thresholds</b>			NO	1 threshold	NO	1 threshold	2 thresholds (1 for 48x48)		NO	1 MIN + 1 MAX
<b>PROCESS INSTRUMENTS</b> supplied with several measuring units set	<b>VOLTMETERS</b>	96X96					2RD96V...G101	2RD96V...GS101		
		72X72					2RD72V...101	2RD72V...-S101		
	end scale	48X48					2RD488V...101	2RD488V...-S101		
	10V or 1V	48X96					2RD48V...G101	2RD48V...GS101		
		36X72					2RD36V...101	2RD36V...-S101		
	2DIN								1RMD2V100(101)	
	Option RS485						..101RS			
	Option 4/20mA						...420			
	<b>MILLI AMMETERS</b>	96X96					2RD96T...G-...	2RD96T...GS...		
	input to define	72X72					2RD72T...-...	2RD72T...-S...		
<b>PROCESS INSTRUMENTS</b> supplied with several measuring units set	when ordering	48X48						2RD488T...-S...		
	between:	48X96					2RD48T...G-...	2RD48T...GS...		
	1-5-10-20-	36X72					2RD36T...-...	2RD36T...-S...		
	4/20 mA	2DIN							1RMD2T...	
	Option RS485						..RS			
	Option 4/20mA						...420			
	<b>SINGLE-PHASE DOUBLE</b>	96X96					2RD96AV..G	2RD96AV...GS		
	V+A	72X72					2RD72AV..	2RD72AV...-S		
		2DIN							1RMDA2V...	
	<b>SINGLE-PHASE DOUBLE</b>	2DIN							1RMD2VF	
<b>PROCESS INSTRUMENTS</b> supplied with several measuring units set	V+F								250...	
	<b>THREE-PHASE DOUBLE</b>	2DIN							1RMD23AV	
	V+A									
	<b>THREE-PHASE TRIPLE</b>	96X96					2RD963AV..			
	V+A+F	72X72					2RD723AV..			
	Option split current CT						...C100			
	DIGIT height	14 mm (8 mm 48x48)	14 mm				8 mm (48x48); 14 mm (36x72 e 72x72), 20 mm (96x96 e 48x96)		10 mm	

## DIMENSIONS IN mm



## QUALITY GUARANTEE

The **Revalco** range of measuring instruments are manufactured in accordance with the standards directed by recognised international organizations.

### GENERAL TECHNICAL CHARACTERISTICS

- **STANDARDS:** Revalco digital measuring instruments are manufactured according to EN61010-1, EN60688 electrical standards. Whereas with regard to dimensional characteristics it is necessary to refer to the DIN 43700/43718 standards.
- **TESTING VOLTAGE:** The instruments are tested according to the EN61010-1 standards with a 2KV voltage test at 50Hz for one minute between terminals, earth and auxiliary supply.
- **PRECISION CLASS:** The precision class is 0,5 +/-2 digit according to EN60688 and must be referred to the maximum reading achievable (end scale value)
- **ASSEMBLY POSITION:** The functionality of the digital indicators is independent of the position assumed on the electrical panel.
- **HOUSINGS:** Dimensions of boxes follow the DIN 43718/s standards. Black color for the switchboard instruments and grey for the module versions. The degree of protection is IP52 for the inside of the instrument while the terminals have IP00 according to DIN 40050 and IEC 144 standards. The IP40 degree of protection can be reached on the terminals by using the special rear terminal covers. The housings are made up of self-extinguishing thermoplastic material according to UL94 standards, V-0 classification, resistant to termites and mould.
- **DISPLAY:** These are made up of 14 mm height red leds on the types 2ERID... and 2RD...; while are 20 mm height on the types 2RD...G/2RD...GS; 8 mm height on the types 48x48. On the modular version the LED height is 10 mm.
- **TERMINALS:** These are made of electronic terminals on switchboard models, while the modular versions have the brass screws.
- **OPERATING TEMPERATURE:** The digital indicators satisfy the requisites of the IEC standards, paragraph 8.4.1 for which the functioning temperature should be 20°C +/- 10°C; they can however function at a temperature ranging between -10 and +55°C with a variation of the class indicator included within +/-0,05 % / °C
- **STORAGE TEMPERATURE:** The storage temperature should range from -40 and +70°C.
- **HUMIDITY:** The instruments function with a maximum relative humidity of 85% without undergoing condensation, at a temperature of +35°C for a maximum of 60 days per year. The average annual value of relative humidity should not exceed 65% (DIN 40040 standards). The instruments in **tropicalised execution** can exceed the values mentioned above and function with a maximum relative humidity of 95% at a temperature of +35°C for a maximum of 30 days per year; and in this case the average annual value of relative humidity should not exceed 75%
- **RESISTANCE TO VIBRATIONS:** The digital indicators support vibrations on the 3 axes ranging from 3 and 0,35mm of intensity and with a frequency ranging between 5 and 60Hz (0,3/5g)
- **FIXING:** The instruments are suitable for fixing to the switchboard by means of two rods with screws which can be applied to the sides of the instrument, or using rapid fixing systems. On the modular version the instruments are directly fixed on the DIN rail.
- **MULTISCALE FUNCTION:** The ammeters for use with a C.T. or Shunts are arranged for selecting the different capacities, by adjusting the frontal buttons. The voltmeter can select two different scales.
- The multiscale function has been specially designed for providing substantial advantages as follows:
  - **Reduction in warehouse investments.** It is in fact no longer necessary to stock a vast assortments of instruments with different scales.
  - **Reduction of storage space.** As a substantial assortment of instruments with varied capacities is not necessary, a considerable amount of space is saved.
  - **Reduced delivery time.** Without creating your own stock, goods are available from wholesalers agents or at Revalcos central premises.
  - **Rapid variation in the scale bottom.** The variation in the scale can also be carried out by non specialized personnel as it is necessary to pay a minimum amount of attention during this operation and to ensure that the various components are correctly positioned.
- **TRUE RMS:** these instruments are manufactured using a special technology in order to obtain the real reading of system adding the DC and AC components of current and voltages according to the formule:  $VAL_{rms} = \sqrt{(AC)^2 + (DC)^2}$  Obtained measure is without algebraic mark.

### FAST FIXING SYSTEM



Two fixing systems  
(equal for all models)  
supplied together with  
the instruments

### STANDARD FIXING SYSTEM

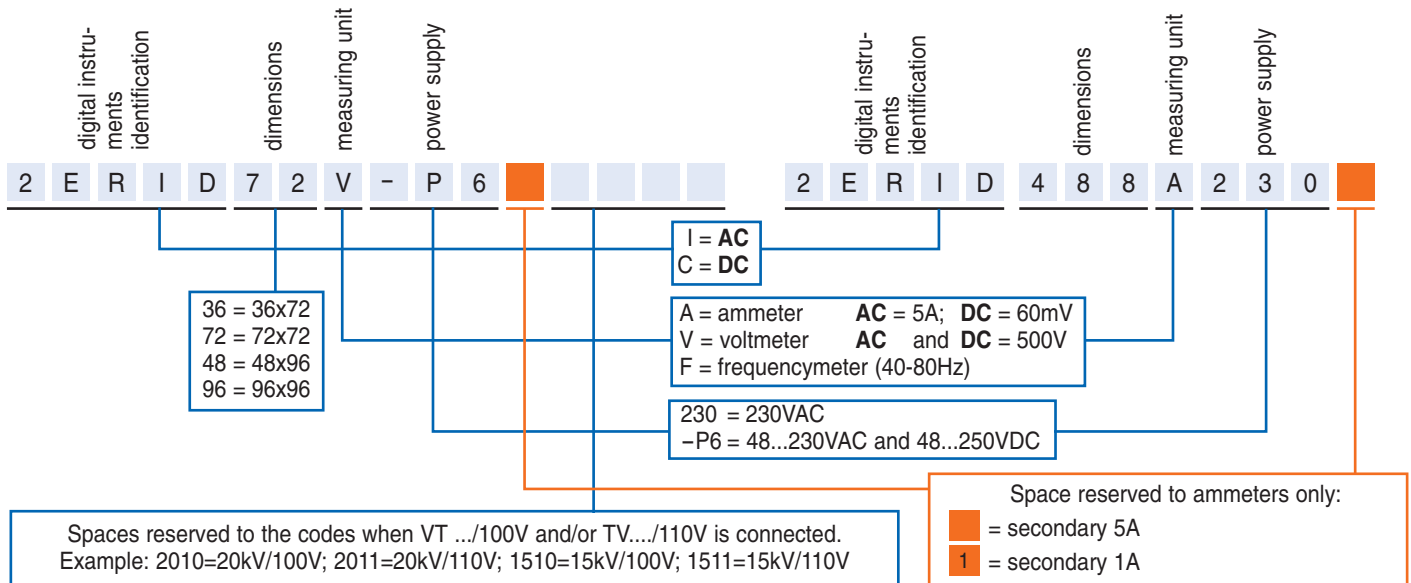


# SWITCHBOARD INSTRUMENTS - STANDARD

## CODES TABLES

ammeters, voltmeters and frequencymeters 36x72, 48x96, 72x72 and 96x96

ammeters, voltmeters and frequencymeters 48x48



## FREQUENCYMETERS

DEPTH 82 mm



2ERID96F230



2ERID72F230



2ERID488F230



2ERID48F230



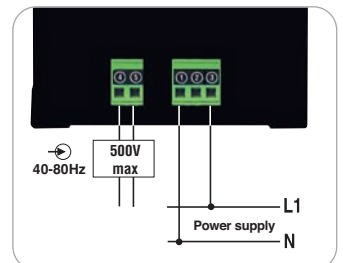
2ERID36F230

- BURDEN / CLASS
- POWER SUPPLY
- DISPLAY
- RANGE
- ORDER EXAMPLES

2ERID36F230  
2ERID48F230  
2ERID72F-P6  
2ERID96F-P6  
2ERID488F230

1,5VA / 0,5% ±2 digit referred to the end scale  
230VAC ±10% standard 50/60Hz.  
1 display 4 digits red colour. Digit height 14 mm (8 mm for model 48x48)  
from 40 to 80Hz max 500V

power supply 230VAC - 36x72 mm  
power supply 230VAC - 48x96 mm  
sole power supply 48...230VAC and 48...250VDC - 72x72 mm  
sole power supply 48...230VAC and 48...250VDC - 96x96 mm  
power supply 230VAC - 48x48 mm



## AMMETERS

DEPTH 82 mm



2ERID96A230  
2ERCD96A230



2ERID72A230  
2ERCD72A230



2ERID488A230  
2ERCD488A230



2ERID48A230  
2ERCD48A230



2ERID36A230  
2ERCD36A230

AC Codes  
DC Codes

- BURDEN / CLASS
- POWER SUPPLY
- FREQUENCY
- DISPLAY
- END SCALE VALUE
- AC RANGE
- DC RANGE
- ORDER EXAMPLES
- PROGRAMMING

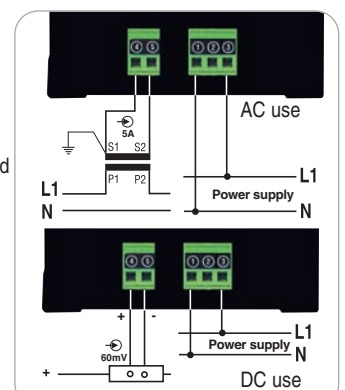
2ERID36A230  
2ERID48A230  
2ERID72A-P6  
2ERID96A-P6  
2ERID488A230

2ERCD36A230  
2ERCD48A230  
2ERCD72A-P6  
2ERCD96A-P6  
2ERCD488A230

1,5VA / 0,5% ±2 digit referred to the end scale  
230VAC ±10% standard 50/60Hz.  
45÷65 Hz  
1 display 4 digits red colour. Digit height 14 mm (8 mm for model 48x48)  
from 1 to 9000A with 5A steps, selectable by a frontal button  
Input 5A - it is necessary to connect the CT .../5A correspondent to the end scale value setted  
Input 60mV - it is necessary to connect the shunt.../60mV correspondent to the end scale value setted

power supply 230VAC - 36x72 mm  
power supply 230VAC - 48x96 mm  
sole power supply 48...230VAC and 48...250VDC - 72x72 mm  
sole power supply 48...230VAC and 48...250VDC - 96x96 mm  
power supply 230VAC - 48x48 mm

To enter in programming page press the frontal button "SEL", then select the needed end scale value by pressing the buttons "Up" or "Down".  
To exit press again "SEL" button.



# VOLTMETERS

DEPTH 82 mm



AC Codes  
DC Codes

2ERID96V230  
2ERCD96V230

2ERID72V230  
2ERCD72V230

2ERID488V230  
2ERCD488V230

2ERID48V230  
2ERCD48V230

2ERID36V230  
2ERCD36V230

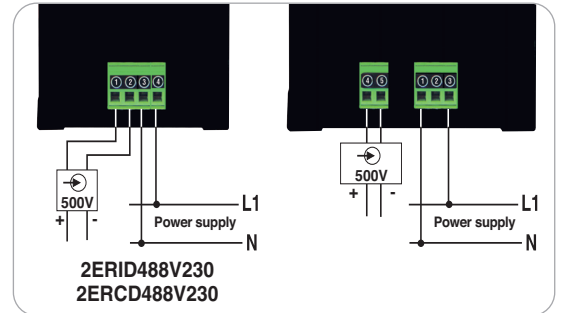
- BURDEN / POWER SUPPLY
- FREQUENCY
- CLASS
- DISPLAY

1VA / 230VAC  $\pm 10\%$  standard 50/60Hz.  
45÷65 Hz  
0,5%  $\pm 2$  digit referred to the end scale  
1 display 4 digits red colour.  
Digit height 14 mm (8 mm for model 48x48)  
500V standard. 100V and 110V VT insertion on request  
500V standard

- AC RANGE
- DC RANGE
- ORDER EXAMPLES

2ERID36V230 2ERCD36V230  
2ERID48V230 2ERCD48V230  
2ERID72V-P6 2ERCD72V-P6  
2ERID96V-P6 2ERCD96V-P6  
2ERID488V230 2ERCD488V230

power supply 230VAC - 36x72 mm  
power supply 230VAC - 48x96 mm  
sole power supply 48...230VAC and 48...250VDC - 72x72 mm  
sole power supply 48...230VAC and 48...250VDC - 96x96 mm  
power supply 230VAC - 48x48 mm



## SWITCHBOARD INSTRUMENTS - TRMS - REDUCED DEPTH

### AMMETER 5A + option "Split current CT"

AC CURRENT

DEPTH 53 mm



2RID96SA...  
2RID96SA...-C100

2RID72SA...  
2RID72SA...-C100

2RID48SA...  
2RID48SA...-C100

2RID36SA...  
2RID36SA...-C100

- BURDEN / CLASS
- POWER SUPPLY

0,5VA / 0,5%  $\pm 2$  digit referred to the end scale  
230VAC  $\pm 10\%$  standard 50/60Hz.  
For different supply see the codes on the order examples.

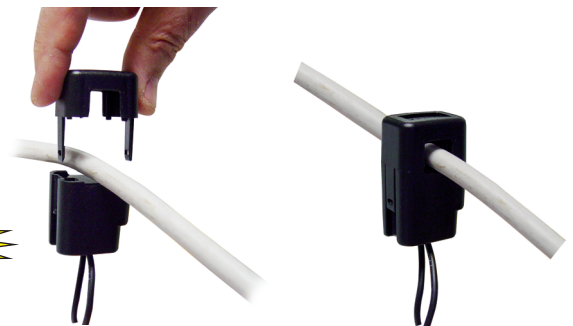
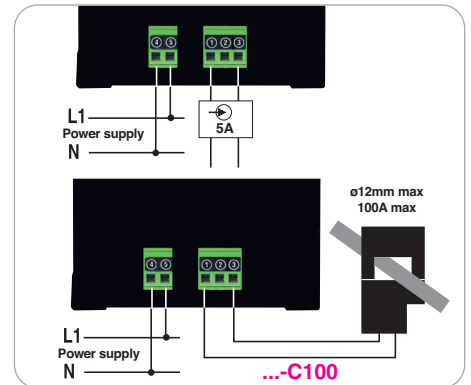
- FREQUENCY
- DISPLAY
- AC RANGE

- Input 5A - it is necessary to connect the CT .../5A correspondent to the end scale value setted.

- ORDER EXAMPLES

2RID72SA230  
2RID36A-24  
2RID96A110  
2RID48A110C  
2RID96A220C

power supply 230VAC, input 5A - 72x72 mm  
power supply 24VAC, input 5A - 36x72 mm  
power supply 110VAC, input 5A - 96x96 mm  
power supply 110VDC, input 5A - 48x96 mm  
power supply 220VDC, input 5A - 96x96 mm



These codes (....-C100) are supplied together with a mini split core transformer in class 1 able to measure up to 100A and powers up to 23kW single phase. This solution permits a quick installation in already existing panels or nets as that it is not necessary to disconnect the power cable as needed by the classic current transformers. This CT accepts a cable diameter 12mm maximum and its position on the cable doesn't influence the readings.

### AC CURRENT WITH THRESHOLD ALARM



2RID96SA...S  
2RID96SA...S-C100

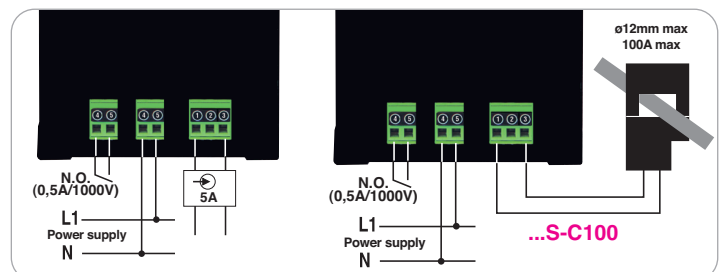
2RID48SA...S  
2RID48SA...S-C100

- THRESHOLD ALARM
- ORDER EXAMPLES

2RID48SA230-S  
2RID96SA-24-S  
2RID96SA110-S  
2RID48SA110C-S  
2RID96SA220C-S

1 N.O. - 0,5A/1000V

230VAC, input 5A - 48x96mm - with threshold alarm  
24VAC, input 5A - 96x96mm - with threshold alarm  
110VAC, input 5A - 96x96 mm - with threshold alarm  
110VDC, input 5A - 48x96 mm - with threshold alarm  
220VDC, input 5A - 96x96 mm - with threshold alarm



# AMMETER 60mV

DC CURRENT - DEPTH 53 mm



2RCD96SA...



2RCD72SA...



2RCD48SA...



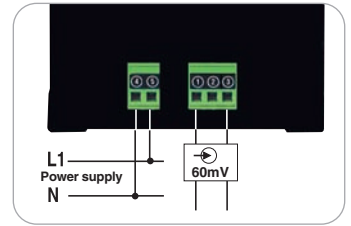
2RCD36SA...

- BURDEN 0,5VA
- POWER SUPPLY 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- CLASS 0,5%  $\pm 2$  digit referred to the end scale
- DISPLAY 1 display 4 digits red colour. Digit height 14 mm
- DC RANGE from 5,00 to 9999 - **PROGRAMMING**: see following pages
- Input 60mV it is necessary to connect the Shunt .../60mV correspondent to the end scale value setted

## ORDER EXAMPLES

2RCD72SA230  
2RCD36A-24  
2RCD96A110  
2RCD48A110C  
2RCD96A220C

power supply 230VAC, input 60mV - 72x72mm  
power supply 24VAC, input 60mV - 36x72mm  
power supply 110VAC, input 60mV - 96x96 mm  
power supply 110VDC, input 60mV - 48x96 mm  
power supply 220VDC, input 60mV - 96x96 mm



2RCD96SA...S



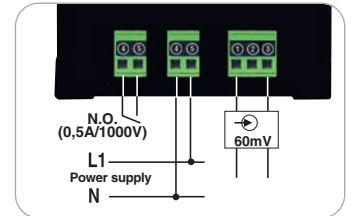
2RCD48SA...S

- THRESHOLD ALARM
- ESEMPLI D'ORDINE

1 N.O. - 0,5A/1000V

2RCD48SA110-S  
2RCD48SA230-S  
2RCD48SA-24-S  
2RCD48SA110C-S  
2RCD96SA220C-S

power supply 110VAC, input 60mV - 48x96mm - with threshold alarm  
power supply 230VAC, input 60mV - 48x96mm - with threshold alarm  
power supply 24VAC, input 60mV - 48x96mm - with threshold alarm  
power supply 110VDC, input 60mV - 48x96 mm - with threshold alarm  
power supply 220VDC, input 60mV - 96x96 mm - with threshold alarm



DC CURRENT WITH THRESHOLD ALARM - DEPTH 53 mm

# VOLTMETERS 500V

AC AND DC - DEPTH 53 mm



2RID96SV...



2RID72SV...



2RID48SV...

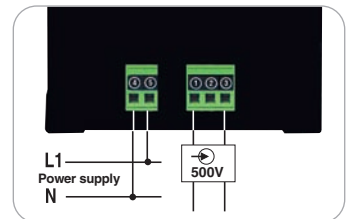


2RID36SV...

- BURDEN / CLASS 1,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- POWER SUPPLY 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- FREQUENCY 0÷100 Hz
- DISPLAY 1 display 4 digits red colour. Digit height 14 mm
- AC and DC range 500V - In DC use the instrument shows positive measures only. - **PROGRAMMING** see following pages
- ORDER EXAMPLES

2RID72SV230  
2RID36SV-24  
2RID48SV110  
2RID48SV110C  
2RID96SV220C

power supply 230VAC, input 500V - 72x72mm  
power supply 24VAC, input 500V - 36x72mm  
power supply 110VAC, input 500V - 48x96mm  
power supply 110VDC, input 500V - 48x96 mm  
power supply 220VDC, input 500V - 96x96 mm



AC AND DC WITH THRESHOLD ALARM - DEPTH 53 mm



2RID96SV...S

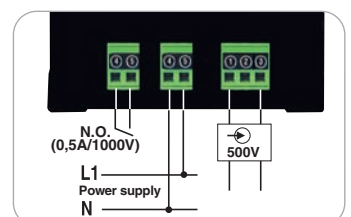


2RID48SV...S

- THRESHOLD ALARM
- ORDER EXAMPLES

1 N.O. - 0,5A/1000V  
2RID48SV110-S  
2RID48SV230-S  
2RID36SV-24-S  
2RID48SV110C-S  
2RID96SV220C-S

- **PROGRAMMING** see following pages  
power supply 110VAC, input 500V - 48x96 mm with threshold alarm  
power supply 230VAC, input 500V - 48x96 mm with threshold alarm  
power supply 24VAC, input 500V - 36x72 mm with threshold alarm  
power supply 110VDC, input 500V - 48x96 mm with threshold alarm  
power supply 220VDC, input 500V - 96x96 mm with threshold alarm



# PROGRAMMINGS

## FOR SWITCHBOARD INSTRUMENTS SERIE 2RID... 2RCD... REDUCED DEPTH

To enter in programming page, make a long pressure (4 seconds about) on the front button. Releasing the button all words will flash quickly, this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed. To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.

The following programming pages can be present or not depending by the model used.



The value which appear when the button is released, is the TRMS component, so the measure doesn't has any mark

### DEFAULT PARAMETER POSSIBLE VALUES DESCRIPTION

	VALUE from 500 to 9999	This page selects the end scale value (except the decimal point, automatic) which must be shown when the input signal is maximum. For DC measurements there is simmetricity also for negative values obtained when the input polarity is inverted (ammeter 60mV only). Selecting values less than 500, the decimal point is automatically positioned. Default value 500.0
End scale Page valid for ammeter only		
	VALUE from 1 to 255	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display. Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 255; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value 30.
average		
	VALUE from 0 to 200	In case the display (once powered and without input connection) shows a value different from zero, select this page and set the same value pushing the frontal button. Example: is display shows 002, select 2 by the frontal button. Default value 0.
zero adjuster		
		Proper relay and led will be activated when the value of the measure will be <b>higher</b> than the selected limit (max threshold) Default value "Hi".
threshold 1 activation or deactivation	active max threshold	
		Proper relay and led will be activated when the value of the measure will be <b>lower</b> than the selected limit (min threshold)
	active min threshold	
	deactive threshold	Relay and led will be never active so the other programming pages connected with the thresholds will be not available.

Available page only if "th1" is different from "OFF"

		Delay time is applied during the <u>activation</u> . Relay will works after the selected delay time.
threshold 1 delay application	Excitation delay	
		Delay time is applied during the <u>deactivation</u> . Relay will works after the selected delay time.
	Not excitation delay	

Available page only if "th1" is different from "OFF"

	VALUE from 0.0 to 25.5	This page selects the delay time value, expressed in seconds. Default value 0.2
threshold 1 delay time		

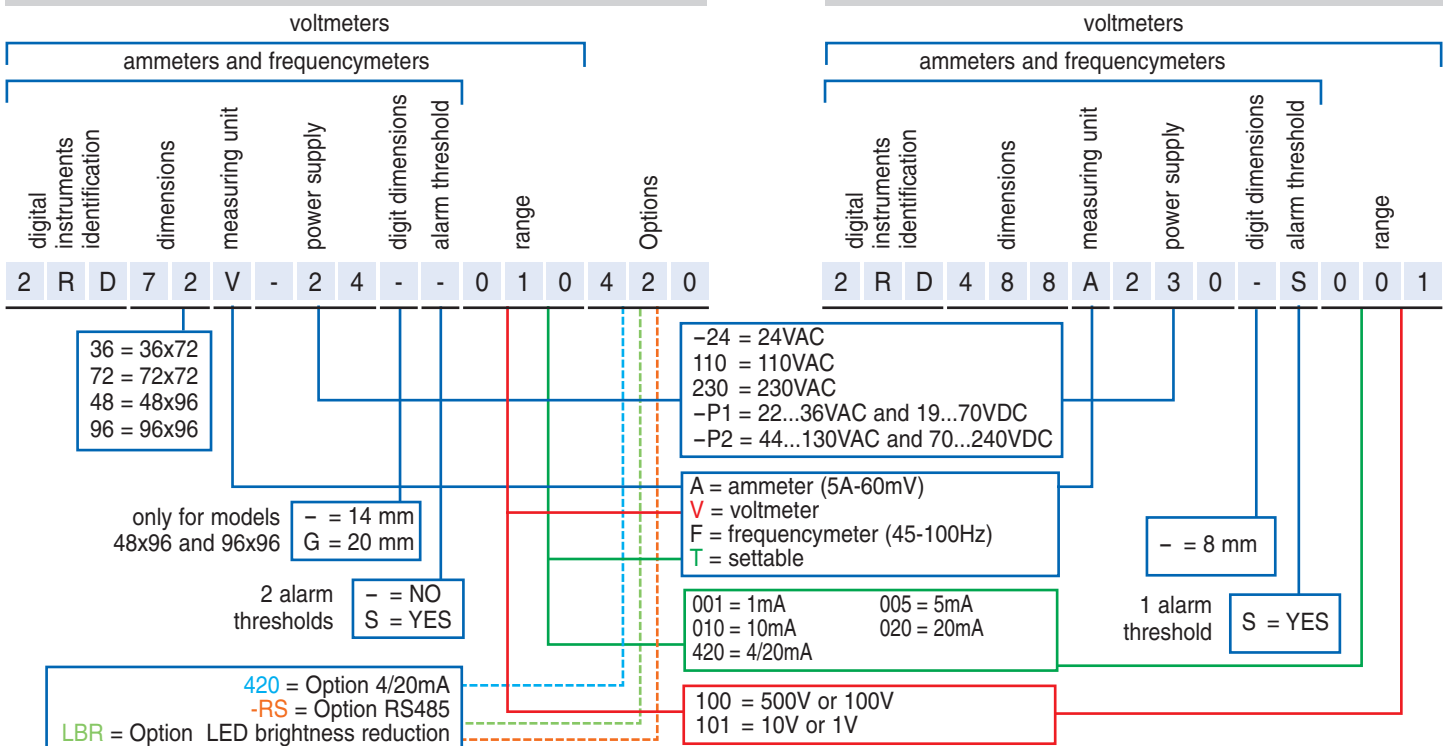
Available page only if "th1" is different from "OFF"

	VALUE from -9999 to +9999	It is the threshold intervention value (except the decimal point) Default value 250
threshold 1 value		

## SWITCHBOARD INSTRUMENTS - TRUE RMS - DEPTH 82mm

ammeters, voltmeters and frequencymeters 36x72, 48x96, 72x72 and 96x96

ammeters, voltmeters and frequencymeters 48x48



# VOLTMETERS 500V or 100V + option RS485 + option 4/20mA + option LBR

DEPTH 82 mm



2RD96V230G100  
2RD96V230G-100-RS  
2RD96V230G-100420  
2RD96V230G-100LBR



2RD72V230100  
2RD72V230--100-RS  
2RD72V230--100420  
2RD72V230--100LBR



2RD48V230G100  
2RD48V230G-100-RS  
2RD48V230G-100420  
2RD48V230G-100LBR



2RD36V230100  
2RD36V230--100-RS  
2RD36V230--100420  
2RD36V230--100LBR

- **BURDEN / CLASS** 0,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- **POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- **FREQUENCY** 0  $\div$  100 Hz
- **DISPLAY** 1 display 4 digits red colour. 20 mm height digit for models 48x96 and 96x96  
14 mm height digit for models 36x72 and 72x72
- **AC/DC RANGE** 500V (lower ranges can be selected using the "Dot" function in "Programming page") or 100V (used as end scale value or secondary input from VT). Primaries values between 0500 to 9999V with 5V steps can be selected by the front button



**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**

If 500V input is used, it is non possible to connect the 100V terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.



As option, it is possible to have this range with an output RS485 MODBUS RTU (insulation 3kV).

Option not available for model 36x72 mm with DC auxiliary supply.



Option 4/20mA (passive 2 wires aux supply 20...30VDC).

This analogue output cannot be present together with option RS485.



Option LED Brightness Reduction permits to reduce the brightness of led when requested.

Especially indicated for naval and rail-way use

## ORDER EXAMPLES

2RD36V-24--100  
2RD48V110G-100  
2RD72V-P1--100  
2RD96V-P2G-100420  
2RD36V230--100-RS  
2RD36V230--100LBR

## PROGRAMMING

The options cannot be present contemporary (one option excludes the other two)

24VAC, input 500V or 100V - 36x72mm

110VAC, input 500V or 100V - 48x96mm

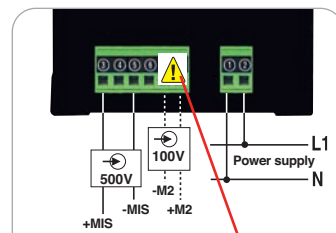
22...36VAC and 19...70VDC, input 500V or 100V - 72x72mm

44...130VAC and 70...240VDC, input 500V or 100V - 96x96mm - output 4/20mA

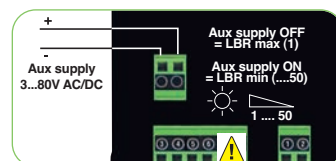
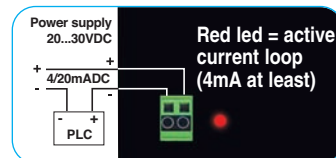
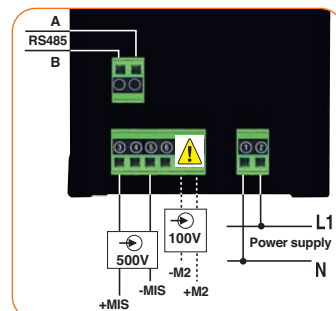
230VAC, input 500V or 100V - 36x72mm - output RS485

230VAC, input 500V or 100V - 36x72mm - option Led Brightness Reduction

see following pages



This label covers the terminals related to the lower voltage input in order to avoid wrong connections.



## WITH THRESHOLD ALARM - DEPTH 82 mm



2RD96V230GS100



2RD72V230-S100



2RD488V230-S100



2RD48V230GS100



2RD36V230-S100

- **BURDEN** 0,5VA
- **POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- **FREQUENCY** 0  $\div$  100 Hz
- **CLASS** 0,5%  $\pm 2$  digit referred to the end scale
- **DISPLAY** 1 display 4 digits red colour. 20 mm height digit for models 48x96 and 96x96  
14 mm height digit for models 36x72 and 72x72  
8 mm height digit for model 48x48
- On 48x48 model the left upper side led is lighted-on with DC measures only
- **AC/DC RANGE** 500V (lower ranges can be selected using the "Dot" function in "Programming page") or 100V (used as end scale value or secondary input from VT selected by the front button)



**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**

If 500V input is used, it is non possible to connect the 100V terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.

- **THRESHOLD ALARM** 1 threshold alarm for model 48x48, 2 threshold alarms for other model
- **RELAYS CHARACTERISTICS** 8A, 250V (0,1A - 230V for model 48x48)
- **ORDER EXAMPLES**

2RD36V230-S100  
2RD48V-24GS100  
2RD488V110-S100  
2RD72V-P1-S100  
2RD96V-P2GS100

## PROGRAMMING

230VAC, input 500V or 100V - 36x72mm

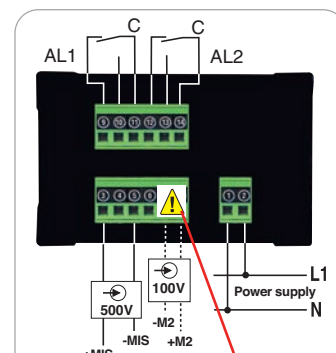
24VAC, input 500V or 100V - 48x96mm

110VAC, input 500V or 100V - 48x48mm

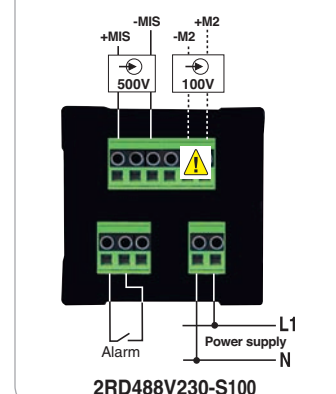
22...36VAC and 19...70VDC, input 500V or 100V - 72x72mm

44...130VAC and 70...240VDC, input 500V or 100V - 96x96mm

see following pages



This label covers the terminals related to the lower voltage input in order to avoid wrong connections.



# VOLTMETERS 10V or 1V + option RS485 + option 4/20mA + option LBR

DEPTH 82 mm

**NEW**



2RD96V230G-101  
2RD96V230G-101-RS  
2RD96V230G-101420  
2RD96V230G-101LBR



2RD72V230--101  
2RD72V230--101-RS  
2RD72V230--101420  
2RD72V230--101LBR



2RD48V230G-101  
2RD48V230G-101-RS  
2RD48V230G-101420  
2RD48V230G-101LBR



2RD36V230--101  
2RD36V230--101-RS  
2RD36V230--101420  
2RD36V230--101LBR

- BURDEN / CLASS** 0,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- FREQUENCY** 0  $\div$  100 Hz
- DISPLAY** 1 display 4 digits red colour. 20 mm height digit for models 48x96 and 96x96  
14 mm height digit for models 36x72 and 72x72
- AC/DC RANGE** 10V and 1V (lower ranges can be selected using the "Dot" function in "Programming page")



**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**

If 10V input is used, it is non possible to connect the 1V terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.



As option, it is possible to have this range with an output RS485 MODBUS RTU (insulation 3kV).  
Option not available for model 36x72 mm with DC auxiliary supply.



Option 4/20mA (passive 2 wires aux supply 20...30VDC).

This analogue output cannot be present together with option RS485.



Option LED Brightness Reduction permits to reduce the brightness of led when requested. Especially indicated for naval and rail-way use

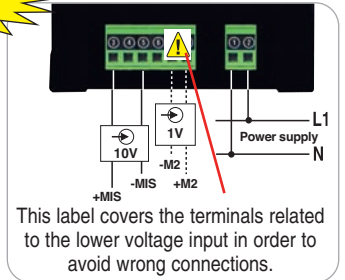
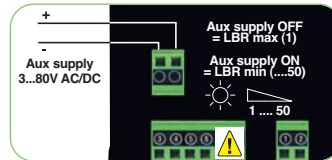
## ORDER EXAMPLES

The options cannot be present contemporary (one option excludes the other two)

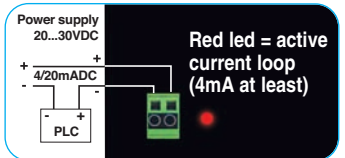
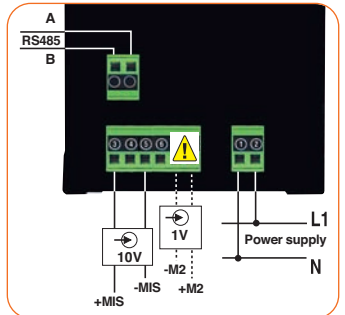
- 2RD36V-24--101 24VAC, input 10V or 1 V - 36x72mm
- 2RD48V110G-101 110VAC, input 10V or 1 V - 48x96mm
- 2RD72V-P1--101 22....36VAC and 19....70VDC, input 10V or 1 V - 72x72mm - output 4/20mA
- 2RD96V-P2G-101 44....130VAC and 70....240VDC, input 10V or 1 V - 96x96mm
- 2RD36V230--101RS 230VAC, input 10V or 1V - 36x72mm - output RS485
- 2RD36V230--101LBR 230VAC, input 10V or 1V - 36x72mm - option LBR (Led Brightness Reduction)

## PROGRAMMING

see following pages



This label covers the terminals related to the lower voltage input in order to avoid wrong connections.



A	kA	W
V	kV	Hz
kW	kVA	kvar
l/sec	l/min	l/h
m/sec	m/min	m/h
°C	g	kg
°F	Giri/min	RPM
%	bar	dB
mA	Personal unit	

With these codes, adhesive labels set is supplied free of charge.  
It contains several measuring units to apply on the proper front area under necessity.

## WITH THRESHOLD ALARM - DEPTH 82 mm



2RD96V230GS101



2RD72V230-S101



2RD48V230-S101



2RD48V230GS101



2RD36V230-S101

- BURDEN** 0,5VA
- POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- FREQUENCY** 0  $\div$  100 Hz
- CLASS** 0,5%  $\pm 2$  digit referred to the end scale
- DISPLAY** 1 display 4 digits red colour. 20 mm height digit for models 48x96 and 96x96;  
14 mm height digit for models 36x72 and 72x72; 8 mm height digit for model 48x48
- On 48x48 model the left upper side led is lighted-on with DC measures only
- AC/DC RANGE** 10V and 1V (lower ranges can be selected using the "Dot" function in "Programming page")
- THRESHOLD ALARM** 1 threshold alarm for model 48x48, 2 threshold alarms for other model
- RELAYS CHARACTERISTICS** 8A, 250V (0,1A - 230V for model 48x48)



**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**

If 10V input is used, it is non possible to connect the 1V terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.

## ORDER EXAMPLES

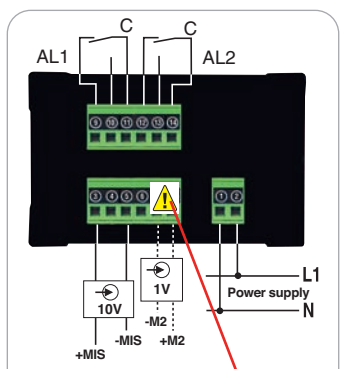
- 2RD48V230-S101 230VAC, input 10V or 1V - 48x48mm
- 2RD36V-24-S101 24VAC, input 10V or 1V - 36x72mm
- 2RD48V230GS101 230VAC, input 10V or 1V - 48x96mm
- 2RD72V-P1-S101 22....36VAC and 19....70VDC, input 10V or 1V - 72x72mm
- 2RD96V-P2GS101 44....130VAC and 70....240VDC, input 10V or 1V - 96x96mm

## PROGRAMMING

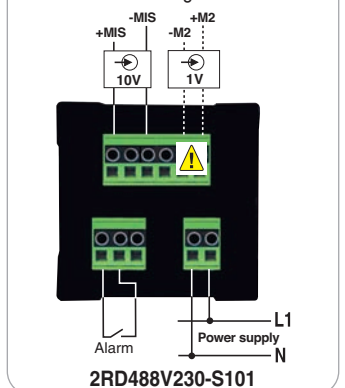
see following pages

A	kA	W
V	kV	Hz
kW	kVA	kvar
l/sec	l/min	l/h
m/sec	m/min	m/h
°C	g	kg
°F	Giri/min	RPM
%	bar	dB
mA	Personal unit	

With these codes, adhesive labels set is supplied free of charge.  
It contains several measuring units to apply on the proper front area under necessity.



This label covers the terminals related to the lower voltage input in order to avoid wrong connections.



2RD48V230-S101

# VOLTMETERS 600V AC

## + option RS485 + option 4/20mA + option LBR

DEPTH 82 mm



2RID96V230G-600  
2RID96V230G-600-RS  
2RID96V230G-600420  
2RID96V230G-600LBR



2RID72V230-600  
2RID72V230-600-RS  
2RID72V230-600420  
2RID72V230-600LBR



2RID48V230G-600  
2RID48V230G-600-RS  
2RID48V230G-600420  
2RID48V230G-600LBR



2RID36V230-600  
2RID36V230-600-RS  
2RID36V230-600420  
2RID36V230-600LBR

**NEW**

- BURDEN / CLASS 0,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- POWER SUPPLY 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- FREQUENCY 0÷100 Hz
- DISPLAY 1 display 4 digits red colour. 20 mm height for models 48x96 and 96x96; 14 mm height for models 36x72 and 72x72
- DC RANGE 600V AC - **PROGRAMMING** see following pages

⚠ As option, it is possible to have this range with an output RS485 MODBUS RTU (insulation 3kV).  
Option not available for model 36x72 mm with DC auxiliary supply.

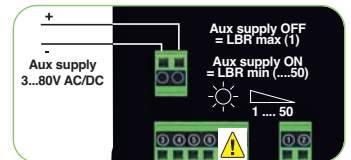
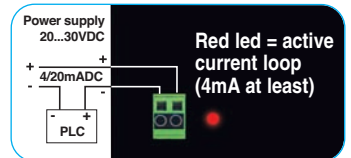
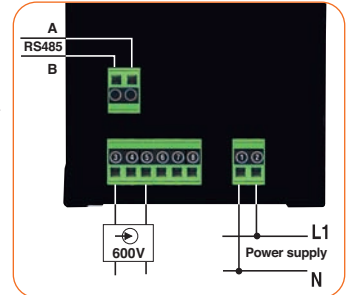
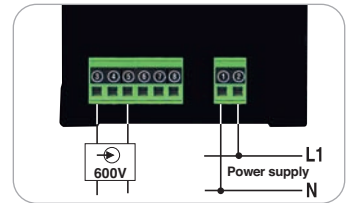
⚠ Option 4/20mA (passive 2 wires aux supply 20...30VDC).  
This analogue output cannot be present together with option RS485.

⚠ Option LED Brightness Reduction permits to reduce the brightness of led when requested.  
Especially indicated for naval and rail-way use

### - ORDER EXAMPLES

The options cannot be present contemporary (one option excludes the other two)

- |                                      |  |
|--------------------------------------|--|
| 2RID36V230G-600 (2RID36V230-600-RS)  | 230VAC - 36x72mm (output RS485)                        |
| 2RID72V-P1-600 (2RID72V-P1-600420)   | 22....36VAC and 19....70VDC - 72x72mm (output 4/20mA)  |
| 2RID96V-P2G-600 (2RID96V-P2G-600-RS) | 44....130VAC and 70....240VDC - 96x96mm (output RS485) |
| 2RID72V-P1-600 (2RID72V-P1-600LBR)   | 22....36VCA and 19....70VDC - 72x72mm (option LBR)     |



2RID96V230GS600



2RID72V230-S600



2RID48V230GS600



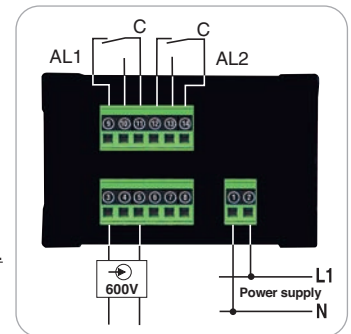
2RID36V230-S600

**NEW**

- BURDEN / CLASS 0,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- POWER SUPPLY 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- FREQUENCY 0÷100 Hz
- DISPLAY 1 display 4 digits red colour. 20 mm height for models 48x96 and 96x96; 14 mm height for models 36x72 and 72x72
- DC RANGE 600V AC
- THRESHOLD ALARM 2 - **PROGRAMMING** see following pages
- RELAYS CHARACTERISTICS 8A, 250V

### - ORDER EXAMPLES

- |                 |  |
|-----------------|--|
| 2RID48V-24GS600 | power supply 24VAC, input 500V or 100V - 48x96mm                         |
| 2RID72V-P1-S600 | power supply 22....36VAC and 19....70VDC, input 500V or 100V - 72x72mm   |
| 2RID96V-P2GS600 | power supply 44....130VAC and 70....240VDC, input 500V or 100V - 96x96mm |



# VOLTMETERS 800V DC

## + option RS485 + option 4/20mA + option LBR

DEPTH 82 mm



2RCD96V230G-800  
2RCD96V230G-800-RS  
2RCD96V230G-800420  
2RCD96V230G-800LBR



2RCD72V230-800  
2RCD72V230--800-RS  
2RCD72V230--800420  
2RCD72V230--800LBR



2RCD48V230G-800  
2RCD48V230G-800-RS  
2RCD48V230G-800420  
2RCD48V230G-800LBR



2RCD36V230-800  
2RCD36V230--800-RS  
2RCD36V230--800420  
2RCD36V230--800LBR

- BURDEN / CLASS 0,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- POWER SUPPLY 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- DISPLAY 1 display 4 digits red colour. 20 mm height for models 48x96 and 96x96; 14 mm height for models 36x72 and 72x72
- DC RANGE 800V - **PROGRAMMING** see following pages



As option, it is possible to have this range with an output RS485 MODBUS RTU (insulation 3kV).  
Option not available for model 36x72 mm with DC auxiliary supply.



Option 4/20mA (passive 2 wires aux supply 20...30VDC).  
This analogue output cannot be present together with option RS485.

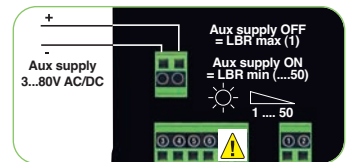
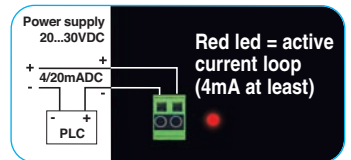
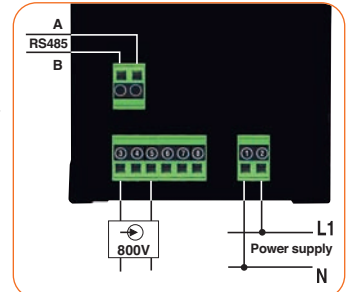
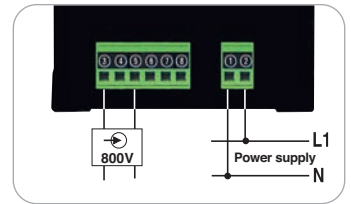


Option LED Brightness Reduction permits to reduce the brightness of led when requested.  
Especially indicated for naval and rail-way use

### - ORDER EXAMPLES

The options cannot be present contemporary (one option excludes the other two)

- |                                      |   |
|--------------------------------------|---|
| 2RCD36V230G-800 (2RCD36V230--800-RS) | power supply 230VAC - 36x72mm (output RS485)                      |
| 2RCD48V110G-800 (2RCD48V-P2G-800420) | power supply 110VAC - 48x96mm (output 4/20mA)                     |
| 2RCD72V-P1--800 (2RCD72V-P1--800-RS) | power supply 22....36VAC and 19....70VDC - 72x72mm (output RS485) |
| 2RCD48V110G-800 (2RCD48V-P2G-800LBR) | power supply 110VAC - 48x96mm (option LBR)                        |



WITH THRESHOLD ALARM - DEPTH 82 mm



2RCD96V230GS800



2RCD72V230-S800



2RCD48V230GS800

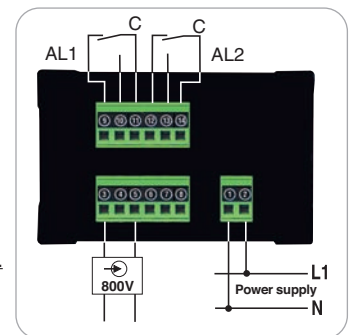


2RCD36V230-S800

- BURDEN / CLASS 0,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- POWER SUPPLY 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- DISPLAY 1 display 4 digits red colour. 20 mm height for models 48x96 and 96x96; 14 mm height for models 36x72 and 72x72
- DC RANGE 800V
- THRESHOLD ALARM 2 - **PROGRAMMING** see following pages
- RELAYS CHARACTERISTICS 8A, 250V

### - ORDER EXAMPLES

- |                 |  |
|-----------------|--|
| 2RCD48V-24GS800 | power supply 24VAC, input 500V or 100V - 48x96mm                         |
| 2RCD96V-P2GS800 | power supply 44....130VAC and 70....240VDC, input 500V or 100V - 96x96mm |



# AMMETERS 5A (1A) or 60mV with "I max demand" + option RS485 + option 4/20mA + option LBR



**2RD96A230G**  
2RD96A230G-RS  
2RD96A230G-420  
2RD96A230G-LBR



**2RD72A230**  
2RD72A230-RS  
2RD72A230-420  
2RD72A230-LBR



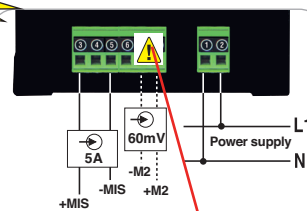
**2RD48A230G**  
2RD48A230G-RS  
2RD48A230G-420  
2RD48A230G-LBR



**2RD36A230**  
2RD36A230-RS  
2RD36A230-420  
2RD36A230-LBR

**NEW**

DEPTH 82 mm



This label covers the terminals related to the lower voltage input in order to avoid wrong connections.

- **BURDEN / CLASS** 0,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- **POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- **FREQUENCY** 0÷100 Hz
- **DISPLAY** 1 display 4 digits red colour 20 mm height for 48x96 and 96x96, 14 mm height for 36x72 and 72x72
- **AC/DC RANGE** from 5,00 to 9999 - **PROGRAMMING** see following pages

- Input **5A** - it is necessary to connect the CT .../5A correspondent to the end scale value settled. Input from 0500 to 9999A with 5A steps, selectable by a frontal button. Lower ranges than 500A can be selected using the "Dot" function in "Programming page".
- Input **1A (on request)** - it is necessary to connect the CT .../1A correspondent to the end scale value settled. Input from 0500 to 9999A with 5A steps, selectable by a frontal button. Lower ranges than 500A can be selected using the "Dot" function in "Programming page" (example code: 2RD961A230G)
- Input **60mV** - It is necessary to connect the shunt.../60mV correspondent to the end scale value settled

These ammeters have the possibility to effect two measures (integrated on the time):

- The medium current (AC+DC) in a certain time by a "fluent window" (Current Demand) selectable from 5 to 30 minutes (resolution 1 minute)
- The maximum value reached by the medium current (Max Current Demand) during all the working period of the instrument (settable parameter)



**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**

If 5A input is used, it is non possible to connect the 60mV terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.



As option, it is possible to have this range with an output RS485 MODBUS RTU (insulation 3kV).

Option not available for model 36x72 mm with DC auxiliary supply.



Option 4/20mA (passive 2 wires aux supply 20...30VDC).

This analogue output cannot be present together with option RS485.

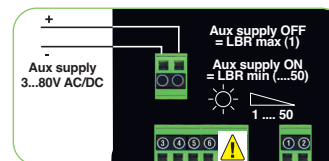
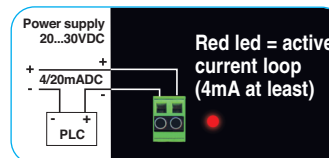
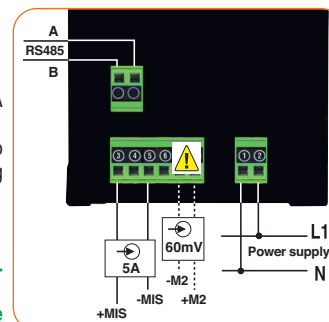


Option LED Brightness Reduction permits to reduce the brightness of led when requested.

Especially indicated for naval and rail-way use

- **ORDER EXAMPLES** - The options cannot be present contemporary (one option excludes the other two)

2RD36A-24 24VAC, input 5A or 60mV - 36x72mm  
2RD72A-P1 (2RD72A-P1-RS) 22...36VAC and 19...70VDC, input 5A or 60mV - 72x72mm (output RS485)  
2RD96A-P2G (2RD72A-P1-420) 44...130VAC and 70...240VDC, input 5A or 60mV - 96x96mm (output 4/20mA)  
2RD96A-P2G (2RD72A-P1-LBR) 44...130VAC and 70...240VDC, input 5A or 60mV - 96x96mm (option LBR)



WITH THRESHOLD ALARM - DEPTH 82 mm



**2RD96A230GS**



**2RD72A230-S**



**2RD48A230-S**



**2RD48A230GS**



**2RD36A230-S**

- **BURDEN / CLASS** 0,5VA / 0,5%  $\pm 2$  digit referred to the end scale
- **POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- **FREQUENCY** 0÷100 Hz
- **DISPLAY** 1 display 4 digits red colour 20 mm height digit for 48x96 and 96x96, 14 mm height digit for 36x72 and 72x72, 8 mm height digit for 48x48
- On 48x48 model the left upper side led is lighted-on with DC measures only
- **AC/DC RANGE** from 5,00 to 9999
- Input **5A** - it is necessary to connect the CT .../5A correspondent to the end scale value settled. Input from 0500 to 9999A with 5A steps, selectable by a frontal button. Lower ranges than 500A can be selected using the "Dot" function in "Programming page".

The ammeters have also the possibility to calculate the "I demand" from 5min to 30min and the "I max demand".

- Input **1A (on request)** - it is necessary to connect the CT .../1A correspondent to the end scale value settled. Input from 0500 to 9999A with 5A steps, selectable by a frontal button. Lower ranges than 500A can be selected using the "Dot" function in "Programming page" (example code: 2RD961A230GS)
- Input **60mV** - It is necessary to connect the shunt.../60mV correspondent to the end scale value settled

- **THRESHOLD ALARM** 1 threshold alarm for model 48x48, 2 threshold alarms for other model

- **RELAYS CHARACTERISTICS** 8A, 250V (0,1A - 230V for model 48x48)



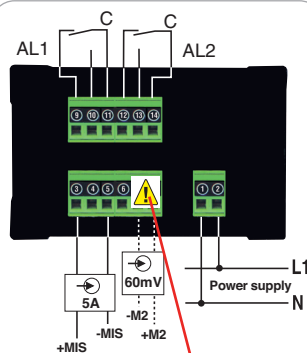
**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**

If 5A input is used, it is non possible to connect the 60mV terminals also and viceversa.

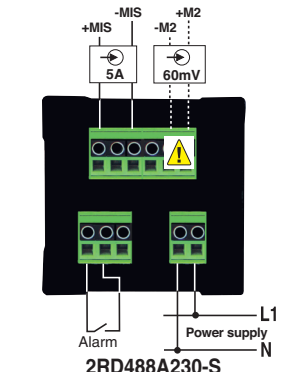
Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.

- **ORDER EXAMPLES**

2RD36A230-S power supply 230VAC, input 5A or 60mV - 36x72mm  
2RD48A110-S power supply 110VAC, input 5A or 60mV - 48x48mm  
2RD96A-P2GS power supply 44...130VAC and 70...240VDC, input 5A or 60mV - 96x96mm  
- **PROGRAMMING** see following pages



This label covers the terminals related to the lower voltage input in order to avoid wrong connections.



# MILLIAMMETERS 1mA / 5mA / 10mA / 20mA / 4-20mA

## + option RS485 + option 4/20mA + option LBR



**NEW**

DEPTH 82 mm

2RD96T230G--  
2RD96T230G--RS  
2RD96T230G--420  
2RD96T230G--LBR

2RD72T230--  
2RD72T230--RS  
2RD72T230--420  
2RD72T230--LBR

2RD48T230G--  
2RD48T230G--RS  
2RD48T230G--420  
2RD48T230G--LBR

2RD36T230--  
2RD36T230--RS  
2RD36T230--420  
2RD36T230--LBR

- BURDEN 0,5VA
- POWER SUPPLY 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- FREQUENCY 0÷100 Hz
- CLASS 0,5%  $\pm 2$  digit referred to the end scale
- DISPLAY 1 display 4 digits red colour. 20 mm height digit for models 48x96 and 96x96; 14 mm for 36x72 and 72x72
- RANGE 0-20mA = 2RD..T230--020 4-20mA = 2RD..T230--420 0-10mA = 2RD..T230--010  
0-5mA = 2RD..T230--005 0-1mA = 2RD..T230--001



Instruments with input 4/20mA can be calibrated in factory only.  
These instruments have one input only which must be specified during the order (see the examples)



As option, it is possible to have this range with an output RS485 MODBUS RTU (insulation 3kV).  
Option not available for model 36x72 mm with DC auxiliary supply.



Option 4/20mA (passive 2 wires aux supply 20...30VDC).  
This analogue output cannot be present together with option RS485.



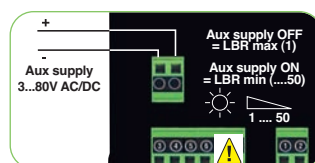
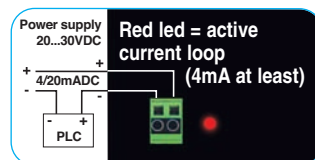
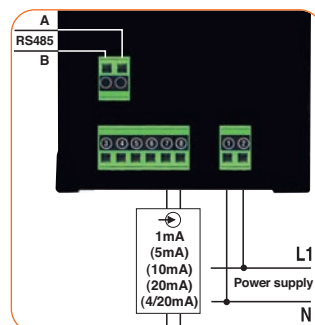
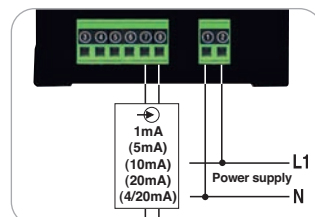
Option LED Brightness Reduction permits to reduce the brightness of led when requested.  
Especially indicated for naval and rail-way use

### ORDER EXAMPLES

The options cannot be present contemporary (one option excludes the other two)

- 2RD36T-24--020 24VAC, input 20mA - 36x72mm
- 2RD48T110G-420 110VAC, input 4-20mA - 48x96mm
- 2RD72T-P1--005420 22...36VAC and 19...70VDC, input 5mA - 72x72mm - output 4/20mA
- 2RD96T-P2G-010 44...130VAC e 70...240VDC, input 10mA - 96x96mm
- 2RD96T230G-010RS 230VAC, input 10mA - 96x96mm - output RS485
- 2RD72T-P1--005LBR 22...36VAC and 19...70VDC, input 5mA - 72x72mm - option LBR
- PROGRAMMING see following pages

A	kA	W
V	kV	Hz
kW	kVA	kvar
l/sec	l/min	l/h
m/sec	m/min	m/h
°C	g	kg
°F	Giri/min	RPM
%	bar	dB
mA	Personal unit	



With these codes, adhesive labels set is supplied free of charge.  
It contains several measuring units to apply on the proper front area under necessity.



2RD96T230GS--

2RD72T230-S--

2RD48T230-S--

2RD48T230GS--

2RD36T230-S--

- BURDEN 0,5VA
- POWER SUPPLY 230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.
- FREQUENCY 0÷100 Hz
- CLASS 0,5%  $\pm 2$  digit referred to the end scale
- DISPLAY 1 display 4 digits red colour. 20 mm height digit for models 48x96 and 96x96  
14 mm height digit for models 36x72 and 72x72  
8 mm height digit for model 48x48
- On 48x48 model the left upper side led is lighted-on with DC measures only
- RANGE 0-20mA = 2RD..T230--020 4-20mA = 2RD..T230--420 0-10mA = 2RD..T230--010  
0-5mA = 2RD..T230--005 0-1mA = 2RD..T230--001
- THRESHOLD ALARM 1 threshold alarm for model 48x48, 2 threshold alarms for other model
- RELAYS CHARACTERISTICS 8A, 250V (0,1A - 230V for model 48x48)

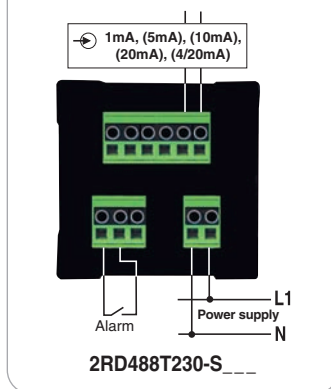
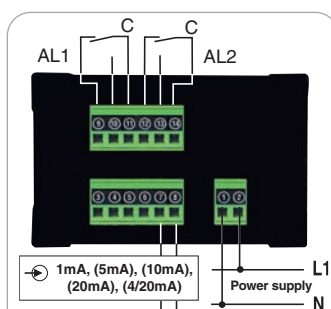


Instruments with input 4/20mA can be calibrated in factory only.  
These instruments have one input only which must be specified during the order (see the examples)

### ORDER EXAMPLES

- 2RD48T230-S001 power supply 230VAC, input 1mA - 48x48mm
- 2RD36T-24-S020 power supply 24VAC, input 20mA - 36x72mm
- 2RD48T110GS420 power supply 110VAC, input 4-20mA - 48x96mm
- 2RD72T-P1-S005 power supply 22...36VAC and 19...70VDC, input 5mA - 72x72mm
- 2RD96T-P2GS010 power supply 44...130VAC and 70...240VDC, input 10mA - 96x96mm
- PROGRAMMING see following pages

A	kA	W
V	kV	Hz
kW	kVA	kvar
l/sec	l/min	l/h
m/sec	m/min	m/h
°C	g	kg
°F	Giri/min	RPM
%	bar	dB
mA	Personal unit	



With these codes, adhesive labels set is supplied free of charge.  
It contains several measuring units to apply on the proper front area under necessity.

# FREQUENCYMETERS

## + option RS485 + option 4/20mA + option LBR

**NEW**

DEPTH 82 mm



2RD96F230G  
2RD96F230G-RS  
2RD96F230G-420  
2RD96F230G-LBR



2RD72F230  
2RD72F230-RS  
2RD72F230-420  
2RD72F230-LBR



2RD48F230G  
2RD48F230G-RS  
2RD48F230G-420  
2RD48F230G-LBR



2RD36F230  
2RD36F230-RS  
2RD36F230-420  
2RD36F230-LBR

- BURDEN / CLASS
- POWER SUPPLY
- FREQUENCY

2VA / 0,005%  $\pm 1$  digit referred to the end scale value 45÷65Hz  
230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.  
10÷100 Hz max 500V (min 70V) and max 100V from VT (min 15V)



THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.

If 100V input is used, it is non possible to connect the 500V terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.



As option, it is possible to have this range with an output RS485 MODBUS RTU (insulation 3kV).

Option not available for model 36x72 mm with DC auxiliary supply.



Option 4/20mA (passive 2 wires aux supply 20...30VDC).

This analogue output cannot be present together with option RS485.



Option LED Brightness Reduction permits to reduce the brightness of led when requested.

Especially indicated for naval and rail-way use

- DISPLAY

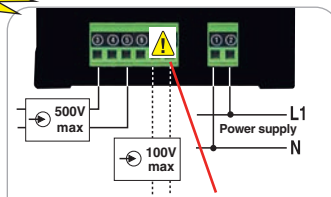
1 display 4 digits red colour  
20 mm height digit for 48x96 and 96x96,  
14 mm height digit for 36x72 and 72x72

- ORDER EXAMPLES

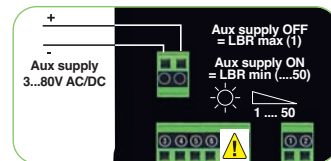
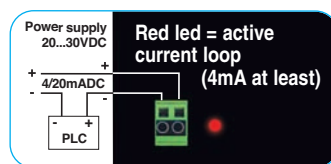
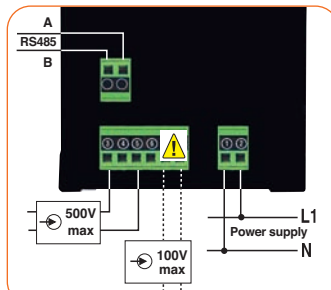
The options cannot be present contemporary (one option excludes the other two)

2RD36F230 230VAC - 36x72mm  
2RD48F110G-420 110VAC - 48x96mm - output 4/20mA  
2RD48F-24G 24VAC - 48x96mm  
2RD72F-P1 22...36VAC and 19...70VDC - 72x72mm  
2RD96F-P2G 44...130VAC and 70...240VDC - 96x96mm  
2RD48F-24G-RS 24VAC - 48x96mm - output RS485  
2RD48F110G-LBR 110VAC - 48x96mm - option LBR

A	kA	W
V	kV	Hz
kW	kVA	kvar
l/sec	l/min	l/h
m/sec	m/min	m/h
°C	g	kg
°F	Giri/min	RPM
%	bar	dB
mA	Personal unit	



This label covers the terminals related to the lower voltage input in order to avoid wrong connections.



With these codes, adhesive labels set is supplied free of charge. It contains several measuring units to apply on the proper front area under necessity.



2RD96F230GS



2RD72F230-S



2RD488F230-S



2RD48F230GS



2RD36F230-S

- BURDEN
- POWER SUPPLY
- FREQUENCY

2VA  
230VAC  $\pm 10\%$  standard 50/60Hz. For different supply see the codes on the order examples.  
10÷100 Hz max 500V (min 70V) and max 100V from VT (min 15V)



THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.

If 100V input is used, it is non possible to connect the 500V terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.

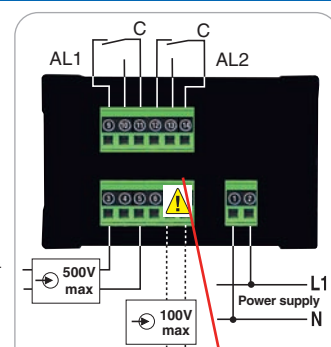
- CLASS
- DISPLAY

0,005%  $\pm 1$  digit referred to the end scale value 45÷65Hz  
1 display 4 digits red colour. 20 mm height digit for models 48x96 and 96x96  
14 mm height digit for models 36x72 and 72x72  
8 mm height digit for model 48x48

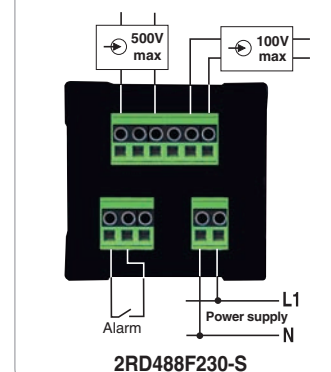
- On 48x48 model the left upper side led is lighted-on with DC measures only
- THRESHOLD ALARM 1 threshold alarm for model 48x48, 2 threshold alarms for other model
- RELAYS CHARACTERISTICS 8A, 250V (0,1A - 230V for model 48x48)
- ORDER EXAMPLES

power supply 230VAC - 36x72mm  
power supply 24VAC - 48x96mm  
power supply 110VAC - 48x48mm  
power supply 22...36VAC and 19...70VDC - 72x72mm  
power supply 44...130VAC and 70...240VDC - 96x96mm  
see following pages

A	kA	W
V	kV	Hz
kW	kVA	kvar
l/sec	l/min	l/h
m/sec	m/min	m/h
°C	g	kg
°F	Giri/min	RPM
%	bar	dB
mA	Personal unit	



This label covers the terminals related to the lower voltage input in order to avoid wrong connections.



2RD488F230-S

With these codes, adhesive labels set is supplied free of charge. It contains several measuring units to apply on the proper front area under necessity.

# DOUBLE SINGLE PHASE INSTRUMENTS with "I max demand" + option RS485 + option 4/20mA + option LBR

**VOLTMETERS + AMMETERS 72x72 mm and 96x96 mm**

**NEW**

**DEPTH 82 mm**



2RD72AV230  
2RD72AV230-RS  
2RD72AV230420  
2RD72AV230LBR



2RD96AV230G  
2RD96AV230G-RS  
2RD96AV230G420  
2RD96AV230GLBR

- BURDEN
- POWER SUPPLY
- FREQUENCY
- CLASS
- DISPLAY

- AC AND DC VOLTMETER RANGE
- AC AND DC AMMETER RANGE

- Input 5A - it is necessary to connect the CT .../5A correspondent to the end scale value setted. Input from 0500 to 9999A with 5A steps, selectable by a frontal button. lower ranges than 500A can be selected using the "Dot" function in "Programming page"
- Input 60mV - It is necessary to connect the shunt.../60mV correspondent to the end scale value setted



**Ammeters have the possibility to effect two measures (integrated on the time):**

- The medium current (AC+DC) in a certain time by a "fluent window" (Current Demand) selectable from 5 to 30 minutes (resolution 1 minute)
- The maximum value reached by the medium current (Max Current Demand) during all the working period of the instrument (settable parameter)

**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**

If 5A input is used, it is non possible to connect the 60mV terminals also and viceversa.

If 500V input is used, it is non possible to connect the 100V terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.



**As option, it is possible to have this range with an output RS485 MODBUS RTU (insulation 3kV). Option not available for model 36x72 mm with DC auxiliary supply.**



**Option 4/20mA (passive 2 wires aux supply 20...30VDC).**

**This analogue output cannot be present together with option RS485.**



**Option LED Brightness Reduction permits to reduce the brightness of led when requested.**

**Especially indicated for naval and rail-way use**

- **ORDER EXAMPLES: the options cannot be present contemporary (one option excludes the other two)**

2RD72AV230-- 230VAC, 72x72mm

2RD96AV110--420 110VAC, 96x96mm - output 4/20mA

2RD96AV-P2-- 44....130VAC and 70....240VDC, 96x96mm

2RD72AV-24--RS

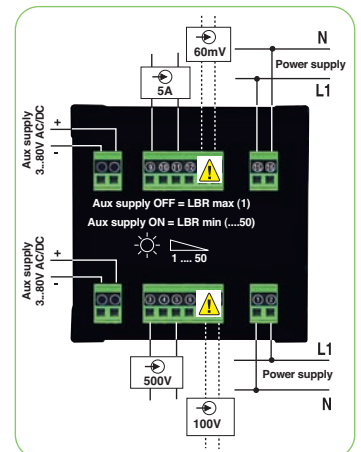
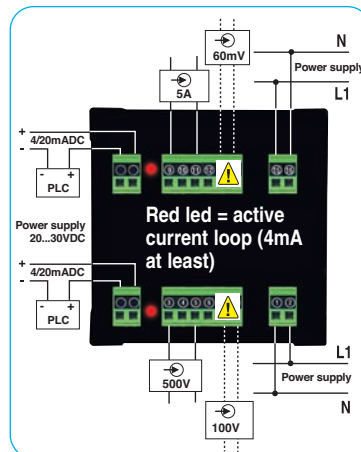
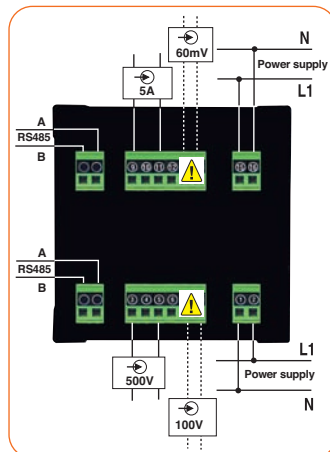
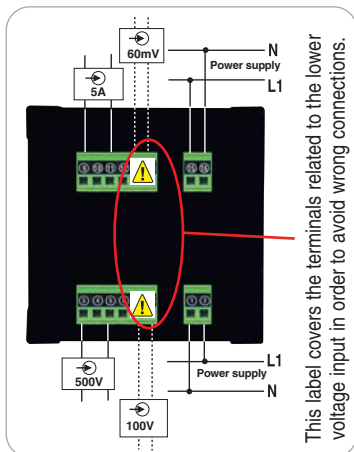
2RD72AV-P1--

2RD96AV110--LBR

24VAC, 72x72mm - output RS485

22....36VAC and 19....70VDC, 72x72mm

110VAC, 96x96mm - option LBR



## VOLTMETERS + AMMETERS WITH THRESHOLD ALARM 72x72 mm and 96x96 mm - DEPTH 82 mm



2RD72AV230-S



2RD96AV230GS

- BURDEN
- POWER SUPPLY
- FREQUENCY
- CLASS
- DISPLAY

- AC AND DC VOLTMETER RANGE
- AC AND DC AMMETER RANGE

- Input 5A - it is necessary to connect the CT .../5A correspondent to the end scale value setted. Input from 0500 to 9999A with 5A steps, selectable by a frontal button. lower ranges than 500A can be selected using the "Dot" function in "Programming page"

**The ammeters have also the possibility to calculate the "I max demand" from 5min to 30min and the "I max demand".**

- Input 60mV - It is necessary to connect the shunt.../60mV correspondent to the end scale value

- THRESHOLD ALARM

- RELAYS CHARACTERISTICS

**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.** If 5A input is used, it is non possible to connect the 60mV terminals also and viceversa. If 500V input is used, it is non possible to connect the 100V terminals also and viceversa. Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.



- **ORDER EXAMPLES**

2RD72AV230-S

2RD96AV110-S

2RD96AV-P2-S

- **PROGRAMMING**

power supply 230VAC, 72x72mm

power supply 110VAC, 96x96mm

power supply 44....130VAC and 70....240VDC, 96x96mm

see following pages

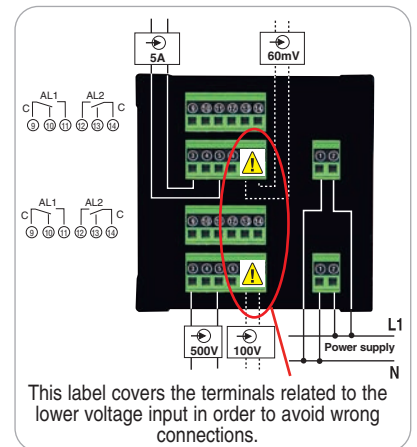
2RD72AV-24-S

2RD72AV-P1-S

2RD96AV110-S

power supply 24VAC, 72x72mm

power supply 22....36VAC and 19....70VDC, 72x72mm



# TRIPLE THREE PHASE INSTRUMENTS + option "Split current CT"

VOLTMETERS + AMMETERS + FREQUENCYMETERS

DEPTH 82 mm



2RD723AV



2RD963AV

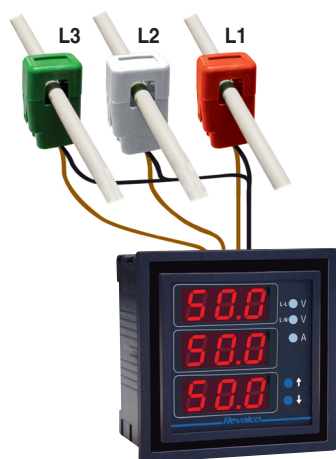
- BURDEN
- POWER SUPPLY
- CLASS
- DISPLAY
- AMMETER RANGE

- VOLTMETER RANGE
- FREQUENCYMETER RANGE
- DIMENSIONS
- ORDER EXAMPLES

2RD723AV  
2RD963AV-24  
2RD723AV110  
2RD723AV-P1  
2RD963AV-P2

Ammeters 0,5VA - Voltmeters 1,5VA  
230VAC  $\pm 10\%$  standard 50/60 Hz  
0,5%  $\pm 2$  digit referred to the end scale value  
3 display 3 digits red colour. 7 mm height digit  
Input from 5 to 999A with 5A steps, selectable by a frontal button.  
Input **5A** - it is necessary to connect the CT .../5A correspondent to the end scale value setted.  
(phase-neutral) 290V max - (phase-phase) 500V max  
45/80 Hz  
72x72 mm and 96x96 mm

power supply 230VAC - 72x72 mm  
power supply 24VAC - 96x96 mm  
power supply 110VAC - 72x72 mm  
power supply 22....36VAC and 19....70VDC - 72x72 mm  
power supply 44....130VAC and 70....240VDC - 96x96 mm

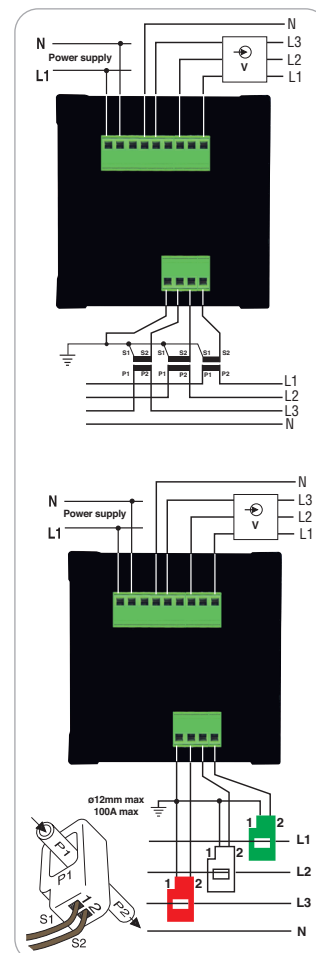


2RD723AV...C100  
2RD963AV...C100



**NEW**

These codes (....C100) are supplied together with a mini split core transformer in class 1 able to measure up to 100A and powers up to 23kW single phase. This solution permits a quick installation in already existing panels or nets as that it is not necessary to disconnect the power cable as needed by the classic current transformers. This CT accepts a cable diameter 12mm.



Measurements displaying: the measurements and signalling pages which appear (pushing and releasing the frontal button) are the following

PUSHED BUTTON	RELEASED	DESCRIPTION
		Voltage measure (V) First upper led lights-on  If (near every phase voltage value) the points on the right side of display light-on, it means that the sequence of the phases is WRONG
		Voltage measure (V) Central led lights-on  If (near every phase-neutral voltage value) the points on the right side of display light-on, it means that the sequence of the phases is WRONG
		current measure (A) Last downer led lights on
		Frequency measure (Hz)





**PROGRAMMING:** To enter in programming page, make a long pressure (4 seconds about) on the frontal button

When the programming request is recognised the 3 frontal LED will flash contemporary; this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed. The value change immediately and closed to him a flashing points appear meaning that the value is in modification phase.

To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.

The following can be made by pressing the buttons:



1. Pressed during the automatic display of the pages, it increases the time you stay on this page until it is released.
2. Pressed during the setting of some value (when all the points on the right flashes) decrease step by step this value and it increases the time you stay on this page until it is released.
3. Pressing contemporary the buttons values increase one step each time without fast forward possibility

DEFAULT PARAMETER	POSSIBLE VALUES	DESCRIPTION
 average	VALUE from 1 to 15	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display. Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 15; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters.
 Default page	ONE OF THE AVAILABLE PAGES	Select the main page that you want to see after the initial powering of the instrument. Default value = phase-phase voltages
 CT .../5A	VALUE from 5 to 999 every 5 steps	Select the ratio .../5A of the current transformer. Decimal point is automatically selected, and up to 10A the display shows 0.00; from 10A to 100A it shows 00.0; from 105A to 999A it shows 000 Default value = 100
 voltage setting	VALUE from 50 to 577	It represent the NOMINAL voltage value of end scale value. Phase-phase voltage on the central line. Phase-neutral voltage on the lower line.  The default value (calibrated in factory) is 231V (400V phase-phase).

## PROGRAMMINGS

### FOR SWITCHBOARD INSTRUMENTS SERIE 2RD... DEPTH 82 mm







Measurements displaying: the measurements and signalling pages which appear (pushing and releasing the frontal button) are the following


















PUSHED BUTTON	RELEASED BUTTON	DESCRIPTION
 AC+DC value (if voltmeter)	 AC+DC value (if ammeter)	TRMS value (AC+DC). The measured value which appear is the true RMS. The measure doesn't has any mark

To enter in programming page, make a long pressure (4 seconds about) on the front button. When the programming request is recognised "Set" page appears. Releasing the button all words will flash quickly, this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed. To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.

The following programming pages can be present or not depending by the model used.



DEFAULT PARAMETER	POSSIBLE VALUES	DESCRIPTION
 Reset max Demand		<b>Page present on Ammeters.</b> Current Max Demand Reset. This is not an operative parameter. By pressing the button (when this page appears) the $I_{max}$ and $I_{avg}$ values go to zero and all memorized sampléments are eliminated, except the actual samplément which will be memorized after 1 minute. This phase is very quick and immediately the instrument goes out from programming.
 Max Demand Interval	VALUE from 5 to 30	<b>Page present on Ammeters.</b> Max Demand Interval. This page select the control period in Minutes, so the samplément numbers of medium current (I) in 1 minute on which is possible to calculate the $I_{avg}$ (current demand). Every minute a new medium value of current (I) is inserted and the oldest will be eliminated. Default value 30.
 End scale	VALUE from 500 to 9999	<b>Page present on Ammeters and Voltmeters.</b> This page selects the end scale value (except the decimal point) which must be shown when the input signal is maximum. For DC measurements there is simmetricity also for negative values obtained when the input polarity is inverted. Used in combination whit "SSc" parameter it permits personalized visualizations. Default value 500.0
 End scale selector	VALUE from 0 to 1	<b>Page present on Ammeters and Voltmeters.</b> This page selects the full scale calibration. To grant the maximum accuracy, the input value applied to terminals +MIS and -MIS is calibrated in different way respect to terminals -M2 and +M2. If FcS = 0 is selected, you have to connect teminals +MIS/-MIS (500V or 10V or 5A) If FcS = 1 is selected, you have to connect teminals -M2/+M2. (100V or 1V or 60mV)
 average	VALUE from 1 to 255	<b>Page present on Ammeters and Voltmeters.</b> It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display. Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 255; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value 30.
 decimal point		<b>Page present on Ammeters and Voltmeters.</b> Selects the position of decimal point. The end scale value is showed, and after every pressure of button, it change the position as per the following sequence: 500.0 (default decimal); 50.00 (centesimal); 5.000 (millesimal); 5000 (entire value)

DEFAULT PARAMETER	POSSIBLE VALUES	DESCRIPTION
 beginning scale	VALUE from -9999 to +9999	<p><b>Page present on Ammeters and Voltmeters.</b></p> <p>Select a beginning scale correction (except the decimal point) used to obtain a certain value when input signal is 0 or when the input signal is 0 or has an initial value. Default value 0.</p> <p>Practical example of SSc and FSc parameters: from a converter you have a signal 4/20mA which represent a current 0-300A, we want that an ammeter with input 20 mA (calibrated to the max current 20mA) gives this indication. Solution: assuming that we need 4 mA = 0 and 20 mA = 300 = FSc we will use the formule: <math>VALMIS = \frac{300 \times 4}{20} = 60</math> knowing that VALMIS at 4mA (with SSc = 0) is a direct proportion of FSc.</p> <p>To have the SSc value (unknown) we use the following formule: <math>0 = \left[ \frac{VALMIS}{FSc} \times (FSc - SSc) \right] + SSc</math> putting VALMIS to 0.</p> <p>Now is possible to have SSc value by the formule: <math>SSc = \frac{VALMIS \times FSc}{VALMIS - FSc} = \frac{60 \times 300}{60 - 300} = -75</math></p>
		<p><b>Page present on Ammeters and Voltmeters.</b></p> <p>Available page for AC + DC (TRMS) readings. Selected in factory on "Yes" position - <b>DON'T MODIFY IT</b></p>
		<p><b>Page present on Ammeters and Voltmeters.</b></p> <p>Available page for AC readings. Selected in factory on "No" position - <b>DON'T MODIFY IT</b></p>
		<p><b>Page present on Ammeters and Voltmeters.</b></p> <p>Available page for DC readings. Selected in factory on "No" position - <b>DON'T MODIFY IT</b></p>
		<p><b>Page present on Ammeters and Voltmeters.</b></p> <p>Available page for percentage ondulation factor (Ripple). Selected in factory on "No" position. <b>DON'T MODIFY IT</b></p>
 Low brightness level	50 levels available	<p><b>Page present on Ammeters, Voltmeters, Milliammeters and Frequencyimeters.</b></p> <p>Led brightness level. Press several time the front button or maintain pressure on it until the needed low brightness level. Default = 50 (lower brightness level)</p>
 I <sub>max</sub> and I <sub>avg</sub> switch	 Not actived pages	<p><b>Page present on Ammeters.</b></p> <p>This page actives (yes) or don't actives (no) the vision of "Current Demand" values. Default value Yes.</p> <p> Actived pages</p>
 zeroing	VALUE from 0 to 200	<p><b>Page present on Ammeters and Voltmeters.</b></p> <p>In case the display (once powered and without input connection) shows a value different from zero, select this page and set the same value pushing the frontal button. Example: is display shows 002, select 2 by the frontal button. Default value 0.</p>
 MODBUS address	VALUE from 1 to 255	<p><b>Page present on Ammeters, Voltmeters, Milliammeters and Frequencyimeters.</b></p> <p>This is the MODBUS node assigned to the instrument. It must be univocal on RS485 net. Default value 1.</p>
 RS485 speed	VALUE from 0 to 4	<p><b>Page present on Ammeters, Voltmeters, Milliammeters and Frequencyimeters.</b></p> <p>RS485 serial port speed. Default value 4 0=9600 baud rate; 1=19200 baud rate; 2=38400 baud rate; 3=57600 baud rate; 4=115200 baud rate</p>
 threshold 1 or 2 activation or deactivation	 active max threshold	<p><b>Page present on Ammeters, Voltmeters, Milliammeters and Frequencyimeters.</b></p> <p>Proper relay and led will be actived when the value of the measure will be <b>higher</b> than the selected limit (max threshold) Default value "Hi".</p>
	 active min threshold	Proper relay and led will be actived when the value of the measure will be <b>lower</b> than the selected limit (min threshold)
	 deactive threshold	Relay and led will be never active so the other programming pages connected with the thresholds will be not available.
<b>Available page only if "th1" and/or "th2" are different from "OFF" - Page present on Ammeters, Voltmeters, Milliammeters and Frequencyimeters.</b>		
 threshold 1 or 2 delay application	 Excitation delay	Delay time is applied during the <u>activation</u> . Relay will works after the selected delay time.
	 Not excitation delay	Delay time is applied during the <u>deactivation</u> . Relay will works after the selected delay time.
<b>Available page only if "th1" and/or "th2" are different from "OFF" - Page present on Ammeters, Voltmeters, Milliammeters and Frequencyimeters.</b>		
 threshold 1 or 2 delay time	 VALUE from 0.0 to 25.5	This page selects the delay time value, expressed in seconds. Default value 0.2
<b>Available page only if "th1" and/or "th2" are different from "OFF" - Page present on Ammeters, Voltmeters, Milliammeters and Frequencyimeters.</b>		
 threshold 1 or 2 source	 AC+DC value (Uad or AAd)	The threshold is applied to the RMS (AC+DC) value
<b>Available page only if "th1" and/or "th2" are different from "OFF" - Page present on Ammeters, Voltmeters, Milliammeters and Frequencyimeters.</b>		
 threshold 1 or 2 value	 VALUE from -9999 to +9999	It is the threshold intervention value (except the decimal point) Default value 250

# BARGRAPH INDICATORS - TRUE RMS

## LED VERSION

- These instruments permit to show 2, 3 or 4 measures in the same time (depending by the model) through high intensity leds.
- The electronic construction permits to use them in nets on which vibrations, shocks or other dynamics solicitations are possible like generating sets, portable instruments, ship panel boards etc.
- **On request** it is possible to supply the instruments with high front IP protection for special applications on which the water, chemical products etc. is an essential condition.
- LED test: when powered, these devices make a self test lighting-on each LED every 200ms
- The measure of the values is in **true RMS** also in presence of distortions up to the 20<sup>th</sup> harmonic wave.
- These instruments are provided by a relay with commutation function when (after minimum 10 sec from the powering) the following permanent conditions (for minimum 5 sec) are present: 190V > voltage < 260V; 48Hz > frequency < 52Hz; or 58Hz > frequency < 62Hz  
The condition "contact in alarm" is immediate; condition "light-off device" means that the contact is in alarm position as well as voltage and/or frequency been out of the mentioned range.
- Construction and functioning are conform to CEI 11-20 directives.



2RI72HAVH



2RI36AVHZ...APT



2RI36VHZPT

### VISUALIZATION OF CURRENT, VOLTAGE AND FREQUENCY

#### - 230V 50Hz voltage reading

<b>2RI36AVHZ 40APT</b>	End scale 40A, connection by means of CT 40/5A
<b>2RI36AVHZ 50APT</b>	End scale 50A, connection by means of CT 50/5A
<b>2RI36AVHZ 60APT</b>	End scale 60A, connection by means of CT 60/5A
<b>2RI36AVHZ 80APT</b>	End scale 80A, connection by means of CT 80/5A
<b>2RI36AVHZ 100APT</b>	End scale 100A, connection by means of CT 100/5A

### VISUALIZATION OF VOLTAGE AND FREQUENCY = 2RI36VHZPT

### VISUALIZATION OF CURRENT, VOLTAGE, FREQUENCY AND HOURMETER FUNCTION

#### - 230V 50Hz voltage reading

<b>2RI72HAVH 40A</b>	End scale 40A, connection by means of CT 40/5A
<b>2RI72HAVH 50A</b>	End scale 50A, connection by means of CT 50/5A
<b>2RI72HAVH 60A</b>	End scale 60A, connection by means of CT 60/5A
<b>2RI72HAVH 80A</b>	End scale 80A, connection by means of CT 80/5A
<b>2RI72HAVH 100A</b>	End scale 100A, connection by means of CT 100/5A

If hourmeter is requested for **60Hz** use, codes become (as example):

**2RI72HAVH 40AX** End scale 40A, connection by means of CT 40/5A

#### - 400V voltage reading (referred to 230VAC 50Hz auxiliary supply)

<b>2RI36AVHZ 40A 400</b>	End scale 40A, connection by means of CT 40/5A
<b>2RI36AVHZ 50A 400</b>	End scale 50A, connection by means of CT 50/5A
<b>2RI36AVHZ 60A 400</b>	End scale 60A, connection by means of CT 60/5A
<b>2RI36AVHZ 80A 400</b>	End scale 80A, connection by means of CT 80/5A
<b>2RI36AVHZ 100A 400</b>	End scale 100A, connection by means of CT 100/5A

#### - 400V voltage reading (referred to 230VAC 50Hz auxiliary supply)

<b>2RI72HAVH 40A 400</b>	End scale 40A, connection by means of CT 40/5A
<b>2RI72HAVH 50A 400</b>	End scale 50A, connection by means of CT 50/5A
<b>2RI72HAVH 60A 400</b>	End scale 60A, connection by means of CT 60/5A
<b>2RI72HAVH 80A 400</b>	End scale 80A, connection by means of CT 80/5A
<b>2RI72HAVH 100A 400</b>	End scale 100A, connection by means of CT 100/5A

**2RI72HAVH 40AX 400** End scale 40A, connection by means of CT 40/5A

## TECHNICAL CHARACTERISTICS

### Auxiliary power supply

- range 140 ... 260V selfsupplied
- max absorbed power 2VA
- galvanic insulation between voltage and current input

### Input voltmeter circuit

- direct insertion max 290 V
- permanent overload 120% (nominal 230VAC)
- thermic overload (1 s) 150% (nominal 230VAC)
- input impedance 2MΩ L-N

### Input ammeter circuit

- nominal current Current 5 A
- permanent overload 120%
- thermic overload (1 s) 200%

### Voltage measurement

- range range: 190...260V (true RMS)

### Current Measurement

- range insertion by means of C.T. Range: 0.05...5.00A (true RMS)

### Frequency Measurement

- nominal value Range: 50/60Hz (automatic)
- range 48...52 Hz and 58...62 Hz
- response time <300ms

### Compatible current transformers

- nominal current 5 A

### Electrical characteristics

- Galvanic insulation 3kV between relay and contact coil
- change over relay 250VAC, 8A (resistive load), 2000W

### Visualization

- LED red, green and yellow colours

### Environment conditions

- Ambient temperature:
- nominal temperature 0...+45 °C
- range -5...+55 °C
- storage temperature -10...+70 °C
- humidity 10...95 %
- atmospheric pressure 70...110 kPa

### Standards CEI

- Safety CEI EN 61010-1 300V CAT III
- Accuracy class CEI EN 60688
- Electromagnetic compatibility (immunity) CEI EN 61000-6-2
- Electromagnetic compatibility (emission) CEI EN 61000-6-4
- Protection IP CEI EN 60529

### Crest factor

2,5 (Voltage and Current)

On 2RI72HAVH instruments, the run hourmeter model is **4RK30**.

## RELATION BETWEEN LEDS AND MEASURED VALUE

### CURRENT (example referred to 100/5A model)

#### Bargraph with green leds

Led "10"	Light-on from 1 to 10% (under these values, all leds are light-off)
Led "20"	Light-on from 11 to 20%
Led "30"	Light-on from 21 to 30%
Led "40"	Light-on from 31 to 40%
Led "50"	Light-on from 41 to 50%
Led "60"	Light-on from 51 to 60%
Led "70"	Light-on from 61 to 70%
Led "80"	Light-on from 71 to 80%
Led "90"	Light-on from 81 to 90%
Led "100"	Light-on from 91 to 100%

Bargraph flashes over 100% value

### VOLTAGE 230V AC reading

#### Direct measurement in Volt -> Single led light-on

Led "0-190" yellow	Flashing light-on from 0 to 185V, Fix light-on from 186 to 195V
Led "200" yellow	Light-on from 196 to 205V
Led "210" yellow	Light-on from 206 to 215V
Led "220" green	Light-on from 216 to 225V
Led "230" green	Light-on from 226 to 235V
Led "240" green	Light-on from 236 to 245V
Led "250" red	Light-on from 246 to 255V
Led "260" red	Fix light-on from 256 to 265V Flashing light-on over 265V

### VOLTAGE 400V AC reading

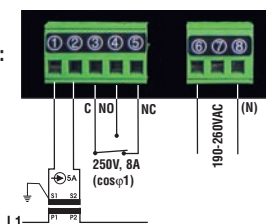
#### Direct measurement in Volt -> Single led light-on

Led "0-330" yellow	Flashing light-on from 0 to 315V, Fix light-on from 316 to 335V
Led "350" yellow	Light-on from 346 to 355V
Led "360" yellow	Light-on from 356 to 365V
Led "380" green	Light-on from 376 to 385V
Led "400" green	Light-on from 396 to 405V
Led "415" green	Light-on from 414 to 420V
Led "430" red	Light-on from 426 to 435V
Led "450" red	Fix light-on from 446 to 455V Flashing light-on over 455V

### FREQUENCY Direct measurement in Hz with automatic selection 50 or 60Hz -> Single led light-on

Led "48" yellow	Flashing light-on from 0 to 47Hz Fix light-on from 47,1 to 49Hz
Led "50" green	Light-on from 49,1 to 51Hz
Led "52" red	Fix light-on from 51,1 to 53Hz Flashing light-on from 53,1 to 55Hz
Led "58" yellow	Flashing light-on from 55,1 to 57Hz Fix light-on from 57,1 to 59Hz
Led "60" green	Light-on from 59,1 to 61Hz
Led "62" red	Fix light-on from 61,1 to 63Hz Flashing light-on over 63Hz

- CURRENT, VOLTAGE AND FREQUENCY: 2RI36AVHZ ...A
- CURRENT, VOLTAGE, FREQUENCY AND HOURMETER FUNCTION: 2RI72HAVH ...A



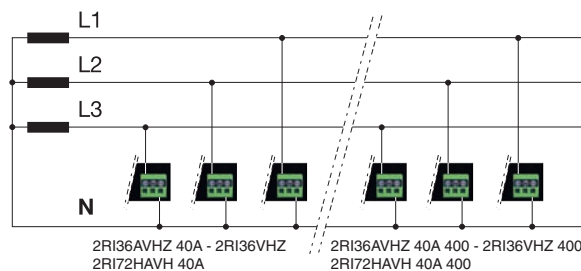
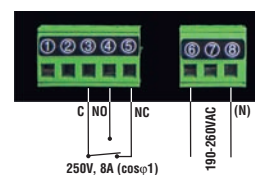
Instrument measures phase-neutral voltage **only (230V)**.

The same instrument can show the measure of 400V (model 2RI36...400 and 2RI72HAVH...400), but in any case the connection must be linked to 230V ( $230V \times \sqrt{3} = 400V$ )



Contact position is referred to a light-on device with voltage and/or frequency within the mentioned ranges

- VOLTAGE AND FREQUENCY: 2RI36VHZ



# 5 BARGRAPH LED VOLTMETER

## 5 LED VOLTMETERS



2RI33V230  
2RI33V400



2RI33V230T  
2RI33V400T

- Economic Voltmeter constituted by 5 red LEDS suitable for use on generating sets or any net subjected to vibrations.
- This device is available in horizontal (2RI33V230) and vertical (2RI33V230T) version able to read voltage at 230V, or in horizontal (2RI33V400) and vertical (2RI33V400T) version able to read voltage at 400V, (but referred to 230VAC auxiliary power supply)
- Instrument measures phase-neutral voltage **only (230V)**.



The same instrument can show the measure of 400V (model 2RI33V400 and 2RI33V400T), but in any case the connection must be linked to 230V ( $230V \times \sqrt{3} = 400V$ )

- **BURDEN**
- **AUXILIARY POWER SUPPLY**
- **RANGE**
- **VOLTMETER CIRCUIT**

0,5VA  
self supplied  
40...300VAC  
Direct insertion max 300V  
Thermic overload 400V for 5 seconds  
Frequency 45...65Hz  
-5 ... +80 °C  
IP40  
Safety CEI EN 61010-1 300V ACT III  
Accuracy CEI EN 60688

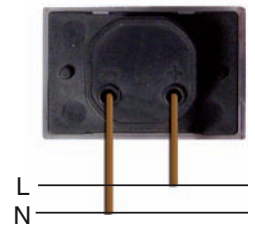
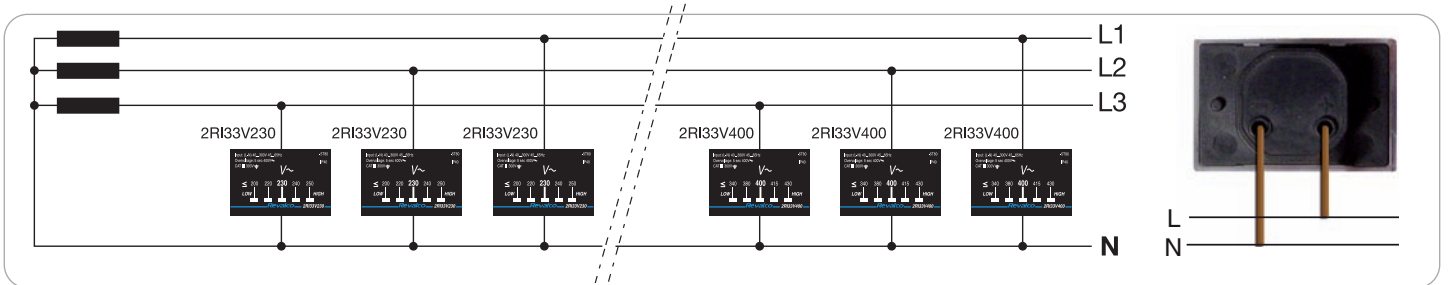
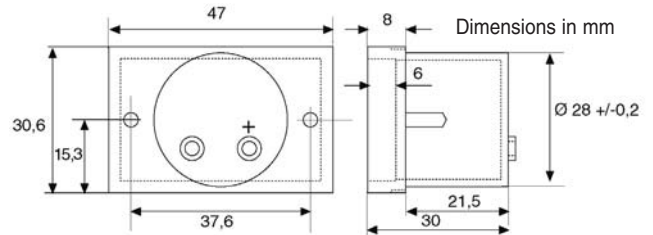
- **NOMINAL TEMPERATURE**
- **PROTECTION DEGREE**
- **STANDARDS**

- **PATENTED INSTRUMENTS VA/2006/A/33**
- **WEIGHT (kg)**

0,05



Fast fixing system



## LED VOLTMETERS + FREQUENCYMETERS



2RI36VH230



2RI36VH400

- These instruments make it possible to adjust the voltage and frequency in small electronic units. As it is possible to replace the voltmeter and frequency meter there is a considerable saving from a economical point of view as well as space on the electrical switchboard.

- **BURDEN** 0,5VA
- **ACCURACY CLASS** 1%
- **DISPLAY** by 2 groups of 3 leds electronic circuit each
- **STANDARD POWER SUPPLY** selfpowered 230V/50Hz +/-10%

- The standard instruments are calibrated at 230V and 50Hz
- If the electronic unit delivers 230V at 50Hz the green Led lights up
- If there is a drop in the voltage of the above-mentioned data, the yellow Led lights up (while the green Led remains light)
- If on the other hand there is an increase in the above-mentioned data, the red Led lights up (while the green Led remains light)
- In order to restore the normal values it is sufficient to accelerate or slow down the speed of the electronic unit motor until the yellow or red Leds go out.

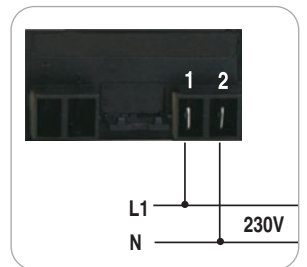
### EXAMPLE WHEN ORDERING

2RI36VH 230V 50Hz indicator (36x72mm) 230V input, phase-neutral connection (reading from 210 to 250V) operating frequency 50Hz input (reading from 48 to 52 Hz)  
2RI36VH 400V 50Hz indicator (36x72mm) 230V input, phase-neutral connection (reading from 380 to 420V) operating frequency 50Hz input (reading from 48 to 52 Hz)



in a three phase system, the phase-neutral connection (230V) is comparable to a phase-phase connection (400V)

- **DIMENSIONS / WEIGHT (kg):** 36x72x61mm / 0,20



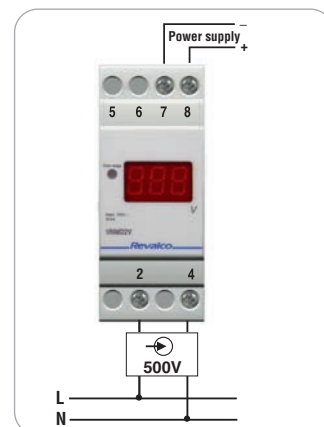
# MODULAR INSTRUMENTS - TRUE RMS VOLTMETERS

## VOLTMETERS - SOLE INPUT 500V



1RIMD2V

- Instruments suitable for AC input only
- **BURDEN** 1,5VA
- **AUXILIARY POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60 Hz  
For different supplies see the codes on order examples
- **FREQUENCY** 0÷100 Hz
- **CLASS** 0,5%  $\pm 2$  digit referred to the end scale value
- **DISPLAY** 3 digits red colour. Digit height 10 mm
- **OVER SCALE INDICATION** frontal **red** led lights on
- **RANGE** 500V standard
- **DIMENSIONS** 2 DIN modules
- **ORDER EXAMPLES**
  - 1RIMD2V power supply 230VAC
  - 1RIMD2V-24 power supply 24VAC
  - 1RIMD2V110 power supply 110VAC
  - 1RIMD2V-P1 power supply 22....36VAC and 19....70VDC
  - 1RIMD2V-P2 power supply 44....130VAC and 70....240VDC



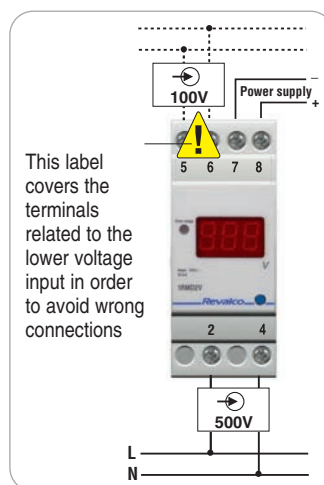
## VOLTMETERS - DOUBLE INPUT 500V or 100V



1RMD2V230

- Instruments suitable for AC and DC direct measure 500V and 100V insertion by VT (400/100V - 500/100V)
  - **BURDEN** 1,5VA
  - **AUXILIARY POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60 Hz  
For different supplies see the codes on order examples
  - **FREQUENCY** 0÷100 Hz
  - **CLASS** 0,5%  $\pm 2$  digit referred to the end scale value
  - **DISPLAY** 3 digits red colour. Digit height 10 mm
  - **OVER SCALE INDICATION** frontal **red** led lights on
  - **RANGE** 500V or 100V standard
- ! THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**  
If 500V input is used, it is non possible to connect the 100V terminals also and viceversa. Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.











- **DIMENSIONS** 2 DIN modules
- **ORDER EXAMPLES**
  - 1RMD2V230 power supply 230VAC
  - 1RMD2V-24 power supply 24VAC
  - 1RMD2V110 power supply 110VAC
  - 1RMD2V-P1 power supply 22....36VAC and 19....70VDC
  - 1RMD2V-P2 power supply 44....130VAC and 70....240VDC



To enter in programming page, make a long pressure (4 seconds about) on the front button

When the programming request is recognised "Set" page appears. Releasing the button all words will flash quickly, this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed ; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed. To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.


### DEFAULT PARAMETER POSSIBLE VALUES DESCRIPTION

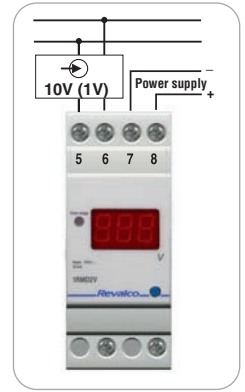
 average	VALUE from 1 to 255	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display. Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 255; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value 60.
 zeroing	VALUE from -200 and +200	In case the display (once powered and without input connection) shows a value different from zero, select this page and set the same value pushing the frontal button. Example: is display shows 002, select 2 by the frontal button. Default value 0.
		Default page selected in factory on "Adp" - <b>DON'T MODIFY IT</b>
 End scale input 100V	VALUE from 50 and 999 steps of 5V	Select the end scale value when input is from VT.../100V Default value 500.
 beginning scale	VALUE from -999 and +999	Page selected in factory on 0 value. <b>DON'T MODIFY IT</b>
 decimal point	0.00 00.0 000	Selection of decimal point. Default value 000
		Available page for AC + DC (TRMS) readings. Selected in factory on "Yes" position - <b>DON'T MODIFY IT</b>
		Available page for AC readings. Selected in factory on "No" position - <b>DON'T MODIFY IT</b>
		Available page for DC readings. Selected in factory on "No" position - <b>DON'T MODIFY IT</b>
		Available page for percentage ondulation factor (Ripple). Selected in factory on "No" position. <b>DON'T MODIFY IT</b>

## VOLTMETERS 10V or 1V



1RMD2V...

- **BURDEN** 1,5VA
  - **AUXILIARY POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60 Hz  
*For different supplies see the codes on order examples*
  - **FREQUENCY** 0÷100 Hz
  - **CLASS** 0,5%  $\pm 2$  digit referred to the end scale value
  - **DISPLAY** 3 digits red colour. Digit height 10 mm
  - **AC and DC RANGE** 10V or 1V
- These instruments have one input only which must be specified during the order (see the examples) 
- **ORDER EXAMPLES**
- |              |   |
|--------------|---|
| 1RMD2V101230 | power supply 230VAC, input 1V                         |
| 1RMD2V100-24 | power supply 24VAC, input 10V                         |
| 1RMD2V100110 | power supply 110VAC, input 10V                        |
| 1RMD2V101-P1 | power supply 22....36VAC and 19....70VDC, input 1V    |
| 1RMD2V100-P2 | power supply 44....130VAC and 70....240VDC, input 10V |




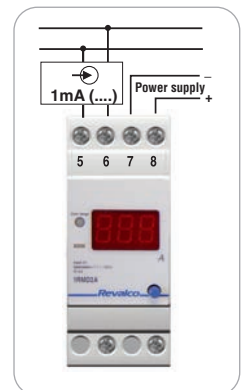
## MILLIAMMETERS

### MILLIAMMETERS 1mA / 5mA / 10mA / 20mA / 4-20mA



1RMD2T

- **BURDEN** 1,5VA
  - **AUXILIARY POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60 Hz  
*For different supplies see the codes on order examples*
  - **FREQUENCY** 0÷100 Hz
  - **CLASS** 0,5%  $\pm 2$  digit referred to the end scale value
  - **DISPLAY** 3 digits red colour. Digit height 10 mm
  - **RANGE**
- Instruments with input 4/20mA can be calibrated in factory only.  
These instruments have one input only which must be specified during the order (see the examples) 
- **ORDER EXAMPLES**
- |              |   |
|--------------|---|
| 1RMD2T230020 | power supply 230VAC, input 20mA                       |
| 1RMD2T-24420 | power supply 24VAC, input 4/20mA                      |
| 1RMD2T110010 | power supply 110VAC, input 10mA                       |
| 1RMD2T-P1005 | power supply 22....36VAC and 19....70VDC, input 5mA   |
| 1RMD2T-P2001 | power supply 44....130VAC and 70....240VDC, input 1mA |



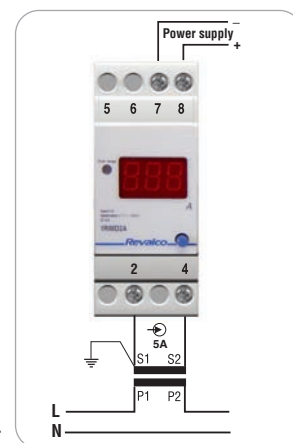
# AMMETERS

## AMMETERS - SOLE INPUT 5A



1RIMD2A

- **BURDEN** 0,5VA
- **AUXILIARY POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60 Hz  
For different supplies see the codes on order examples
- **FREQUENCY** 0 $\div$ 100 Hz
- **CLASS** 0,5%  $\pm 2$  digit referred to the end scale value
- **DISPLAY** 3 digits red colour. Digit height 10 mm
- **RANGE** Input from 5 to 999A with 5A steps, selectable by a frontal button.  
Input 5A - it is necessary to connect the CT .../5A correspondent to the end scale value setted.
- **DIMENSIONS** 2 DIN modules
- **ORDER EXAMPLES**
  - 1RIMD2A power supply 230VAC
  - 1RIMD2A-24 power supply 24VAC
  - 1RIMD2A110 power supply 110VAC
  - 1RIMD2A-P1 power supply 22....36VAC and 19....70VDC
  - 1RIMD2A-P2 power supply 44....130VAC and 70....240VDC



**PROGRAMMING:** To enter in programming page, make a long pressure (4 seconds about) on the frontal button. When the programming request is recognised the 3 frontal LED will flash contemporary; this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed.

The value change immediately and closed to him a flashing points appear meaning that the value is in modification phase.

To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.

### DEFAULT PARAMETER POSSIBLE VALUES DESCRIPTION

	VALUE	Select the ratio .../5A of the current transformer.
CT .../5A	from 5 to 999 every 5 steps	Default value = 100
	VALUE	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display.
average	from 1 to 255	Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 255; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value 30
	VALUE	In case the display (once powered and without input connection) shows a value different from zero, select this page and set the same value pushing the frontal button.
zeroing	from 0 to 20	Example: is display shows 002, select 2 by the frontal button. Default value 0.

## AMMETERS - DOUBLE INPUT 5A OR 60mV



1RMD2A230

- **BURDEN** 0,5VA
- **AUXILIARY POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60 Hz  
For different supplies see the codes on order examples
- **FREQUENCY** 0 $\div$ 100 Hz
- **CLASS** 0,5%  $\pm 2$  digit referred to the end scale value
- **DISPLAY** 3 digits red colour. Digit height 10 mm
- **RANGE** Input from 5 to 999A with 5A steps, selectable by a frontal button
  - Input 5A - it is necessary to connect the CT .../5A correspondent to the end scale value setted
  - Input 1A - This range is obtained multiplying the primary value of CT to use for the constant K= 5 (example: 100/1A -> K=500). Practically, if the primary current is 100A, you have to connect the CT 100/1A but on the programming page (FcS) you have to select 500. The maximum CT in this case must be 200/1A and the precision class is 1%.
  - Input 60mV - It is necessary to connect the shunt.../60mV correspondent to the end scale value setted

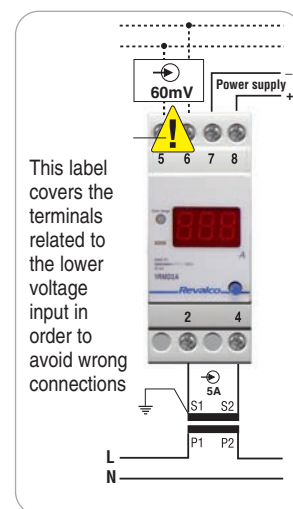


**THE CONNECTION OF THESE 2 INPUTS CANNOT BE EFFECTED CONTEMPORARY.**

If 5A input is used, it is non possible to connect the 60mV terminals also and viceversa.

Once the adhesive label is removed, Revalco is not responsible to damages caused by a wrong connections.

- **DIMENSIONS** 2 DIN modules
- **ORDER EXAMPLES**
  - 1RMD2A230 power supply 230VAC
  - 1RMD2A-24 power supply 24VAC
  - 1RMD2A110 power supply 110VAC
  - 1RMD2A-P1 power supply 22....36VAC and 19....70VDC
  - 1RMD2A-P2 power supply 44....130VAC and 70....240VDC



This label covers the terminals related to the lower voltage input in order to avoid wrong connections








**PROGRAMMING:** To enter in programming page, make a long pressure (4 seconds about) on the front button

When the programming request is recognised "Set" page appears. Releasing the button all words will flash quickly, this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed. To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.


### DEFAULT PARAMETER POSSIBLE VALUES DESCRIPTION

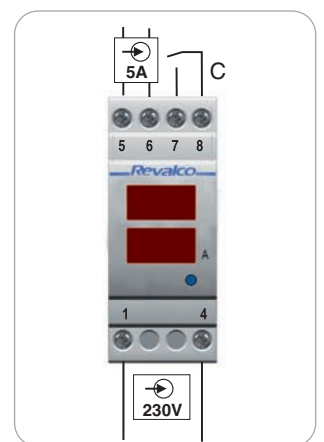
	VALUE	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display.
average	from 1 to 255	Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 255; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value 60
	VALUE	In case the display (once powered and without input connection) shows a value different from zero, select this page and set the same value pushing the frontal button.
zeroing	from -200 to +200	Example: is display shows 002, select 2 by the frontal button. Default value 0.
		Default page selected in factory on "Adp" - <b>DON'T MODIFY IT</b>

DEFAULT PARAMETER	POSSIBLE VALUES	DESCRIPTION
-------------------	-----------------	-------------

 CT sec .../5A and .../1A or shunt ....60mV	VALUE from 1 to 999 every 1 step	Select the end scale value referred to the connected CT or shunts Default value 100
	VALUE from -999 to +999	Page selected in factory on 0 value. <b>DON'T MODIFY IT</b>
 decimal point	0.00 00.0 000	Selection of decimal point. Default value 000
		Available page for AC + DC (TRMS) readings. Selected in factory on "Yes" position - <b>DON'T MODIFY IT</b>
		Available page for AC readings. Selected in factory on "No" position - <b>DON'T MODIFY IT</b>
		Available page for DC readings. Selected in factory on "No" position - <b>DON'T MODIFY IT</b>
		Available page for percentage ondulation factor (Ripple). Selected in factory on "No" position. <b>DON'T MODIFY IT</b>


## AMMETERS - DOUBLE THRESHOLD (MIN / MAX)

 1RSDI	<ul style="list-style-type: none"> <li>- BURDEN</li> <li>- AUXILIARY POWER SUPPLY</li> <li>- CLASS</li> <li>- DISPLAY</li> <li>- RANGE</li> <li>- CT RANGE</li> <li>- MAXIMUM CURRENT</li> <li>- PERMANENT OVERLOAD</li> <li>- THERMIC OVERLOAD (1s)</li> <li>- RELAY</li> <li>- GALVANIC INSULATION</li> <li>- DIMENSIONS</li> <li>- FUNCTIONS</li> </ul>	2VA 230VAC $\pm 10\%$ standard 50/60 Hz 0,5% $\pm 2$ digit referred to the end scale value 2 display 3 digits each red colour. Digit height 8 mm Input from 0,1 to 999A with 5A steps, selectable by a frontal button from 5 to 999A with 5A steps, selectable by a frontal button 6A 110% $I_{nom}$ 200% $I_{max}$ 1 NO contact - 250V/10A resistive load 4kV from coil and contact 2 DIN modules measure of current in true RMS by CT.../5A 2 settable current thresholds with only one NO output relay settable disconnection optical prealarm.



Display visualization: when powered all the segments of display and LED lights on for few seconds. After that, the measure page appears.

### DESCRIPTION

 current (A)	TRMS (AC+DC) value. Decimal point is present only if the setted CT value is lower than 100. Dot situated in the upper right side (when lights on) shows that the output relay is active. When display flashes shows that threshold is "ON".
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**PROGRAMMING:** To enter in programming page, make a long pressure (4 seconds about) on the front button. When the programming request is recognised the first settable parameter appears. Releasing the button all words will flash quickly, this situation will remain until the end of procedure.





After 4 seconds the pages with configuration parameters start to be displayed ; one every 4 seconds showing the actual selected value.



**If it is necessary to see the values without any modification press shortly once the button when the proper page is displayed.**

To change the values of parameters, it is enough to press the frontal button while this parameter is displayed. To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.

**IMPORTANT NOTE:**  
during the programming the output relay condition IS NOT MODIFIED. The normal work restart automatically at the end of programming

DEFAULT PARAMETER	POSSIBLE VALUES	DESCRIPTION
-------------------	-----------------	-------------

start value		VALUE from 0 to 999 "Hi" threshold level (High trigger) It is the threshold value over which, normally, output is activated. When this value is setted in lower value than the "Lo" the functioning will change (see threshold description). Default value 0
start value		VALUE from 0 to 999 "Lo" threshold level (Low trigger) It is the threshold value under which, normally, output is activated. When this value is setted in higher value than the "Hi" the functioning will change (see threshold description). Default value 0
start value		VALUE from 0 to 999 Timer ON It is the intervention delay value (display is flashing) expressed in Seconds. Default value 1
start value		VALUE from 0 to 999 Timer OFF It is the intervention delay value (display stop to flash) expressed in Seconds. Default value 0

CT		VALUE from 5 to 999 every 5 steps	Select the ratio .../5A of the current transformer. Default value = 100
average		VALUE from 1 to 255	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display. Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 255; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value 60

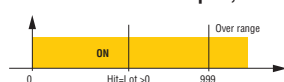
After powering the relay is not active for the first 10 seconds to permits the measure stabilization. This device measures and controls the instantaneous value of current on terminals, verifying continuously if and when the conditions to activate the relay happen according to the needed conditions. It is possible to set 2 threshold levels called "Hit" (high trigger) and "Lot" (low trigger) both from 0 to 999 (except the decimal point). It is possible to obtain the following six different possibilities:

**- Hit and Lot values = 0 (Default)**



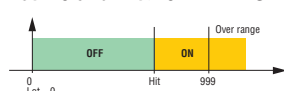
Output is constantly on rest for every current values setted (over range included)

**- Hit and Lot values equal, but different from 0.**



Output is constantly on rest for every current values setted (over range included). This option is useful for test or maintenance.

**- Lot = 0 and Hit > 0: MAXIMUM THRESHOLD**



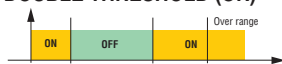
This is the classic configuration. Relay is active when the measure is HIGHER than the Hit value and return to rest when the measure become LOWER or EQUAL to Hit value.

**- Hit = 0 and Lot > 0 : MINIMUM THRESHOLD**



Relay is active when the measure is LOWER than the Lot value and return to rest when the measure become HIGHER or EQUAL to Lot value.

**- Lot value < Hit value, both higher than 0 DOUBLE THRESHOLD (OR)**



Relay is light off only if the measure is within Lot (higher or equal) and Hit (lower or equal) limits.

Relay is light on when measure is HIGHER than Hit and LOWER than Lot values.

**- Hit < Lot, both higher than 0 DOUBLE THRESHOLD (AND)**

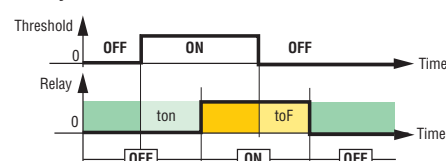


Relay is light off only if the measure is within Lot (lower) and Hit (higher) limits. Relay is light off when measure is LOWER or EQUAL than Hit and HIGHER or EQUAL than Lot values.

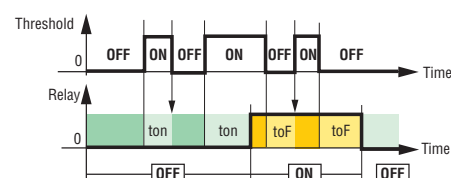
Two delay times functions are possible on the output relay (ton = Timer On, toF = Timer Off) both settable from 0 to 999 Seconds.

This times can be used also a filter for temporary conditions wich must not cause the intervention of relay.

**1 Delay times as normal use**



**2 Delay times as "filter"**



## FREQUENCYMETERS



1RIMD2F

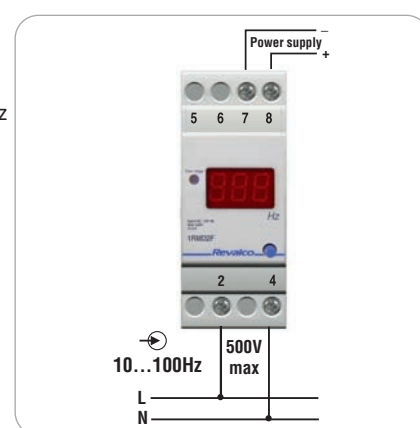
- **BURDEN** 2VA
  - **AUXILIARY POWER SUPPLY** 230VAC  $\pm 10\%$  standard 50/60 Hz  
For different supplies see the codes on order examples
  - **FREQUENCY** 10÷100 Hz max 500V
  - **CLASS** 0,005%  $\pm 1$  digit referred to the end scale value 45÷65Hz
  - **DISPLAY** 3 digits red colour. Digit height 10 mm
  - **DIMENSIONS** 2 DIN modules
  - **ORDER EXAMPLES**
    - 1RIMD2F
    - 1RIMD2F24
    - 1RIMD2F110
    - 1RIMD2FP1
    - 1RIMD2FP2
- power supply 230VAC  
power supply 24VAC  
power supply 110VAC  
power supply 22....36VAC and 19....70VDC  
power supply 44....130VAC and 70....240VDC

When powered all the segments of display and LED lights on for few seconds. After that, the measure page appears.



frequency

It is the frequency of the alternated voltage (sinusoidal) applied to the terminals, expresses in Hz. Decimal point is present only on the range 0-99,9 Hz. For frequency values equal or higher than 100 numbers are expressed without decimal point (the end scale led lights on).



**PROGRAMMING:** To enter in programming page, make a long pressure (4 seconds about) on the front button. When the programming request is recognised the settable parameter appear. Releasing the button all words will flash quickly, this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed ; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed. To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.

DEFAULT PARAMETER	POSSIBLE VALUES	DESCRIPTION
-------------------	-----------------	-------------

average	VALUE from 1 to 255	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display. Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 255; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value 100
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# DOUBLE SINGLE PHASE INSTRUMENTS

## VOLTMETERS + AMMETERS



1RIMD2AV

- BURDEN
- AUXILIARY POWER SUPPLY

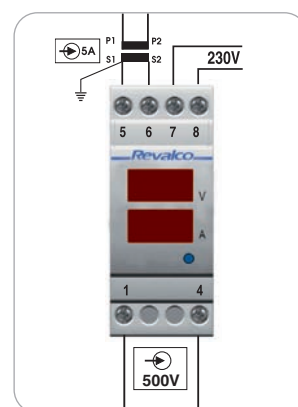
- FREQUENCY
- CLASS
- DISPLAY
- VOLTMETER RANGE
- AMMETER RANGE

- Input 5A - it is necessary to connect the CT .../5A correspondent to the end scale value
- DIMENSIONS

- ORDER EXAMPLES

1RIMD2AV  
1RIMD2AV-24  
1RIMD2AV110  
1RIMD2AV-P1  
1RIMD2AV-P2

Ammeters 0,5VA - Voltmeters 1,5VA  
230VAC  $\pm 10\%$  standard 50/60 Hz  
For different supplies see the codes on order examples  
0÷100 Hz  
0,5%  $\pm 2$  digit referred to the end scale value  
2 display 3 digits each red colour. Digit height 10 mm  
500V standard  
from 5 to 999A with 5A steps, selectable by a frontal button  
power supply 230VAC  
power supply 24VAC  
power supply 110VAC  
power supply 22....36VAC and 19....70VDC  
power supply 44....130VAC and 70....240VDC








**PROGRAMMING:** To enter in programming page, make a long pressure (4 seconds about) on the frontal button

When the programming request is recognised the 3 frontal LED will flash contemporary; this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed ; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed.

The value change immediately and closed to him a flashing points appear meaning that the value is in modification phase.

To fast forward maintain pressure on the frontal button. The value is automatically saved in permanent way when the automatic display of the pages starts again.

### DEFAULT PARAMETER POSSIBLE VALUES DESCRIPTION

 Current transformer secondary 5A	VALUE from 5 to 999 every 5 steps	Select the ratio .../5A of the current transformer. Decimal point is automatically selected, and up to 100A the display shows 00.0; from 100A to 999A it shows 000. Default value = 100
 voltage	VALUE 500	Voltage page with 500V setted in factory. <b>ABSOLUTELY DON'T MODIFY IT</b> 
 average	VALUE from 1 to 255	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display. Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 255; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value 30
 zeroing	VALUE from 0 to 20	In case the display (once powered and without input connection) shows a value different from zero, select this page and set the same value pushing the frontal button. Example: is display shows 002, select 2 by the frontal button. Default value 0.

## VOLTMETERS + FREQUENCYMETERS



1RIMD2VF250

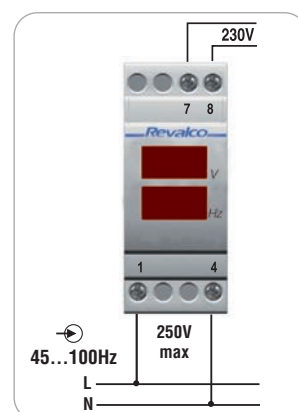
- BURDEN
- AUXILIARY POWER SUPPLY

- FREQUENCY
- CLASS
- DISPLAY
- INPUT
- DIMENSIONS

- ORDER EXAMPLES

1RIMD2VF250  
1RIMD2VF250-24  
1RIMD2VF250110  
1RIMD2VF250-P1  
1RIMD2VF250-P2

Ammeters 0,5VA - Voltmeters 1,5VA  
230VAC  $\pm 10\%$  standard 50/60 Hz  
For different supplies see the codes on order examples  
45÷100 Hz  
0,5%  $\pm 2$  digit referred to the end scale value  
2 display 3 digits each red colour. Digit height 10 mm  
250V max  
2 DIN modules  
power supply 230VAC  
power supply 24VAC  
power supply 110VAC  
power supply 22....36VAC and 19....70VDC  
power supply 44....130VAC and 70....240VDC



# DOUBLE THREE PHASE INSTRUMENTS

## VOLTMETERS + AMMETERS

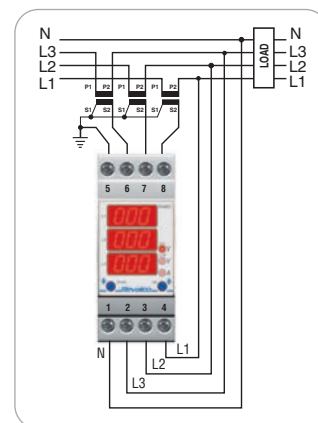


1RIMD23AV

- BURDEN
- Self supplied instruments
- CLASS
- DISPLAY
- AMMETER RANGE
  - Input 5A - it is necessary to connect the CT .../5A correspondent to the end scale value
- VOLTMETER RANGE (phase-neutral) 290V max
- VOLTMETER RANGE (phase-phase) 500V max
- DIMENSIONS

Ammeters 0,5VA - Voltmeters 1,5VA

0,5%  $\pm 2$  digit referred to the end scale value  
 3 display 3 digits each red colour. Digit height 7 mm  
 from 5 to 999A with 5A steps, selectable by a frontal button  
 2 DIN modules



Measurements displaying:

the measurements and signalling pages which appear (pushing and releasing the frontal button) are the following

PUSHED BUTTON	RELEASED	DESCRIPTION
		Voltage measure (V) First upper led lights-on  If (near every phase voltage value) the points on the right side of display light-on, it means that the sequence of the phases is WRONG
		Voltage measure (V) Central led lights-on  If (near every phase-neutral voltage value) the points on the right side of display light-on, it means that the sequence of the phases is WRONG
		current measure (A) Last downer led lights on

**PROGRAMMING:** To enter in programming page, make a long pressure (4 seconds about) on the frontal button

When the programming request is recognised the 3 frontal LED will flash contemporary; this situation will remain until the end of procedure. After 4 seconds the pages with configuration parameters start to be displayed; one every 4 seconds showing the actual selected value. If it is necessary to see the values without any modification don't touch nothing until the automatic end of the showed pages. To change the values of parameters, it is enough to press the frontal button while this parameter is displayed.

The value change immediately and closed to him a flashing points appear meaning that the value is in modification phase.

To fast forward maintain pressure on the frontal button.

The value is automatically saved in permanent way when the automatic display of the pages starts again.

The following can be made by pressing the buttons:

1. Pressed during the automatic display of the pages, it increases the time you stay on this page until it is released.
2. Pressed during the setting of some value (when all the points on the right flashes) decrease step by step this value and it increases the time you stay on this page until it is released.
3. Pressing contemporary the buttons values increase one step each time without fast forward possibility

DEFAULT PARAMETER	POSSIBLE VALUES	DESCRIPTION
	VALUE from 5 to 999 every 5 steps	Select the ratio .../5A of the current transformer. Decimal point is automatically selected, and up to 10A the display shows 0.00; from 10A to 100A it shows 00.0; from 105A to 999A it shows 000 Default value = 100
	VALUE from 1 to 15	It is the number (n) of single measures effected on the electrical parameter before it's visualization on the display. Practically it is the filter of the measure stabilization. The numbering rise up from 1 to 15; more higher is the selected number, more slow are the eventual variations of reading. This is valid for all the measured parameters. Default value = 3