

Revalco®

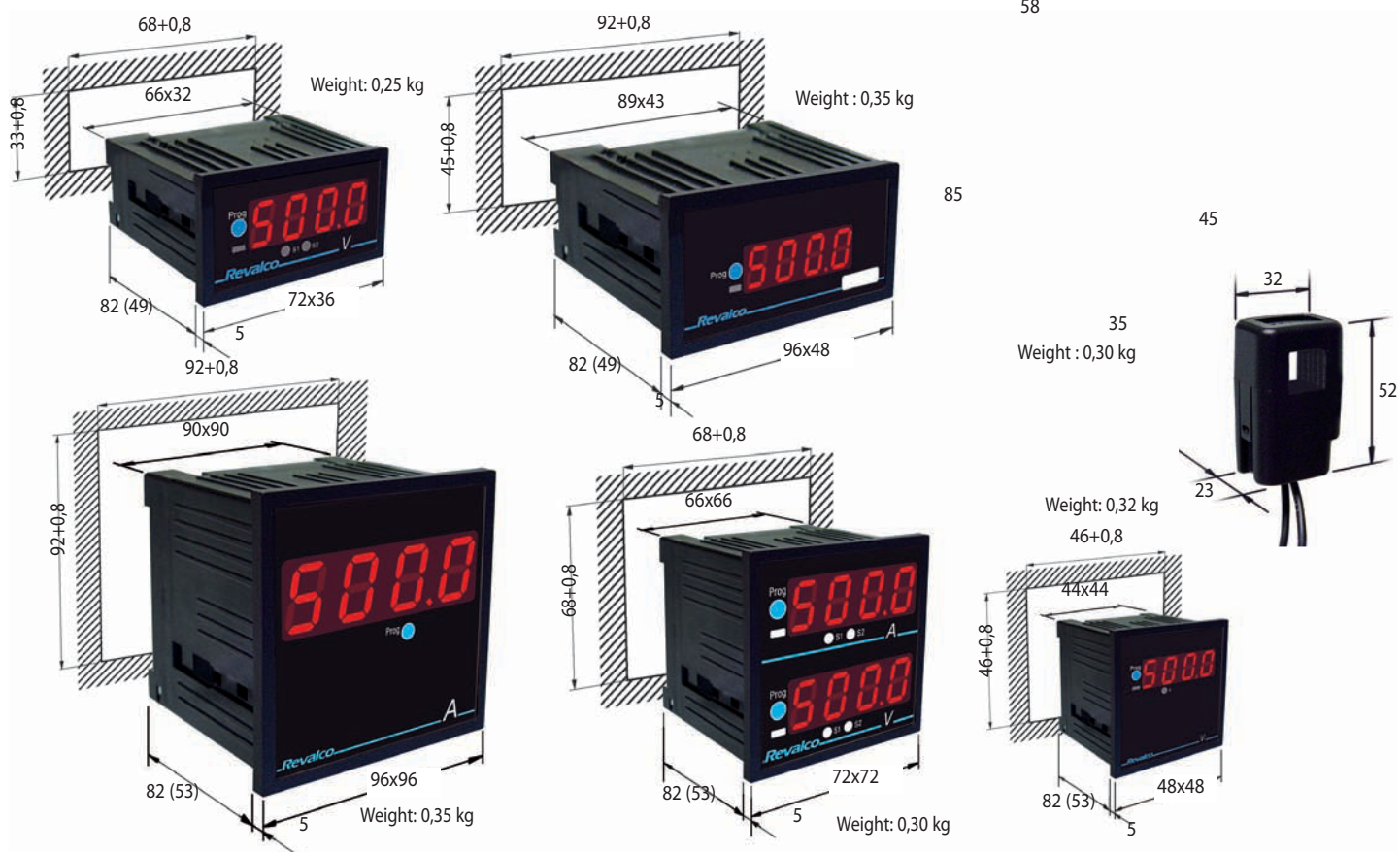
Made in Italy

digital measuring instruments





DIMENSIONS IN mm



QUALITY GUARANTEE

The **Revalco** of measuring instruments are manufactured in accordance with the standards directed by recognised a 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 Revalco's 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



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

DEFAULT PARAMETER	POSSIBLE VALUES	DESCRIPTION
End scale Page valid for ammeter only	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
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 stabilizaton. 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.
zero adjuster	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.
threshold 1 activation or deactivation	active max threshold	Proper relay and led will be actived when the value of the measure will be higher than the selected limit (max threshold) Default value "Hi".
	active min threshold	Proper relay and led will be actived when the value of the measure will be lower 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.

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

threshold 1 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.

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

threshold 1 delay time	VALUE from 0.0 to 25.5	This page selects the delay time value, expressed in seconds. Default value 0.2
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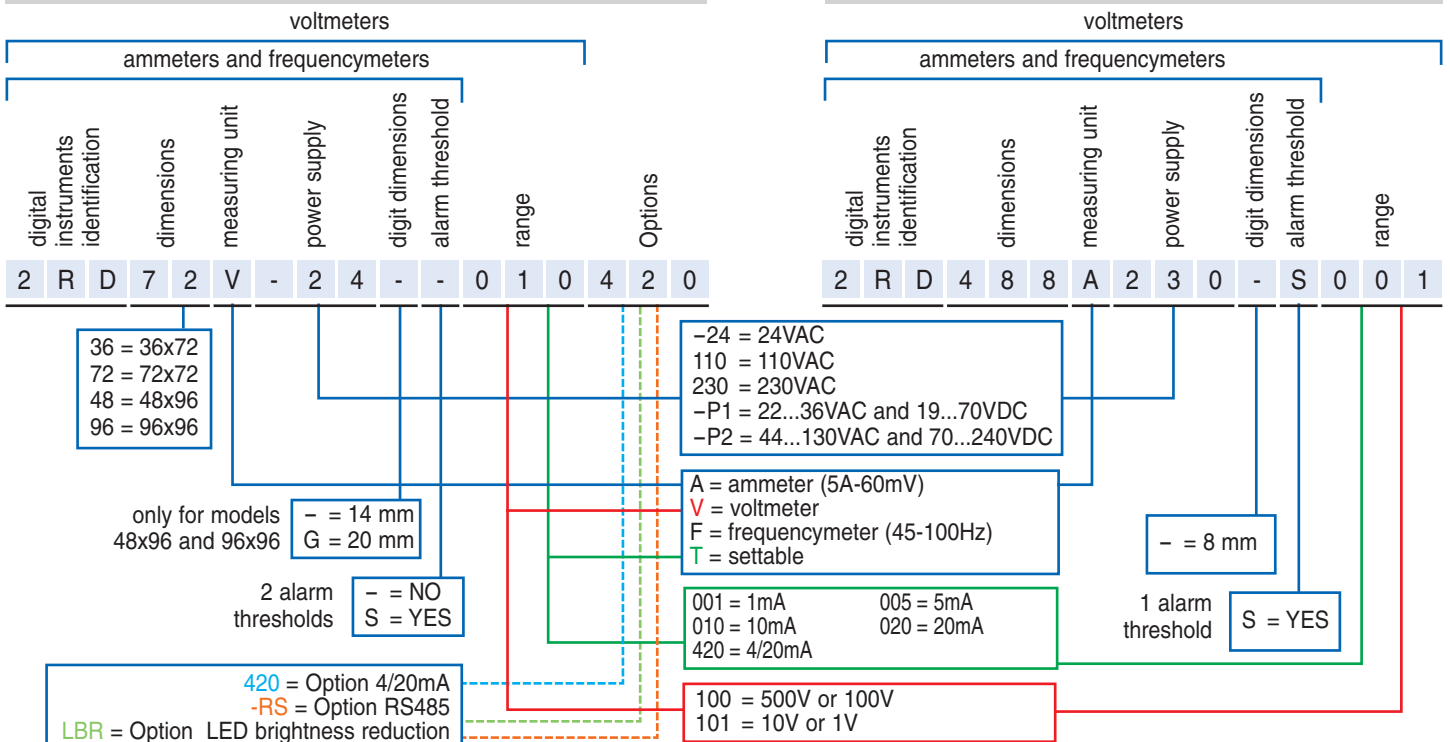
Available page only if "th1" is different from "OFF"

threshold 1 value	VALUE from -9999 to +9999	It is the threshold intervention value (except the decimal point) Default value 250
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SWITCHBOARD INSTRUMENTS - TRUE RMS - DEPTH 82mm

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

ammeters, voltmeters and frequencymeters 48x48



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



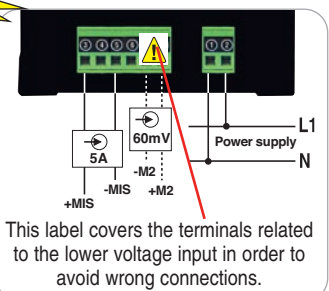
2RD48A230G
2RD48A230G-RS
2RD48A230G-420
2RD48A230G-LBR



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

NEW

DEPTH 82 mm



- **BURDEN / CLASS** 0,5VA / 0,5% ±2 digit referred to the end scale
- **POWER SUPPLY** 230VAC ±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 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 **1A** - This range is obtained multiplying the primary value of CT to use for the constant K= 5 (example: 1000/1A -> K=5000). Practically, if the primary current is 1000A, you have to connect the CT 1000/1A but on the programming page (FcS) you have to select 5000. The maximum CT in this case must be 2000/1A and the precision class is 1%.
- Input **60mV** - It is necessary to connect the shunt.../60mV correspondent to the end scale value setted



- 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).

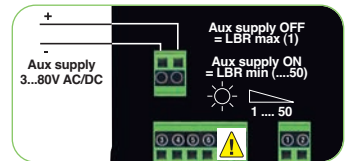
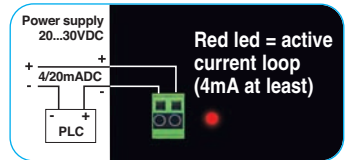
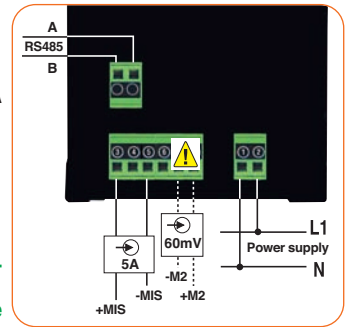
This analogue output cannot be present together with option RS485.



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



2RD488A230-S



2RD48A230GS



2RD36A230-S

- **BURDEN / CLASS** 0,5VA / 0,5% ±2 digit referred to the end scale
- **POWER SUPPLY** 230VAC ±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 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 demand" from 5min to 30min and the "I max demand".

- Input **1A** - This range is obtained multiplying the primary value of CT to use for the constant K= 5 (example: 1000/1A -> K=5000). Practically, if the primary current is 1000A, you have to connect the CT 1000/1A but on the programming page (FcS) you have to select 5000. The maximum CT in this case must be 2000/1A and the precision class is 1%.
- Input **60mV** - It is necessary to connect the shunt.../60mV correspondent to the end scale value setted

- **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
2RD488A110-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

