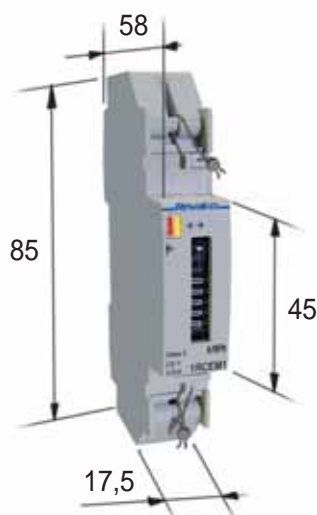


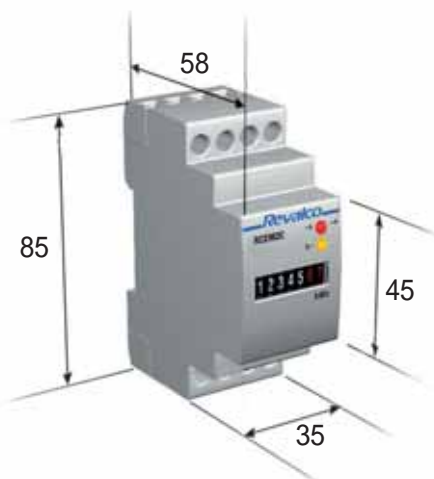
ENERGY KWHMETERS



DIMENSIONS in mm



■ The 17,5 mm dimensions correspond to 1 DIN module



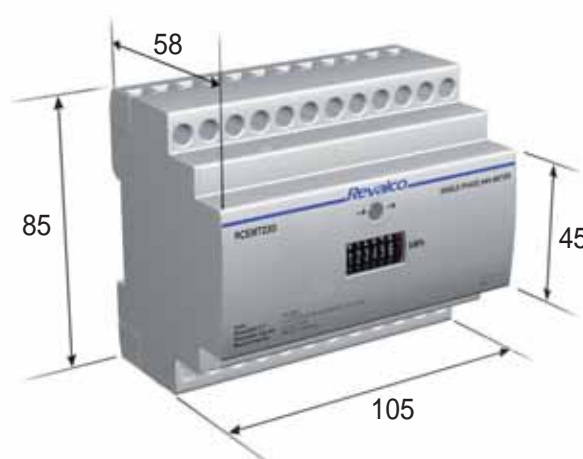
■ The 35 mm dimensions correspond to 2 DIN modules (17.5 mm each)



■ The 52,5 mm dimensions correspond to 3 DIN modules (17.5 mm each)



■ The 70 mm dimensions correspond to 4 DIN modules (17.5 mm each)



■ The 105 mm dimensions correspond to 6 DIN modules (17.5 mm each)

ORDERING DATA

- The three phase kWhmeters are calibrated with the following standard values:
Current input 5A and the primary values are selectable by minidips
Voltage input 400V
- On request it is possible to calibrate the kWhmeters with the following parameters which must be indicated when ordering:
Current input 1A
Voltage input: 100V/3V, 110V/3V, 100V, 110V, 230V, 440V, 500V
- Possibility to calibrate the kWhmeters in class 1

**1RCM2C**

- **BURDEN CURRENT / VOLTAGE** < 4W
- **AUXILIARY POWER SUPPLY** 48V DC (40 ÷ 54 V DC) self-powered
- **ACCURACY** Class 2 (see standards page 32)
- **TEMPERATURES** operating 0°C ÷ +50°C / storage -25°C ÷ +70°C
- **RESOLUTION** 0,01 kWh
- **DISPLAY** 99999,99 kWh (5 entires + 2 decimals)
- **SIGNALLING LEDS**
 - yellow led OFF = connection ok
 - yellow led ON = error on connection
 - it is necessary to verify the connections of the measured circuit, if the connection is inverted the display stops to count until the problem is solved
 - Flashing red led = active consumption
- **NOMINAL CURRENT** DC current by external shuntA/60mV. The value of primary current must be indicated when ordering
- **MAXIMUM CURRENT** admitted 1,2 In
- **OUTPUT PULSE** Open-collector system (SO in accordance with DIN43864 standards), max 36V/20mA DC. - Duration 100 ms
- **DIMENSIONS / WEIGHT Kg.** 2 DIN modules / 0,13
- For the connection diagram, see page 32

SINGLE-PHASE, ACTIVE ENERGY KWHMETERS

**1RCMD230 - DIRECT INPUT 6 kW****1RCMTD230- INPUT BY MEANS OF C.T.**

- the consumption of the energy is directly read on the display; it is not necessary to calculate any multiplication factor

- **STANDARDS**
- **BURDEN CURRENT / VOLTAGE**
- **FREQUENCY**
- **POWER SUPPLY**
- **ACCURACY**
- **TEMPERATURES**
- **RESOLUTION**
- **DISPLAY**

■ **SIGNALLING LED**

- **ENERGY**
- **NOMINAL CURRENT**
- **PRIMARY CURRENT**

Selection of the range by an incorporated minidip

- **MAXIMUM CURRENT** admitted overcurrent

- **MINIMUM OPERATING CURRENT**
- **MEMORY**

- **DIMENSIONS / WEIGHT Kg.**

- For the connection diagram see page 32

1RCMD230

EN62053-21 - Edition of November 2003

< 4W

50 ÷ 60 Hz

230V ± 10% self-powered

Class 2 (see standards page 32)

operating 0°C ÷ +50°C / storage -25°C ÷ +70°C

0,01 kWh

9999,99 kWh (4 entires + 2 decimals)

The decimal numbers are showed, pushing the button on front

Flashing Red = active consumption

(flashing rate related to consumption; 64 flashes every 1/100 kWh)

Readable for all the values of the cosφ from 0,5 to 1

26A (6kW)

5A

60-100-150-250-400-600-1000 A

30A

130mA

5 In for 0,5 sec

6A

15mA

EEPROM

3 DIN modules / 0,28



CT's secondary winding is not insulated, as that it is used as Shunt. If a model with secondary winding insulated is necessary, clarify when ordering.

**1RCMT230I - INPUT BY MEANS OF C.T.**

- the consumption of the energy is directly read on the display; it is not necessary to calculate any multiplication factor

- **STANDARDS**
- **BURDEN CURRENT / VOLTAGE**
- **FREQUENCY**
- **POWER SUPPLY**
- **ACCURACY**
- **TEMPERATURES**
- **DISPLAY**
- **SIGNALLING LED**

Flashing Red led= active consumption (flashing rate related to consumption)

1 Wh every flash; for C.T. up to 80A

10 Wh every flash; for C.T. between 100 and 800A

100 Wh every flash; for C.T. > 800A

Pulsating Red led= error on connection; it is necessary to verify the connections of the measured circuit

Readable for all the values of the cosφ from 0,5 to 1

5A

5-10-15-20-25-30-40-50-60-80 (x10 and x100) selectable (max 4000A)

admitted 6A

overcurrent 5 In for 0,5 sec

15mA

- **ENERGY**
- **NOMINAL CURRENT**
- **CURRENT TRANSFORMERS RATIO**
- **MAXIMUM CURRENT**

- **MINIMUM OPERATING CURRENT**

- **SELECTABLE OUTPUT PULSE**

{ x1 = One flash every 0,1 kWh - resolution 0,1 kWh
 { x10 = One flash every 1 kWh - resolution 1 kWh
 { x100 = One flash every 10 kWh - resolution 10 kWh

normally open relay, 0,5A / 100V - duration 100 ms

6 DIN modules / 0,19

- **DIMENSIONS / WEIGHT Kg.**

- For the connection diagram see page 32



1RCM1 - DIRECT INSERTION 6 kW with sealable terminals cover

STANDARDS	EN62053-21 - Edition of November 2003
BURDEN CURRENT / VOLTAGE	< 4W
AUXILIARY POWER SUPPLY	230V \pm 10% self-powered - 50 \div 60 Hz
ACCURACY	Class 2 (see standards page 32)
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C
RESOLUTION	0,01 kWh
DISPLAY	99999,99 kWh (5 entires + 2 decimals) memory present also in case of auxiliary supply lost
SIGNALLING LEDS	yellow led OFF = connection ok yellow led ON = error on connection Flashing red led = active consumption
ENERGY	flashing rate related to consumption. 16 impulses = 5Wh
NOMINAL CURRENT	Readable for all the values of the cos ϕ from 0,5 to 1
MAXIMUM CURRENT	5A (30A)
MINIMUM OPERATING CURRENT	3 times the I_n for 0,5 sec (equal to 90A)
OUTPUT PULSE	25mA (equal to a consumption of 6W) Open-collector system (SO in accordance with DIN43864 standards), max 60V DC / 30mA DC Impulse duration > 80ms - 1impulse every 0,01kWh
PROTECTION AGAINST POLARITY INVERSION	
DIMENSIONS / WEIGHT Kg.	1 DIN modules / 0,08
For the connection diagram, see page 33	



1RCM2 - DIRECT INPUT 6 kW

STANDARDS	EN62053-21 - Edition of November 2003
BURDEN CURRENT / VOLTAGE	1W / 3W
AUXILIARY POWER SUPPLY	230V \pm 10% self-powered - 50 \div 60 Hz
ACCURACY	Class 2 (see standards page 32)
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C
RESOLUTION	0,01 kWh
DISPLAY	99999,99 kWh (5 entires + 2 decimals)
SIGNALLING LEDS	yellow led OFF = connection ok (indication after 1 red led flash; this is the automatic connection test, equivalent to a consumption of 10Wh) yellow led ON = error on connection (indication after 1 red led flash); it is necessary to verify the connections of the measured circuit, if the connection is inverted the display stops to count until the problem is solved Flashing red led = active consumption (flashing rate related to consumption) 1Wh every flash; 10 flashes = 10 Wh = 1 reposition of decimal point Readable for all the values of the cos ϕ from 0,5 to 1
ENERGY	5A (30 kW)
NOMINAL CURRENT	5 I_n for 0,5 sec
MAXIMUM CURRENT	25mA
MINIMUM OPERATING CURRENT	Open-collector system (SO in accordance with DIN43864 standards), max 36V DC / 20mA DC. Duration 100 ms - 1 impulse every 0,01 kWh
OUTPUT PULSE	2 DIN modules / 0,13
DIMENSIONS / WEIGHT Kg.	
For the connection diagram, see page 33	



1RCM263 - DIRECT INPUT 63A

- the consumption of the energy is directly read on the display; it is not necessary to calculate any multiplication factor

STANDARDS	EN62053-21 - Edition of November 2003
BURDEN CURRENT / VOLTAGE	1VA / 3VA
AUXILIARY POWER SUPPLY	230V \pm 10% self-powered - 50 \div 60 Hz
ACCURACY	Class 2 (see standards page 32)
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C
DISPLAY	999999,9 kWh (6 entires + 1 decimal) memory present also in case of auxiliary supply lost
SIGNALLING LEDS	yellow led OFF = connection ok (indication after 1 red led flash; this is the automatic connection test, equivalent to a consumption of 10Wh) yellow led ON = error on connection (indication after 1 red led flash); it is necessary to verify the connections of the measured circuit, if the connection is inverted the display stops to count until the problem is solved Flashing red led = active consumption (flashing rate related to consumption) 2Wh every flash; 50 flashes = 100 Wh = 1 reposition of decimal point Readable for all the values of the cos ϕ from 0,5 to 1
ENERGY	15 (63) A
NOMINAL CURRENT	overcurrent: 2 I_n for 0,5 sec correspondent to 120A
MAXIMUM CURRENT	100mA correspondent to a consumption of 23W
MINIMUM OPERATING CURRENT	Open-collector system (SO in accordance with DIN43864 standards), max 60V DC / 30mA DC. Duration >80 ms
OUTPUT PULSE	2 DIN modules / 0,30
DIMENSIONS / WEIGHT Kg.	
For the connection diagram, see page 33	



1RCEM3U - DIRECT INPUT 5(30)A sealable case and terminals for calibration certification

STANDARDS	EN62053-21 - Edition of November 2003
BURDEN CURRENT / VOLTAGE	1W / 3W
AUXILIARY POWER SUPPLY	230V \pm 10% self-powered - 50 \div 60 Hz
ACCURACY	Class 2 (see standards page 32)
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C
RESOLUTION	0,01 kWh
DISPLAY	99999,99 kWh (5 entires + 2 decimals)
SIGNALLING LEDS	yellow led OFF = connection ok (indication after 1 red led flash; this is the automatic connection test, equivalent to a consumption of 10Wh) yellow led ON = error on connection (also after the 1 red led flash); it is necessary to verify the connections of the measured circuit, if the connection is inverted the display stops to count until the problem is solved Flashing red led = active consumption (flashing rate related to consumption) 1Wh every flash; 10 flashes = 10 Wh = 1 reposition of decimal point
ENERGY	Readable for all the values of the cos ϕ from 0,5 to 1
NOMINAL CURRENT	5(30)A
MAXIMUM CURRENT	overcurrent 5 In for 0,5 sec
MINIMUM OPERATING CURRENT	25mA
OUTPUT PULSE	Open-collector system (SO in accordance with DIN43864 standards), max 36V DC / 20mA DC. Duration 100ms 3 DIN modules / 0,17
DIMENSIONS / WEIGHT Kg.	
For the connection diagram, see page 33	

THREE-PHASE, ACTIVE ENERGY KWH-METERS



1RCETM63 - DIRECT INSERTION 63A (4 wires with neutral)

- the consumption of the energy is directly read on the display; it is not necessary to calculate any multiplication factor

STANDARDS	EN62053-21 - Edition of November 2003
BURDEN CURRENT / VOLTAGE	1VA / 3VA each phase
AUXILIARY POWER SUPPLY	230V \pm 10% self-powered - 50 \div 60 Hz
ACCURACY	Class 2 (see standards page 32)
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C
DISPLAY	999999,9 kWh (6 entires + 1 decimal) memory present also in case of auxiliary supply lost
SIGNALLING LED	Flashing red led = active consumption (flashing rate related to consumption) 1Wh every flash; 100 flashes = 100 Wh = 1 reposition of decimal point Yellow led OFF = connection OK Yellow led ON = error on connection
ENERGY	Readable for all the values of the cos ϕ from 0,5 to 1
NOMINAL CURRENT	15 (63) A
MAXIMUM CURRENT	admitted: 72A overcurrent: 2 In for 0,5 sec correspondent to 120A
CONNECTION CABLE	20-6 AWG 16mm ²
MINIMUM OPERATING CURRENT	100mA correspondent to a consumption of 23W, for one phase too
OUTPUT PULSE	Open-collector system (SO in accordance with DIN43864 standards), max 60V DC / 30mA DC. Duration >80 ms 4 DIN modules / 0,70
DIMENSIONS / WEIGHT Kg.	
For the connection diagram, see page 33	



1RCETM35 - INPUT BY MEANS OF C.T.

unbalanced load, 3 wire without neutral (ARON insertion)

- the consumption of the energy is directly read on the display; it is not necessary to calculate any multiplication factor

1RCETM35U - INPUT BY MEANS OF C.T. - Sealable case and terminals for calibration certification - unbalanced load, 3 wire without neutral (ARON insertion)

- The standard kWhmeter is calibrated at 5A-400V using a multiplication factor to calculate on the base of the primary value of the CT used.
- On request it is possible to supply the kWhmeter with the consumption read directly on the display and in this case it is not necessary to calculate any multiplication factor.
- The voltage and current input signals must be advised when placing the order

STANDARDS	EN62053-21 - Edition of November 2003
BURDEN CURRENT / VOLTAGE	1VA / 3VA each phase
AUXILIARY POWER SUPPLY	400V(\pm 10%) self-powered - 50 \div 60 Hz
ACCURACY	Class 2 (see standards page 32)
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C
DISPLAY	999999,9 kWh (6 entires + 1 decimal)
SIGNALLING LED	Flashing Red led = active consumption (flashing rate related to consumption) 1 Wh every flash; for C.T. up to 80A 10 Wh every flash; for C.T. between 100 and 800A 100 Wh every flash; for C.T. > 800A Pulsating Red led = error on connection; it is necessary to verify the connections of the measured circuit
ENERGY	Readable for all the values of the cos ϕ from 0,5 to 1
NOMINAL CURRENT	5A
CURRENT TRANSFORMERS RATIO	5-10-15-20-25-30-40-50-60-80 (x10 and x100) selectable (max 4000A)
MAXIMUM CURRENT	admitted: 6A overcurrent 5 In for 0,5 sec
MINIMUM OPERATING CURRENT	15mA
SELECTABLE OUTPUT PULSE	<div> <div> x1 = One flash every 0,1 kWh - resolution 0,1 kWh x10 = One flash every 1 kWh - resolution 1 kWh x100 = One flash every 10 kWh - resolution 10 kWh </div> <div> normally open relay, 0,5A / 100V - duration 100 ms 6 DIN modules / 0,40 </div> </div>
DIMENSIONS / WEIGHT Kg.	
For the connection diagram, see page 34	





For the kWhmeter to work correctly it is important that the minidip switch positioned at 8 and ON positions are **NOT ALTERED** but left as positioned during manufacture. Switch positions 1 and 2 however can be adjusted on site to determine the pulse output required.

1RCETM45 - INPUT BY MEANS OF C.T. unbalanced load, 4 wire with neutral

- the consumption of the energy is directly read on the display; it is not necessary to calculate any multiplication factor

1RCETM45U - INPUT BY MEANS OF C.T. - Sealable case and terminals for calibration certification - unbalanced load, 4 wire with neutral

- The standard kWhmeter is calibrated at 5A-400V using a multiplication factor to calculate on the base of the primary value of the CT used.
- On request it is possible to supply the kWhmeter with the consumption read directly on the display and in this case it is not necessary to calculate any multiplication factor.
- The voltage and current input signals must be advised when placing the order

STANDARDS	EN62053-21 - Edition of November 2003		
BURDEN CURRENT / VOLTAGE	1VA / 3VA each phase		
AUXILIARY POWER SUPPLY	400V($\pm 10\%$) self-powered - 50 \div 60 Hz		
ACCURACY	Class 2 (see standards page 32)		
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C		
DISPLAY	999999,9 kWh (6 entires + 1 decimal)		
SIGNALLING LED	Flashing Red led =	active consumption (flashing rate related to consumption)	
	1 Wh every flash; for C.T. up to 80A, 10 Wh every flash; for C.T. between 100 and 800A, 100 Wh every flash; for C.T. > 800A	Pulsating Red led = error on connection; it is necessary to verify the connections of the measured circuit	
ENERGY	Readable for all the values of the $\cos\varphi$ from 0,5 to 1		
NOMINAL CURRENT	5A		
CURRENT TRANSFORMERS RATIO	5-10-15-20-25-30-40-50-60-80 (x10 and x100) selectable (max 4000A)		
MAXIMUM CURRENT	admitted: 6A overcurrent 5 In for 0,5 sec		
MINIMUM OPERATING CURRENT	15mA		
SELECTABLE OUTPUT PULSE	$\left\{ \begin{array}{l} \text{x1} \\ \text{x10} \\ \text{x100} \end{array} \right.$	$\begin{array}{l} = \text{One flash every} \\ = \text{One flash every} \\ = \text{One flash every} \end{array}$	$\begin{array}{l} 0,1 \text{ kWh} - \text{resolution} \quad 0,1 \text{ kWh} \\ 1 \text{ kWh} - \text{resolution} \quad 1 \text{ kWh} \\ 10 \text{ kWh} - \text{resolution} \quad 10 \text{ kWh} \end{array}$
DIMENSIONS / WEIGHT Kg.	normally open relay, 0,5A / 100V - duration 100 ms		
For the connection diagram, see page 35	6 DIN modules / 0,4		

1RCETM430 - DIRECT INPUT 30A unbalanced load, 4 wire with neutral

STANDARDS	EN62053-21 - Edition of November 2003
BURDEN CURRENT / VOLTAGE	1VA / 3VA each phase
AUXILIARY POWER SUPPLY	400V($\pm 10\%$) self-powered - 50 \div 60 Hz
ACCURACY	Class 2 (see standards page 32)
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C
DISPLAY	999999,9 kWh (6 entires + 1 decimal)
SIGNALLING LED	Flashing Red led = active consumption (flashing rate related to consumption) Pulsating Red led = error on connection; it is necessary to verify the connections of the measured circuit
ENERGY	Readable for all the values of the $\cos\varphi$ from 0,5 to 1
NOMINAL CURRENT	30A
MAXIMUM CURRENT	admitted: 36A
MINIMUM OPERATING CURRENT	overcurrent 5 In for 0,5 sec
SELECTABLE OUTPUT PULSE	150mA
DIMENSIONS / WEIGHT Kg.	
For the connection diagram, see page 36	

THREE-PHASE, REACTIVE ENERGY KWH-METERS

1RCETRM35 - INPUT BY MEANS OF C.T. unbalanced load, 3 wire without neutral (ARON insertion)

- the consumption of the energy is directly read on the display; it is not necessary to calculate any multiplication factor

1RCETRM45 - INPUT BY MEANS OF C.T. unbalanced load, 4 wire with neutral

- the consumption of the energy is directly read on the display; it is not necessary to calculate any multiplication factor



STANDARDS	EN62053-21 - Edition of November 2003
BURDEN CURRENT / VOLTAGE	1VA / 3VA each phase
AUXILIARY POWER SUPPLY	400V($\pm 10\%$) self-powered - 50 \div 60 Hz
ACCURACY	Class 2 (see standards page 32)
TEMPERATURES	operating -5°C \div +50°C / storage -25°C \div +70°C
DISPLAY	999999,9 kvarh (6 entires + 1 decimal)
SIGNALLING LED	Flashing Red led = active consumption (flashing rate related to consumption) Pulsating Red led = error on connection; it is necessary to verify the connections of the measured circuit
ENERGY	Readable for all the values of the $\cos\varphi$ from 0,5 to 1
NOMINAL CURRENT	5A
CURRENT TRANSFORMERS RATIO	5-10-15-20-25-30-40-50-60-80 (x10 and x100) selectable (max 4000A)
MAXIMUM CURRENT	admitted: 6A
MINIMUM OPERATING CURRENT	overcurrent 5 In for 0,5 sec
SELECTABLE OUTPUT PULSE	15mA
DIMENSIONS / WEIGHT Kg.	
For the connection diagram, see page 36	

KWh (IMPORT/EXPORT) AND ACTIVE POWER MEASUREMENT TRANSDUCERS, WITH BI-DIRECTIONAL ANALOGUE AND SERIAL RS485 OUTPUTS



- 1CORPAC10485 - Single phase system
- 1CORPAC20485 - Three phase , 3 wire balanced load, without neutral system
- 1CORPAC30485 - Three phase , 3 wire unbalanced load, without neutral system (ARON)
- 1CORPAC40485 - Three phase , 4 wire balanced load, with neutral system
- 1CORPAC50485 - Three phase , 4 wire unbalanced load, with neutral system

Transducers with serial output RS485 and galvanic separation between inputs and outputs. They have the capability to offer multiple choice auxiliary power supply of (230V, 400V) by terminal selection and 8 Outputs (± 1 , ± 5 , ± 10 VDC e ± 1 , ± 5 , ± 10 , ± 20 , 4/20 mADC), by minidip key located under a removable section of the upper case wall and by terminal selection.

The standard calibration as Power transducer is:

single phase system	100V, 5A = 500 W	230V, 5A = 1000 W	400V, 5A = 2000 W
three phase system	100V, 5A = 1000 W	230V, 5A = 2000 W	400V, 5A = 4000 W

The transducer is furnished with a red flashing led on the front indicating the function of the kWhmeter. The kWhmeter is predisposed for the measurement of the current (5A) and voltage(400VAC). The constant is calculated following the requested data while the storage of the energy value occurs in two different registers: one for the import and one for the export

- AUXILIARY SUPPLY (separate)
- SERIAL OUTPUT
- NOMINAL INPUT VALUES
- NOMINAL OUTPUT VALUES (selectable)
- RESISTIVE LOAD
- MEASURING RANGE
- STANDARD CALIBRATION
- ACCURACY CLASS
- PERMANENT OVERLOAD
- INSTANTANEOUS OVERLOAD
- OPERATING FREQUENCY
- RESPONSE TIME
- ALTERNATED RESIDUAL
- BURDEN
- GALVANIC SEPARATION BETWEEN INPUTS AND OUTPUTS
- OPERATING TEMPERATURE
- INPUT WAVE FORM (page 107)
- DIMENSIONS / WEIGHT

230 VAC for the singlephase; 230/400 VAC for the threephase
RS485

voltage: 400V standard – current: 5A (1A on request)

± 1 , ± 5 , ± 10 VDC and ± 1 , ± 5 , ± 10 , ± 20 , 4/20 mA DC

700Ω

$0 \div P_n$ ($0 \div Q_n$)

100V,5A=1000W 230V,5A=2000W 400V,5A=4000W

0,5

2 In / 1,2 Un

10 In / 2 Un for 1 sec.

50 / 60 Hz

≤ 300 ms

$\leq 1\%$

voltage ≤ 1 VA current $\leq 0,8$ VA aux supply ≤ 4 VA

- insulation between inputs, outputs, power supply 2kV for 1 min at 50Hz
- insulation between the all circuits and earth 4kV for 1 min at 50Hz

0 °C \div +55 °C

OS - OSD (schemi D10, D2)

6 DIN modules / 0,50



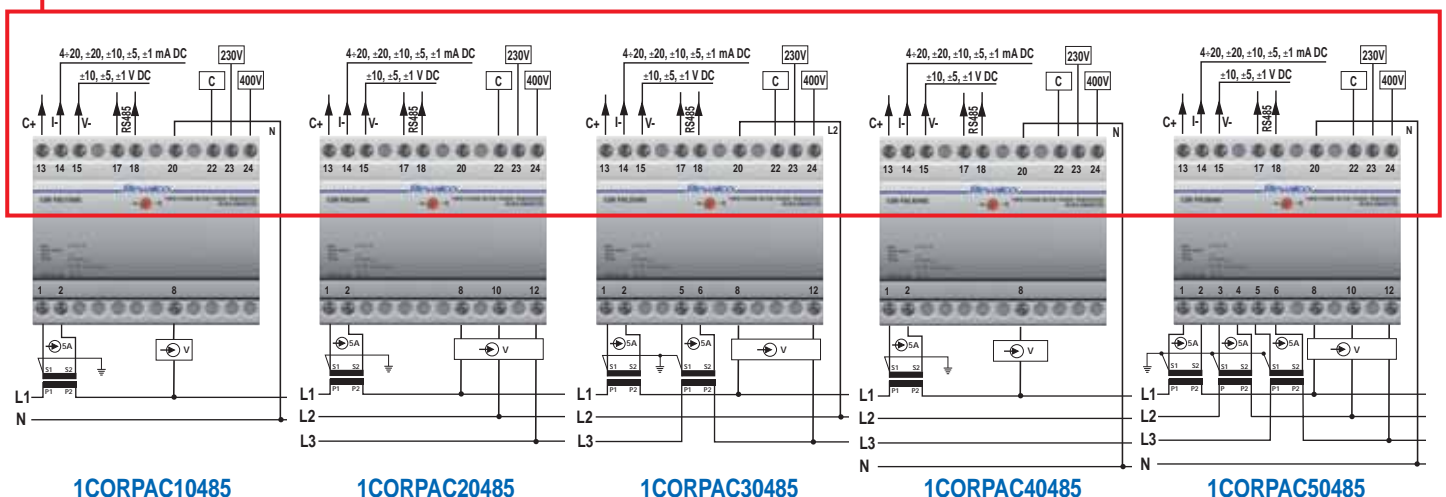
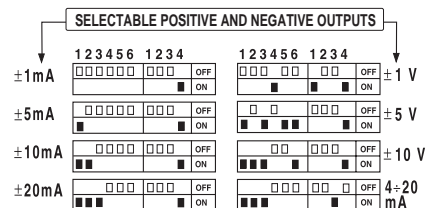
Different technical characteristics can be considered, under specific requests
The software is available, free of charge, on our internet address www.revalco.it

CONNECTION DIAGRAM AND INPUTS/OUTPUTS SELECTION

The selection of the required output is achieved by adjusting the minidip keys as described in the following diagram.

Where a Voltage output is required connection is by terminal Nos 13 and 15 and for Current output connect to terminals Nos 13 and 14.

The auxiliary Power Supply is achieved by: use terminal 22 as the common connection - for 230V connect to terminal 23 - for 400V connect to terminal 24



1CORPAC10485

1CORPAC20485

1CORPAC30485

1CORPAC40485

1CORPAC50485

KVARh (IMPORT/EXPORT) AND REACTIVE POWER MEASUREMENT TRANSDUCERS WITH BI-DIRECTIONAL ANALOGUE AND SERIAL RS485 OUTPUTS



- 1CORPRC10485** - Single phase system
- 1CORPRC20485** - Three phase , 3 wire balanced load, without neutral system
- 1CORPRC30485** - Three phase , 3 wire unbalanced load, without neutral system (ARON)
- 1CORPRC40485** - Three phase , 4 wire balanced load, with neutral system
- 1CORPRC50485** - Three phase , 4 wire unbalanced load, with neutral system

Transducers with serial output RS485 and galvanic separation between inputs and outputs. They have the capability to offer multiple choice auxiliary power supply of (230V, 400V) by terminal selection and 8 Outputs (± 1 , ± 5 , ± 10 VDC e ± 1 , ± 5 , ± 10 , ± 20 , 4/20 mA DC) by minidip key located under a removable section of the upper case wall and by terminal selection.

The standard calibration as Power transducer is:

single phase system	100V, 5A = 500 W	230V, 5A = 1000 W	400V, 5A = 2000 W
three phase system	100V, 5A = 1000 W	230V, 5A = 2000 W	400V, 5A = 4000 W

The transducer is furnished with a red flashing led on the front indicating the function of the kWhmeter. The kWhmeter is predisposed for the measurement of the current (5A) and voltage (400 VAC). The constant is calculated following the requested data while the storage of the energy value occurs in two different registers: one for the import and one for the export

- AUXILIARY SUPPLY (separate)**
- SERIAL OUTPUT**
- NOMINAL INPUT VALUES**
- NOMINAL OUTPUT VALUES(selectable)**
- RESISTIVE LOAD**
- MEASURING RANGE**
- STANDARD CALIBRATION**
- ACCURACY CLASS**
- PERMANENT OVERLOAD**
- INSTANTANEOUS OVERLOAD**
- OPERATING FREQUENCY**
- RESPONSE TIME**
- ALTERNATED RESIDUAL**
- BURDEN**
- GALVANIC SEPARATION BETWEEN INPUTS AND OUTPUTS**
- OPERATING TEMPERATURE**
- INPUT WAVE FORM (page 107)**
- DIMENSIONS / WEIGHT Kg**

230VAC for the singlephase; 230/400 VAC for the threephase
RS485

voltage: 400V standard – current: 5A (1A on request)

± 1 , ± 5 , ± 10 VDC and ± 1 , ± 5 , ± 10 , ± 20 , 4/20 mA DC

700Ω

$0 \div P_n$ ($0 \div Q_n$)

100V,5A=1000 var 230V,5A=2000 var 400V,5A=4000 var

0,5

2 In / 1,2 Un

10 In / 2 Un for 1 sec.

50 / 60 Hz

≤ 300 ms

$\leq 1\%$

voltage ≤ 1 VA current: $\leq 0,8$ VA aux supply ≤ 4 VA

• insulation between inputs, outputs, power supply 2kV for 1min at 50Hz

• insulation between the all circuits and earth 4kV for 1min at 50Hz

0 °C \div +55 °C

OS - OSD (schemi D10, D2)

6 DIN modules / 0,50



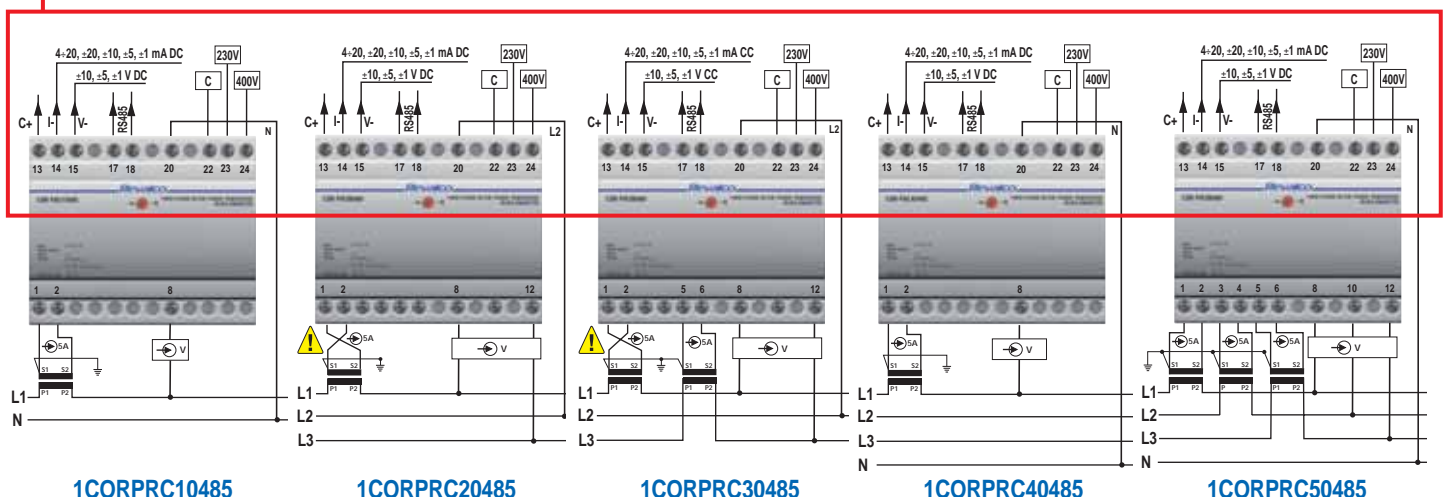
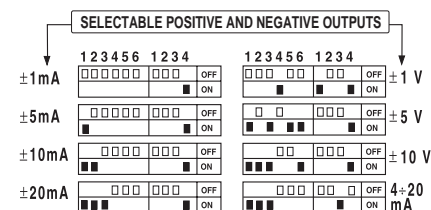
Different technical characteristics can be considered, under specific requests
The software is available, free of charge, on our internet address www.revalco.it

CONNECTION DIAGRAM AND INPUTS/OUTPUTS SELECTION

The selection of the required output is achieved by adjusting the minidip keys as described in the following diagram.

Where a Voltage output is required connection is by terminal Nos 13 and 15 and for Current output connect to terminals Nos 13 and 14.

The auxiliary Power Supply is achieved by: use terminal 22 as the common connection, For 230V connect to terminal 23, For 400V connect to terminal 24



1CORPRC10485

1CORPRC20485

1CORPRC30485

1CORPRC40485

1CORPRC50485

kWhMETER - CONNECTION DIAGRAMS

CEI EN62053-21 STANDARDS - November 2003 Edition

PERCENTAGE ERROR LIMITS (singlephase and polyphase kWhmeters with balanced loads)

Direct insertion kWhmeters	kWhmeters by means of CTs	Power Factor	Percentage limits errors for kWhmeters in class 2
$0.05 I_b \leq I < 0.1 I_b$	$0.02 I_n \leq I < 0.05 I_n$	1	+/- 2.5
$0.1 I_b \leq I \leq I_{max}$	$0.05 I_n \leq I \leq I_{max}$	1	+/- 2.0

PERCENTAGE ERROR LIMITS (polyphase kWhmeters with symmetrical voltages and with only one singlephase load)

Direct input kWhmeters	kWhmeters by means of CTs	Power Factor	Percentage error limits for kWhmeters in class 2
$0.1 I_b \leq I \leq I_{max}$	$0.05 I_n \leq I \leq I_{max}$	1	+/- 3.0
$0.2 I_b \leq I \leq I_{max}$	$0.1 I_n < I \leq I_{max}$	0.5 Inductive	+/- 3.0

MINIMUM OPERATING CURRENT

Direct input kWhmeters	Class of kWhmeter	Power Factor
kWhmeters by means of CTs	0.005 I_b	1
	0.003 I_n	1

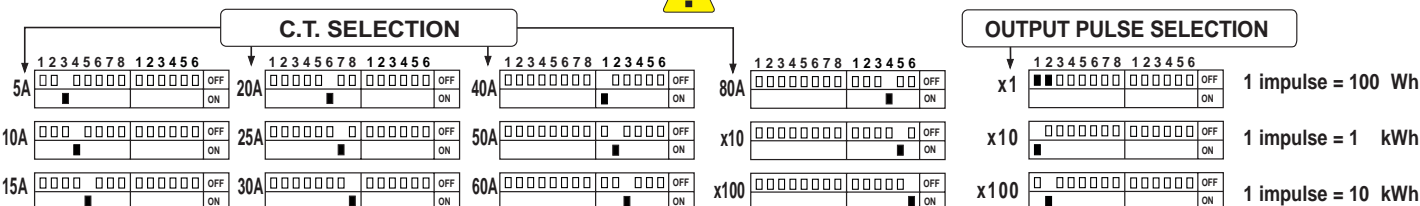
TEST AT NO LOAD WORK

$\Delta t = 480 \times 10^6 / k \times m \times U_n \times I_{max}$ (min) where: k = number of impulses emitted by the output device of the kWhmeter (imp/kWh) m = number of measurement elements
 U_n = voltage in Volt I_{max} = max current in Ampere

C.T. AND OUTPUT PULSE SELECTION

View of minidip from the back side

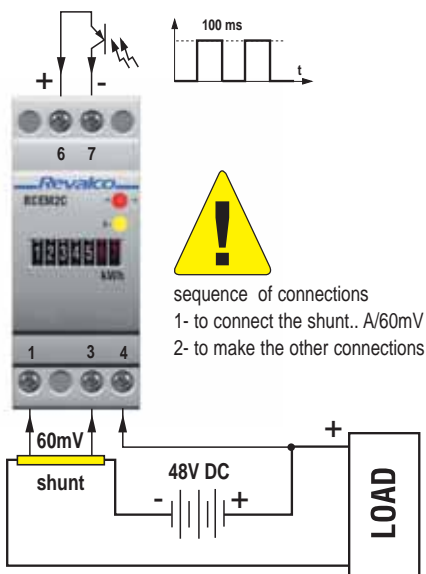
Max 4000A



1RCM2C

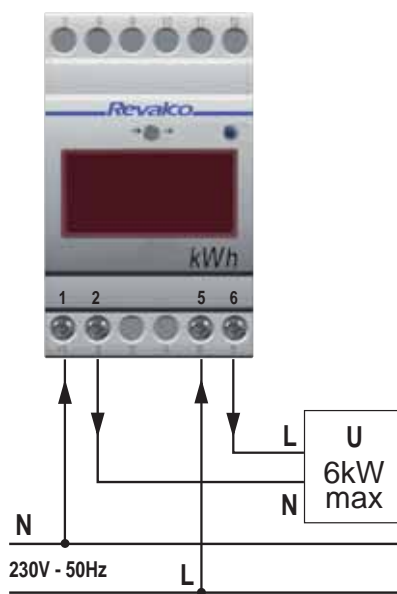
D.C. kWh meters

open-collector - max 36V / 20mA DC



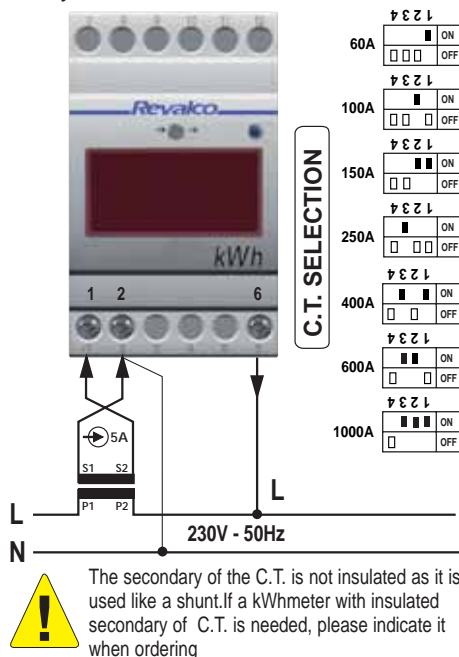
1RCMD230

Single-phase Active energy kWh meters direct input 26A (30A) - 6 kW



1RCMTD230

Single-phase Active energy kWh meters input by means of a C.T.

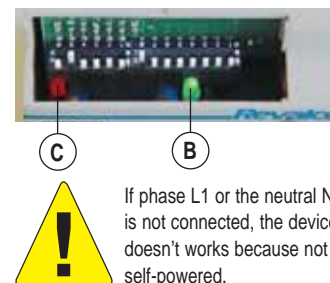
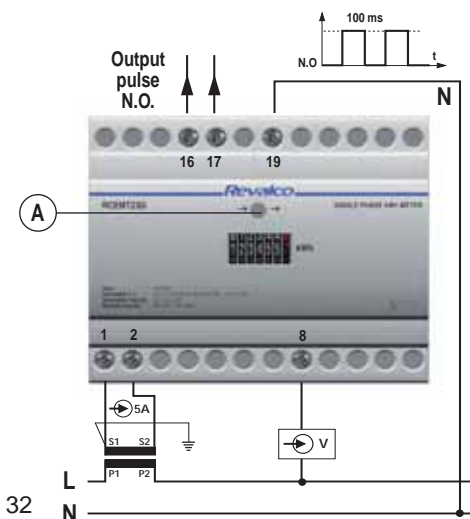


1RCM230I

Single-phase Active energy kWh meters input by means of a C.T.

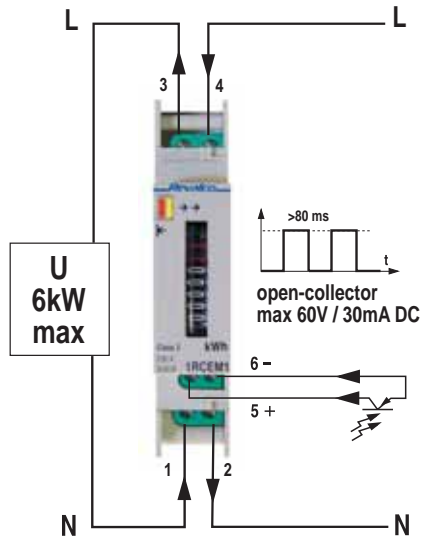
CONNECTIONS AND AUTOMATIC TEST

First choose the CT ratio and the output impulse by selecting the correct minidips (see page 32). Afterwards, connect the current and the voltage circuits as per the connection diagram. Input power to the device and wait almost 3 seconds to allow a current correspondent to a nominal current to be obtained. Check that the front red led (A) flashes; this confirms that the connection is ok. In this case opening the slide on the top of the case you will see that the green led (B) positioned near to the minidip is light-on and the red led (C) corresponding to phase L1 is light-off. If after the above actions, the front red led (A) pulses (the red light intensity increases and decreases slowly), it means that the meter is incorrectly connected. In this case open the slide on the top of the case and check the leds near to the minidips. You will see that the green led (B) is light-off and the red led (C) is light-on; in this case check the measured circuit. probably there is an error in the connection of the CT (current must enter from P1 and exit to P2).



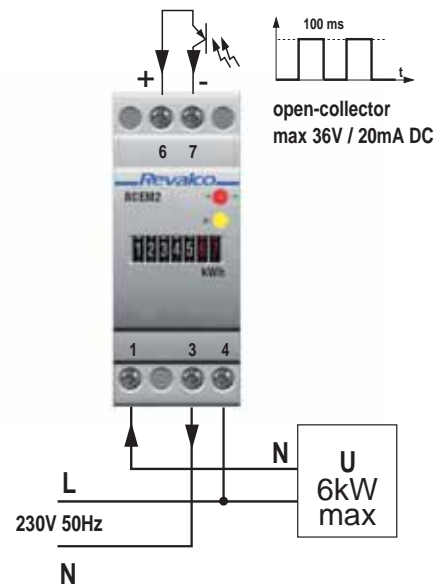
1RCEM1

- Single-phase Active energy kWh meters direct insertion 6 kW



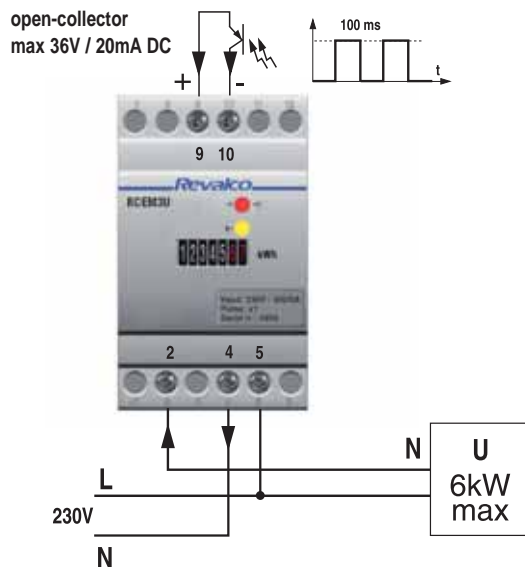
1RCEM2

- Single-phase Active energy kWh meters direct insertion 6 kW



1RCEM3U

- Single-phase Active energy kWh meters direct input 5(30)A, sealable case and terminals for calibration certification

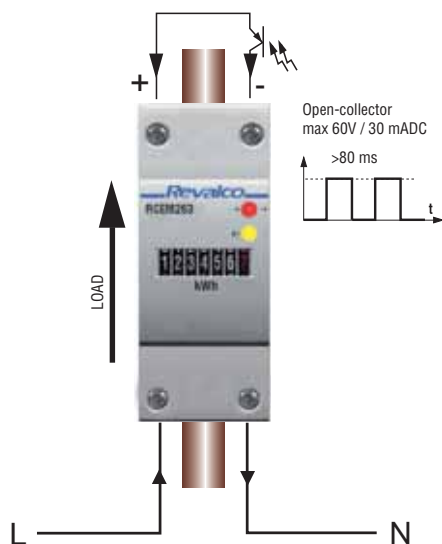


How to seal the case and terminals



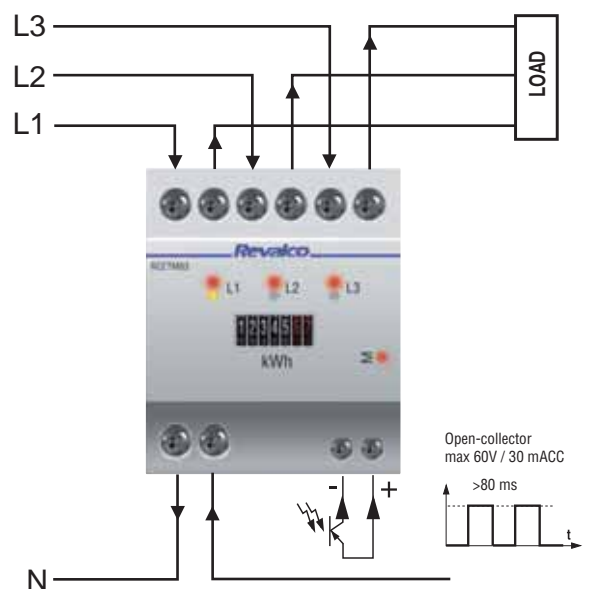
1RCEM263

- Single-phase Active energy kWh meters direct insertion 63A

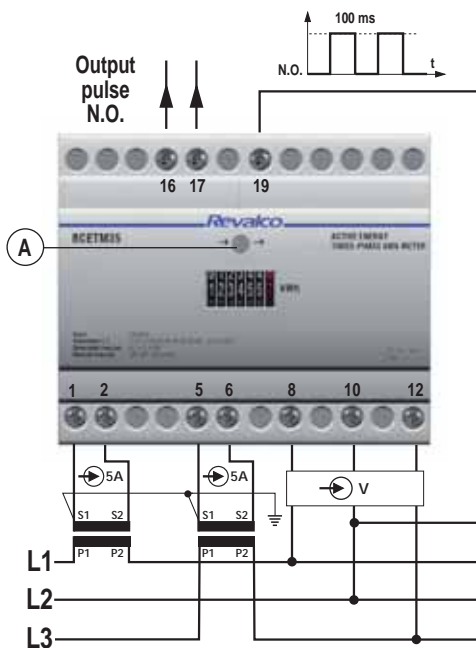


1RCETM63

- Three-phase Active energy kWh meters direct insertion 63A



Three-phase Active energy kWh-meters, unbalanced load, 3 wire without neutral (ARON insertion)



CONNECTIONS AND AUTOMATIC TEST

First choose the CT ratio and the output impulse by selecting the correct minidips (see page 32).

Afterwards, connect the current and the voltage circuits as per the connection diagram.

Input power to the device and wait almost 3 seconds to allow a current correspondent to a nominal current to be obtained. Check that the front red led (A) flashes; this confirms that the connection is ok. In this case opening the slide on the top of the case you will see that the green led (B) positioned near the minidip is light-on and the red leds (C corresponding to phase L1 and D corresponding to phase L3) are light-off.

If after the above actions, the front red led (A) pulses (the red light intensity increases and decreases slowly), it means that the meter is incorrectly connected. In this case open the slide on the top of the case and check the leds near the minidips. You will see that the green led (B) is light-off and one or both red leds (C and D) corresponding to the incorrectly connected phase are light-on.

In this case check the measured circuit.

Probably one of the following errors were made:

- an error in the connection of the CT (current must enter from P1 and exit to P2)
- the CT of L1 is incorrectly connected to L3 or the reverse
- there is no connection of the voltage circuit correspondent to the phase with the red led ON
- an incorrect voltage connection (L1 instead of L3 or the reverse)



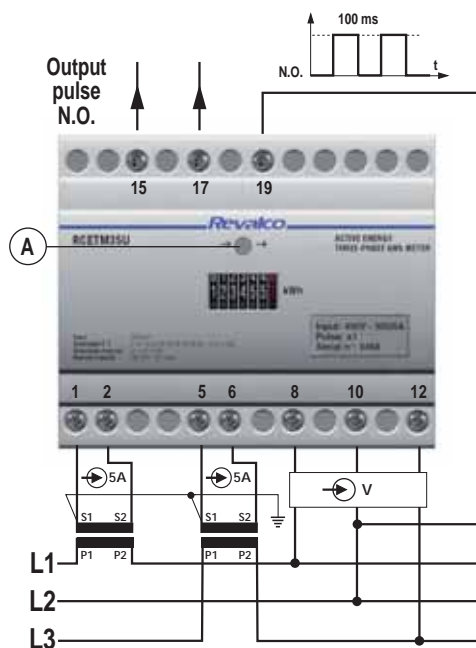
C D B



If phase L1 or L3 is not connected, the device doesn't work because not self-powered.

1RCETM35U

Three-phase Active energy kWh-meters, unbalanced load, 3 wire without neutral (ARON insertion) sealable case and terminals for calibration certification



CONNECTIONS AND AUTOMATIC TEST

Connect the current and the voltage circuits as per the connection diagram.

Input power to the device and wait almost 3 seconds to allow a current correspondent to a nominal current to be obtained. Check that the front red led (A) flashes; this confirms that the connection is ok. If the front red led (A) pulses (the red light intensity increases and decreases slowly), it means that the meter is incorrectly connected. In this case check the measured circuit.

Probably one of the following errors were made:

- an error in the connection of the CT (current must enter from P1 and exit to P2)
- the CT of L1 is incorrectly connected to L3 or the reverse
- there is no connection of the voltage circuit correspondent to the phase with the red led ON
- an incorrect voltage connection (L1 instead of L3 or the reverse)

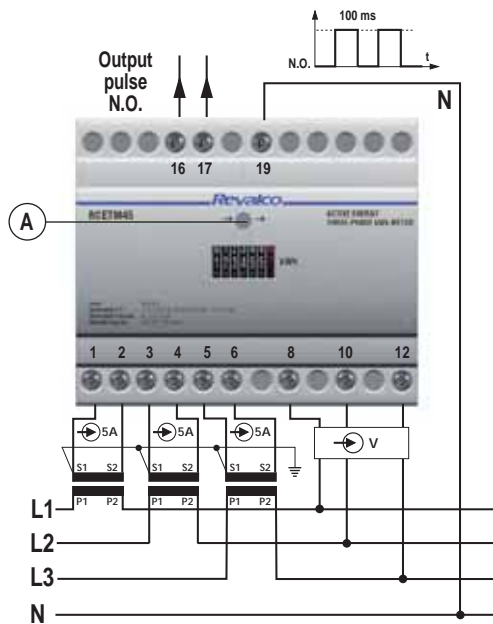


If phase L1 or L3 is not connected, the device doesn't work because not self-powered.

How to seal the case and terminals



Three-phase Active energy kWh-meters, unbalanced load, 4 wire with neutral



For to work the kWh-meter needs the presence of Neutral and one phase at least.

CONNECTIONS AND AUTOMATIC TEST

First choose the CT ratio and the output impulse by selecting the correct minidips (see page 32).

Afterwards, connect the current and the voltage circuits as per the connection diagram.

Input power to the device and wait almost 3 seconds to allow a current correspondent to a nominal current to be obtained. Check that the front red led (A) flashes; this confirms that the connection is ok. In this case opening the slide on the top of the case you will see that the green led (B) positioned near to the minidip is light-on and the red leds (C corresponding to phase L1 and D corresponding to phase L3) are light-off.

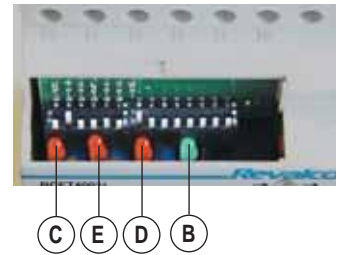
If after the above actions, the front red led (A) pulses (the red light intensity increases and decreases slowly), it means that the meter is incorrectly connected.

In this case open the slide on the top of the case and check the leds near to the minidips. You will see that the green led (B) is light-off and one, two or three of the three red leds (C, E and D) corresponding to the incorrectly connected phase are light-on.

In this case check the measured circuit.

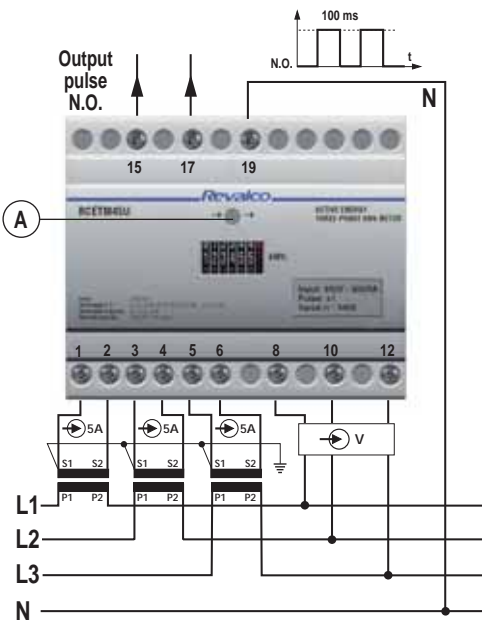
Probably one of the following errors were made:

- an error in the connection of the CT (current must enter from P1 and exit to P2)
- the CT of L1 is incorrectly connected to L3 etc.
- there is no connection of the voltage circuit correspondent to the phase with the red led ON
- an incorrect voltage connection (L1 instead of L3 etc.)



1RCETM45U

Three-phase Active energy kWh-meters, unbalanced load, 4 wire with neutral sealable case and terminals for calibration certification



CONNECTIONS AND AUTOMATIC TEST

Connect the current and the voltage circuits as per the connection diagram.

Input power to the device and wait almost 3 seconds to allow a current correspondent to a nominal current to be obtained.

Check that the front red led (A) flashes; this confirms that the connection is ok. If the front red led (A) pulses (the red light intensity increases and decreases slowly), it means that the meter is incorrectly connected.

In this case check the measured circuit.

Probably one of the following errors were made:

- an error in the connection of the CT (current must enter from P1 and exit to P2)
- the CT of L1 is incorrectly connected to L3 or the reverse
- there is no connection of the voltage circuit correspondent to the phase with the red led ON
- an incorrect voltage connection (L1 instead of L3 or the reverse)



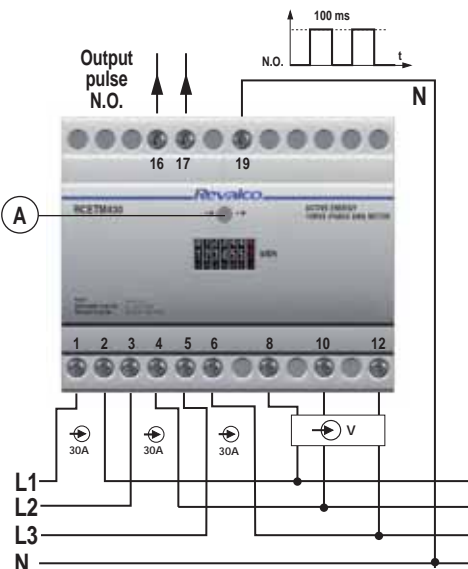
For to work the kWh-meter needs the presence of Neutral and one phase at least.

How to seal the case and terminals



1RCETM430

Three-phase Active energy kWh-meters, direct input 30A, unbalanced load, 4 wire with neutral



CONNECTIONS AND AUTOMATIC TEST

First choose the CT ratio and the output impulse by selecting the correct minidips (see page 32).

Afterwards, connect the current and the voltage circuits as per the connection diagram.

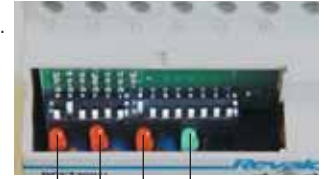
Input power to the device and wait almost 3 seconds to allow a current correspondent to a nominal current to be obtained. Check that the front red led (A) flashes; this confirms that the connection is ok. In this case opening the slide on the top of the case you will see that the green led (B) positioned near to the minidip is light-on and the red leds (C corresponding to phase L1 and D corresponding to phase L3) are light-off.

If after the above actions, the front red led (A) pulses (the red light intensity increases and decreases slowly), it means that the meter is incorrectly connected. In this case open the slide on the top of the case and check the leds near to the minidips. You will see that the green led (B) is light-off and one, two or three of the three red leds (C, E and D) corresponding to the incorrectly connected phase are light-on.

In this case check the measured circuit.

Probably one of the following errors were made:

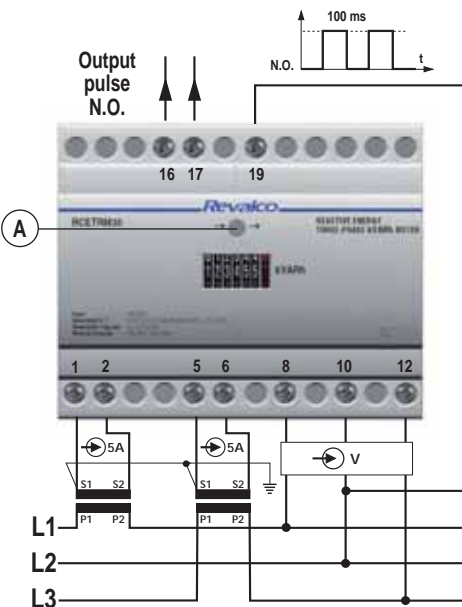
- an error in the connection of the phases
- the L1 phase is incorrectly connected to L3 etc.
- there is no connection of the voltage circuit correspondent to the phase with the red led ON
- an incorrect voltage connection (L1 instead of L3 etc.)



To work the kWh-meter needs the presence of Neutral and one phase at least.

1RCETRM35

Three-phase Reactive energy kWh-meters, unbalanced load, 3 wire without neutral (ARON insertion)



CONNECTIONS AND AUTOMATIC TEST

First choose the CT ratio and the output impulse by selecting the correct minidips (see page 32).

Afterwards, connect the current and the voltage circuits as per the connection diagram.

Input power to the device and wait almost 3 seconds to allow a current correspondent to a nominal current to be obtained.

Eventually, to check the correct connection, open the slide on the top of the case and verify that:

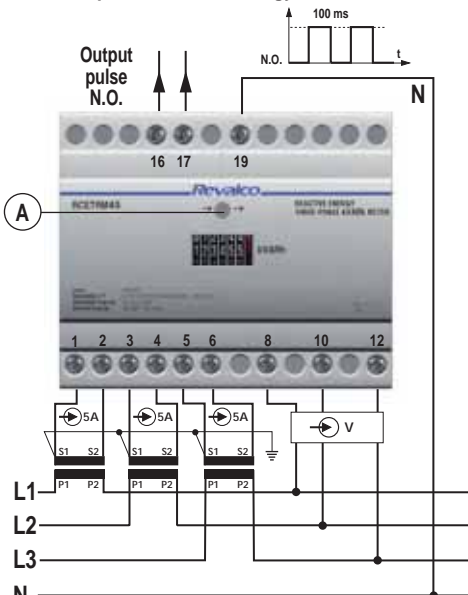
- the green led (B) is light-on (it means that the meter is powered)
- that one or both red leds (C or D) are light-off (it means that the meter is counting the **inductive** energy)
- that one or both red leds (C or D) are light-on (it means that the meter is counting the **capacitive** energy)



If phase L1 or L3 is not connected, the device doesn't work because not self-powered.

1RCETRM45

Three-phase Reactive energy kWh-meters, unbalanced load, 4 wire with neutral



CONNECTIONS AND AUTOMATIC TEST

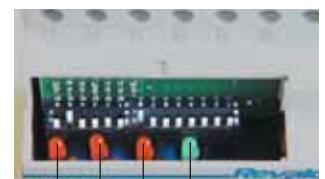
First choose the CT ratio and the output impulse by selecting the correct minidips (see page 32).

Afterwards, connect the current and the voltage circuits as per the connection diagram.

Input power to the device and wait almost 3 seconds to allow a current correspondent to a nominal current to be obtained.

Eventually, to check the correct connection, open the slide on the top of the case and verify that:

- the green led (B) is light-on (it means that the meter is powered)
- that one, two or three red leds (C, E or D) are light-off (it means that the meter is counting the **inductive** energy)
- that one, two or three red leds (C, E or D) are light-on (it means that the meter is counting the **capacitive** energy)



To work the kWh-meter needs the presence of Neutral and one phase at least.

[illegible]