

Description

Kilowatt hours meters measure the active energy used in an electric installation. The range includes meters with pulsed output for remote indication or linking into an energy management system. Kwh meters can be used for local metering of installation or monitoring individual machines. The kilowatt meter offers now 2 options :
- total counter (non resettable) and resettable counter(shows

energy used since last reset)
- Single or dual tariff

Displays
LCD - 7 digits

Options :

- pulsed output
- total / partial counter

☐ For technical information see pages T.53



EC 051



EC 112



EC 121



EC 321

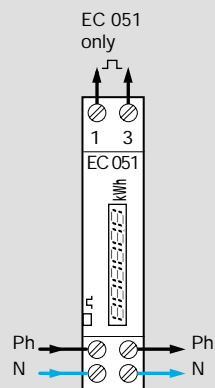


EC 100

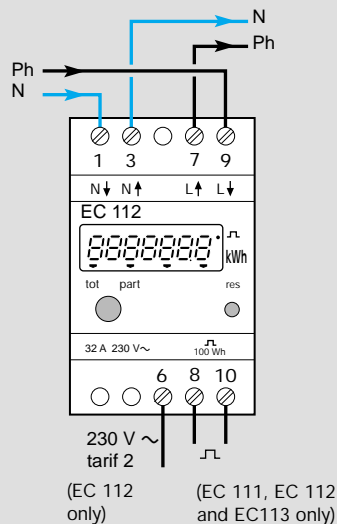
Designation	Characteristics	Width in 17.5mm	Pack qty.	Cat. ref.
Single phase direct reading	230V 50Hz 20mA to 32A without pulsed output without part metering	1	1	EC 050
	230V 50Hz 20mA to 32A with pulsed output without part metering	1	1	EC 051
	230V 50Hz 320mA to 32A without pulsed output without part metering	3	1	EC 110
	230V 50Hz 320mA to 32A / single tariff	3	1	EC 111
	230V 50Hz 320mA to 32A / dual tariff	3	1	EC 112
Single phase CT operated	230V 50Hz 100/5A CT operated / single tariff	3	1	EC 120
	230V 50Hz 100/5A CT operated / dual tariff	3	1	EC 121
Three phase direct reading	230/400V 50Hz 800mA to 80A / single tariff	7	1	EC 310
	230/400V 50Hz 800mA to 80A / dual tariff	7	1	EC 311
	110/230V 60Hz 800mA to 80A / single tariff	7	1	EC 312
Three phase CT operated	230/400V 50Hz 50 - 1500/5A CT operated single tariff	4	1	EC 320
	230/400V 50Hz 50 - 1500/5A CT operated dual tariff	4	1	EC 321
	110/230V 60Hz 50 - 1500/5A CT operated single tariff	4	1	EC 322
Sealing kit	for single phase Kwh meters direct reading only (EC 110, EC 111, EC 112, & EC 113)		1	EC 001
Hours counter	230V 50Hz	2	1	EC 100

	Single phase Direct reading					Single phase CT operated		Three phase Direct reading		
References	EC050	EC051	EC110	EC111	EC112	EC120	EC121	EC310	EC311	EC312
Accuracy acc. IEC1036	class 1		class 2			class 2		class 2		
Imput	direct		direct			CT 100/5A		direct		
I _{max}	32A		32A			6A		80A		
I _b	10A		10A			5A		30A		
I _{starting}	0,02A		0.32A			0.06A		0.8A		
Voltage	single phase 230VAC±20%		single phase 230V AC (±20%)			single phase 230V AC (±20%)		three phases 230 - 400V AC (±20%)		110-230V AC ±15%
	50/60Hz IP20 IK02		50/60Hz (±2Hz) IP30 (under cover) IK02			50/60Hz (±2Hz) IP30 (under cover) IK02		50/60Hz (2Hz) IP30 (under cover) IK01		
Network								3 phases + N 3 phases 2 phases (L1&L2)		
Width in 17.5	3		3			3		7		
Counter	total without reset		total without reset	total + partial with reset		total + partial with reset		total + partial with reset		
Display	99 999,9		999 999,9 digital			999 999,9 digital		999 999,9 digital		
Unit display	0.1kWh		0.1kWh			0.1kWh		0.1kWh		
Pulsed output	NO	100Wh	NO	100 Wh		100 Wh100Wh				
Pulse duration	NO	900ms	NO	15 ms+/-3 ms		60 ms+/-3 ms		60ms+/-3ms		
External supply	NO	100Vdc	NO	100 Vdc max		100 Vdc max		100Vdc max		
Operating current	NO	0.3Adc	NO	0.3 Adc max		0.3 Adc max		0.3Adc max		
Insulate level			2kV			2kV		2kV		
Tariff			single	single	double	single	double	single	double	single
Working temp.	-10°C to+45°C		-5°C to +45°C			-5°C to +45°C		-5°C to +45°C		
Storage temp.	-25°C to+70°C		-20°C to +70°C			-20°C to +70°C		-20°C to +70°C		
Humidity (without condensation)			85%			85%		85%		
Consumption	0,3W 6,7VA		2W, 15VA			2W, 15VA		2W, 3VA		
Connection Capacity	flexible : 1 to 6□ rigid : 1.5 to 10□		flexible : 1 to 6□ rigid : 1.5 to 10□			flexible : 1 to 6□ rigid : 1.5 to 10□		Tariff input and pulsed output : -flexible : 1 to 6□ -rigid : 1.5 to 6□ Power cables : stripped cable : 4□ min,50□ max unstripped cable : 10□ min, 25□max		

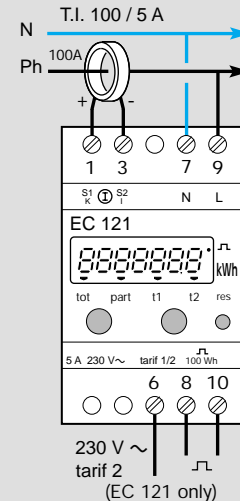
Connection diagram
EC050, EC051



Single phase wiring diagram
EC 110, EC 111, EC 112 and EC 113



EC 120 and EC 121



	Three phase CT operated
References	EC 320 EC 321
Accuracy acc.IEC1036	class 2
Input	CT 50, 100, 150, 200, 250, 300, 400, 600, 800, 1 000, 1 250 and 1 500/5A
I_{max}	6A
I_b	5A
I_{starting}	0.06A
Voltage	three phases
	230 - 400V AC (±20%) 50/60Hz (±2Hz) IP30 (under cover) IK02
Network	3 phases + N with 3CT or 1CT 3 phases with 3CT 2 phases (L1&L2) with 2CT
Width in I 17.5mm	4
Counter	total + partial with reset
Display	999 999,9 digital
Unit display	0.1kWh
Pulsed output	100 Wh
Pulse duration	60ms+/-3ms
External supply	100 Vdc max
Operating current	0.3 Adc max
Insulate level	2kV
Current input	
Consumption	<1VA for phase to I _{max}
Tariff	single double single
Working temp.	-5°C to +45°C
Storage temp.	-20°C to +70°C
Humidity	85%
(without condensation)	
Consumption	2W, 3VA
Connection	flexible : 1 to 6□
capacity	rigid : 1.5 to 10□

Technical specificities

- direct reading with a minimum of handling
- measuring calibration according to the CT is made by display on the LCD screen (protected access)
- use of only one CT in balanced three phase network
- connection of the CT independent from his polarity
- indifferent to voltage fluctuation up to ±20%

Installation recommendations

- it is recommended to foresee a space of 0.5 I on each side of a meter with direct connection
- EC 320 and EC 321 can directly replace the previous products (EC 030 and EC 031)

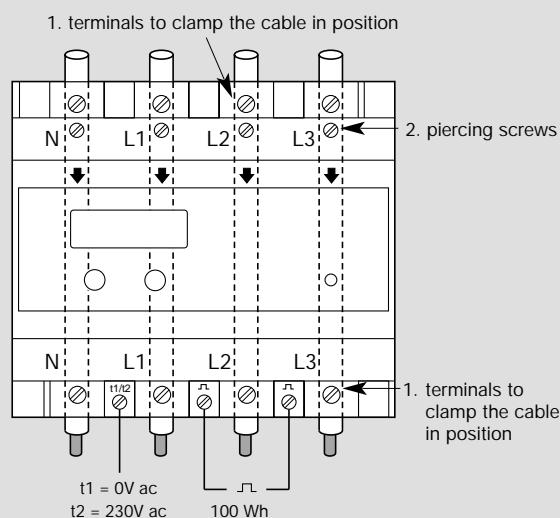
Recommendations to connect the secondary circuit of one or more CT's

- no common point for connection on the meter
- never connect to earth

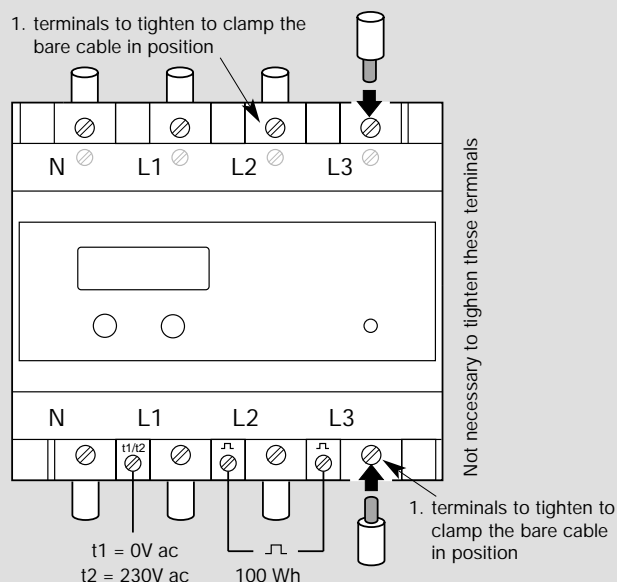
Electrical connection (EC310, EC311, EC312)

There are 2 solutions to connect the three phases and the neutral to the kWh meter :

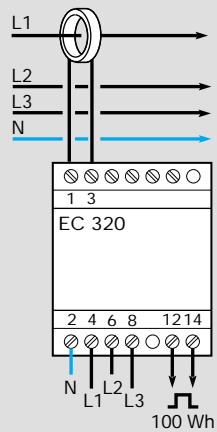
1. Pass the cables through the kWh meter, without cutting and stripping them.
 - position the terminal covers by turning through 180°
 - pass the cables through the kWh meter
 - tighten the upper and the bottom terminals to clamp the cable in position
 - tighten at the maximum the piercing screw to allow the voltage measurement.
 - the cables must have a cross section of
 - 10□ minimum
 - 25□ max. this means an external diameter of 10,5 mm maximum.



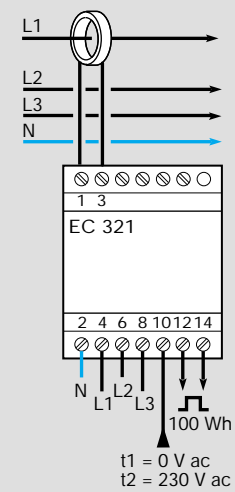
2. It is also possible to connect stripped cables.
 - connect your incoming and outgoing cables cut and stripped.
 - position the terminal covers by turning through 180°
 - make all necessary connections
 - the cables must have a cross section of
 - 4□ minimum
 - 50□ max. this means a diameter of 10,5 mm maximum (bared).



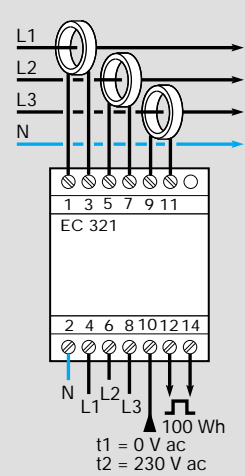
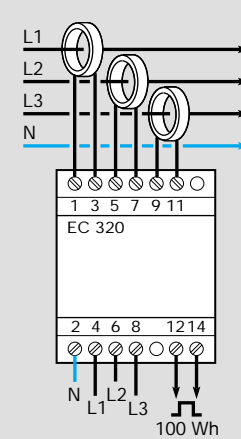
Metering with balanced three phase voltage 230/400V~ with neutral EC 320



EC 321

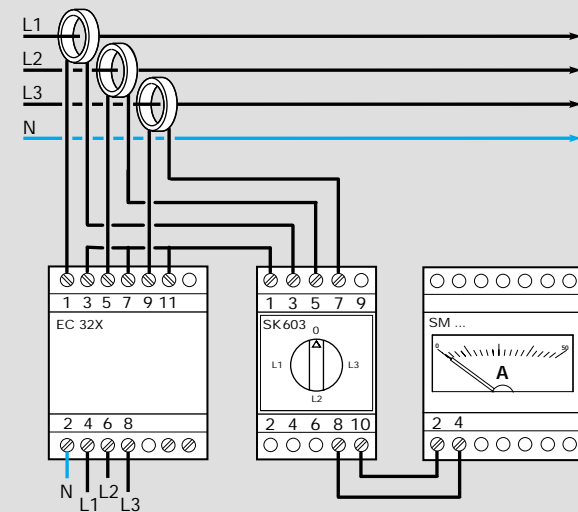


Metering with three phase unbalanced voltage 230/400V ~ with neutral EC 320 EC 321



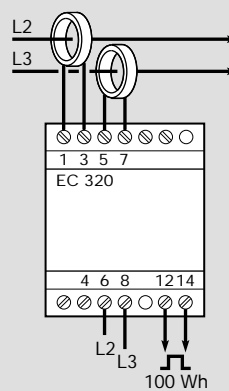
Notice : these meters are not suitable for a three phase voltage 110/230V~ (with or without neutral)
In this case use the EC 322

Metering with three phase voltage 230/400V~ associated with an ammeter and his phase selector.



Metering with two phase voltage 400 V ~

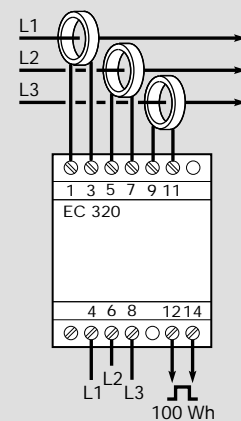
EC 320



EC 321

The 230V~ incomer for double tariff metering cannot work when neutral not connected.

Metering with three phase unbalanced voltage 400V~ without neutral EC 320



EC 321

The 230V~ incomer for double tariff metering cannot work when neutral not connected