

Energy Management Energy Transducer Type ET330

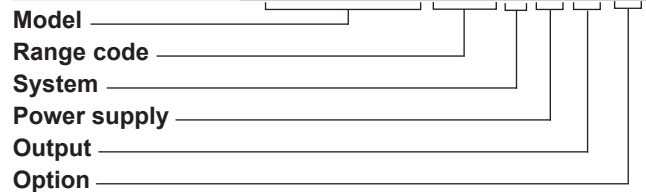


- Three phase energy transducer
- Class 1 (kWh) according to EN62053-21
- Accuracy $\pm 0.5\%$ RDG (current/voltage)
- Current measurement via CT
- Energy measurement: kWh and kvarh (imported/exported); kWh+ by 2 tariffs; kWh per phase
- System variables: kW, kvar, kVA, VLL, VLN, PF, Hz, kWdmd, kWdmd peak
- Phase variables: kW, kvar, kVA, VLL, VLN, A, PF
- Auxiliary power supply
- Dimensions: 3-DIN module
- Protection degree (front): IP20
- RS485 Modbus port
- Run hour meter
- Neutral current calculation
- Digital input (for tariff management)
- Easy connection

Product description

Three-phase energy transducer. Particularly indicated for active energy metering and for cost allocation (CT connection), with dual tariff management availability. It can measure imported and exported energy or be programmed to consider only the imported one. Housing for DIN-rail mounting. The transducer is provided with RS485 Modbus port.

How to order **ET330 DIN AV5 3 H S1 X**



Type Selection

Range code	System	Power supply	Output
AV5: 400 to 480 VLL ac - 5(6) A (CT connection) 230 to 277 VLN ac - 5(6) A (CT connection)	3: 3-phase, 3- or 4-wire; 2-phase 3-wire, 1-phase 2 wire	H: auxiliary power supply 100 to 240V ac/dc	S1: RS485 Modbus port

Option

X: none

Input specifications

Rated Inputs		Memory	
Current type	3-phase loads, CT connection	Energy	10 ¹² cycles. Energy value is saved every time the less significant digit increases.
Current range	5(6)A	Programming parameters	10 ¹² cycles. When a parameter is modified, only the relevant memory cell is overwritten
Nominal voltage	400 to 480 V LL ac		
Max CTxVT	1000		
Accuracy (@25°C ±5°C, R.H. ≤60%, 45 to 65 Hz)		LEDs	
Current	min=0.25A; In: 5A, I _{max} : 6A; Un: 230 to 277 VLN (400 to 480 VLL) From 0.04In to 0.2In: ±(0.5%RDG+1DGT) From 0.2In to I _{max} : ±(0.5%RDG)	Flashing red light pulses	Proportional to the product of the CT and VT ratios
Phase-neutral voltage	In the range Un: ±(0.5% RDG)	Weight (pulses/kWh) 1	> 700,1 (CT x VT)
Phase-phase voltage	In the range Un: ±(1% RDG)	Weight (pulses/kWh) 10	70.1–700 (CT x VT)
Frequency	Range: 45 to 65Hz.	Weight (pulses/kWh) 100	7.1–70 (CT x VT)
Active power	From 0.05 In to I _{max} , within Un range, PF=1: ±(1% RDG) From 0.1 In to I _{max} , within Un range, PF=0.5L or 0.8C: ±(1% RDG)	Weight (pulses/kWh) 1000	< 7.1 (CT x VT)
Power factor	±[0.001+1%(1.000 - "PF RDG")]	Duration	90ms
Reactive power	From 0.05 In to I _{max} , within Un range, sinphi=1: ±(2% RDG) From 0.1 In to I _{max} , within Un range, sinphi=0.5L or 0.8C: ±(2% RDG)	Fix orange light	wrong current direction (with "B" measurement selection)
Energies		Current overloads	
Active energy	Class 1 according to EN62053-21	Continuous	6A, @ 50Hz
Reactive energy	Class 2 according to EN62053-23	For 500ms	5 In
Start-up current:	20 mA	Voltage Overloads	
Start-up voltage	90 V LN	Continuous	1.2 Un
Resolution	serial communication	For 500ms	2 Un
Current	0.001 A	Input impedance	
Voltage	0.1 V	230VL-N	1.2Mohm
Power	0.1 W or var	5(6) A	< 1.25 VA
Frequency	0.1Hz		
PF	0.001		
Energies (positive)	0.1 kWh or kvarh		
Energies (negative)	0.1 kWh or kvarh		
Energy additional errors			
Influence quantities	According to EN62053-21		
Temperature drift	≤200ppm/°C		
Sampling rate	4096 samples/s @ 50Hz 4096 samples/s @ 60Hz		



Digital input specifications

<p>Digital inputs</p> <p>Function</p> <p>Number of inputs</p> <p>Contact measurement voltage</p> <p>Input impedance</p> <p>Contact resistance</p>	<p>Free of voltage contact</p> <p>Tariff management (switch between t1-t2)</p> <p>1</p> <p>5 V</p> <p>1 kohm</p> <p>≤1 kohm, close contact</p> <p>≥100 kohm, open contact</p>	<p>Overload</p>	<p>In case a voltage is erroneously applied to the digital input, the input is not damaged up to 30 V ac/dc.</p>
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Output specifications

<p>RS485 serial port</p> <p>Function</p> <p>Protocol</p> <p>Baud rate</p> <p>Data format</p> <p>Address</p> <p>Driver input capability</p> <p>Data refresh time</p> <p>Read command</p> <p>RJ45 pin-out</p> <p>Other ports</p>	<p>RS485 by screw connection or RS485 by standard female RJ45 connectors (not shielded). For communication of measured data, programming parameters</p> <p>ModBus RTU (slave function)</p> <p>9.6, 19.2, 38.4, 57.6, 115.2 kbaud,</p> <p>even or no parity,</p> <p>1 to 247 (default: 01)</p> <p>1/8 unit load. Maximum 247 devices on the same bus.</p> <p>1 s</p> <p>50 words available in 1 read command</p> <p>According to Modbus standard: A- (pin5), B+ (pin4), GND (pin8)</p> <p>All the Modbus ports (screw terminals, two RJ45) are in parallel. Only one port at a time can be used.</p>	<p>Baud rate</p> <p>Address</p> <p>Data refresh time</p> <p>Read command</p> <p>Optical port LEDs</p> <p>LED axial distance</p> <p>LED function</p>	<p>9.6, 19.2 kbaud, even or no parity</p> <p>1</p> <p>1 sec</p> <p>50 words available in 1 read command</p> <p>6.5 mm</p> <p>- Upper LED is a receiver (from the master to the transducer)</p> <p>- Lower LED is a transmitter (from the trasducer to the master).</p>
<p>Optical port</p> <p>Description</p> <p>Function</p> <p>Protocol</p>	<p>Frontal bi-directional infrared optical coupling with CG optical reader device "Opto-prog"</p> <p>For remote communication of measured data and setting of programming parameters</p> <p>ModBus RTU (slave function)</p>		

General specifications

Operating temperature	-25 to +65 °C (-13 to 149° F), indoor, (R.H. from 0 to 90% non-condensing @ 40°C)	Standard compliance	
		Safety	EN62052-11
		Metrology	EN62053-21
		Approvals	CE, cULus (UL61010-1)
Storage temperature	-30°C to +80°C (-22 to 176° F) (R.H. < 90% non condensing @ 40°C)	Connections	
		Voltage inputs	Cable cross-section area: max. 4 mm ² , min. 1 mm ² with/without metallic cable ferrule; Max. screw tightening torque: 0.6 Nm
Overvoltage category	Cat. III	Other terminals	Cable cross-section area: 1.5 mm ² , Min./Max. screws tightening torque: 0.4 Nm
Insulation (for 1 minute)	4000 V ac RMS between measuring inputs and digital/serial output (see table) 4000 V ac RMS	Housing	
Dielectric strength	4000 V ac RMS for 1 minute	Dimensions (WxHxD)	54 x 90 x 63 mm
EMC	According to EN62052-11	Material	Noryl, self-extinguishing: UL 94 V-0
Electrostatic discharges	15 kV air discharge;	Sealing covers	Included
Immunity to irradiated electromagnetic fields	Test with current: 10 V/m from 80 to 2000 MHz;	Mounting	DIN-rail
Electromagnetic fields	Test without any current: 30 V/m from 80 to 2000 MHz;	Protection degree	
Burst	On current and voltage measuring inputs circuit: 4kV	Front	IP20
Immunity to conducted disturbances	10 V/m from 150 KHz to 80 MHz	Screw terminals	IP20
Surge	On current and voltage measuring inputs circuit: 4kV;	Weight	Approx. 240 g (packing included)
Radio frequency	According to CISPR 22		

Power supply specifications

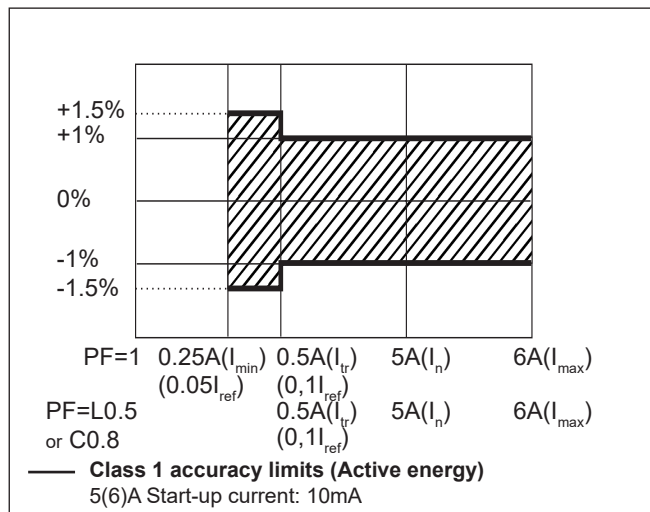
Auxiliary power supply	H: 100 to 240 V ac/dc	Power consumption	≤ 1W, ≤ 8VA
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Insulation (for 1 minute) between inputs and outputs

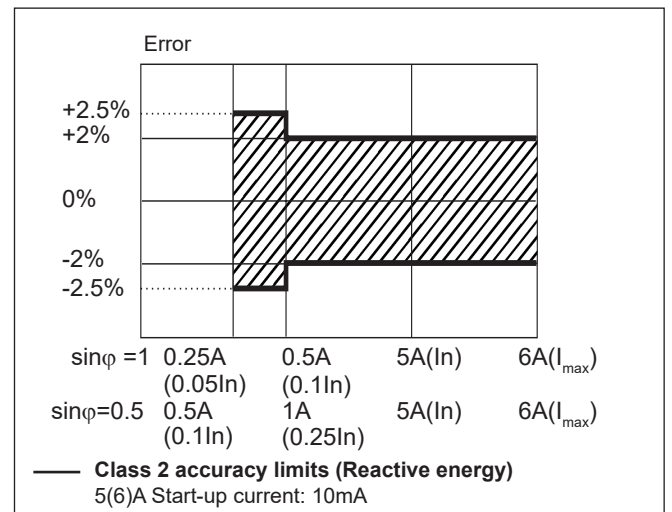
	Measuring input	Serial output	Digital input
Measuring input	-	4 kV	4 kV
Serial output	4 kV	-	0 kV
Digital input	4 kV	0 kV	-

Accuracy (according to EN62053-21 and EN62053-23)

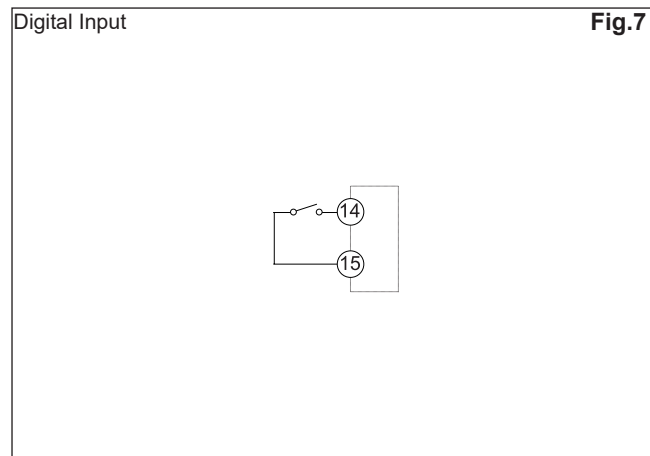
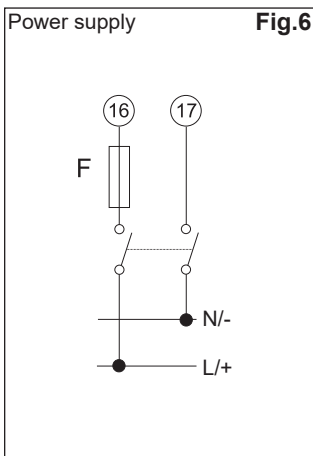
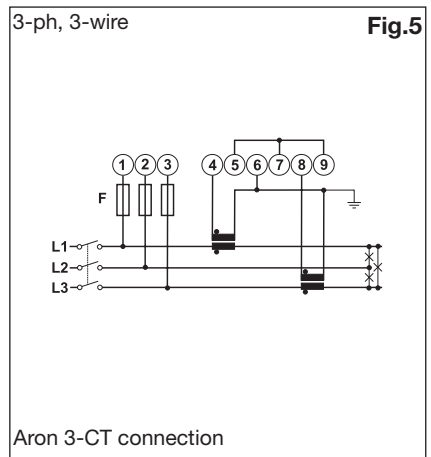
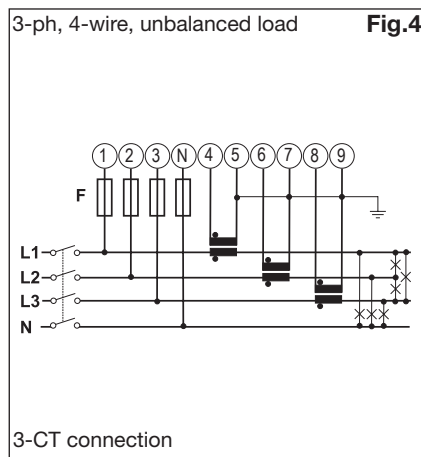
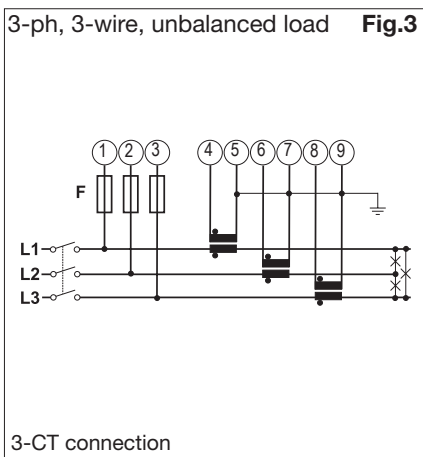
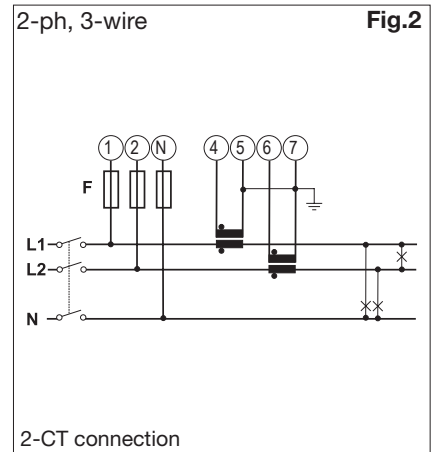
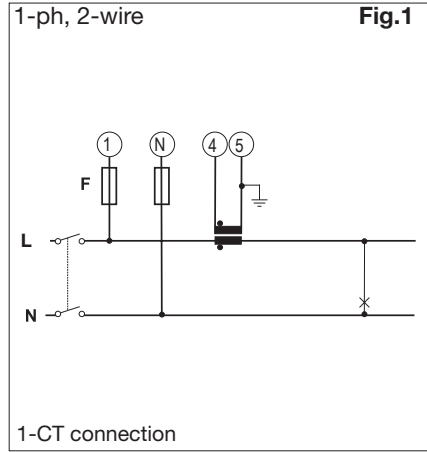
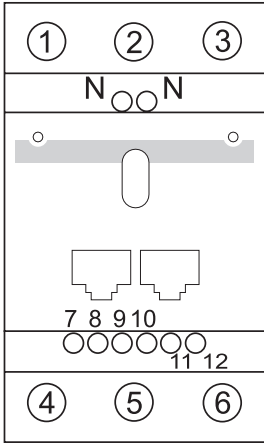
kWh, accuracy (RDG) depending on the current



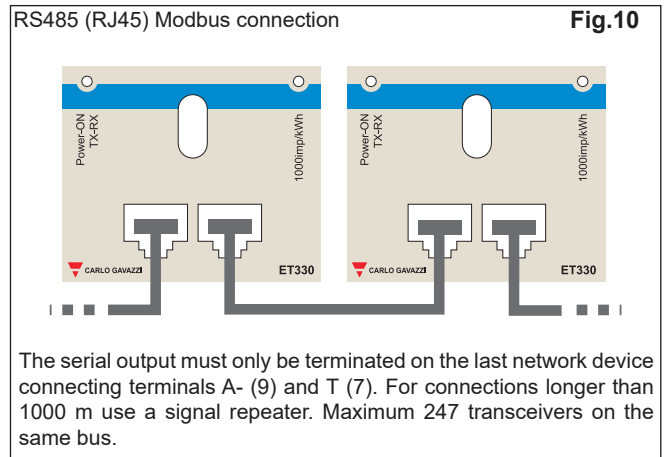
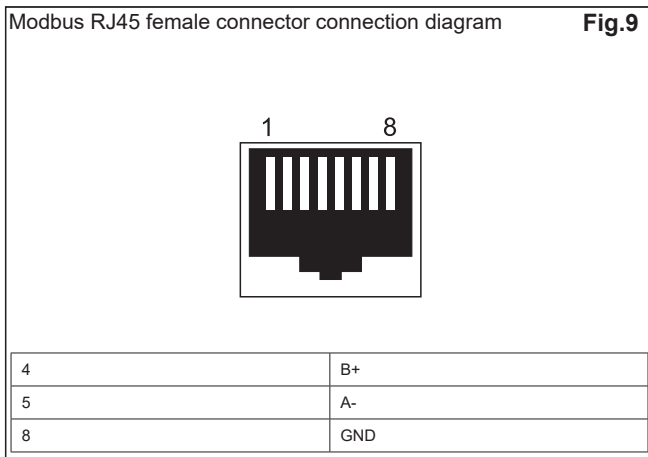
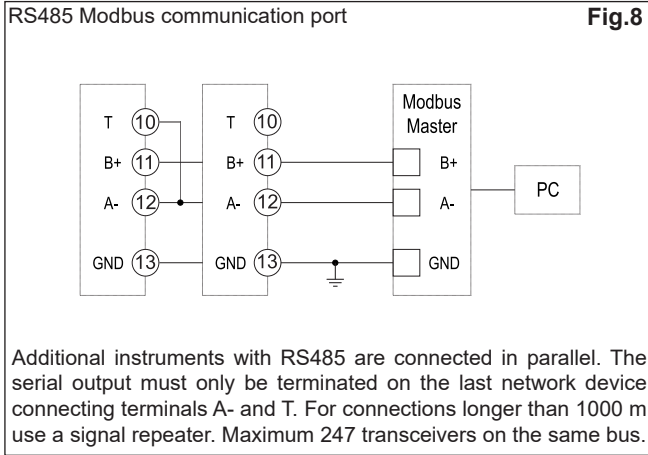
kvarh, accuracy (RDG) depending on the current



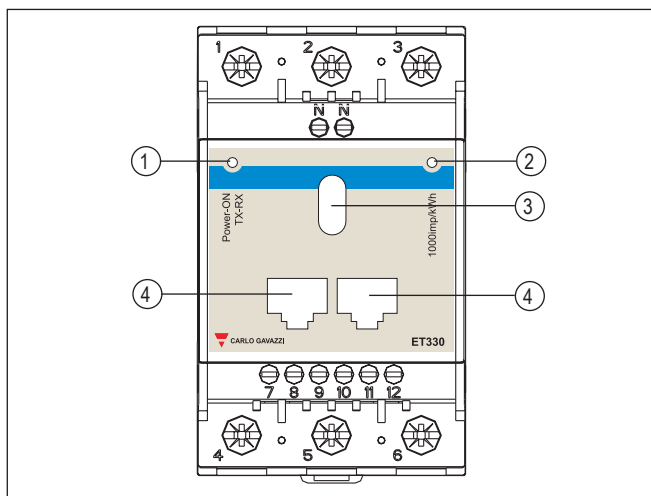
Wiring diagrams



Wiring diagrams (cont.)



Front panel description



1. **LED**
Power-ON LED with communication indication (when blinking)
2. **LED**
LED proportional to kWh reading
3. **Optical port**
Optical port for data transmission or programming
4. **RJ45 Modbus RTU ports (RS485)**
Modbus ports for fast bus connection. The ports are in parallel. The screw terminals can be used as well (same Modbus port).

Dimensions

