

Energy Management Energy Transducer Type ET330

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- Three phase energy transducer
- Class 0.5S (kWh) according to EN 62053-22
- 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 (@23°C ±2°C, 45 to 65 Hz)	0.01In=0.05A (kWh, PF=1) 0.05In=0.25A (kWh, PF=1) In: 5A, I _{max} : 6A; Un: 230 to 277 VLN (400 to 480 VLL)	LEDs	
Current	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: ±(2% 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) ±[0.001+1%(1.000 - "PF RDG")]	Weight (pulses/kWh) 1000	< 7.1 (CT x VT)
Power factor	From 0.05 In to I _{max} , within Un range, sinphi=1: ±(2% RDG)	Duration	90ms
Reactive power	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 0.5S according to EN 62053-22	Continuous	6A, @ 50Hz
Reactive energy	Class 2 according to EN 62053-23	For 500ms	20 I _{max}
Start-up current:	5 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	2.1 Mohm
Power	0.1 W or var or VA	5(6) A	< 1 VA
Frequency	0.1Hz		
PF	0.001		
Energies (positive)	0.1 kWh or kvarh		
Energies (negative)	0.1 kWh or kvarh		
Run hour	0.01 hour		
Energy additional errors			
Influence quantities	According to EN 62053-22/-23		
Temperature drift	According to EN 62053-22/-23		
Sampling rate	4096 samples/s @ 50Hz 4096 samples/s @ 60Hz		

Digital input specifications

Digital inputs	Free of voltage contact	Overload	In case a voltage is erroneously applied to the digital input, the input is not damaged up to 30 V ac/dc.
Function	Tariff management (switch between t1-t2)		
Number of inputs	1		
Contact measurement voltage	5 V		
Contact resistance	≥100 kohm, open contact		
Input impedance	10 Mohm		

Output specifications

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

General specifications

Operating temperature	-25 to +65 °C (-13 to 149° F), indoor, (R.H. from 0 to 90% non-condensing @ 40°C)	Housing	
Storage temperature	-30°C to +80°C (-22 to 176° F) (R.H. < 90% non condensing @ 40°C)	Dimensions (WxHxD)	54 x 90 x 63 mm
Overvoltage category	Cat. III	Material	PBT, self-extinguishing: UL 94 V-0
Insulation (for 1 minute)	4000 V ac RMS between measuring inputs and digital/serial output (see table) 4000 V ac RMS	Sealing covers	Included
Dielectric strength	4000 V ac RMS for 1 minute	Mounting	DIN-rail
EMC		Protection degree	
Immunity	According to EN 61000-6-2	Front	IP20
Emission	According to EN 61000-6-3	Screw terminals	IP20
Standard compliance		Weight	Approx. 240 g (packing included)
Safety	EN 61010-1		
Metrology	EN 62053-21		
Approvals	CE, cULus (UL 61010-1)		
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		
Other terminals	Cable cross-section area: 1.5 mm ² , Min./Max. screws tightening torque: 0.4 Nm		

Power supply specifications

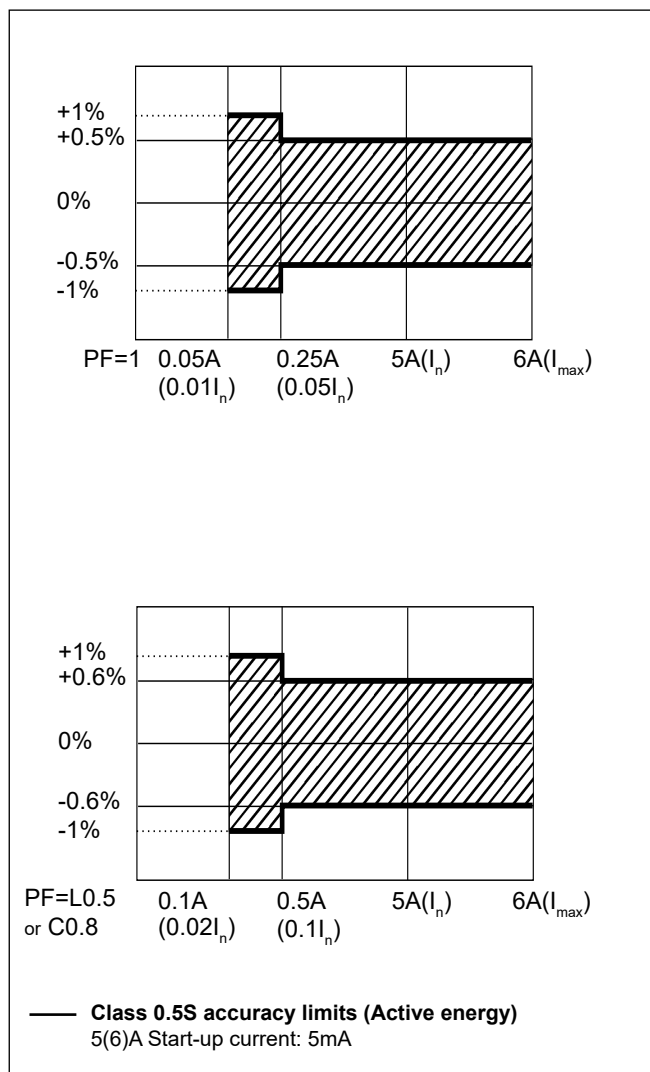
Auxiliary power supply	H: 100 to 240 V ac/dc	Power consumption	≤ 1W, ≤ 8VA
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Insulation (for 1 minute) between inputs and outputs

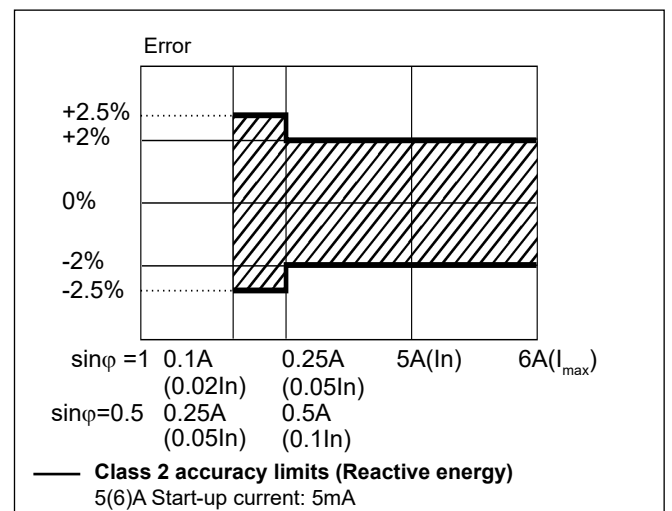
	Measuring input	Serial output	Digital input
Measuring input	-	4 kV	4 kV
Serial output	4 kV	-	0 kV
Digital input	4 kV	0 kV	-

Accuracy (according to EN 62053-22 and EN 62053-23)

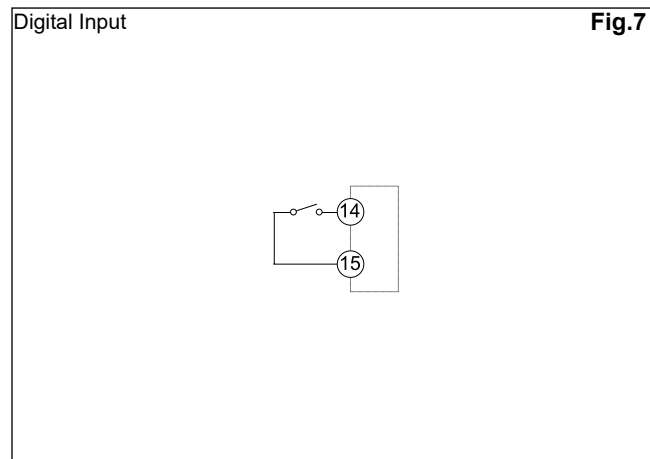
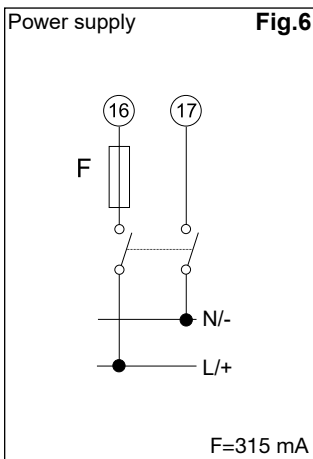
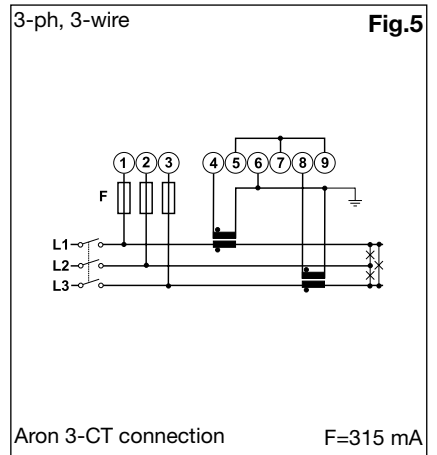
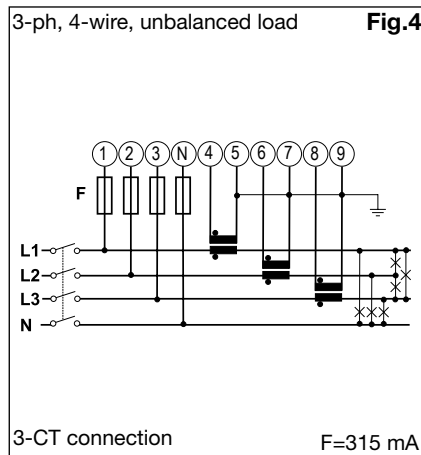
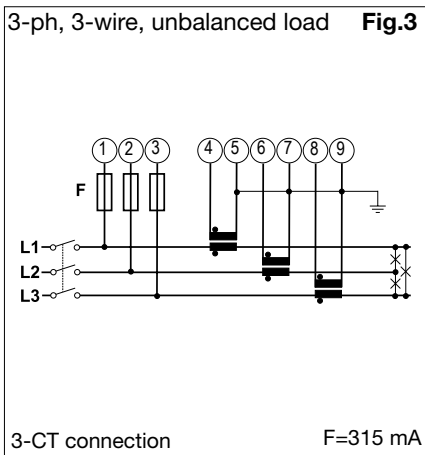
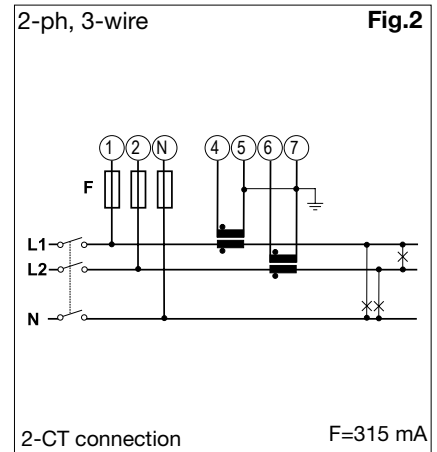
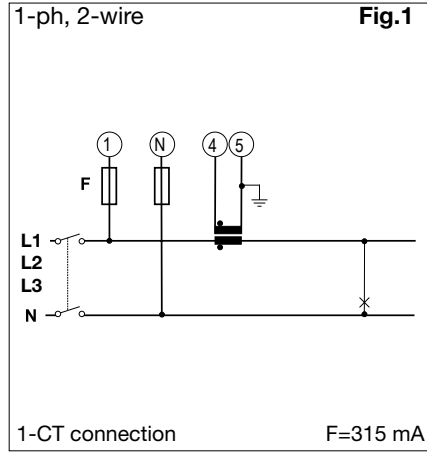
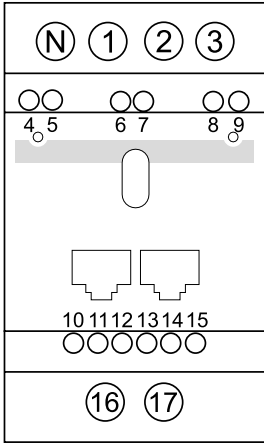
kWh, accuracy (RDG) depending on the current



kvarh, accuracy (RDG) depending on the current



Wiring diagrams



Wiring diagrams (cont.)

