

Energy Management

Energy Transducer

Type ET340



- Three phase energy transducer
- Class 1 (kWh) according to EN62053-21
- Accuracy $\pm 0.5\%$ RDG (current/voltage)
- Direct current measurement up to 65AAC
- 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
- Self power supply
- Dimensions: 3-DIN module
- Protection degree (front): IP20
- Optical port
- RS485 Modbus port (optional)
- Digital input (for tariff management)
- Run hour meter
- Easy connection or wrong current direction detection

Product description

Three-phase transducer. Particularly indicated for active energy metering and for cost allocation in applications up to 65 A (direct 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, with IP20 front degree protection. The transducer is provided with RS485 Modbus port.

How to order

ET340-DIN AV2 3 X S1 X

Model

Range code

System

Power supply

Output

Option

Type Selection

Range code	System	Power supply	Output
AV2: 208 to 400 VLL AC - 5(65)A (Direct connection)	3: 3-phase, 3- or 4-wire; 2-phase 3-wire	X: self power supply -20% +20% of the rated measuring input voltage, 45 to 65Hz	S1: RS485 Modbus port

Option

X: none

Input specifications

Rated Inputs		Max. and Min. data values	
Current type	3-phase loads, direct connection	Energies	Max. 99 999 999 Min. 0.01
Current range	5(65)A	Variables	Max. 9999 Min. 0.01
Nominal voltage	208 to 400 VLL AC	Run hour meter	0.01 h
Accuracy (@25°C ±5°C, R.H. ≤60%, 45 to 65 Hz)		Memory	
Current	Imin=0.25A; Ib: 5A, Imax: 65A; Un: 113 to 265VLN (196 to 460VLL)	Energy	10^12 cycles. Energy value is saved every time the less significant digit increases.
	Imin=0.25A; Ib: 5A, Imax: 65A; from 208 to 400 VLL AC	Programming parameters	10^12 cycles. When a parameter is modified, only the relevant memory cell is overwritten
	From 0.04Ib to 0.2Ib: ±(0.5%RDG+1DGT)		
	From 0.2Ib to Imax: ±(0.5%RDG)		
	In the range Un: ±(0.5% RDG)		
Phase-neutral voltage	In the range Un: ±(1% RDG)	LEDs	
Phase-phase voltage	Range: 45 to 65Hz.	Right LED	Flashing red light pulses according to EN50470-3, EN62052-11, 1000 pulse per kWh (min. period: 90ms)
Frequency	From 0.05 In to Imax, within Un range, PF=1: ±(1% RDG)	Left LED	Fix green light: power-on Blinking red light: power-on and communication in progress
Active power	From 0.1 In to Imax, within Un range, PF=0.5L or 0.8C: ±(1% RDG)		
Power factor	±[0.001+1%(1.000 - “PF RDG”)]	Current overloads	
Reactive power	From 0.05 In to Imax, within Un range, sinphi=1: ±(2% RDG)	Continuous	65A, @ 50Hz
	From 0.1 In to Imax, within Un range, sinphi=0.5L or 0.8C: ±(2% RDG)	For 10ms	8450 A
		Voltage Overloads	
		Continuous	1.2 Un
		For 500ms	2 Un
		Input impedance	
Energies		230VL-N	1.2Mohm
Active energy	Class 1 according to EN62053-21	120VL-N	1.2Mohm
Reactive energy	Class 2 according to EN62053-23	5(65) A	< 1.25VA
Start-up current:	20mA Self-consumption is not measured.		
Start-up voltage	90VLN		
Resolution			
Current	0.001 A		
Voltage	0.1 V		
Power	0.1 W or var		
Frequency	0.1Hz		
PF	0.001		
Energies (positive)	0.1 kWh or kvarh		
Energies (negative)	0.1 kWh or kvarh		
Run hour meter	0.01 h		
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

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 VAC/DC.
Function	Tariff management (switch between t1-t2)		
Number of inputs	1		
Contact measurement voltage	5 V		
Input impedance	1kohm		
Contact resistance	≤1kohm, close contact ≥100kohm, open contact		

Output specifications

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

General specifications

Operating temperature	-20 to +65 °C, indoor, (R.H. from 0 to 90% non-condensing @ 40°C)	Standard compliance Safety Metrology	EN62052-11 EN62053-21
Storage temperature	-30°C to +80°C (R.H. < 90% noncondensing @ 40°C)	Approvals	CE
Overvoltage category	Cat. III	Connections Cable cross-section area	Measuring inputs: max. 16 mm ² , min. 2.5 mm ² with/without metallic cable ferrule; Max. screw tightening torque: 2.8 Nm 1.5 mm ² , Min./Max. screws tightening torque: 0.4 Nm
Insulation (for 1 minute)	4000 VAC RMS between measuring inputs and digital/serial output (see table) 4000 VAC RMS	Other terminals	
Dielectric strength	4000 VAC RMS for 1 minute	Housing Dimensions (WxHxD) Material	54 x 90 x 63 mm Noryl, self-extinguishing: UL 94 V-0
EMC Electrostatic discharges Immunity to irradiated electromagnetic fields	According to EN62052-11 15kV air discharge; Test with current: 10V/m from 80 to 2000MHz; Test without any current: 30V/m from 80 to 2000MHz;	Sealing covers	Included
Electromagnetic fields	On current and voltage measuring inputs circuit: 4kV	Mounting	DIN-rail
Burst		Protection degree Front	IP20
Immunity to conducted disturbances	10V/m from 150KHz to 80MHz	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

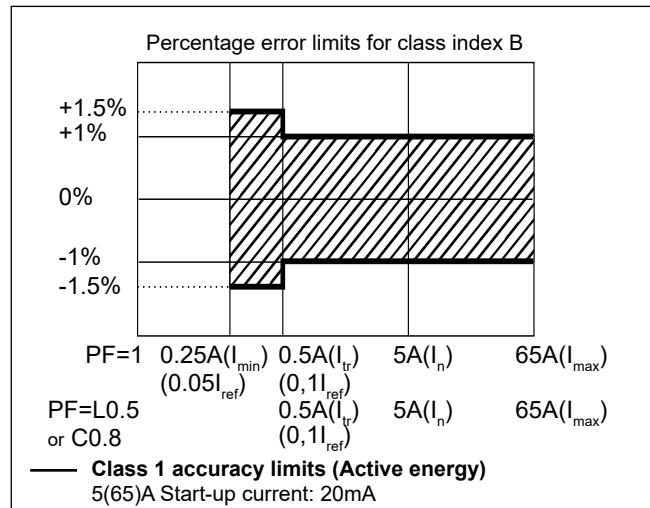
Self power supply	208 to 400VAC VLL, -20% +20% 50/60Hz	Power consumption	≤ 1W, ≤ 10VA
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Insulation (for 1 minute) between inputs and outputs

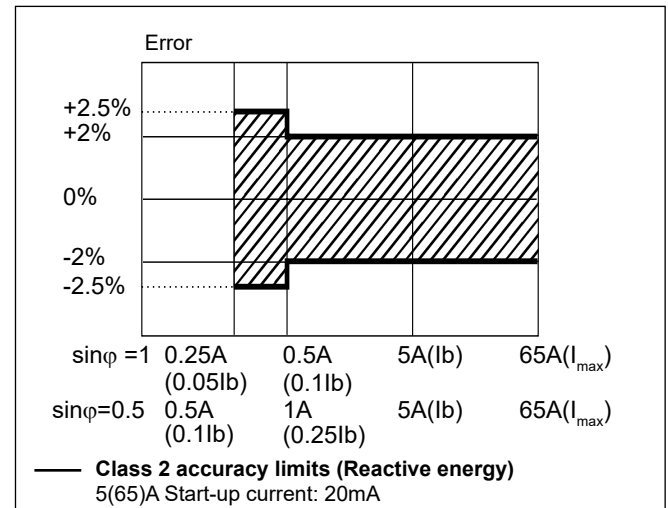
	Measuring input	Serial output	Digital input
Measuring input	-	4 kV	4 kV
Serial output	4 kV	-	0 kV
Digital input	4 kV	0 kV	-

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

kWh, accuracy (RDG) depending on the current



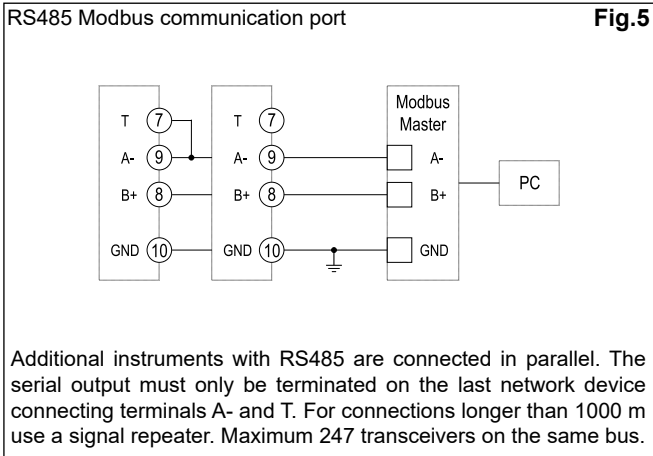
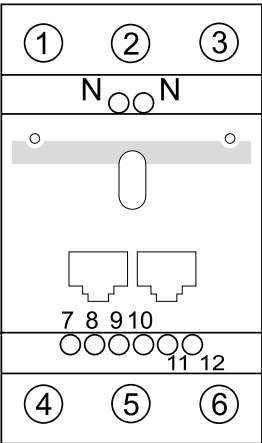
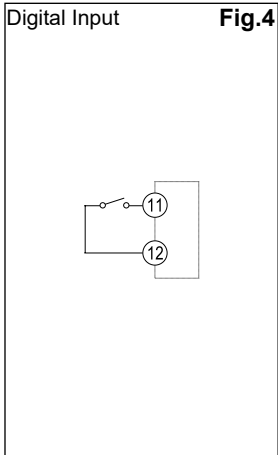
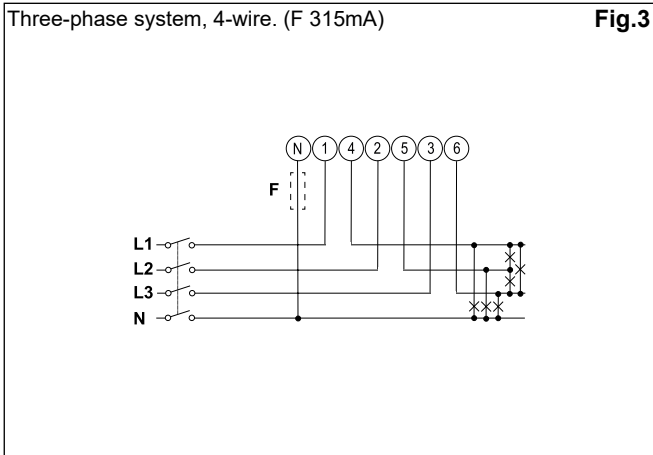
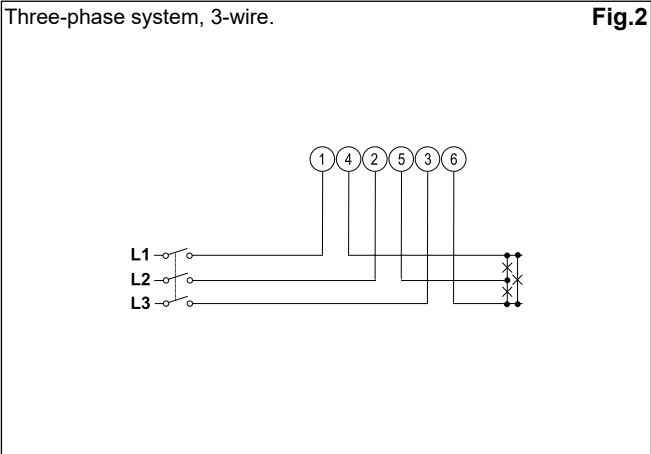
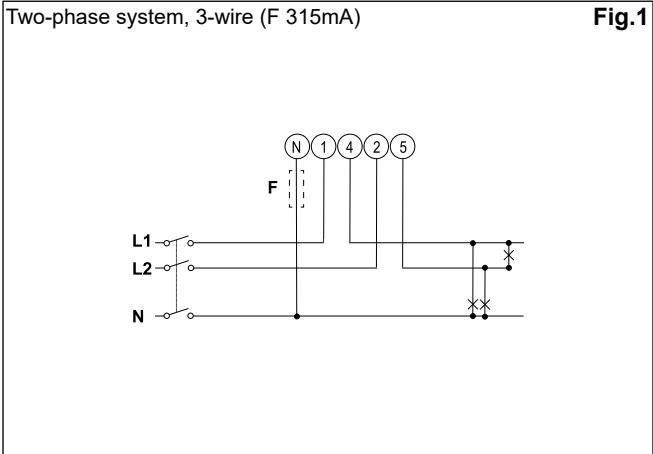
kvarh, accuracy (RDG) depending on the current



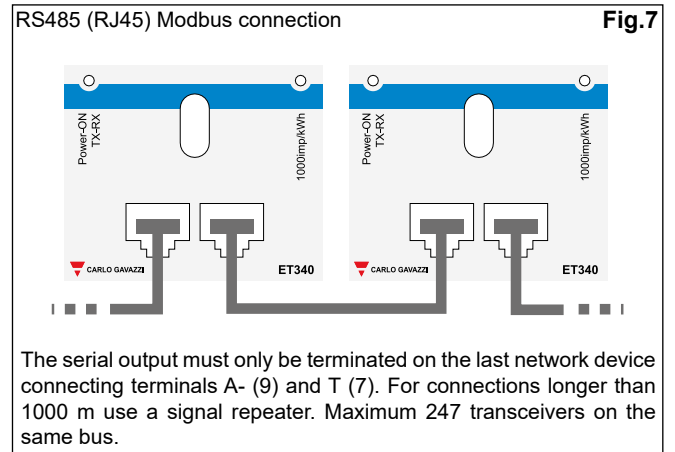
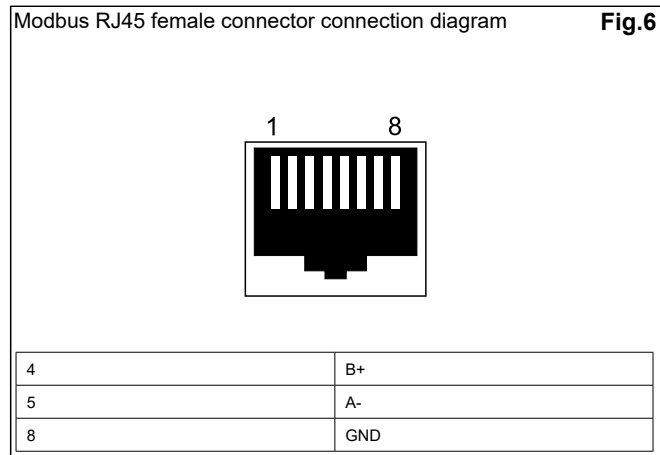
Available variables

1	kWh+ (imported)
2	kWh- (exported)
3	kWh (t1 and t2)
4	kW
5	kW dmd
6	kW dmd peak
7	kvar
8	kVA
9	V
10	A
11	PF
12	Hz
13	Run hour meter

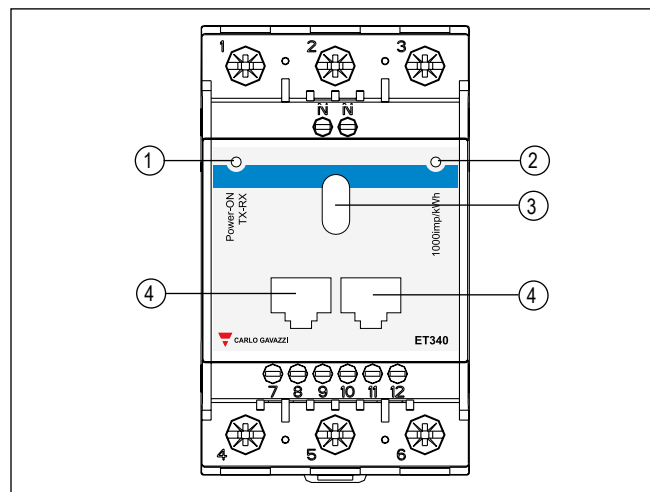
Wiring diagrams



Wiring diagrams (cont.)



Front panel description



- LED**
Power-ON LED with communication indication (when blinking)
- LED**
LED proportional to kWh reading
- Optical port**
Optical port for data transmission or programming
- 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

