

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

Rated Inputs

Current type	3-phase loads, direct connection
Current range	5(65)A
Nominal voltage	208 to 400 VLL AC

(@25°C ±5°C, R.H. ≤60%,
45 to 65 Hz)

Current	$I_{min}=0.25A$; I_b : 5A, I_{max} : 65A; U_n : 113 to 265V LN (196 to 460V LL) $I_{min}=0.25A$; I_b : 5A, I_{max} : 65A; from 208 to 400 V LL AC From $0.04I_b$ to $0.2I_b$: $\pm(0.5\%RDG+1DGT)$ From $0.2I_b$ to I_{max} : $\pm(0.5\%RDG)$
Phase-neutral voltage	In the range U_n : $\pm(0.5\% RDG)$
Phase-phase voltage	In the range U_n : $\pm(1\% RDG)$
Frequency	Range: 45 to 65Hz.
Active power	From $0.05 I_n$ to I_{max} , within U_n range, $PF=1$: $\pm(1\% RDG)$ From $0.1 I_n$ to I_{max} , within U_n range, $PF=0.5L$ or $0.8C$: $\pm(1\% RDG)$
Power factor	$\pm[0.001+1\%(1.000 - "PF RDG")]$
Reactive power	From $0.05 I_n$ to I_{max} , within U_n range, $\sin\phi=1$: $\pm(2\% RDG)$ From $0.1 I_n$ to I_{max} , within U_n range, $\sin\phi=0.5L$ or $0.8C$: $\pm(2\% RDG)$
Energies	
Active energy	Class 1 according to EN62053-21
Reactive energy	Class 2 according to EN62053-23
Start-up current:	20mA Self-consumption is not measured.
Start-up voltage	90V LN

Current	0.001 A
Voltage	0.1 V
Power	0.1 W or var
Frequency	0.1 Hz
PF	0.001
Energies (positive)	0.1 kWh or kvarh
Energies (negative)	0.1 kWh or kvarh
Run hour meter	0.01 h

Influence quantities	According to EN62053-21
Temperature drift	≤200ppm/°C

Sampling rate	4096 samples/s @ 50Hz 4096 samples/s @ 60Hz
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Energies	Max. 99 999 999
	Min. 0.01
Variables	Max. 9999
	Min. 0.01
Run hour meter	0.01 h

Energy	10 ¹² cycles. Energy value is saved every time the less significant digit increases.
Programming parameters	10 ¹² cycles. When a parameter is modified, only the relevant memory cell is overwritten

Right LED	Flashing red light pulses according to EN50470-3, EN62052-11, 1000 pulse per kWh (min. period: 90ms)
Left LED	Fix green light: power-on Blinking red light: power-on and communication in progress

Continuous	65A, @ 50Hz
For 10ms	8450 A

Continuous	1.2 Un
For 500ms	2 Un

230VL-N	1.2Mohm
120VL-N	1.2Mohm
5(65) A	< 1.25VA

Digital input specifications

Digital inputs

Function

Number of inputs

Contact measurement voltage

Input impedance

Contact resistance

Free of voltage contact
Tariff management (switch
between t1-t2)

1

5 V

1kohm

≤1kohm, close contact

≥100kohm, open contact

Overload

In case a voltage is
erroneously applied to the
digital input, the input is not
damaged up to 30 VAC/
DC.

Output specifications

RS485 serial port

Function

Protocol

Baud rate

Data format

Address

Driver input capability

Data refresh time

Read command

RJ45 pin-out

Other ports

RS485 by screw
connection or RS485 by
standard female RJ45
connectors (not shielded).

For communication
of measured data,
programming parameters
ModBus RTU (slave
function)

9.6, 19.2, 38.4, 57.6, 115.2
kbaud,

even or no parity,

1 to 247 (default: 01)

1/8 unit load. Maximum 247
devices on the
same bus.

1sec

50 words available in 1
read command

According to Modbus
standard: A- (pin5), B+
(pin4), GND (pin8)

All the Modbus ports
(screw terminals, two
RJ45) are in parallel. Only
one port at a time can be
used.

Optical port

Description

Function

Protocol

Baud rate

Address

Data refresh time

Read command

Optical port LEDs

LED axial distance

LED function

Frontal bi-directional
infrared optical coupling
with CG optical reader
device "Opto-prog"

For remote communication
of measured data and
setting of programming
parameters

ModBus RTU (slave
function)

9.6, 19.2 kbaud, even or no
parity

1

1 sec

50 words available in 1
read command

6.5 mm

- Upper LED is a receiver
(from the master to the
transducer

- 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

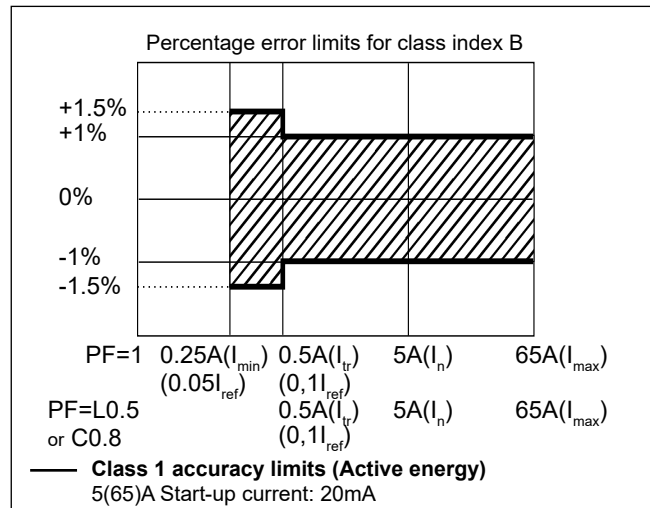
Self power supply	208 to 400VAC VLL, -20% +20% 50/60Hz	Power consumption	≤ 1W, ≤ 10VA
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Insulation (for 1 minute) between inputs and outputs

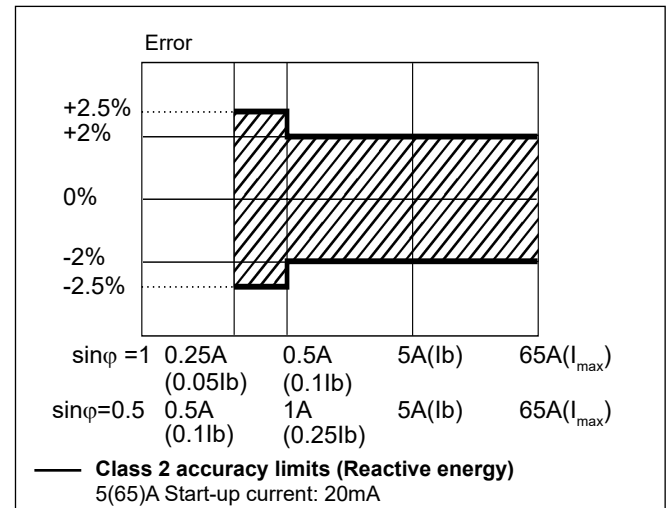
	Measuring input	Serial output	Digital input
Measuring input	-	4 kV	4 kV
Serial output	4 kV	-	0 kV
Digital input	4 kV	0 kV	-

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

kWh, accuracy (RDG) depending on the current



kvarh, accuracy (RDG) depending on the current

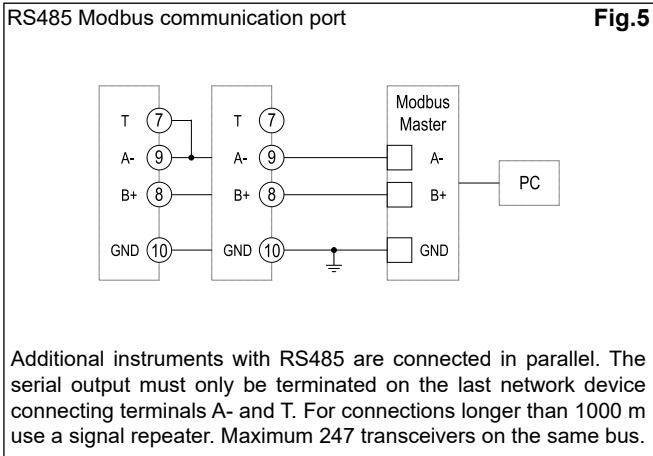
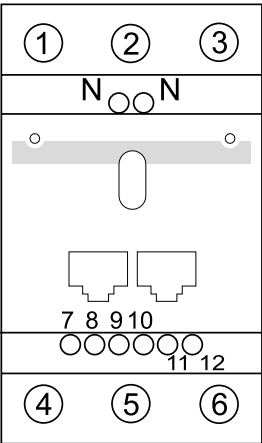
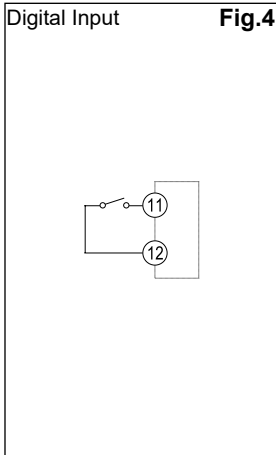
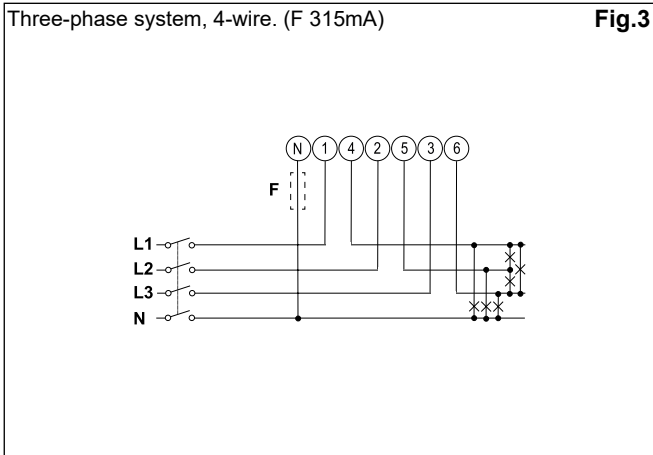
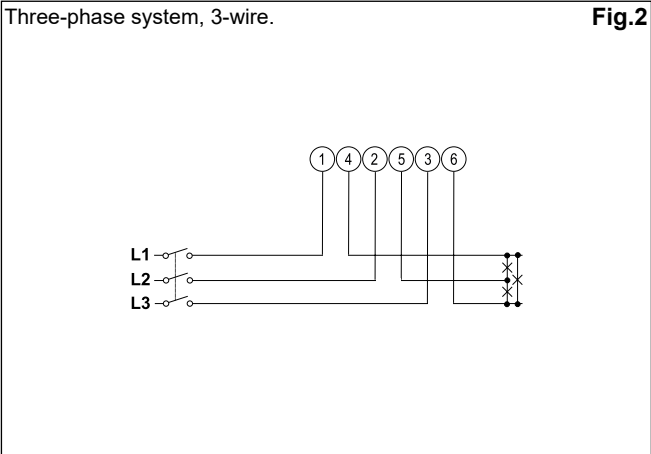
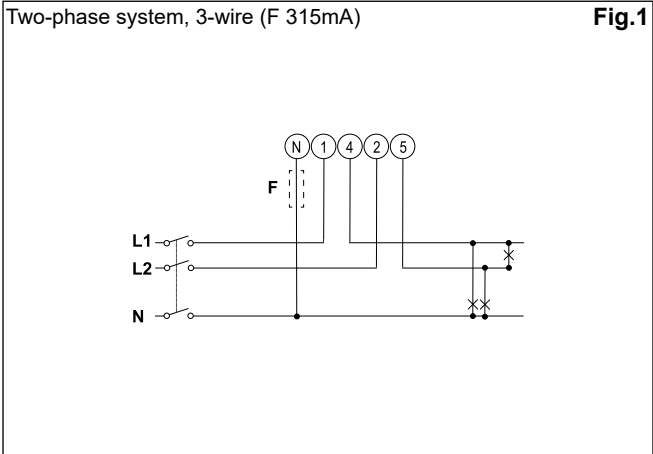


Available variables

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

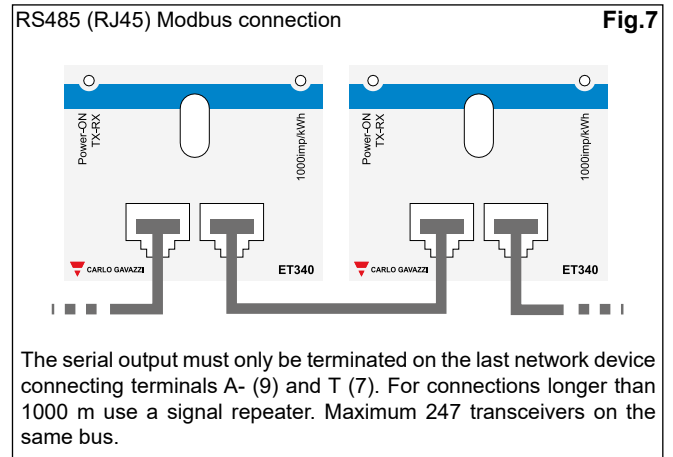
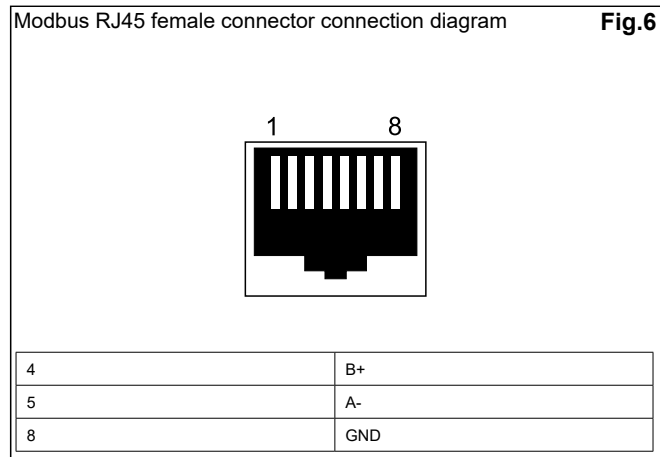


Wiring diagrams

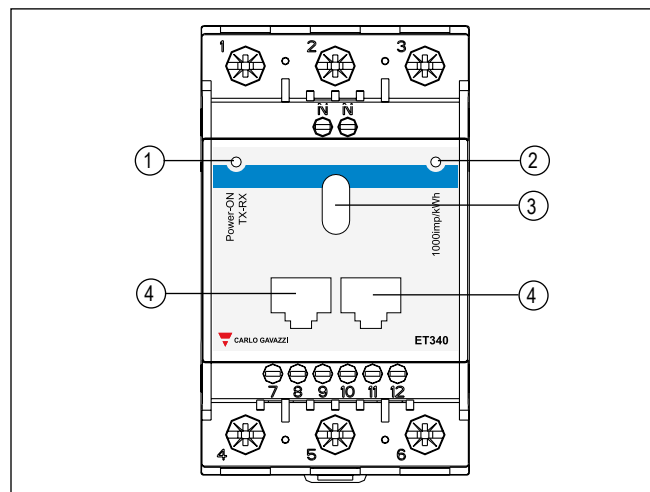


Additional instruments with RS485 are connected in parallel. The serial output must only be terminated on the last network device connecting terminals A- and T. For connections longer than 1000 m use a signal repeater. Maximum 247 transceivers on the same bus.

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

