E320-AMxD

E320

Technical Data

The E320 FNN base meter meets all the requirements set by the Digitisation Act and the FNN. It fits both 3-phase 4-wire and 1-phase 2-wire applications. The E320 is an SLP meter that also delivers GRID values at the LMN interface. Optionally, it may be parameterised to deliver additional RLM values.

Date: 29.03.2018

File name: D000061982 E320-AMxD Technical Data en d

dRevision history

Version	Date	Comments
V0.5	22.06.2016	First draft.
V0.7	06.01.2017	Corrections after M10.
V0.8	18.05.2017	Corrections after M20.
a.01	27.06.2017	Formatting, proofreading and new document template.
a.02	10.07.2017	Corrections after M60.
a.03 (V0.95)	14.09.2017	Photo included.
a (V0.98)	27.09.2017	First edition.
b	10.10.2017	Updated.
c	31.01.2018	E320-AMCD CT meter added.
d	29.03.2018	RoHS-Conformity added

Residential Meter

The E320 is an FNN base meter fulfilling the requirements of the Digitisation Act. The meter is suitable for 3-phase 4-wire and 1-phase 2-wire applications.

The E320 is an SLP (Standard Load Profile) meter that measures active energy (A+ and/or A-) and shows the recorded values on display. If enabled, instantaneous power is displayed on the second line.

The following historical values can be accessed through the main menu by entering the PIN code:

- daily consumption 730 days
- weekly consumption 104 weeks
- monthly consumption 24 months (30 days)
- annual consumption 2 years (365 days)

RLM/GRID functions

GRID values are available in each meter.

Optionally, the E320 can be configured as a 4-quadrant meter to deliver RLM (Registered Power Measurement) values.

Configuration

The E320 can be ordered in five different measurement mode configurations:

- +A with return stop
- -A with return stop
- +A/-A
- -A balanced
- 4-quadrant

E320-AMxD – Technical Data

General

Functions

Measurement	
E320-AM1D	Direct connected meter, 60A
E320-AM3D	Direct connected meter, 100A
E320-AMCD	Semi-indirect connected meter, 6A
Measurement system	shunt

Control/operation	
Optical interface/flashlight operation	according to FNN requirements

Outputs	
Optical information and customer interface	
INFO DSS	Unidirectional data push every second
Optical pulse output	according to DIN EN 62056-21
E320-AM1D, 60 A	10000 imp/kWh
E320-AM3D, 100 A	5000 imp/kWh
E320-AMCD, CT	100000 imp/kWh

LMN (Local Metrological Network) interface	
Wired LMN (RS-485)	LMN-1
Transmission speed	921.6 kBits/s
Connector	RJ-12 / 6p6c

Display	
LCD display	according to FNN
Number of lines	2 lines
Height of characters (values)	8 mm

FNN compliance
Functions according to FNN v1.4 requirements

Voltage and Frequency

Nominal voltage U_n	
E320-AMxD	3x230/400 VAC

Extended operating voltage range	
E320-AMxD	80% – 115% U_n

Nominal frequency f_n	
E320-AMxD	50 Hz (± 2%)

IEC-specific Data

Current

Base current I_b	
E320-AM1D	5 A
E320-AM3D	5 A
E320-AMCD	1 A

Maximum current I_{max}	
E320-AM1D	60 A
E320-AM3D	100 A
E320-AMCD	6 A

Measurement accuracy

E320-AMxD	according IEC 62053-23
Reactive energy	class 2

MID-specific Data

Current

Reference current I_{ref}	
E320-AM1D	5 A
E320-AM3D	5 A

Reference current I_n	
E320-AMCD	1 A

Minimum current I_{min}	
E320-AM1D	≤ 0.05 x I_{ref}
E320-AM3D	≤ 0.05 x I_{ref}
E320-AMCD	≤ 0.01 x I_n

Maximum current I_{max}	
E320-AM1D	60 A
E320-AM3D	100 A
E320-AMCD	6 A

Measurement Accuracy

E320-AMxD	according EN 50470-3
Active energy	class B, optionally class A

General Data

Power Consumption

Power consumption	
Voltage path per phase	< 1.0 W
Current path per phase	< 0.05 VA

Environmental Influences

Temperature range	
Operation (ambient temperature)	–25 °C to +55 °C
Operation LCD display	–25 °C to +70 °C
Storage (ambient temperature)	–40 °C to +70 °C

Ingress protection	according to IEC 60529
	IP51 (without module cover)
	IP54 (with module cover)

Environmental conditions according to Measuring Instruments Directive (2014/32/EU)

Electromagnetic Compatibility

Electrostatic discharges	according to IEC 61000-4-2
Contact discharge	8 kV
Air discharge	15 kV

Electromagnetic RF fields	according to IEC 61000-4-3
80 MHz to 2 GHz	10 and 30 V/m

Radio interference suppression	according IEC/CISPR 22
	class B

Fast transient burst test	according to IEC 61000-4-4
Current and voltage circuits under load according to IEC 62053-21	4 kV

Surge immunity test	according to IEC 61000-4-5
Current and voltage circuits	4 kV

Insulation Strength

Insulation strength
4 kV AC at 50 Hz during 1 min.

Impulse voltage 1.2/50 µs	according to EN 50470-1
	4 kV

Impulse voltage 0.1/2000 µs
7 kV

Protection class	according to IEC 62052-11
Isolation	⧈ II

Overvoltage category
III

Outputs

Smart Meter Gateway phase connections	
Supply voltage	230V
Connector	Phoenix IC 2.5/ 3-G-5.08

Material

Case	
Case material	polycarbonate (GF)
UV stabilised, fire retardant and self-extinguishing	
Housing	class V2
Terminal block	class V0

RoHS-Directive	
RoHS conformity	according EU-Directive 2011/65/EU

Weight and Dimensions

Weight
ca. 1.450 kg

Dimensions	
Width	170 mm
Height incl. terminal cover	296 mm
Depth incl. module cover	96.5 mm

Options

Hardware Options

Module cover

Closed module cover
Cut out module cover (4TE)

Firmware Options / Parameterisation

Measurement modes

+A with return stop; active plus only
-A with return stop; active minus only
+A / -A; active plus and active minus
-A balanced without return stop; active totalised
4-quadrant, active and reactive energy

PIN protection

With PIN protection
Without PIN protection

Instantaneous power display

Displayed on 2nd line
Not displayed

Customer settings at power fail

Keep customer settings
Reset to factory settings

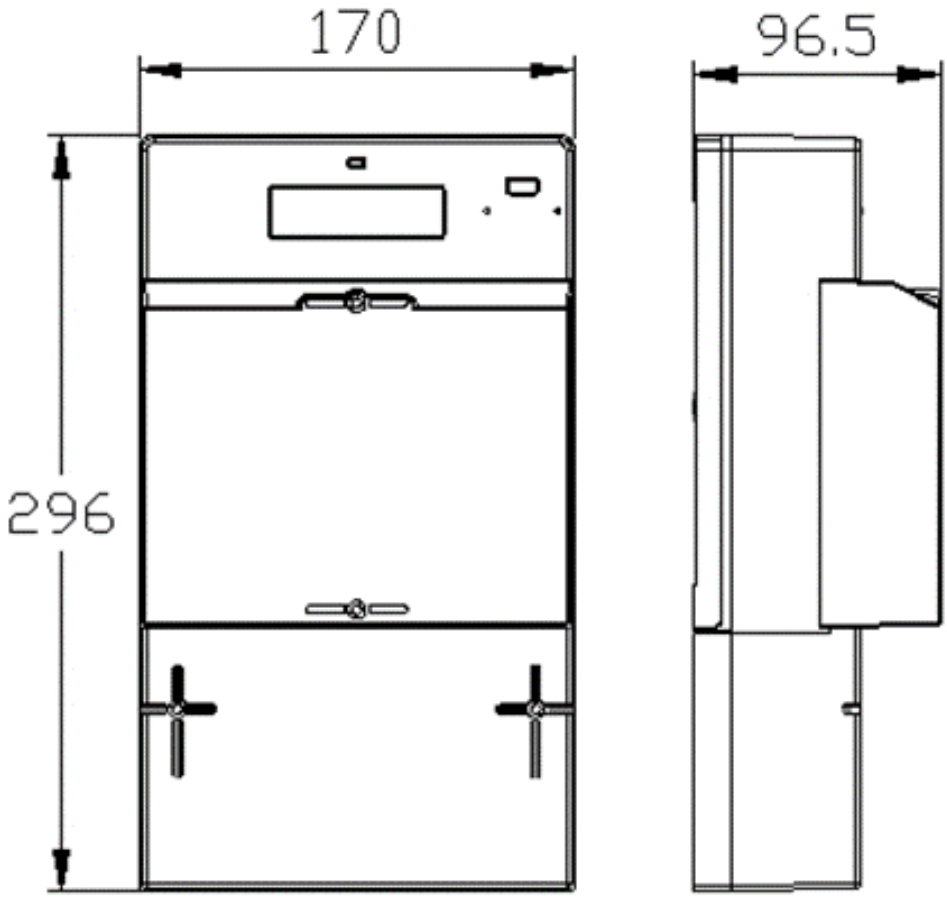
License Declarations

Third-Party / Open Source Modules

Components and copyright

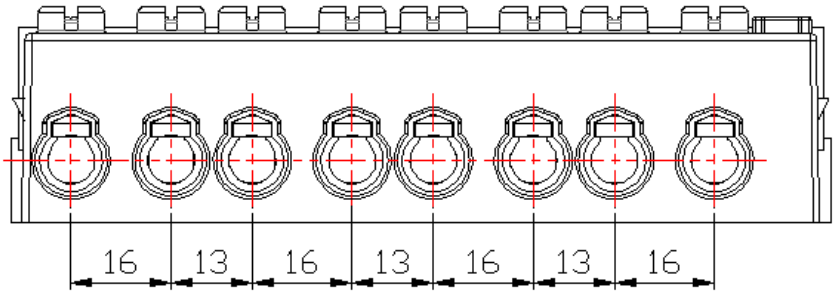
Mbed TLS Package V2.4.2
Copyright © The Apache Software Foundation, Apache License v2.0

Case Dimensions (with Module Cover and Terminal Cover)

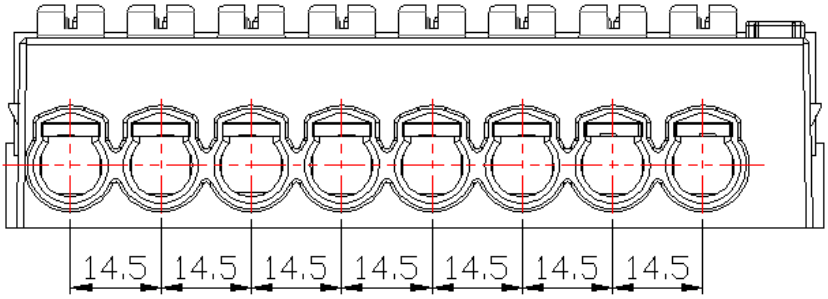


Dimensions of Connection Terminals

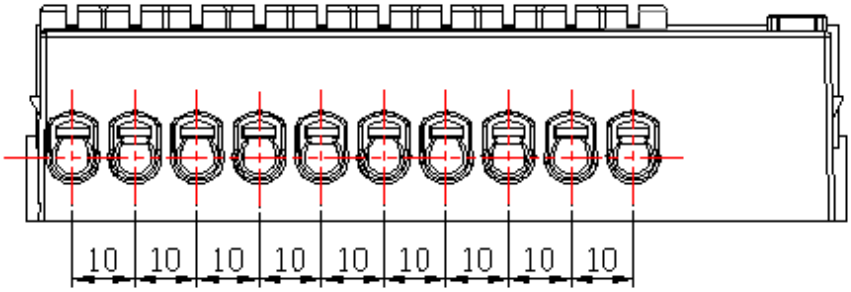
E320-AM1D 60 A direct connected



E320-AM3D 100 A direct connected



E320-AMCD CT semi-indirect connected



Type designation

Example	E320	-	A	M	1	D.	A	3	A.	A	0	-	S	1	0	-	S1

Brand name

E320 Residential smart meter

Product family

A Product family residential

Network and mechanical standard

M 3-phase, 4-wire DIN

Maximum current

1 Maximum current 60A
3 Maximum current 100A
C Maximum current 6A (current transformer)

Voltage level

D 230V phase – neutral / 400V phase – phase

Measurement modes

A Active, no reactive; vector value measurement (reverse stop over all phases)
C Active and reactive; vector value measurement (reverse stop over all phases)

Measurement modes 2

1 +A with return stop; active plus only
2 -A with return stop; active minus only
3 +A / -A; active plus and minus
4 -A balanced without return stop; active totalised
5 4-quadrant values

Additional quantities

A Energy only

Accuracy active measurement

A Class A (MID)
B Class B (MID)

Accuracy reactive measurement

0 No reactive measurement
2 Class 2 (IEC 62053-23)

Basic meter measurement

S SLP Standard Load Profile
R RLM Registered Power Measurement

Tariffication

1 1 tariff

LMN interface

B Wired RS-485; 2 x RJ-12

Hardware series

S1 Series 1

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manage energy better