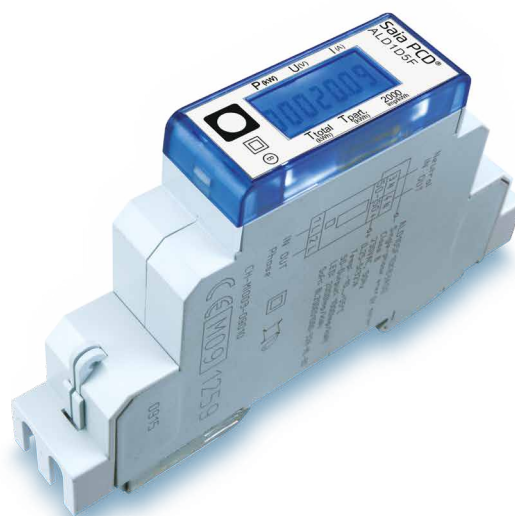


Single-phase Energy meter with serial S-Bus interface

Energy meters with a S-Bus interface allow direct reading of all relevant data, such as energy (Total and partial), current, voltage, active and reactive power and $\cos \varphi$.

Main features

- ▶ Single-phase energy meter, 230 VAC 50 Hz
- ▶ Direct measurement up to 32 A
- ▶ Display of active power, voltage and current
- ▶ S-Bus Interface to query the data
- ▶ Reactive power and $\cos \varphi$ available through interface
- ▶ Up to 254 meter can be connected to the S-Bus Interface
- ▶ 7-digit display
- ▶ Lead seal possible with cap as accessory
- ▶ Accuracy class B according to EN50470-3, accuracy class 1 according to IEC62053-21



Order Number

Standard Version:	ALD1D5FS00A2A00
MID Version:	ALD1D5FS00A3A00
Sealing caps:	4 104 7420 0

Technical data

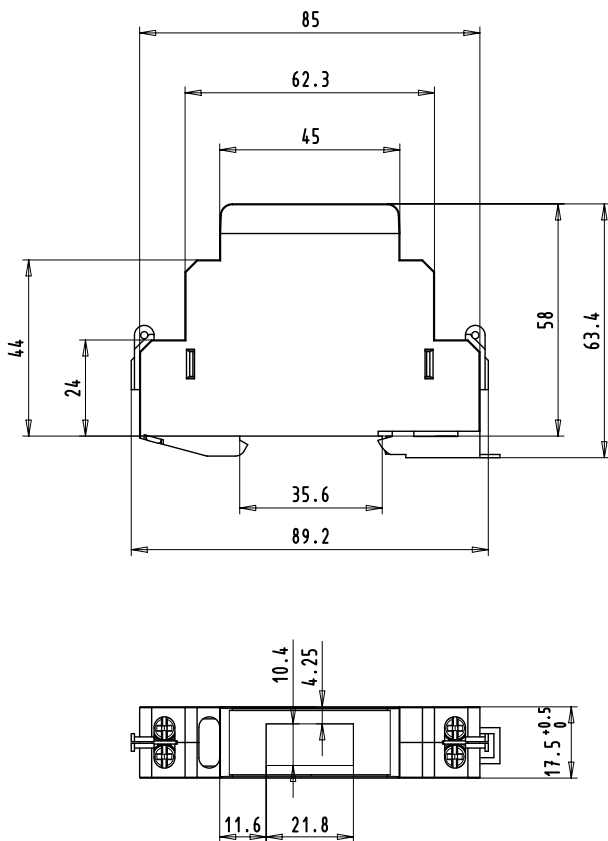
Precision class	B according to EN50470-3, 1 according to IEC62053-21
Operating voltage	230 VAC, 50 Hz Tolerance -20% / +15 %
Reference/ maximum current	$I_{ref} = 5 \text{ A}$, $I_{max} = 32 \text{ A}$
Starting/minimum current	$I_{st} = 20 \text{ mA}$, $I_{min} = 0.25 \text{ A}$
Power consumption	Active 0.4 W per phase
Counting range	00'000.00... 99'999.99 100'000.0... 999'999.9
Display	LCD backlit, digits 5 mm high
Pulses per kWh	LC-Display: 2000 Imp./kWh

Mounting

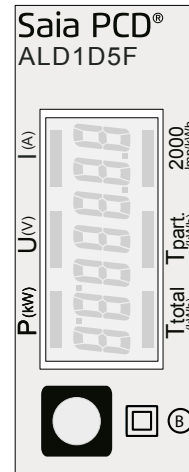
Mounting	On 35 mm rail, according to EN60715TH35
Terminal connections main circuit	Conductor cross-section max. 6 mm ² , screwdriver Pozidrive no. 1, slot no.1 Breakaway torque: 1,2 Nm
Terminal connections control circuit	Conductor cross-section max. 2.5 mm ² , screwdriver Pozidrive no. 0, or slot no.1 Breakaway torque: 0,5 Nm
Insulation characteristics	- 4 kV/50 Hz test according to IEC62053-21 for Energy Meter part - 6 kV / 50 Hz surge voltage according to IEC62052-11 - 2 kV / 50 Hz test according to IEC62053-21 for Interface - device protection class II
Ambient temperature	-25 °...+55 °C
Storage temperature	-30 °...+85 °C
Environment	Mechanical M2 Electromagnetic E2
Relative humidity	75 % without condensation
EMC/interference immunity	- Surge voltage according to IEC61000-4-5 at main circuit, 4 kV at S-Bus interface, 1 kV - Burst voltage according to IEC61000-4-4, at main circuit 4 kV at S-Bus interface 1 kV - ESD according to IEC61000-4-2, contact 8 kV, air 15 kV

Dimension diagram

Structure

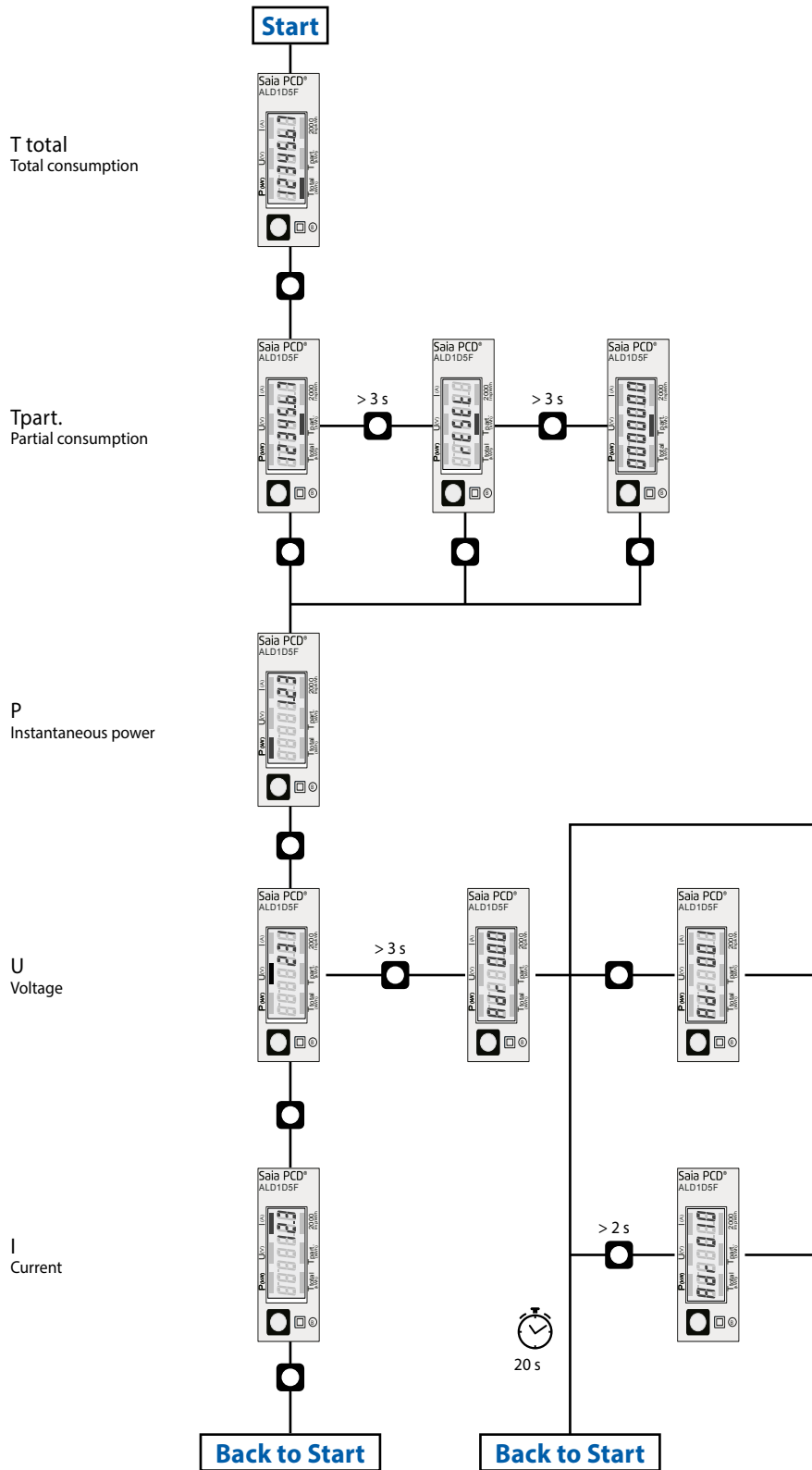


Display elements, direct measurement

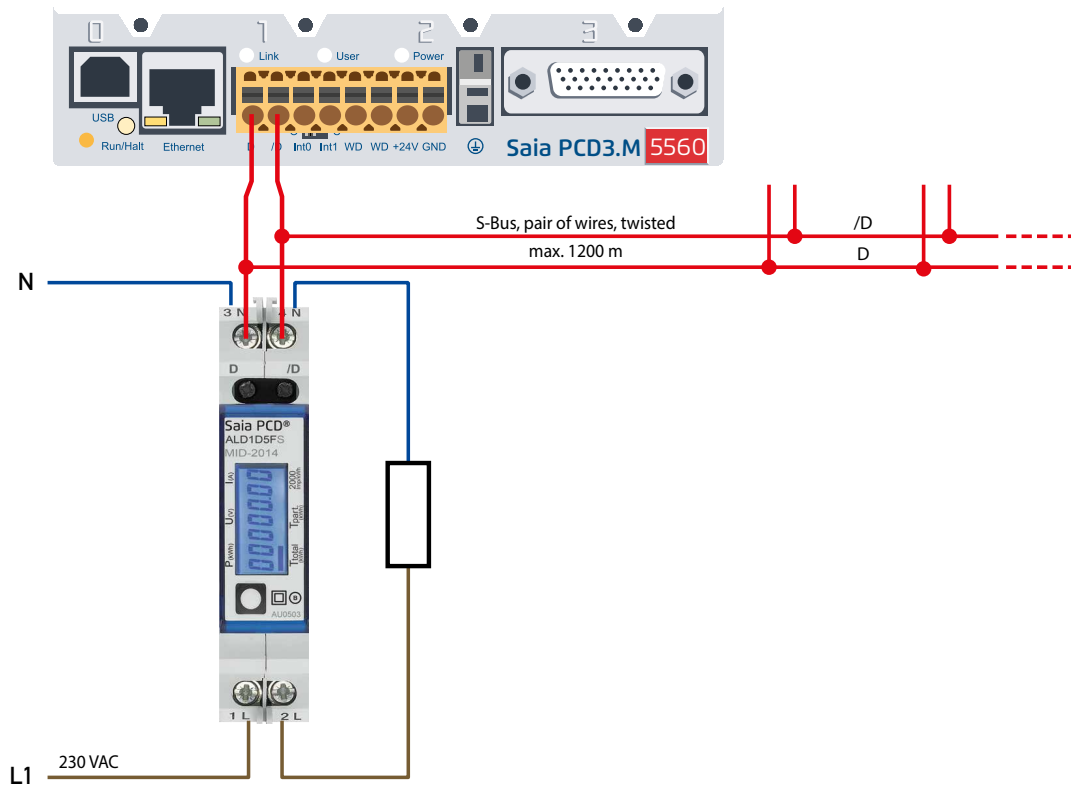


- ▶ T total (kWh) Indicates the total consumption
- ▶ T part (kWh) Indicates the partial consumption.
This value can be reset
- ▶ P (kW) Indicates the instantaneous power
- ▶ U (V) Indicates the voltage
- ▶ I (A) Indicates the current
- ▶ 2000 pulses/kWh Pulsates according to the amount of used power.

Menu to display the value on LCD



Wirings Diagram



Technical data S-Bus

Bus system	S-Bus
Transmission rate	4800-9600-19'200-38'400-57'600-115'200. The transmission Baud rate is automatically detected
Transmission mode	Data
Bus length (max.)	1200 m (without repeater)
Response time	Write: up to 60 ms Read: up to 60 ms

- ▶ The communication is ready 30 s after the power on
- ▶ The use of energy meter in bus with intensive communication could reduce the performance of the bus
- ▶ Refresh time for the data is 5 s. For this reason one energy meter should be not polled faster as 5 s
- ▶ 254 devices could be connected to the S-Bus. Over 128 devices, a repeater should be used
- ▶ The interface don't have a terminal resistor, this should be provided external
- ▶ For a description of the used registers please look at the register page

Data transmission

- ▶ Only «read/write» register instructions are recognized
- ▶ Only one register can be written at a time
- ▶ The device will respond «NAK» if more than 1 register is written
- ▶ Up to 10 Registers could be read at a time
- ▶ The device will respond «NAK» if more than 10 registers are read
- ▶ The device will not respond to any unknown query
- ▶ The device has a voltage monitoring system. In case of voltage loss, registers are stored in EEPROM (transmission rate) etc.

Change the S-Bus address direct on device

- ▶ In the menu, go for «U»
- ▶ Push long (≥ 3 sec) → «SBUS-ADR»
- ▶ Push short → S-Bus address +1, push long → S-Bus address +10
- ▶ Once the desired address is selected wait, to validate, till the root menu to come back

Register

The following registers are available.

The registers 4, 10, 11, 18, 19, 22 and 23 are not used and will give always the answer 0.

R	Read	Write	Description	Unit
0	X		Firmware-Version	Ex: «11» = FW 1.1
1	X		Number of supported registers	will give «29»
2	X		Number of supported flags	will give «0»
3	X		Baudrate	BPS
4			Not used	will give a «0»
5	X		Type/ASN function	will give «ALD1»
6	X		Type/ASN function	will give «D5FS»
7	X		Type/ASN function	will give «00Ax» x : 2 = non MID x : 3 = MID
8	X		Type/ASN function	will give «A00»
9	X		HW Vers. Modif	Ex: «11» = FW 1.1
10			Not used	will give a «0»
11			Serial number	Higher part of serial number
12	X		Serial number	Lower part of serial number
13	X		Not used	will give a «0»
14	X		Status/Protect	«0» = no Problem «1» = Problem with last communication request
15	X		S-Bus timeout	ms
16	X	X	S-Bus address	
17	X		Error flags	0 : No error 1 : Error
18			Not used	will give «0»
19			Not used	will give «0»
20	X		Counter energy total	10 ⁻² kWh (multiplier 0.01) Ex: 00912351= 009123.51 kWh
21	X	X	Counter energy partial Any written value reset the counter	10 ⁻² kWh (multiplier 0.01) Ex: 00912351= 009123.51 kWh
22			Not used	will give «0»
23			Not used	will give «0»
24	X		Effective voltage	V Ex: 230 = 230 V
25	X		Effective current	10 ⁻¹ A (multiplier 0.1) Ex: 314 = 31.4 A
26	X		Effective active power	10 ⁻² kW (multiplier 0.01) Ex: 1545 = 15.45 kW
27	X		Effective reactive power	10 ⁻² kvar (multiplier 0.01) Ex: 1545 = 15.45 kvar
28	X		cos phi phase	10 ⁻² (multiplier 0.01) Ex: 67 = 0.67

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