

Data sheet

Single phase Energy meter with integrated S-Bus interface

Controls Division

Saia® S Bus
AWD1

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

Main features:

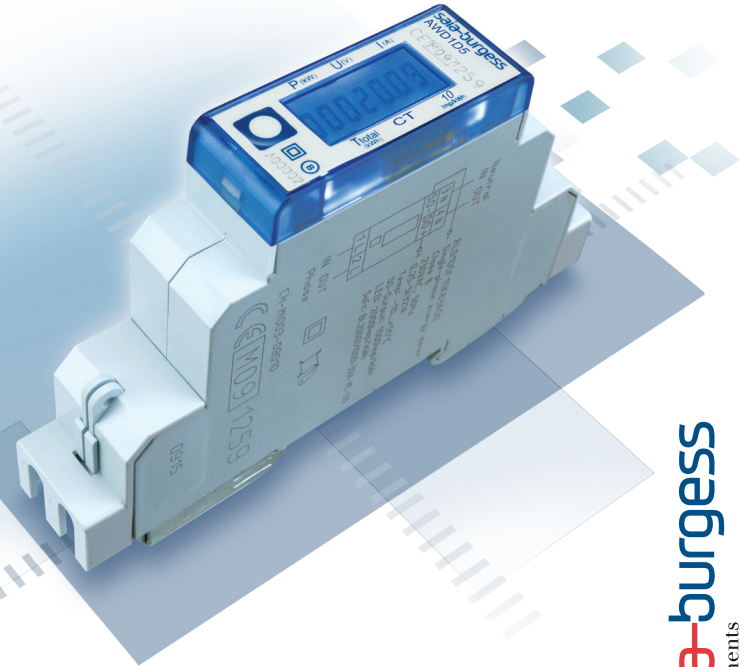
- Single-phase energy meter, 230 VAC 50 Hz
- Measurement through a current transformer up to 500 A
- Display of active power, voltage and current
- S-Bus Interface to query the data
- Reactive power and $\cos \varphi$ available through interface
- Up to 254 meter can be connected to the S-Bus Interface
- 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: AWD1D5WS00A2A00
 MID version 50:5: AWD1D5GS00A3A00
 MID version 100:5: AWD1D5HS00A3A00
 Sealing cap: 410474200

Technical data

Precision class	Class B according to EN50470-3 Class 1 according to IEC62053-21
Operating voltage	230 VAC, 50 Hz Tolerance $-20\% / +15\%$
Power consumption	Active 0.4 W per phase
Counting range	000'000.0...999'999.9 1'000'000...9'999'999
Display	LCD backlight, digits 5 mm high



Mounting

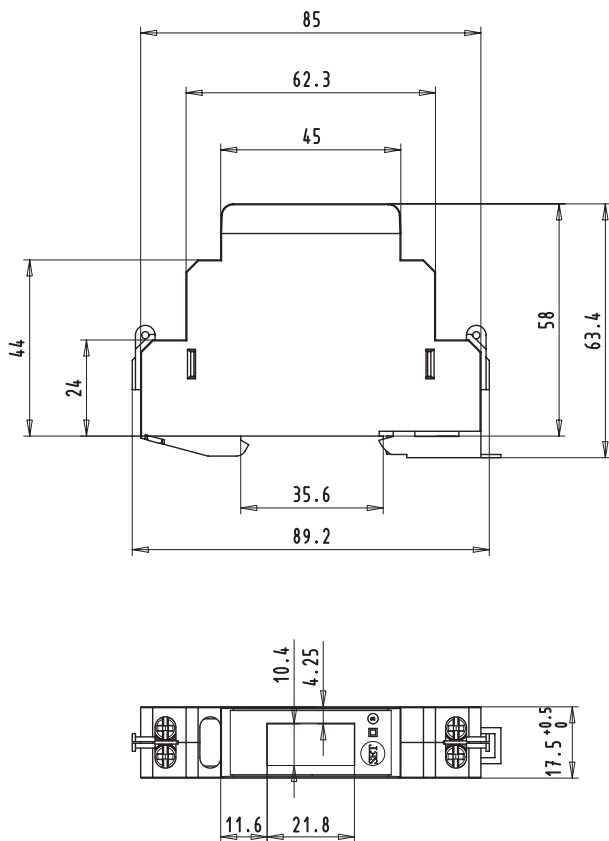
Mounting	On 35 mm rail, according to EN60715TH35
Terminal connections main circuit	Conductor cross-section max. 6 mm ² , screwdriver Pozidrive no. 1, slot no.1 Breakaway torque: 1.2 Nm
Terminal connections control circuit	Conductor cross-section max. 2.5 mm ² , screwdriver Pozidrive no. 0, or slot no.1 Breakaway torque: 0.5 Nm
Insulation characteristics	4 kV/50 Hz test according to VDE0435 for Energy Meter part 6 kV 1.2/50 μ s surge voltage according to IEC255-4 2 kV/50 Hz test according to VDE0435 for Interface device protection class II
Ambient temperature	$-10^{\circ} \dots +55^{\circ} \text{C}$
Storage temperature	$-30^{\circ} \dots +85^{\circ} \text{C}$
Relative humidity	95% at $25^{\circ} \dots +40^{\circ} \text{C}$, 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

CT measurement

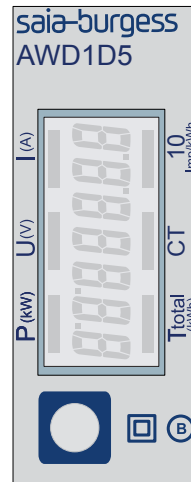
Reference/max. current	5...500 A $I_{ref} = 5 \text{ A}$, $I_{max} = 6 \text{ A}$			
Starting/minimum current	$I_{st} = 10 \text{ mA}$, $I_{min} = 0.05 \text{ A}$			
Converter ratio	5:5	50:5	100:5	200:5
Pulses per kWh	250:5	300:5	400:5	500:5
	LCD Display 10 Imp/kWh			

Dimension diagram

Structure

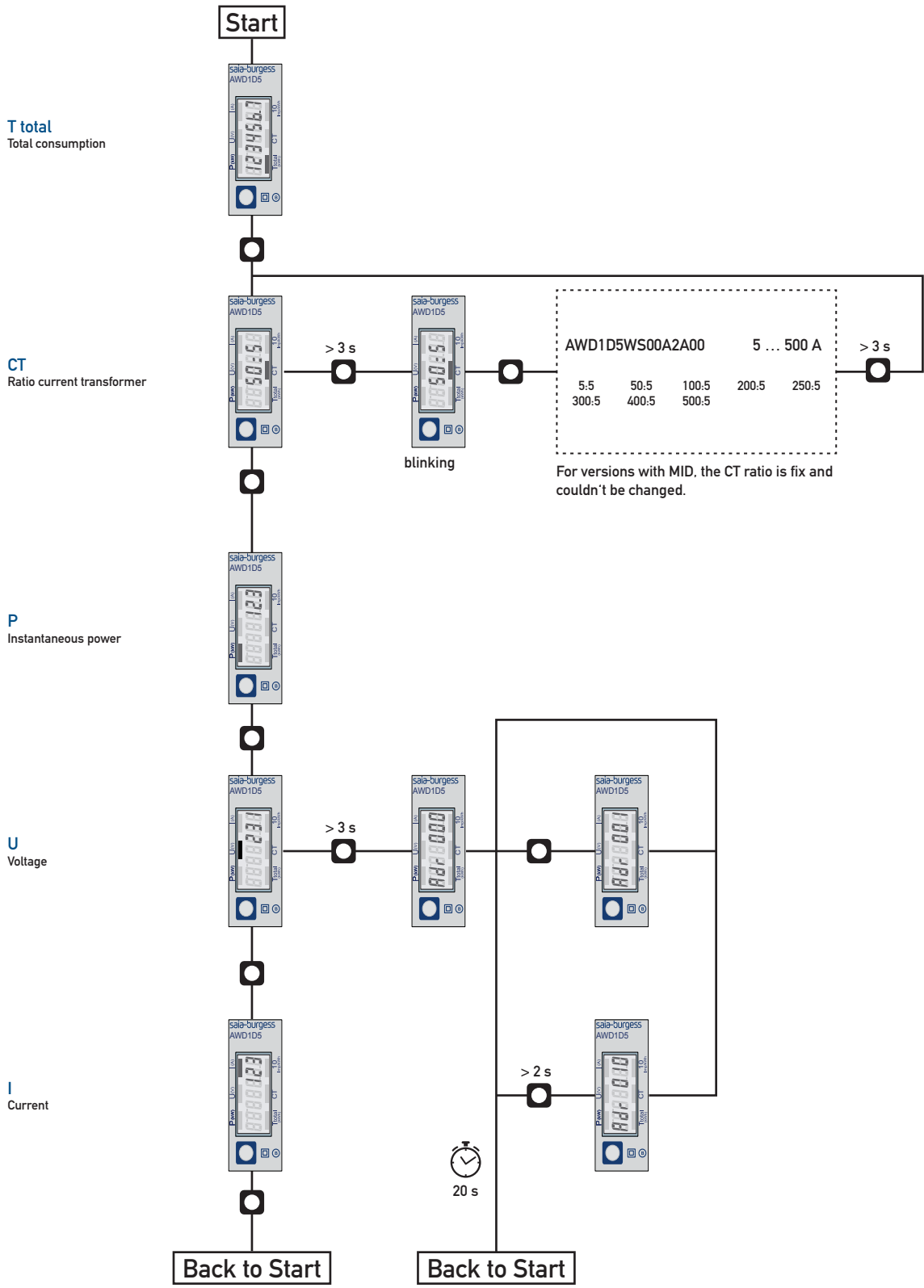


Display elements, direct measurement

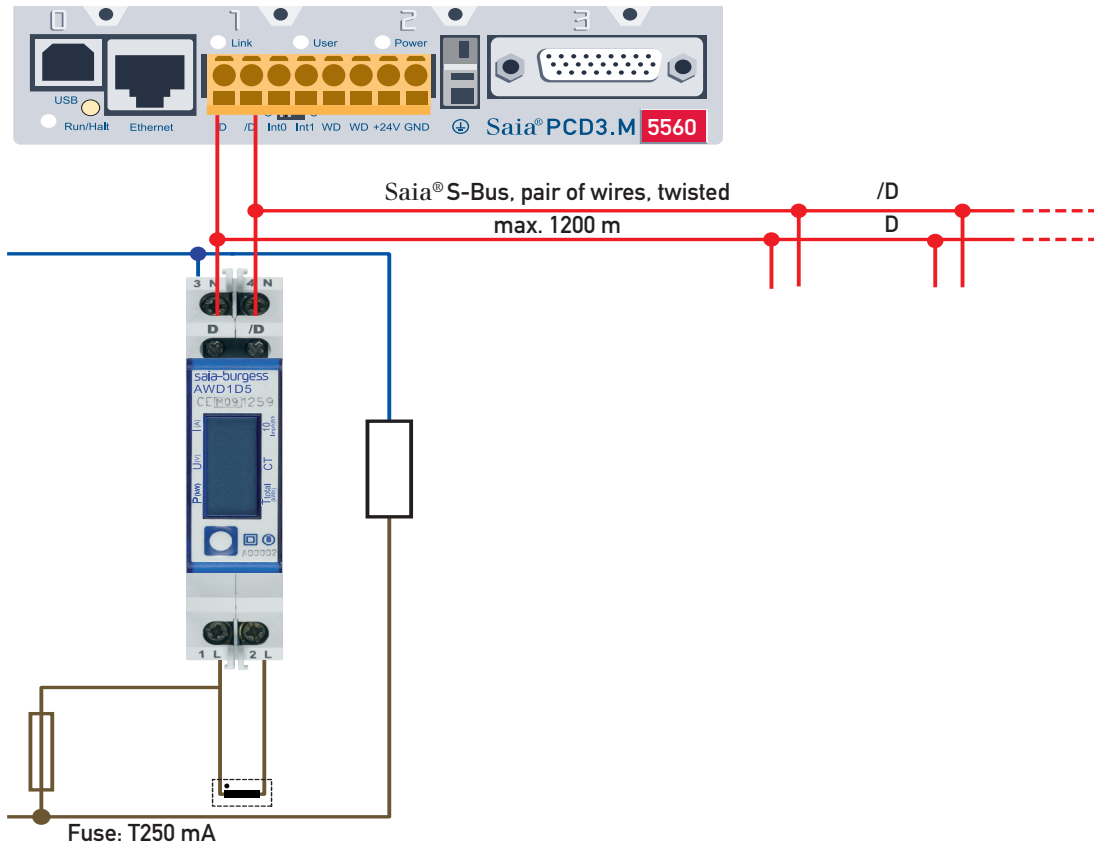


- T total (kWh) Indicates the total consumption
- CT Indicates the setting for the current transformer ratio
- P (kW) Indicates the instantaneous power
- U (V) Indicates the voltage
- I (A) Indicates the current
- 10 pulses/kWh Pulsates according to the amount of used power.

Menu to display the value on LCD



Wirings Diagram



Technical data S-Bus

Bus system	Saia® S-Bus
Transmission rate	2'400-4'800-9'600-19'200-38'400-57'600-115'200. The transmission Baud rate is automatically detected
Transmission mode	Data
Bus length (max.)	1200 m (without repeater)
Response time: (to system response)	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) → «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

Contact

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