DIINNO

DAC 2100 · DAC 4300

Multifunction DIN rail meters – single-phase and three-phase, RS485 / Modbus RTU



The DAC 2100 and DAC 4300 are multifunction DIN rail meters for measuring voltage, current, power, power factor, frequency and energy in four quadrants. The DAC 2100 measures single-phase, the DAC 4300 single-phase and three-phase. Both devices have a backlit LC display with touch keys, an RS485 interface with Modbus RTU and a configurable pulse output. They are intended for energy management, sub-metering and installation monitoring and, being MID-approved (class B), may also be used for billing subject to legal metrology.

Class B
MID, EN 50470-1/-3

0.005–100 A
Direct connection, Ib 5 A

RS485
Modbus RTU, up to 38,400 bps

CAT III
IEC 61010-1

Ordering information

Type	Network type	Nominal voltage	Width	Pulse constant
DAC 2100	1P2W	230 V AC	36 mm (2 modules)	1000 / 100 / 10 / 1 imp/kWh
DAC 4300	1P2W · 3P3W · 3P4W	230 V AC (L-N) / 400 V AC (L-L)	72 mm (4 modules)	400 / 100 / 10 / 1 imp/kWh

Packaging unit: on request.

Features

- Four-quadrant measurement of active, reactive and apparent energy, import and export separately
- RS485 interface with Modbus RTU, up to 64 devices per bus – M-Bus optional
- Multi-tariff metering and average power with adjustable interval
- Direct connection up to 100 A, no current transformer required
- True RMS measurement including harmonics (DAC 4300: THD evaluation)
- Configurable pulse output (optocoupler) for active or reactive energy
- Backlit LC display with touch keys, display refreshed every 1 s
- DIN rail mounting TH35, 2 modules (DAC 2100) or 4 modules (DAC 4300)

Technical data

Measurement

Measuring method	True RMS including harmonics
Network type	DAC 2100: 1P2W · DAC 4300: 1P2W, 3P3W, 3P4W
Voltage, current	Class 0.5 (IEC 61557-12)
Active power	Class 1 / 0.5 (IEC 61557-12)
Reactive power	Class 2 (IEC 61557-12)
Apparent power	Class 1 (IEC 61557-12)
Active energy	MID class B (EN 50470-1/-3)
Reactive energy	Class 2 (IEC 62053-23, IEC 61557-12)
Power factor	Class 1 (IEC 61557-12)
Frequency	Class 0.2 (IEC 61557-12)
Harmonics	Class 2 (IEC 61557-12) – DAC 4300 only
Update rate	1 s, optionally 100 ms

Voltage input

Nominal voltage (Un)	DAC 2100: 230 V AC · DAC 4300: 230 V AC (L-N) / 400 V AC (L-L)
Measuring range	DAC 2100: 85–270 V AC · DAC 4300: 85–270 V AC (L-N), 85–480 V AC (L-L)
Frequency range	45–65 Hz
Overload capacity	2 × Un for 1 s

Current input

Measuring range	0.005–100 A, basic current (Ib) 5 A
Overload capacity	30 × Imax for 0.01 s

Pulse output

Design	Open-collector optocoupler, class A (IEC 62053-31)
Pulse constant	DAC 2100: 1000 / 100 / 10 / 1 · DAC 4300: 400 / 100 / 10 / 1 imp/kWh (kvarh), configurable
Pulse width	60 / 100 / 200 ms configurable, default 100 ms
Pulse type	Import / export / total for active and reactive energy
Input voltage	5–27 V DC
Real-time clock	Accuracy 0.5 s/d

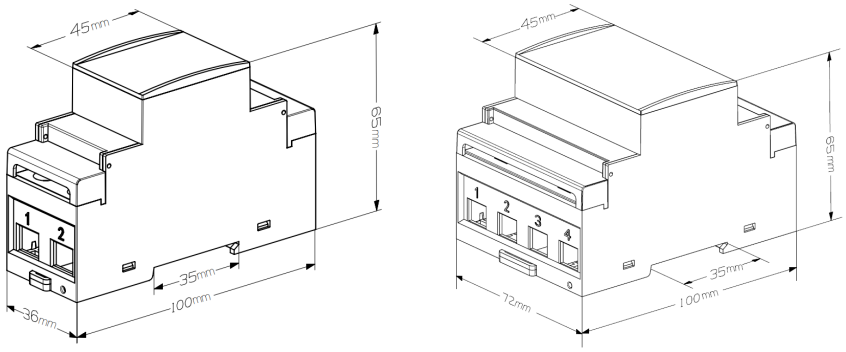
Environmental conditions and mechanics

Temperature range	–25 °C … +55 °C (operation) · –40 °C … +80 °C (storage)
Humidity	< 90 %, non-condensing
Pollution degree	2
Altitude	Up to 2,000 m
Vibration	10–150 Hz (IEC 60068-2-6)
Degree of protection	IP51 front display · IP30 housing (IEC 60529)
Dimensions (W × H × D)	DAC 2100: 36 × 100 × 66 mm · DAC 4300: 72 × 100 × 66 mm
Installation	DIN rail TH35 (EN 60715)
Housing material	UL 94 V-0
Measurement category	CAT III (IEC 61010-1)

Interfaces

RS485	Modbus RTU · optional M-Bus
Baud rate	1200–38,400 bps, default 9,600 bps
Data format	Parity none / even / odd · 1 or 2 stop bits (default: none, 1)
Response time	< 100 ms
Transmission	Half duplex · up to 1,000 m · max. 64 devices per bus
Display	Backlit LC display, refreshed every 1 s
Operation	Touch keys · settings on the device (password) or via Modbus

Dimensional drawing



DAC 2100 DAC 4300

Dimensions in mm. DIN rail mounting TH35; width DAC 2100 = 36 mm, DAC 4300 = 72 mm.

Standards & conformity

EMC Directive	2014/30/EU · tested according to IEC 61326-1 (industrial requirements)
Immunity	ESD level 4 (IEC 61000-4-2) · RF field level 3 (IEC 61000-4-3) · burst level 4 (IEC 61000-4-4) · surge level 4 (IEC 61000-4-5) · conducted RF level 3 (IEC 61000-4-6) · magnetic field (IEC 61000-4-8) · voltage dips (IEC 61000-4-11)
Emission	Class B (EN 55011) radiated and conducted · harmonics IEC 61000-3-2
Low Voltage Directive	2014/35/EU · safety IEC 61010-1, measurement category CAT III
Measuring accuracy	EN 50470-1/-3 · IEC 61557-12 · IEC 62053-23 · IEC 62053-31
Measuring Instruments Directive (MID)	2014/32/EU · class B – approved for billing subject to legal metrology; certificate on request

CE · MID 2014/32/EU · class B · EMC 2014/30/EU · LVD 2014/35/EU · RoHS 2011/65/EU

The EU declaration of conformity is available as a separate document. Placed on the market by: DIINNO GmbH, Brunsbütteler Damm 93, 13581 Berlin, Germany.

Accessories

LMN-USB12V	USB-to-RS485 adapter for parameterisation and reading out on a PC
Modbus register description	DIINNO DAC2100 / DAC4300 Modbus Protocol V1.0 – on request

Disposal

In accordance with Directive 2012/19/EU (WEEE), the devices must not be disposed of with household waste at the end of their service life. They must be collected separately and recycled in an environmentally sound manner.