



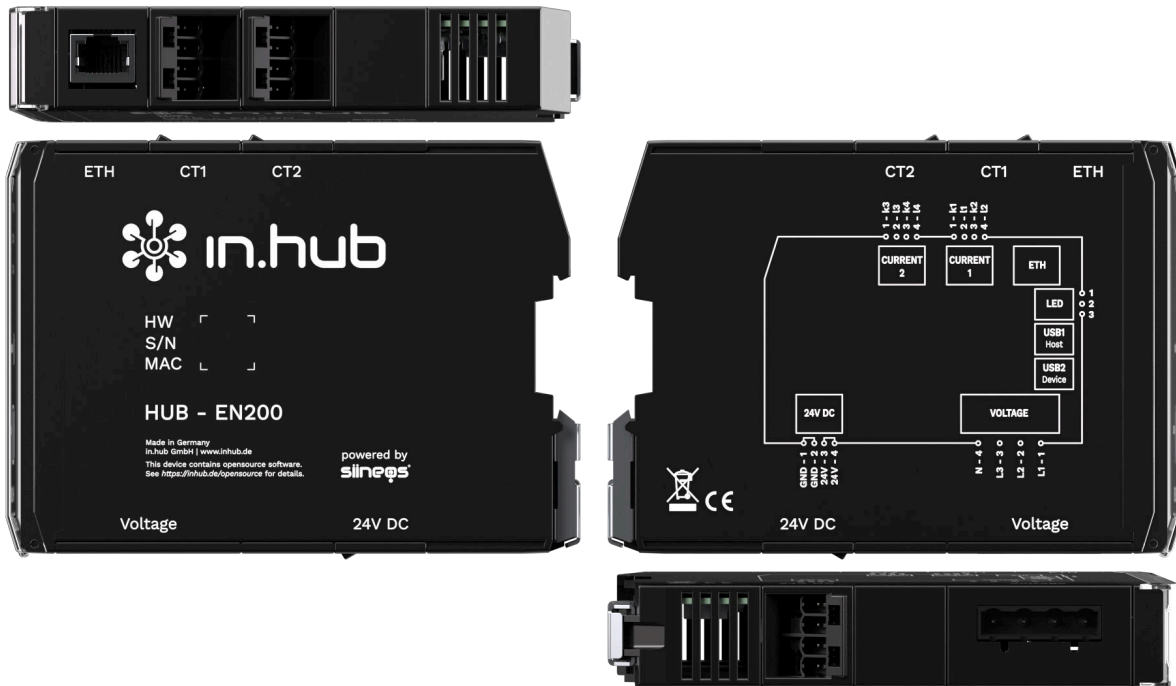
HUB-EN200

Technical data sheet

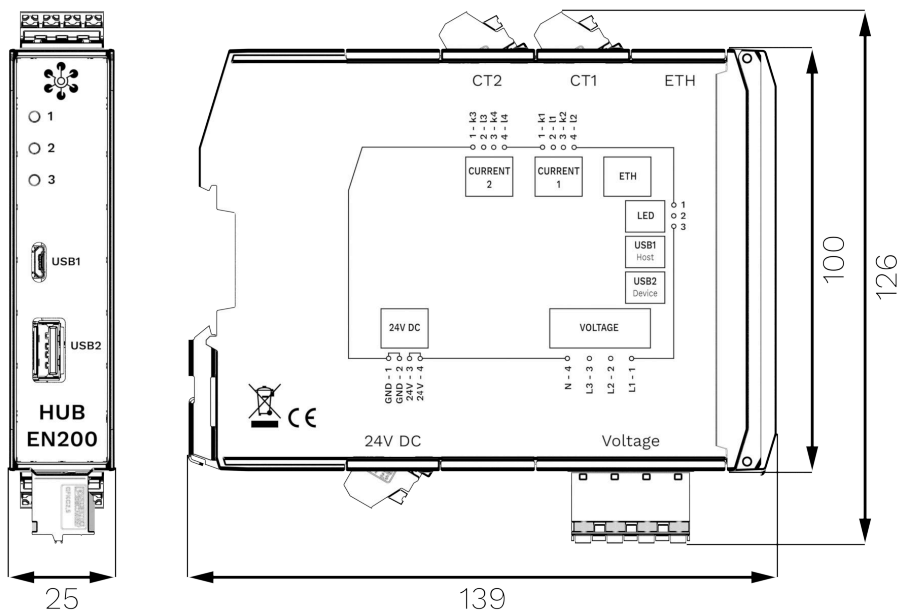
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Views of the HUB-EN200

Device views



Schematic diagram



Dimensions of the HUB-EN200 in mm

Technical data

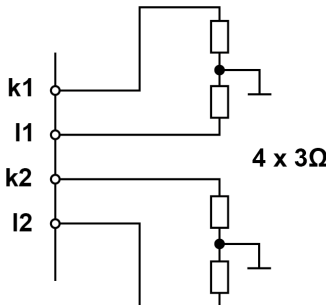
Data	
Power supply	24 V DC $\pm$ 10 %
Max. power consumption	5 W
Processor	NXP® i.MX 6ULL
Memory	1 GB DDR3L RAM, 8 GB eMMC
Data interfaces	USB1: Host (Micro USB) USB2: Device (USB-A) Ethernet: 100 Mbit/s 3× status LEDs Backplane bus
Voltage and current measurement	1~ or 3~, max. 230 V / 400 V, 50 or 60 Hz, max. 4× AC current sensors, sampling rate up to 8 kHz and 16 bit, resolution of current and voltage measurement,
Protocols	OPC UA server + client MQTT broker client + server Modbus TCP/IP broker client + server
Operating system	SIINEOS IIoT operating system for configuration and data visualization
Housing	Plastic (polyamide), black, flammability class UL 94 V0
Protection class	IP20
Dimensions	139 mm × 100 mm × 25 mm
Weight	150 g

Ambient conditions	
Temperature range	Storage: -40°C to 85°C Operation: 0°C to 50°C
Humidity	Storage: 10% to 95% RH, non-condensing Operation: 20% to 90% RH, non-condensing
Operating altitude	Max. 2,000 m above sea level

Storage	
Recording interval	Minimum 1 second
Storage	Up to 7 GB usable
Data export	VictoriaMetrics

SIINEOS	
Pre-installed software	FlexPlorer: Live data visualization Azure IoT Hub Connector: Connector to the Microsoft® IoT platform Cloud of Things Connector: Connector to the Telekom® IoT platform InGraf: Grafana data visualization NumCorder: Recording of scanned or entered barcodes / serial numbers OPC UA server: Counterpart to the OPC UA client, setting up of a server–client structure with one device NodeRED: Graphical programming of interfaces, services or hardware PromEx: Database configuration of VictoriaMetrics and Prometheus TOSIBOX®: Secure connectivity between the IoT devices SIGNL4: Forwarding of alarms to the SIGNL4 cloud
I/O interfaces to third-party systems/devices	S7 PLC client: Connector for the Siemens® S7 controller Sensirion SPS30: Temperature and humidity sensor TBEN-S1-8DIP: TBEN module from TURCK® TBEN-S2-4AI: TBEN module from TURCK®

Specification of the CT1 and CT2 interfaces

Current measurement (CT1 and CT2)	
Internal measuring resistance	6 Ohm
Maximum current of inputs CT1 and CT2	117 mA eff.
Sampling frequency	8 kHz
Bandwidth	1 ... 2000 Hz
Resolution	16 bit
Circuit diagram	 CT1 and CT2 are identical except for the pin designation. The CT1 interface can be seen here as an example.

Voltage interface specification

Voltage measurement (voltage)	
Permitted connections	Single-phase (L) or 3-phase (L1, L2, L3) with neutral conductor (N)
Max. voltage when connected to a single-phase low-voltage network	230 V
Max. voltage when connected to a 3-phase low-voltage network	400 V (phase–phase), 50 or 60 Hz
3-phase, 4-wire system with nominal voltage (L–N/L–L)	max. 253 V / max. 440 V
Overvoltage category	300 V CAT III
Sampling frequency	8 kHz
Bandwidth	1 ... 2000 Hz
Resolution	16 bit

USB interface specifications

USB connections	
Max. power consumption for USB1 (Micro-USB on the front of the device)	2.5 W (500 mA) May vary depending on the device connected. On a 24 V power supply, the power consumption is 0.
Max. power output for USB2 on the front of the device	2.5 W (500 mA) with 24 V supply
Support for	Full, high and low speed (480, 12 and 1.5 Mbit/s)

Backplane bus specification

Backplane bus	
Voltage on the backplane bus	Voltage of the power supply unit minus 0.5 V Switchable in the signals of the master gateway
Communication	Modbus RTU
Max. number of additional modules on one master gateway	3

Measurements and associated Modbus registers

Note: All INT values have values in the range from –32,767 to +32,767. If this is not sufficient, use the processed FLOAT value.

Measurements	Modbus register: Raw value [unit]	Modbus register: Processed value [unit]
Active energy L1	61 (INT16) [Wh]	610+611 (FLOAT) [kWh]
Active energy L2	62 (INT16) [Wh]	620+621 (FLOAT) [kWh]
Active energy L3	63 (INT16) [Wh]	630+631 (FLOAT) [kWh]
Active power L1	31 (INT16) [W]	310+311 (FLOAT) [W]
Active power L2	32 (INT16) [W]	320+321 (FLOAT) [W]
Active power L3	33 (INT16) [W]	330+331 (FLOAT) [W]
Apparent energy L1	81 (INT16) [Ah]	810+811 (FLOAT) [kVAh]
Apparent energy L2	82 (INT16) [Ah]	820+821 (FLOAT) [kVAh]
Apparent energy L3	83 (INT16) [Ah]	830+831 (FLOAT) [kVAh]
Apparent power L1	51 (INT16) [VA]	510+511 (FLOAT) [VA]
Apparent power L2	52 (INT16) [VA]	520+521 (FLOAT) [VA]
Apparent power L3	53 (INT16) [VA]	530+531 (FLOAT) [VA]
Current L1	11 (INT16) [A]	110+111 (FLOAT) [A]
Current L2	12 (INT16) [A]	120+121 (FLOAT) [A]
Current L3	13 (INT16) [A]	130+131 (FLOAT) [A]
Current N	14 (INT16) [A]	140+141 (FLOAT) [A]
Rotating field error	200 (INT16)	2000 + 2001 (FLOAT)
Power factor L1	91 (INT16)	910 + 911 (FLOAT)
Power factor L2	92 (INT16)	920 + 921 (FLOAT)
Power factor L3	93 (INT16)	930 + 931 (FLOAT)
Reactive energy L1	71 (INT16) [kvarh]	710+711 (FLOAT) [kvarh]
Reactive energy L2	72 (INT16) [kvarh]	720+721 (FLOAT) [kvarh]
Reactive energy L3	73 (INT16) [kvarh]	730+731 (FLOAT) [kvarh]
Reactive power L1	41 (INT16) [var]	410+411 (FLOAT) [var]
Reactive power L2	42 (INT16) [var]	420+421 (FLOAT) [var]
Reactive power L3	43 (INT16) [var]	430+431 (FLOAT) [var]
Total active energy	60 (INT16) [kWh]	600+601 (FLOAT) [kWh]
Total active power	30 (INT16) [W]	300+301 (FLOAT) [W]
Total apparent energy	80 (INT16) [kVAh]	800+801 (FLOAT) [kVAh]
Total apparent power	50 (INT16) [VA]	500+501 (FLOAT) [VA]
Total reactive energy	70 (INT16) [kvarh]	700+701 (FLOAT) [kvarh]
Total reactive power	40 (INT16) [var]	400+401 (FLOAT) [var]
Voltage L1	21 (INT16) [V]	210+211 (FLOAT) [V]
Voltage L2	22 (INT16) [V]	220+221 (FLOAT) [V]

Measurements	Modbus register: Raw value [unit]	Modbus register: Processed value [unit]
Voltage L3	23 (INT16) [V]	230+231 (FLOAT) [V]

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