

Energy Monitoring and Controlling EMC

## MeterProxy Small Building CSB30.001

**Energy Monitoring & Controlling EMC is an easy-to-operate energy management solution allowing for effective monitoring and control of energy consumption. In buildings without BAC system, meters can be switched directly to the MeterProxy Small Building as well as processed and analyzed in EMC, and summarized in meaningful energy reports.**

### Features

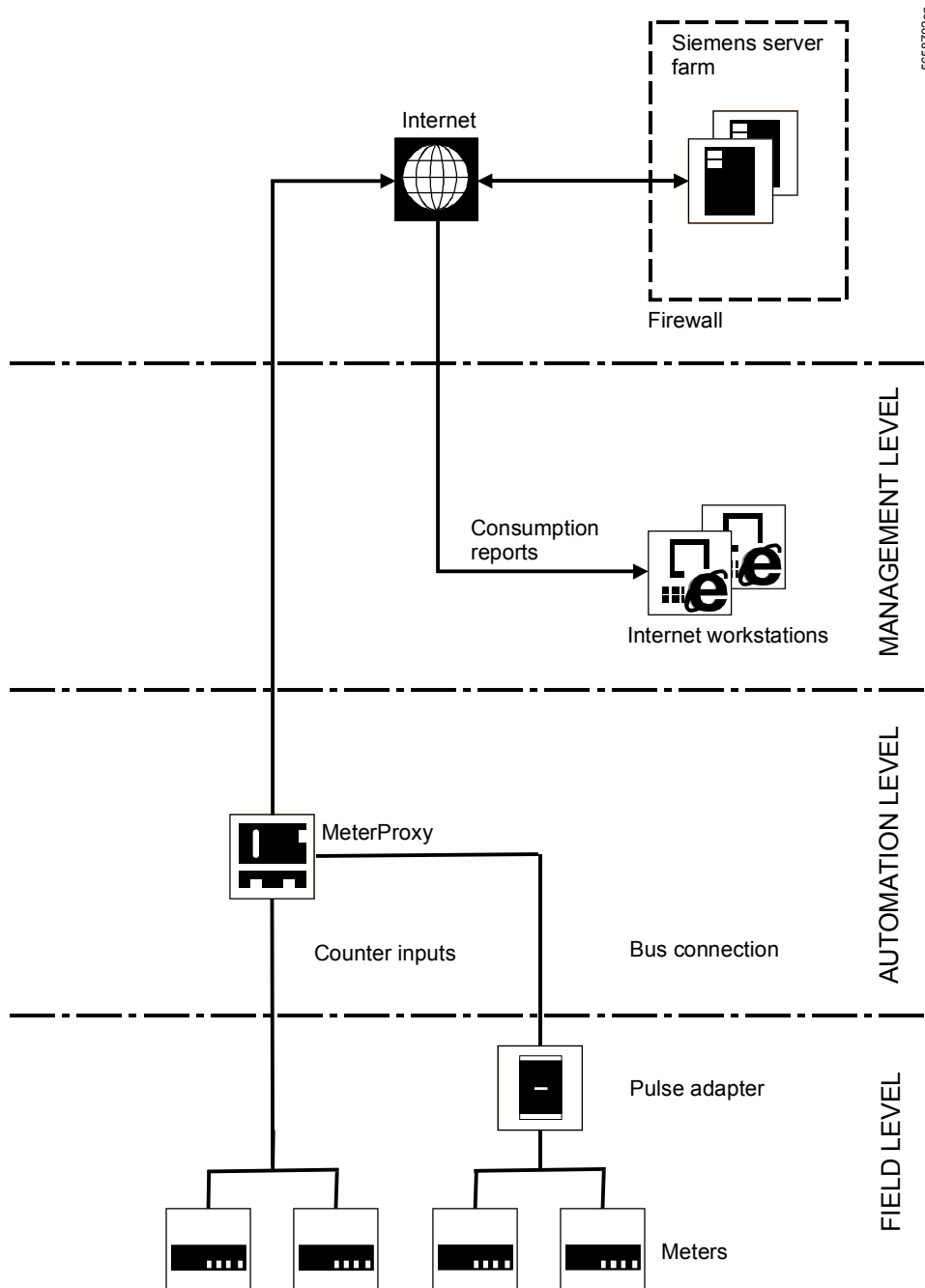
- Automated transfer of meter values from directly connected metering devices with S0, NAMUR or pulse contacts.
- Support for commonly available M-bus pulse adapters for connection of remote metering equipment (option).
- Battery back-up with full metering functions in the event of a power failure.
- Reliable acquisition of meter pulses with up to 25 pulses per second at each input.
- Flexible Internet connection via modem or network (TCP/IP).
- Easy to mount and commission.

Only continuous recording and evaluation of energy consumption opens the door to recognizing saving potential and assessing the success of optimization measures. Daily consumption figures are an absolute must form characterizing a building and assessing optimization measures.

MeterProxy Small Building is the necessary link between the EMC energy management solution and buildings without own BACS/meter value acquisition system for automatically transmitting meter and consumption data. Meters can be connected either directly to the MeterProxy or via a pulse adapter in the bus network.

Functions

Topology



Connection to the Internet occurs through Internet provider dial-up (e.g. T-Online, Bluewin, etc...) using a modem or via existing network connections at the customer.

Workflow	<p>If the meter being set up in EMC is defined as an automated meter, this enables MeterProxy to transmit the acquired values.</p> <p>Data transmission is time-controlled. At the time of transmission, all present values of setup meters are recorded and simultaneously booked in the EMC.</p>
Access protection	<p>Multistage password protection prevents unwanted changes to parameters or system settings in the MeterProxy.</p>

## Type summary

---

Ordering	<p>MeterProxy Small Building    ASN CSB30.001</p> <p>An internal M-bus expansion card is available as an option under ASN ACX51.26 (see "Supported metering equipment").</p> <p>The following device variants are available to connect to other systems:</p> <table><tr><td>DESIGO INSIGHT</td><td>ASN CSD30.001.</td></tr><tr><td>VISONIK</td><td>ASN CSV30.001.</td></tr><tr><td>UNIGYR</td><td>ASN CSU30.001.</td></tr><tr><td>M-bus (OZW10)</td><td>ASN CSM30.001.</td></tr></table> <p>Other device variants will follow.</p>	DESIGO INSIGHT	ASN CSD30.001.	VISONIK	ASN CSV30.001.	UNIGYR	ASN CSU30.001.	M-bus (OZW10)	ASN CSM30.001.
DESIGO INSIGHT	ASN CSD30.001.								
VISONIK	ASN CSV30.001.								
UNIGYR	ASN CSU30.001.								
M-bus (OZW10)	ASN CSM30.001.								

## Version

---

	<p>The MeterProxy consists of a double layered metal housing conforming to IP20. The status LEDs are visible on the front.</p> <p>A plug terminal is used to connect the housing to AC 24 V supply voltage. The serial interfaces are accessible via standard 9-pin DSUB plugs. The Ethernet interface consists of an off-the-shelf RJ45 connector with two integrated LEDs.</p>
Disposal	<p>The device contains electrical and electronic components and may not be disposed of in standard household garbage. Boards and housing must be sent separately to the appropriate waste disposal collection center.</p>
Note	<p><b>Observe all local and applicable laws.</b></p>

## Notes

---

Mounting notes	<p>Simply mount the device by snapping it in place on DIN rails. The housing is grounded via a 6.3 mm mounting block <math>\geq 4 \text{ mm}^2</math> (CU wire) at the central ground.</p> <p>Before commissioning, the battery backup must be enabled by setting the DIL switch on the rear of the device.</p>
----------------	---

Parameterization	<p>A web browser (Microsoft Internet Explorer) is used to parameterize the MeterProxy. Parameterized data is protected against power outages (provided the backup battery is enabled).</p> <p>The MeterProxy Small Building firmware can be updated on site. This allows for a simple process to resolve errors and increase functionality.</p>
Supported metering equipment	<p>MeterProxy Small Building has 5 counter inputs and offers M-bus expansion options allowing for connection of additional pulse adapters.</p> <p>The counter inputs are used for acquisition of meter readings. The value-per-pulse and the offset for each counter input can be set as parameters. The following options are supported:</p> <ul style="list-style-type: none"> <li>• Pulse transmitter with NAMUR interface (DIN 19234).</li> <li>• S0 interface (DIN43864 / IEC62053-31).</li> <li>• Reed contacts / semiconductor switches.</li> </ul> <p>Pulse transmitters with NAMUR interfaces are monitored for short circuit and open circuit. Other types of transmitter (S0, reed contact etc.) do not support this function.</p> <p>In normal operation, provided that the MeterProxy is connected to the power supply, all the transmitter types referred to above can be connected and operated in accordance with the standard.</p> <p>In battery-backed mode, when there is no supply voltage available to the MeterProxy, the metering equipment receives its power from the backup battery. This mode of operation ensures that the acquisition of pulses from the connected meters is maintained if the power supply to the MeterProxy fails. To ensure that maximum possible battery backup period, the transmitter voltage is reduced to 3 V and is only connected while sampling is in progress. For this reason, the following measures are required to improve immunity to interference:</p> <ul style="list-style-type: none"> <li>• Use screened, twisted pair cable.</li> <li>• Connect one end of the screen to the MeterProxy device (a shield bus must be provided on site).</li> <li>• The maximum cable length for the pulse transmitters is 10 m.</li> <li>• The pulse transmitter must be volt-free.</li> </ul> <p>Remotely installed meters can be connected via a pulse adapter by use of the M-bus. For this function, the MeterProxy Small Building can be extended with an M-bus expansion card (ACX51.26) or an external M-bus level converter. At present, only certain pulse adapters may be connected to the M-bus:</p> <ul style="list-style-type: none"> <li>• Siemens Ultraheat AEW21.2.</li> <li>• Relay PadPulse M1, M2, M4.</li> <li>• Relay AnDi 4 (to add analog measured variables).</li> </ul> <p>Meters with their own M-bus interface are not supported.</p> <p>The pulse adapters receive their power via the M-bus. The M-bus card can supply devices with an overall bus load equivalent to a total of six bus loads. For example, a relay PadPulse M4 requires 2 bus loads. Thus, max. 3 of this type can be connected. Information about the load on the bus and the connection of meters to the pulse adapter can be found in the relevant data sheets or manuals.</p>

At the internal M-bus expansion card, up to 12 counter devices can be connected via pulse adapters. Up to 40 counter devices can be addressed with an external M-bus level converter. The following external M-bus level converters are supported at present:

- Siemens WZC-P60 / Relay PW60  
(the max. number of counter devices is 40.)
- Relay PW20.

#### Network connection

The MeterProxy is based on a Windows CE communications platform that can be easily integrated into existing computer networks.

The following framework requirements must be fulfilled when the MeterProxy is to be connected to the Internet via a network:

- Automatic assignment of network addresses (DHCP) is preconfigured as the standard.
- When automatic assignment is not possible within the network, the network address and the addresses for the naming resolution (DNS or WINS) as gateways as required must also be entered.

The network administrator must determine the type of addressing (e.g. IT department at the customer, system technician SBT).

Answer the following questions:

- Does the network have automated addressing (DHCP)?
- If not, which network address (TCP/IP) is available for the MeterProxy and what are the associated gateway, subnet and WINS/DNS server addresses?

#### Internet access

To book data in EMC, the MeterProxy requires Internet access. This can be set up as follows, depending on the circumstances:

- Network (TCP/IP) connected to the Internet, e.g. customer's company network.
- Dialup modem\* for analog telephone connections.
- ISDN terminal adapter\* for digital telephone addresses.
- GSM modem\* for cases where phone/network connections are unavailable.

\* These devices are not delivered with the MeterProxy.

#### Security

The MeterProxy is an integration unit based on Microsoft Windows CE.

Communications occur exclusively over the following network ports:

- Port 80           http           Regular data transmission to EMC.
- Port 21           ftp             Only local, no Internet communication.
- Port 443          https          Regular data transmission to EMC.
- Port 445          smb            Only local, no Internet communication.

Web services takes care of regular data transmission. This type of communication is possible for most networks without additional modifications to firewalls, etc.

To support the MeterProxy Small Building, a dial-in function (RAS) is available. This function can be released or locked via DIL switch.

## Technical data

General device data	Operating voltage	AC 24 V +/-10 %
	Frequency	47..63 Hz
	Power consumption	max. 0.4 A
	Power consumption	max. 7VA
	Internal fuse	Fusible links
	Buffer battery	3 V Lithium battery (CR2477N, exchangeable)
	Buffer time	3 years 30 days in buffer mode. In "buffer mode", pulses from the directly connected meters continue to be acquired and stored in the event of a power failure.
Functional data	Main processor	Intel XScale PXA255 200 MHz
	Data storage (SDRAM)	64 MB
	Flash memory	32 MB
	Buffer memory (SRAM)	2 MB (for buffer mode)
	Operating system	Windows CE core 5.0
LED displays	Hardware, host, data source, local input	Device status (green/orange/red)
	X11 busy	Reserved for future functions
Modem interface (COM1, X6)	Data bits	8
	Parity	None
	Stop bits	1
	Baud rate	Auto sensing
Network interface (X10)	Network	Ethernet 10/100 Mbps, RJ45
	Status display	LED with link display and connection activity
Meter interface (X5)	Transmitter types	NAMUR/S0/reed/semiconductor Channel by channel parameter settings
	Line length	Max. 10m with buffer mode Max. 20m without buffer mode
	Meter frequency	Max. 25 Hz per channel $T_{on} \geq 20ms$ $T_{off} \geq 20ms$
Additional interfaces	X2 (relay)	Reserved for future functions
	X3 (relay)	Reserved for future functions
	X4 (analog in)	2x LG-Ni 1000 2x 0-10 V (linear curve)
	X7 (COM2)	Connection for external M-bus level converter
	X8 (COM3)	Reserved for future functions
	X9 (COM4)	Reserved for future functions
	X11 (CompactFlash)	Reserved for future functions
	X20 (USB)	Reserved for future functions

Communications slot (internal)	Function	Accommodates the communications module (e.g. ACX51.26 for M-bus)
Mounting variants	DIN tophat rail assembly	
Housing type	Protection as per EN 60529	IP20
Environmental conditions	Operating climatic environment	Class 3K5 as per IEC 721
	Temperature	0 ... 50 °C
	Humidity	< 85 % r.h.
	Transportation: Climatic environment	Class as per IEC 721
Standards	Temperature	-25 ... 65 °C
	Humidity	< 95 % r.h.
	Product safety	Pursuant to EN60950 (safety of information technology equipment)
	Electromagnetic compatibility	
	Immunity	EN6000-6-2 (industrial)
	Emissions	EN50081-1 (residential)
CE conformity	Electromagnetic compatibility	89/336/EEC
	Low-voltage directive	73/23/EEC
	Dimensions	Refer to dimensions.

## Interfaces

Modem interface (COM1, X6)

Pin	Signal name
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

M-bus interface (COM2, X7)

Pin	Signal name
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	-

Voltage supply (X1)

Pin	Signal name
1	L (G)
2	N (G0)

Analog in  
(X4)

Pin	Signal name
1	LG-Ni1000 sensor 1
2	LG-Ni1000 sensor 2
3	0 - 10V sensor 3
4	0 - 10V sensor 4
5	GND

Meter interface (X5)

Pin	Signal name
1	Meter input 1
2	GND
3	Meter input 2
4	GND
5	Meter input 3
6	GND
7	Meter input 4
8	GND
9	Meter input 5
10	GND

### DIL switch

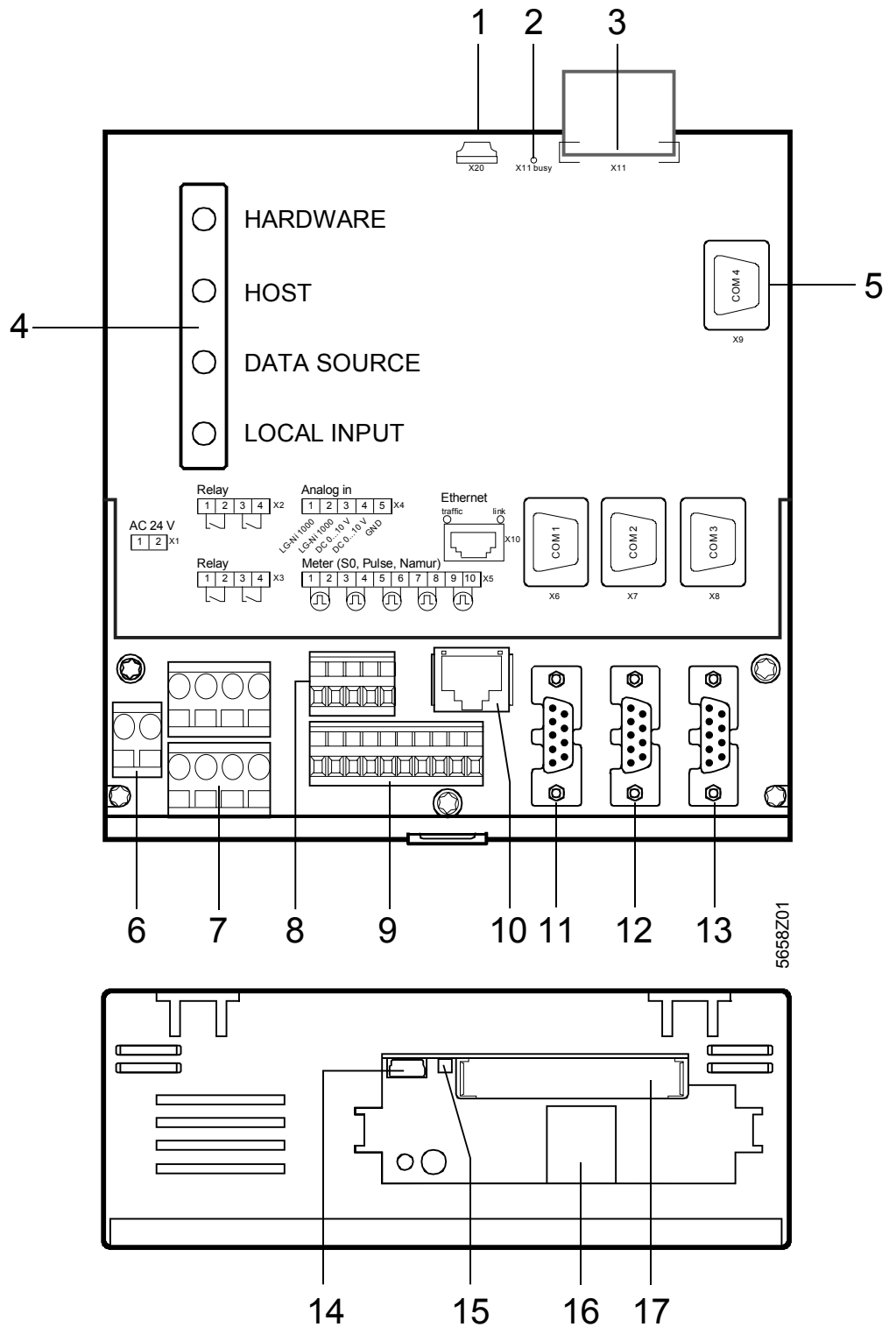
---

DIL switch  
(rear)

Pin	Signal name
1	Enable backup battery (factory setting = off, to protect battery)
2	Enable dial-in (factory setting = off, no dial-in)
3	Reserved for future functions

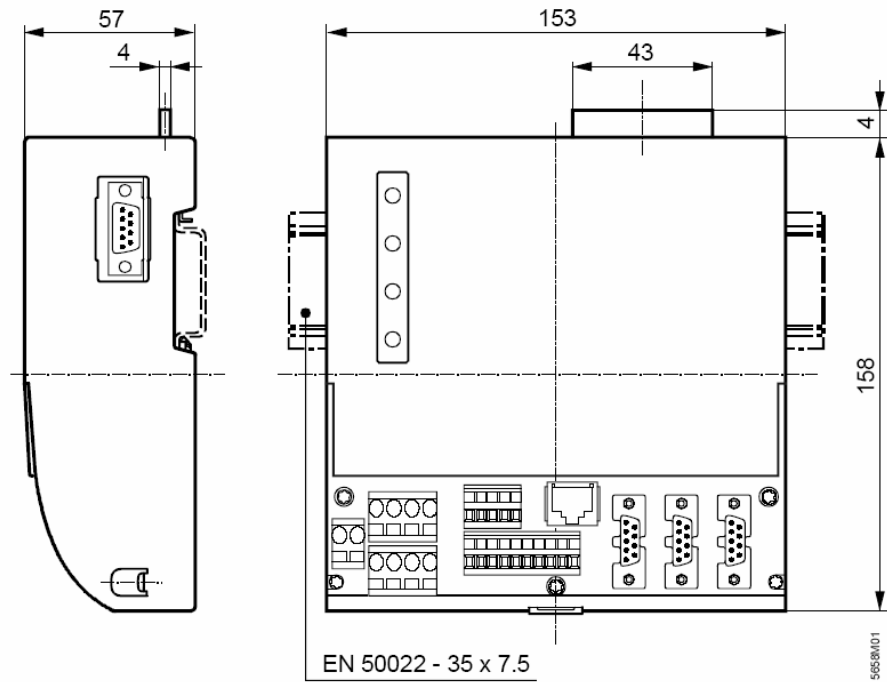


# Connection terminals



- |   |                    |    |   |
|---|--------------------|----|---|
| 1 | Not used.          | 10 | Ethernet (RJ45).                          |
| 2 | Not used.          | 11 | Modem.                                    |
| 3 | Not used.          | 12 | External M-bus level converter.           |
| 4 | Status LED.        | 13 | Not used.                                 |
| 5 | Not used.          | 14 | Not used.                                 |
| 6 | Voltage supply X1. | 15 | Not used.                                 |
| 7 | Not used.          | 16 | Expansion slot (e.g. ACX51.26 for M-bus). |
| 8 | Analog in.         | 17 | Not used.                                 |
| 9 | Meter inputs X5.   |    |   |

## Dimensions



Note

70 mm free space must be available for connection plugs.