

BMS-Ethernet-Gateway COM460IP



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COM460IP

Device features

- Modular, expandable gateway between BMS bus and TCP/IP
- Gateway between BMS bus and Ethernet
- Range of functions customisable through options
- Remote access via LAN, WAN or Internet

Approvals



Product description

COM460IP is a BMS-Ethernet-Gateway that is used to convert data from the Bender-BMS bus into TCP/IP protocols. The integrated web server can be used for simple and fast presentation of data from BMS systems on any PC via a web browser with Silverlight™ Plugin. Additional software need not to be installed. Depending on the stage of expansion, the following functions are supported:

Basic device

Presentation of BMS data via a standard web browser with Silverlight plug-in Indication of current measured values, operational and alarm messages Time synchronisation for all BMS bus devices

- Integrated Ethernet switch: 2 x RJ45, 10/100 Mbit/s LCD for simple address setting
- Operation optionally via the internal or external BMS bus
- Modbus/TCP data access to BMS addresses 1...10 of the first internal BMS bus
- Password-protected device menu

Optional package A – Individual messages

- Assignment of individual texts for devices and measuring points (channels)
- E-mail notifications to various use groups in the event of alarms and system faults
- Monitoring for device failure
- Report function saves measured values and settings. Saved settings can be compared with the current settings made on the COM460IP.

Optional package B – Modbus/TCP expansion

- COM460IP can be operated in the internal **or** external BMS bus.
- More BMS addresses can be displayed via the Modbus/TCP server when used in the external BMS bus, up to 98 *150 BMS devices can be monitored (98 BMS devices external, 150 BMS devices internal)
- Up to 150 BMS devices can be operated on the internal bus
- From an external application (e.g. visualisation software) commands can be sent to BMS devices. The menu item “Modbus control commands” provides Modbus control commands for selected BMS commands. These commands can be copied to the clipboard of the PC and then included in the programming for the external application.

Optional package C – Parameter setting

- Fast, simple parameter setting of BMS devices using the web browser
- BMS devices, other than COM460IP, can only be parameterised when the gateway is operated on the internal BMS bus
- Report function saves measured values and settings when the gateway is operated on the internal BMS bus. Saved settings can be compared with the current settings made on the COM460IP. The saved settings can be reloaded into the COM460IP.

Optional package D – Visualisation

- Fast and simple visualisation without any programming. For example, measured values or alarms can be arranged on a floor plan and visualised.
- Displaying an overview the contents of which takes up more than one page. Jump to another view page and back to the overview page.

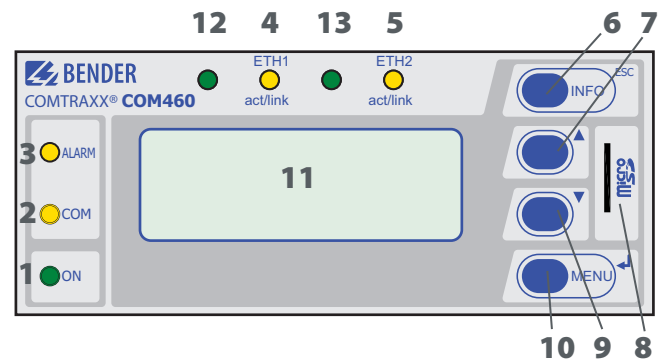
Application

- Commissioning and diagnostics of BMS bus systems
- Optimum presentation and visualisation of device and system statuses supported by silverlight functions in the web browser
- Specific system overview according to individual system description
- Selective notification to various user groups in the event of alarms
- The use of professional visualisation programs permits conversion of BMS data to Modbus/TCP protocols
- Observing and analysing communication-capable Bender products, such as RCMS, EDS and MEDICS® systems
- Simple and fast parameter settings of BMS systems, storage and documentation of settings

Function

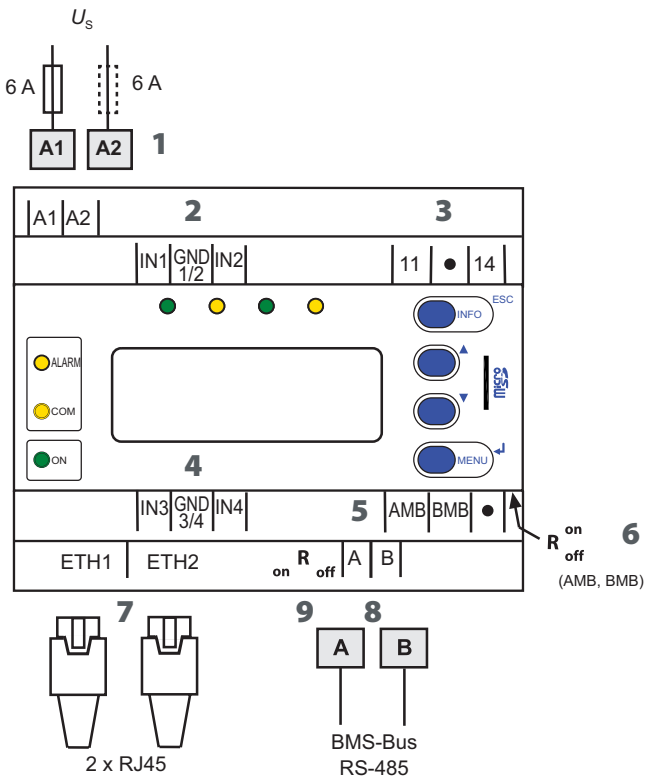
The BMS-Ethernet Gateway COM460IP can be integrated into an existing computer system architecture like a personal computer. After connecting the Ethernet Gateway to the mains and to a BMS system, all devices in the BMS system can be accessed from any personal computer using a standard web browser (e.g. Internet Explorer, Firefox). In this way, all important measuring data of the system are directly available.

Operating elements



- 1 - LED "ON" lights when the supply voltage is switched on
- 2 - LED "COM" lights when the gateway is responding to BMS requests
- 3 - LED "ALARM" lights when an internal device error occurs
- 4 - LED "ETH1 act/link" flashes when data is being transferred
- 5 - LED "ETH2 act/link" flashes when data is being transferred
- 6 - "INFO" button to query the COM460IP for device-specific information "ESC" button to leave the menu function without changing the parameters
ESC Exits the menu function without changing parameters
- 7 - "▲" button: to move up in the menu, to increase the parameter value
- 8 - Micro-SD card
- 9 - "▼" button: to move down in the menu, to decrease values
- 10 - "MENU" button for starting and exiting the menu
"←" button to confirm parameter change
- 11 - LC display for standard and menu mode
- 12 - No function (reserve)
- 13 - No function (reserve)

Wiring diagram



- 1 - Connection to the supply voltage, 6 A fuse recommended, IT systems require two fuses.
For UL and CSA applications, it is mandatory to use 5 A fuses
- 2 - Currently has no function (digital inputs)
- 3 - Currently has no function (alarm relay K1)
- 4 - Currently has no function (digital inputs)
- 5 - Currently has no function
- 6 - Currently has no function
- 7 - Two connections for connection to a personal computer or connection to the local network (hub, switch, router); Connection with a CAT5 cable; internal Layer-2-Switch with cable autodetect
- 8 - Connection BMS bus (internal or external) with shielded cable (e.g. J-Y(St)Y 2x0.8)
- 9 - Switch for BMS bus termination.
When the device is installed at the end of the bus, set the terminating switch to "on"

Ordering information						
Basic device	Optional package (software license)	Supply voltage/ frequency range U_s	Power consumption			Art. No.
COM460IP BMS-Ethernet-Gateway	–	AC / DC 76...276 V* / AC 42...460 Hz / DC	5...40 VA / 3.8 W	Approvals available		B 9506 1010
COM460IP-24V BMS-Ethernet-Gateway	–	DC 16...94 V AC 50...60 Hz, 16...72 V	≤ 4 VA	Submitted for approval		B 9506 1020
	*Optional package A: Individual texts for devices/channels, e-mail in the event of an alarm					B 7506 1011
	Optional package B: Modbus/TCP server with max. 14700 BMS nodes					B 7506 1012
	Optional package C: Parameter setting for BMS devices					B 7506 1013
	Optional package D: Visualisation of BMS devices					B 7506 1014

* Absolute values

Technical data

Insulation coordination acc. to IEC 60664-1

Rated insulation voltage	AC 250 V
Rated impulse withstand voltage/pollution degree	4 kV/3

Supply voltage

Supply voltage U_s	see ordering information
Frequency range U_s	see ordering information
Power consumption	see ordering information

Displays, memory

Display	four lines, backlit, for operating data and device menu
LEDs:	
2 x Ethernet ETH1, ETH2 act/link	lights when connected to the network, flashes during data transmission
ALARM	internal device error
COM	data traffic BMS bus
ON	operation indicator
Memory card for special device functions (micro SD card)	2 GB
E-mail configurations (option A only) and device failure monitoring	max. 250 entries
Individual texts (option A only)	max. 1200 texts with 100 characters each

Interfaces

BMS bus (internal / external):	
Interface / protocol	RS-485 / BMS internal or BMS external (BMS internal)*
Operating mode	master / slave (slave)*
Baudrate BMS (internal / external)	9.6 kbit/s / 57.6 kbit/s
Cable length	≤ 1200 m
Cable, twisted pairs, shielded, shield connected to PE	J-Y(St)Y 2x0.8
Connection, BMS internal / external	terminals A, B
Terminating resistor	120 Ω (0.25 W)
Device address, BMS bus external/internal	1...99 (2)*
Ethernet:	
Connection	2 x RJ45
Data rate	10 / 100 Mbit / s, autodetect
DHCP	on/off (on)*
toff (DHCP)	5...60 s (30 s)*
IP address	nnn.nnn.nnn.nnn (192.168.0.254)*
Netmask	nnn.nnn.nnn.nnn (255.255.0.0)*
Protocols (depending on the option selected)	TCP / IP, Modbus/TCP, DHCP, SMTP, NTP

Environment / EMC

EMC	EN 61326-1
Classification of climatic conditions acc. to IEC 60721:	
Stationary use	3K5
Transport	2K3
Long-term storage	1K4
Operating temperature	-10...+55 °C
Classification of mechanical conditions acc. to IEC 60721:	
Stationary use	3M4
Transport	2M2
Long-term storage	1M3

Connection

Connection	screw-type terminals
Connection properties	
rigid/flexible	0.2...4 / 0.2...2.5 mm ² (AWG 24...12)
Multi-conductor connection (2 conductors with the same cross section)	
rigid/flexible	0.2...1.5 / 0.2...1.5 mm ²
Stripping length	8...9 mm
Tightening torque	0.5...0.6 Nm

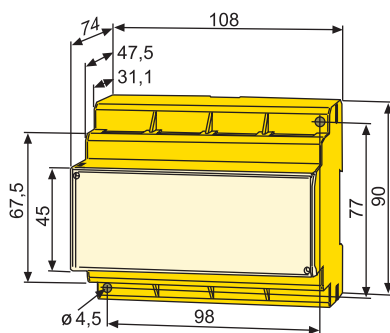
General data

Operating mode	continuous operation
Mounting	display oriented
Degree of protection, internal components (IEC 60529)	IP30
Degree of protection, terminals (IEC 60529)	IP20
Type of enclosure	X460
Screw mounting	2 x M4
DIN rail mounting acc. to	IEC 60715
Flammability class	UL94V-0
Software version	D271 V2.5x D278 V2.5x
Weight	≤ 310 g

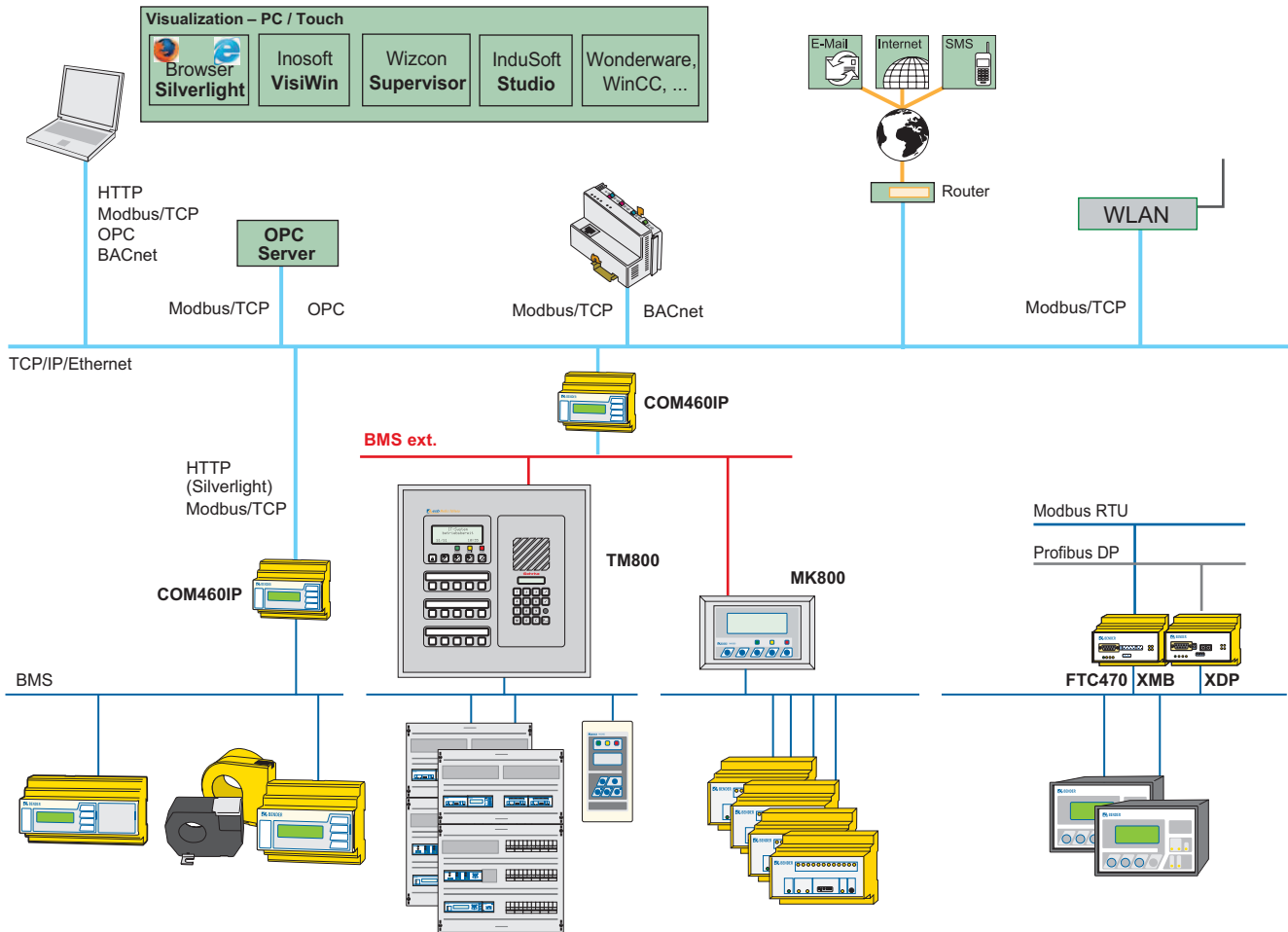
()* = factory setting

Dimension diagram XM460

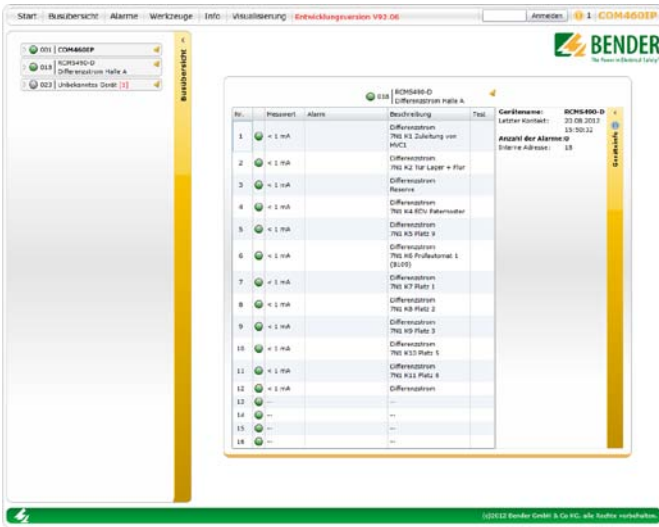
Dimensions in mm



Application example – BMS system integration



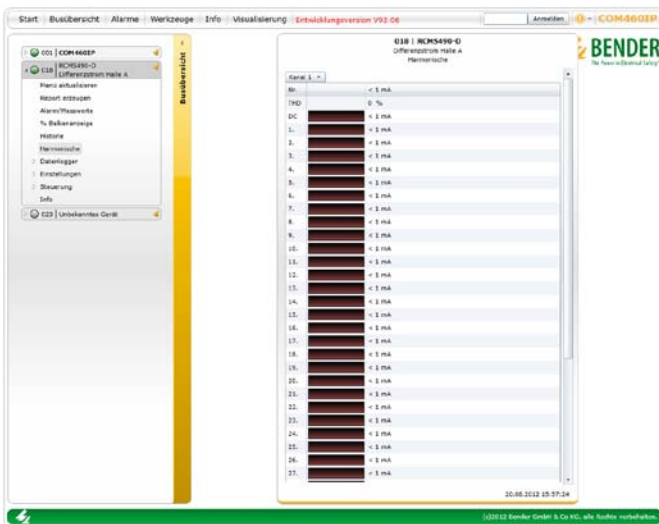
Bus overview



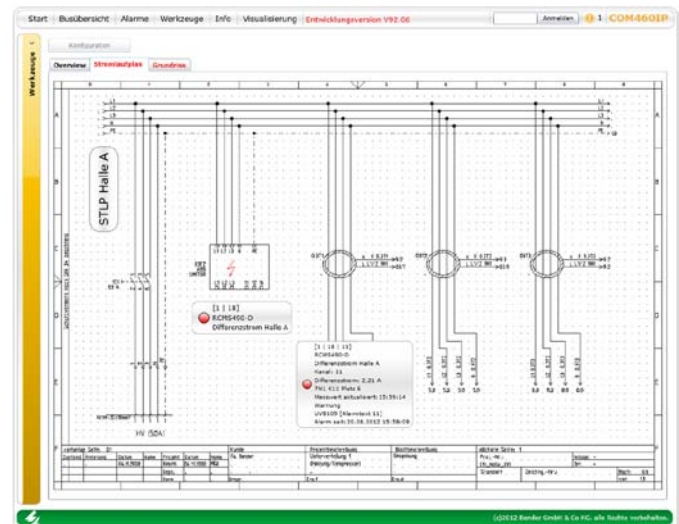
Presentation of the bus overview on mobile phones



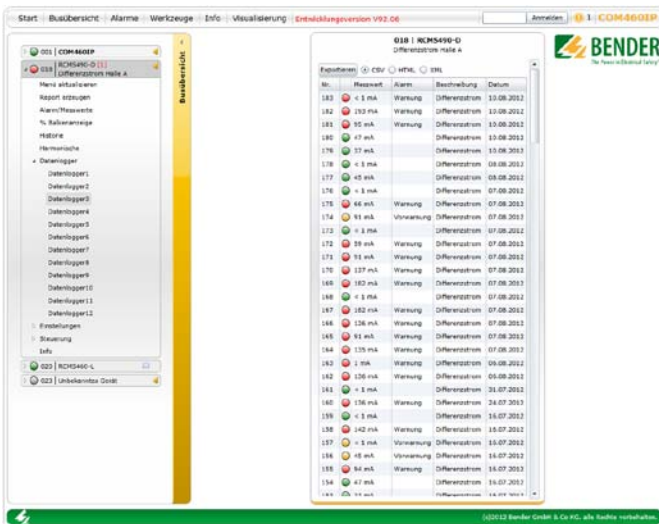
Harmonics (RCMS)



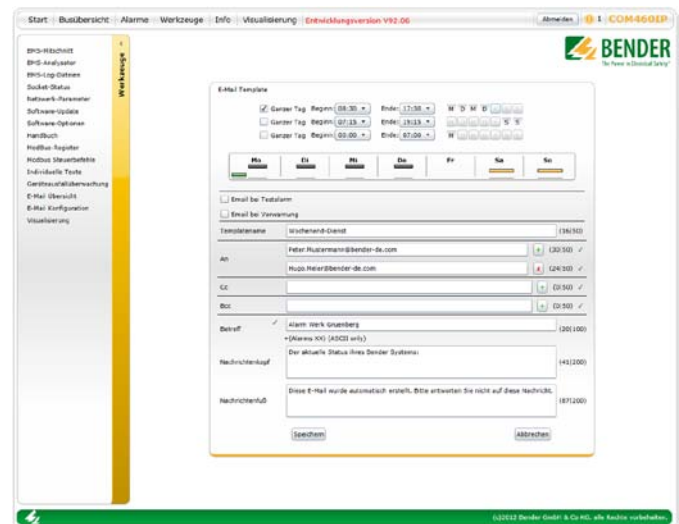
User-defined visualisation



Data logger (RCMS)



E-mail notification



Features of the device variants

Software options					
Functionality	Basic Device	Option A	Option B	Option C	Option D
		individual texts, e-mail	Modbus/TCP, Gateway	parameterization	visualisation
Complete system overview with indication of alarm messages and measured values	•				
Web server with Silverlight	•				
Web server for displaying the system overview on mobile phones	•				
Can be operated on the internal and external bus (max. 99 x 139 addresses)	•				
Multilingual menu structure	•				
IPaddress setting manually or via DHCP	•				
Time synchronisation for the BMSbus system via NTP	•				
Built-in switch with 2x RJ45, cable auto detection	•				
Diagnostics function (bus log, analyser...)	•				
Modbus/TCP data access for the BMSaddresses 1... 10 on the internal BMS bus	•				
To read out data from the history memory and data logger of BMS devices / with report function	•				
Individual text messages for all devices /channels		•			
E-mail / alarm message (SMS via external Service)		•			
Report function (file export) import/export		•		•	
Modbus/TCP data access for all BMS devices			•		
Modbus/TCP to control BMS devices			•		
Parameter setting for all BMS devices				•	
Visualization					•
Activated	✓	✓	✓	✓	✓
<input type="button" value="Import"/>					

Other interface protocols

Connection to SCADA systems (Supervisory Control and Data Acquisition) and/or PLCs via OPC, BACnet or other protocols on request.



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