# COMTRAXX® COM465DP

Condition monitor with integrated gateway
for the connection of Bender devices
to PROFIBUS DP and Ethernet TCP/IP networks


COM465DP_D00216_09_D_XXEN/02.2022

# COMTRAXX® COM465DP

**Condition monitor with integrated gateway for the connection of Bender devices to PROFIBUS DP and Ethernet TCP/IP networks**

COMTRAXX® COM465DP

## Device features

- Condition monitor for Bender systems
- Integrated modular gateway between Bender systems and TCP/IP enables remote access via LAN, WAN or Internet
- Range of functions adjustable through function modules
- Support of devices that are connected to the internal or external BMS bus, via BCOM, via Modbus RTU or Modbus TCP
- Individual visualisation can be generated, which is displayed via the web browser
- Integrated gateway between Bender system and PROFIBUS DP

## Data transfer interfaces

Modbus, PI CERTIFIED PROFIBUS • PROFINET, SNMP Simple Network Management Protocol

## Approvals

CE, UKCA, EAC, c UL us LISTED, LR APPROVED TYPE APPROVAL SCHEME

## Product description

The COMTRAXX® COM465DP series features a condition monitor and is integrated into the existing EDP structure like any Ethernet-capable device. All Bender devices can be connected via the integrated interfaces. In addition, third-party devices can also be integrated into the system. The measured values, parameters and all other data can be checked and parameterised via the web interface or the display.

It is possible to indicate and visualise alarms. By means of the visualisation application, individual overview pages can be generated which are then displayed in a web browser.

Additionally, the COM465DP has a connection to PROFIBUS DP systems as slave. The PROFIBUS master, e.g. a PC with a PROFIBUS card or a PLC has to be programmed in a way that the respective reactions can be triggered over the COM465DP and the answers can be received. This programming requires good PROFIBUS knowledge by the user. The required documentation including the entire command syntax is part of the COM465DP manual.

## Application

- Optimum display and visualisation of device and system states in the web browser
- Monitoring and analysis of compatible Bender products and third-party devices
- Specific system overview through individual system description
- Selective notification to various users in the event of alarms
- Numerous interfaces for data transfer to higher-level systems
- Clear setting of device parameters. Storing, documenting and restoring parameters is possible
- Commissioning and diagnosis of Bender systems
- Remote diagnosis, remote maintenance

## Scope of functions (V4.5.0 and higher)

### Basic device (without function modules)

- Condition monitor with web interface
- Interfaces for the integration of devices
  - Internal BMS bus (max. 150 devices) and external* BMS bus (max. 99 * 150 devices)
  - BCOM (max. 255 devices)
  - Modbus RTU and Modbus TCP (max. 247 devices each)
- Remote display of the latest measured values, status/alarm messages and parameters*
- Gateway to Modbus TCP: Reading the latest measured values, status/alarm messages from addresses 1…10 of each interface via Modbus TCP
- Gateway to Modbus RTU: Reading the latest measured values, status/alarm messages from addresses 1…10 of the internal BMS interface via Modbus RTU
- Ethernet interface with 10/100 Mbit/s for remote access via LAN, WAN or the Internet
- Setting of internal device parameters and parameters of devices connected via Modbus RTU and Modbus TCP **
- Time synchronisation for all assigned devices
- History memory (20,000 entries)
- Data loggers, freely configurable (30 * 10,000 entries)
- 50 data points from third-party devices (via Modbus RTU or Modbus TCP) can be integrated into the system
- A virtual device with 16 channels can be created
- Support for external applications (e.g. visualisation programs or PLCs) by means of the PROFIBUS DP protocol.
- Reading the latest measured values, status and alarms messages from all assigned devices. Uniform access to all assigned devices by means of PROFIBUS DP via integrated servers.

*) Indicating parameters of BMS bus devices is only possible when the gateway is connected to the internal BMS bus.

**) Parameters can be set via web application and externally (via BMS/ICOM/BCOM), but not via Modbus or PROFIBUS. The parameters of assigned devices can only be read; function module C is necessary for modification of settings!

**Function module A**
- Allocation of individual texts for devices, channels (measuring points) and alarms.
- Device failure monitoring
- E-mail notification in the event of alarms or system faults to different users.
- Device documentation of any device in the system can be generated.* This contains all associated parameters and measured values as well as device information, such as serial number and software version.
- System documentation can be generated. It documents all devices in the system at once..

*) Generating device documentation of BMS bus devices is only possible if the gateway is connected to the internal BMS bus..

**Function module B**
- Reading the latest measured values, status and alarms messages from all assigned devices. Uniform access to all assigned devices via Modbus TCP over integrated server.
- Reading the latest measured values, status and alarm messages from all assigned devices via internal BMS. Uniform access to all assigned devices via Modbus RTU.
- Control commands: From an external application (e.g. visualisation software or PLC), commands can be sent to BMS devices via Modbus TCP or Modbus RTU.
- Access to alarms and measured values via SNMP (V1, V2c or V3). SNMP traps are supported.
- Access via PROFINET to alarms and measured values.

**Function module C**
- Fast and easy parameter setting of all devices* assigned to the gateway via web browser.
- Backups of all devices in the system can be created and restored.

*) Parameter setting of BMS bus devices is only possible when the gateway is connected to the internal BMS bus.

**Function module D**

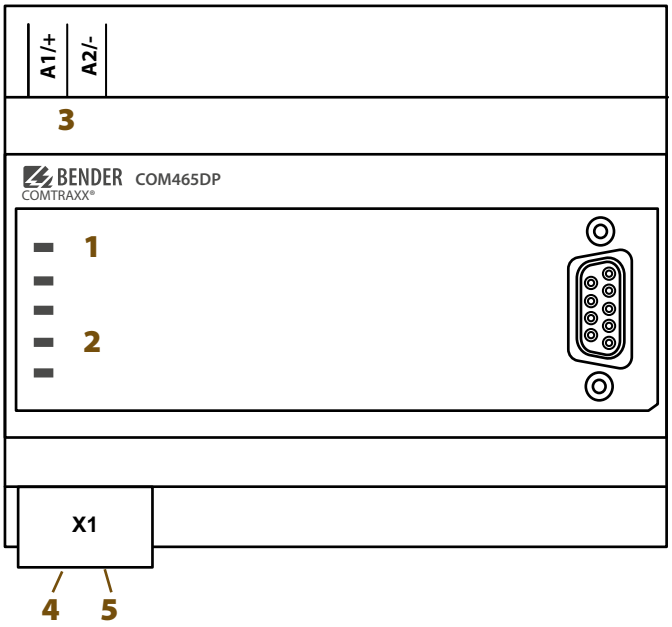
Quick and easy-to-create visualisation of the system. Integrated editor provides access to a variety of widgets and functions.
- Display on up to 50 overview pages, where e.g. room plans can be stored. Navigation within these overview pages is possible.
- Access to all measured values that are available in the system.
- Buttons and sliders can be used to send BMS test and reset commands, as well as to control external devices via Modbus TCP.

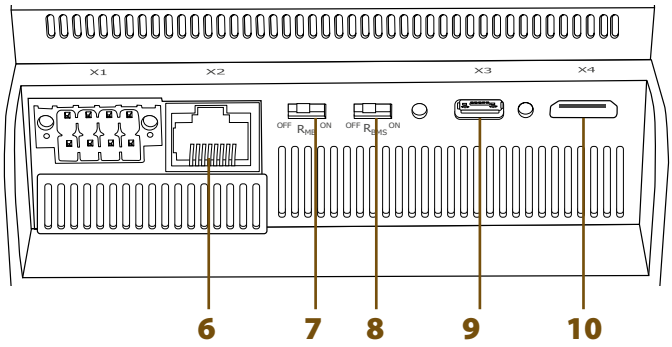
**Function module E**
- 100 virtual devices with 16 channels each can be created.

**Function module F**
- 1,600 data points from third-party devices (via Modbus RTU or Modbus TCP) can be integrated into the system.

**Examples:**
- To write parameters via Modbus, function modules B and C are required.
- To read parameters via Modbus, function module B is required.
- For parameterisation via PROFIBUS, the function module C is required.

## Operating controls and connections




1 - "ON" LED: Flashes during start-up.
The LED lights permanently as soon as the device is ready for operation.

2 - LEDs show activities on the different interfaces

3 - Supply voltage: see nameplate and ordering information

4 - Connection PROFIBUS DP

5 - Modbus/RTU interface: Terminals **A**MB and **B**MB (plug X1)

6 - BMS bus (Bender measuring device interface): Terminals **A**BMS and **B**BMS (plug X1)

7 - Ethernet port (RJ45) for connection to the PC network as well as BCOM (plug X2)

8 - Modbus RTU terminating resistor switch

9 - BMS bus terminating resistor switch

10 - Micro USB interface (currently without function) (plug X3)

11 - Mini HDMI interface (currently without function) (plug X4)

**For UL applications, the following has to be observed:**
**– Maximum ambient temperature: 55 °C**
**– Use 60/75 °C copper wires only**

## Technical data

### Insulation coordination acc. to IEC 60664-1/IEC 60664-3

| | |
|---|---|
| Rated voltage | AC 250 V |
| Rated impulse voltage/overvoltage category | 4 kV/III |
| Pollution degree | 3 |
| Protective separation (reinforced insulation) between | (A1/+, A2/-) - [(AMB, BMB), (ABMS, BBMS), (X2), (X3, X4)] |

### Supply voltage

| | |
|---|---|
| Supply voltage $U_s$ | see ordering information |
| Frequency range $U_s$ | see ordering information |
| Power consumption | see ordering information |

### Indications

**LEDs:**

| | |
|---|---|
| ON | operation indicator |
| PROFIBUS | data traffic PROFIBUS DP |
| ETHERNET IP | data traffic Ethernet |
| MODBUS RTU | data traffic Modbus |
| BMS | data traffic BMS |
| Ethernet (terminal X2) | lights during network connection, flashes during data transfer |

### Memory

| | |
|---|---|
| Individual texts (function module A only) | unlimited number of texts each with 100 characters |
| E-mail configuration and device failure monitoring | max. 250 entries |
| Number of data points for "third-party devices" to Modbus TCP and Modbus RTU | 50 |
| Number of data loggers | 30 |
| Number of data points per data logger | 10,000 |
| Number of history memory entries | 20,000 |

### Visualisation

| | |
|---|---|
| Number of pages | 50 |
| Background image size | 3 MB |

### Interfaces

**Ethernet**

| | |
|---|---|
| Port | RJ45 |
| Cable length | < 100 m |
| Data rate | 10/100 MBit/s, autodetect |
| HTTP mode | HTTP/HTTPS (HTTP)* |
| DHCP | on/off (off)* |
| $t_{off}$ (DHCP) | 5…60 s (30 s)* |
| IP address | nnn.nnn.nnn.nnn (192.168.0.254)*, can always be reached via: 169.254.0.1 |
| Net mask | nnn.nnn.nnn.nnn (255.255.0.0)* |
| Protocols (depending on function module selected) | TCP/IP, Modbus TCP, Modbus RTU, DHCP, SNMP, SMTP, NTP |

**BMS bus (internal/external)**

| | |
|---|---|
| Interface/protocol | RS-485/BMS internal or BMS external (BMS internal)* |
| Operating mode | master/slave (master)* |
| Baud rate BMS | internal 9.6 kBit/s<br>external 19.2; 38,4; 57.6 kBit/s |
| Cable length | ≤ 1,200 m |
| Cable | shielded, one end of shield connected to PE |
| recommended: | CAT6/CAT7 min. AWG23 |
| alternative: | twisted pair, J-Y(St)Y min. 2x0,8 |
| Connection | X1 (ABMS, BBMS) |
| Connection type | refer to connection "push-wire terminal X1" |
| Terminating resistor | 120 Ω (0.25 W), can be connected internally |
| Device address, internal/external BMS bus | 1…150 (1)*/2…99 |

**BCOM**

| | |
|---|---|
| Interface/protocol | Ethernet/BCOM |
| BCOM system name | (SYSTEM) |
| BCOM subsystem address | 1…255 (1)* |
| BCOM device address | 0…255 (0)* |

**Modbus**

| | |
|---|---|
| Bender Modbus image | V1, V2 (V2)* |

**Modbus TCP**

| | |
|---|---|
| Interface/protocol | Ethernet/Modbus TCP |
| Operating mode | client for Bender Modbus TCP devices and "third-party devices" |
| Operating mode | server for access to the process image and for Modbus control commands |
| Parallel data access from different clients | max. 25 |

**Modbus RTU**

| | |
|---|---|
| Interface/protocol | RS-485/Modbus RTU |
| Operating mode | master/slave (master)* |
| Baud rate | 9.6…57.6 kBit/s |
| Cable length | ≤ 1,200 m |
| Cable | shielded, one end of shield connected to PE |
| recommended: | CAT6/CAT7 min. AWG23 |
| alternative: | twisted pair, J-Y(St)Y min. 2x0,8 |
| Connection | X1 (AMB, BMB) |
| Connection type | refer to connection "push-wire terminal X1" |
| Terminating resistor | 120 Ω (0.25 W), can be connected internally |
| Supported Modbus RTU slave addresses | 2…247 |

**PROFINET**

| | |
|---|---|
| Interface/protocol | Ethernet/PROFINET |
| Operating mode | Slave (IO-Device) |

**SNMP**

| | |
|---|---|
| Interface/protocol | Ethernet/SNMP |
| Versions | 1, 2c, 3 |
| Supported devices | queries to all devices (channels) possible |
| Trap support | yes |

**PROFIBUS DP**

| | |
|---|---|
| Interface/protocol | RS-485 galvanically separated/PROFIBUS DP |
| Operating mode | slave |
| Baud rate | automatic baud rate detection: 9.6 kBit/s…1.5 MBit/s<br>9.6/19.2/93.75/187.5/500 kBit/s, 1.5 MBit/s |
| Connection | 9-pole sub D |
| Device address, PROFIBUS DP | 1…125 (3)* |

**Used ports**

| | |
|---|---|
| 53 | DNS (UDP/TCP) |
| 67, 68 | DHCP (UDP) |
| 80 | HTTP (TCP) |
| 123 | NTP (UDP) |
| 161 | SNMP (UDP) |
| 162 | SNMP TRAPS (UDP) |
| 443 | HTTPS (TCP) |
| 502 | MODBUS (TCP) |
| 4840 | OPCUA (TCP) |
| 5353 | MDNS (UDP) |
| 48862 | BCOM (UDP) |

## Technical data (continuation)

### Environment/EMC

| | |
|---|---|
| EMC | EN 61326-1 |

### Ambient temperatures

| | |
|---|---|
| Operating temperature | -25…+55 °C |
| Transport | -40…+85 °C |
| Long-term storage | -25…+70 °C |

### Classification of climatic conditions acc. to IEC 60721

| | |
|---|---|
| Stationary use (IEC 60721-3-3) | 3K22 |
| Transport (IEC 60721-3-2) | 2K11 |
| Long-term storage (IEC 60721-3-1) | 1K22 |

### Mechanical conditions acc. to IEC 60721:

| | |
|---|---|
| Stationary use (IEC 60721-3-3) | 3M11 |
| Transport (IEC 60721-3-2) | 2M4 |
| Long-term storage (IEC 60721-3-1) | 1M12 |

### Connection

| | |
|---|---|
| Connection type | pluggable push-wire terminals |

### Push-wire terminals

| | |
|---|---|
| Conductor sizes | AWG 24…12 |
| Stripping length | 10 mm |
| rigid/flexible | 0.2…2.5 mm² |
| flexible with ferrule, with/without plastic sleeve | 0.25…2.5 mm² |
| Multiple conductor, flexible with TWIN ferrule with plastic sleeve | 0.5…1.5 mm² |

### Push-wire terminal X1

| | |
|---|---|
| Conductor sizes | AWG 24…16 |
| Stripping length | 10 mm |
| rigid/flexible | 0.2…1.5 mm² |
| flexible with ferrule without plastic sleeve | 0.25…1.5 mm² |
| flexible with ferrule with plastic sleeve | 0.25…0.75 mm² |

### Other

| | |
|---|---|
| Operating mode | continuous operation |
| Mounting | front-oriented, cooling slots must be ventilated vertically |
| Degree of protection, internal components (IEC 60529) | IP30 |
| Degree of protection, terminals (IEC 60529) | IP20 |
| Quick DIN rail mounting acc. to | IEC 60715 |
| Screw mounting | 2 x M4 |
| Enclosure type | J460 |
| Enclosure material | polycarbonate |
| Flammability class | UL94V-0 |
| Dimensions (W x H x D) | 107.5 x 93 x 62.9 mm |
| Documentation number | D00216 |
| Weight | ≤ 240 g |

( )* = factory settings

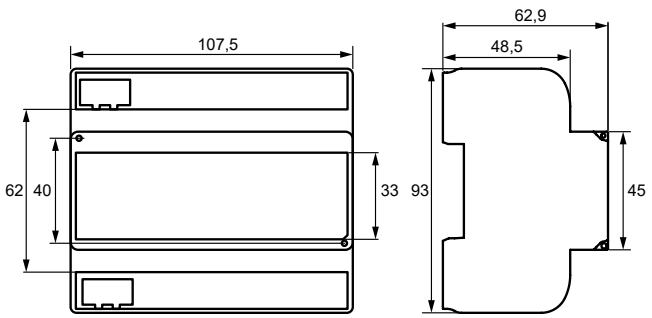
## Ordering information

| Supply voltage/frequency range $U_s$ AC/DC | Power consumption | Application | Type | Art. No. |
|---|---|---|---|---|
| 24…240 V, 50…60 Hz | ≤ 6.5 VA/≤ 4 W | Condition monitor with integrated gateway: Bender system / PROFIBUS DP / Ethernet | COM465DP-230V | B95061060 |

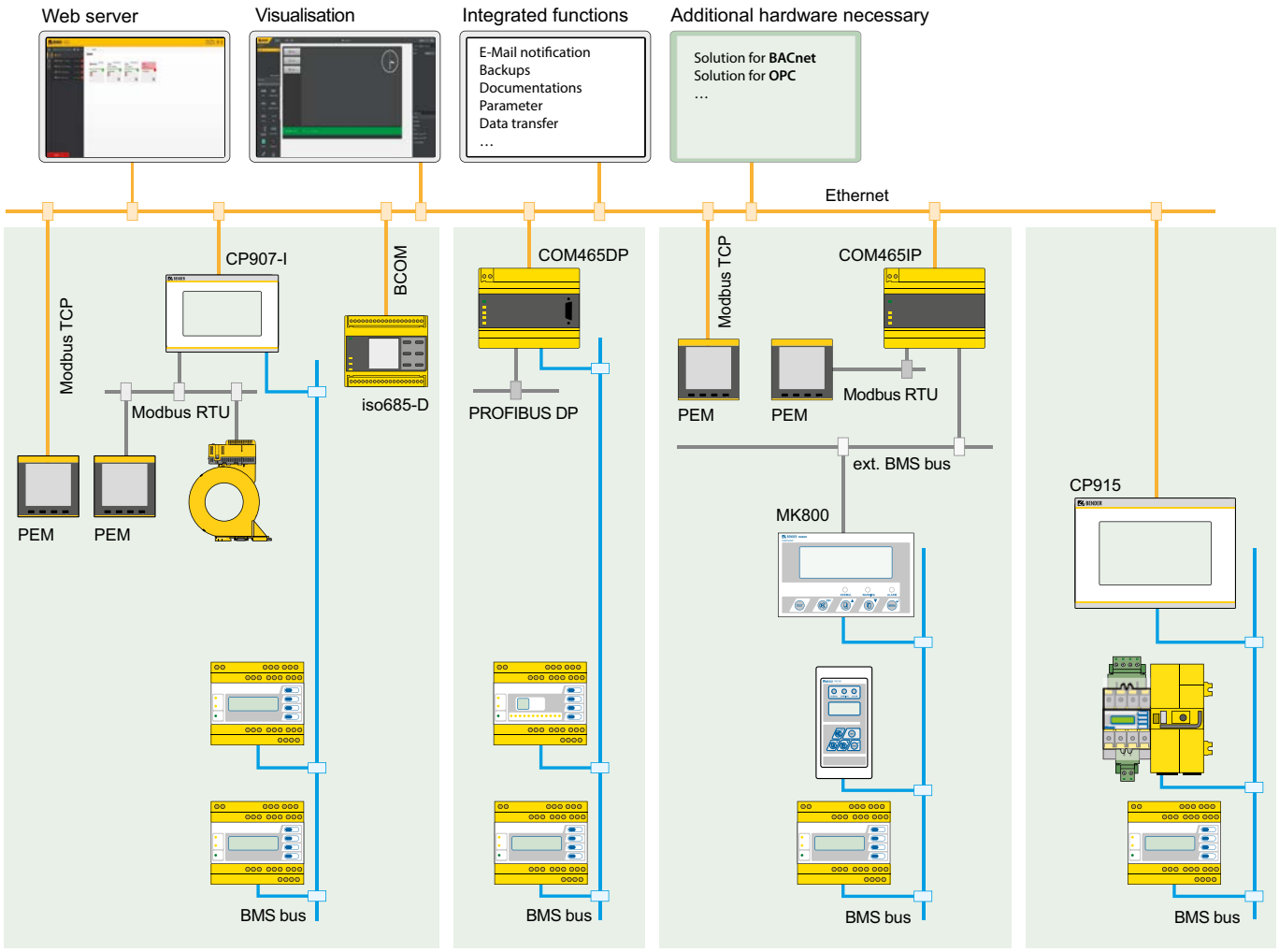
## Function modules

| Application | Function module (software licence) | Art. No. |
|---|---|---|
| Individual text messages for all devices/ channels, device failure monitoring, e-mail in the event of an alarm, device documentation | Function module A | B75061011 |
| Provision of data via via Modbus TCP, Modbus RTU, SNMP and PROFINET | Function module B | B75061012 |
| Parameter setting of all integrated devices, device backups | Function module C | B75061013 |
| Visualisation application | Function module D | B75061014 |
| Virtual devices | Function module E | B75061015 |
| Integration of third-party devices | Function module F | B75061016 |

## Dimension diagram



## Application example



BENDER
The Power in Electrical Safety©

**Bender GmbH & Co. KG**
Londorfer Straße 65 • 35305 Grünberg • Germany
Tel.: +49 6401 807-0 • info@bender.de • www.bender.de

**BENDER Group**