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► Technical System Catalogue CMC III Monitoring System



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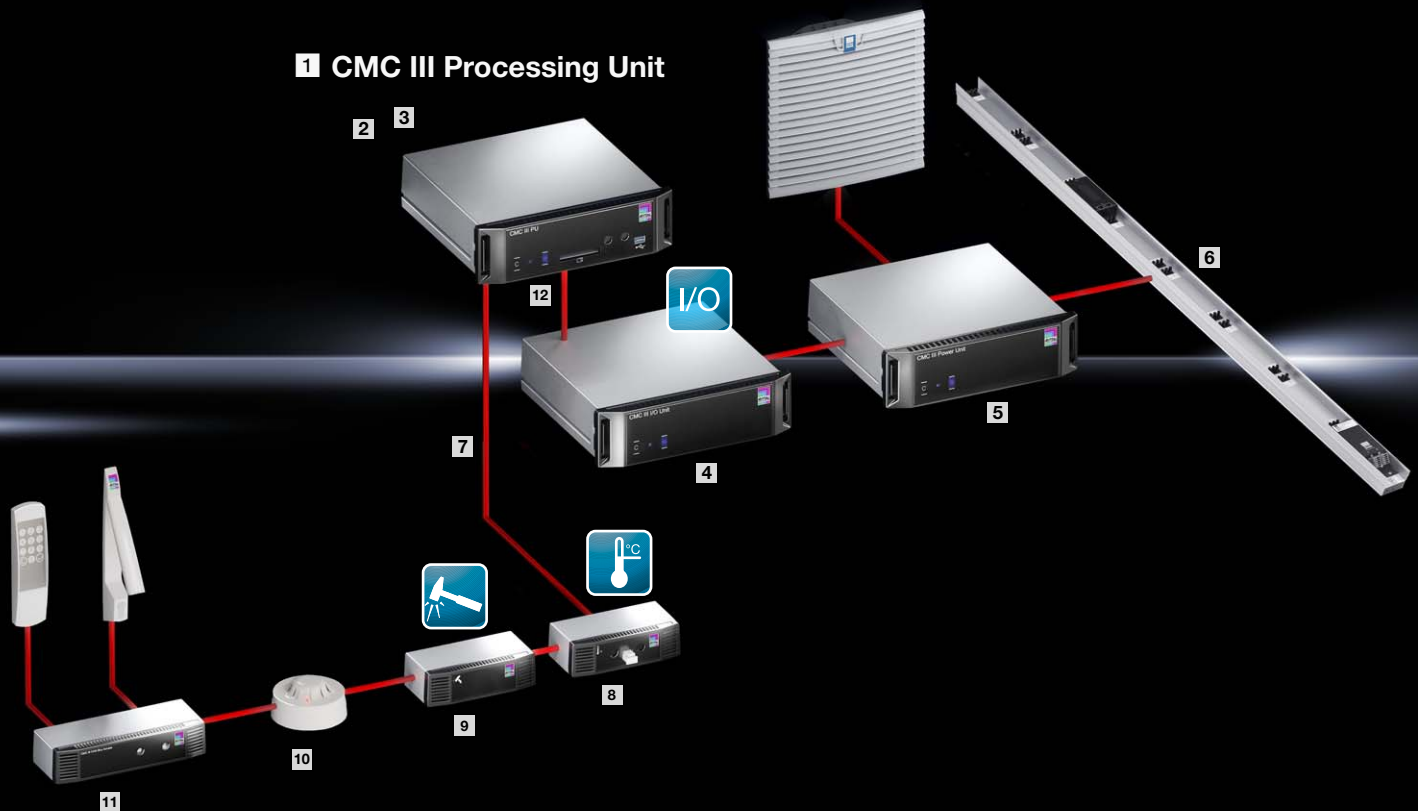
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CMC III monitoring system



Computer Multi Control (CMC) is an alarm system for network and server enclosures, standard enclosures, containers and rooms.

- It monitors temperatures, humidity, access, fumes, energy and many other physical ambient parameters.
- The system is modular and can be flexibly adapted to meet specific monitoring requirements.

- User benefits plus exceptional savings are achieved thanks to monitoring via the network and the automation of security processes.

Further information can be found at:
www.rittal.com

1 CMC III Processing Unit

2 Power supply

3 Redundant power supply

4 CMC III I/O unit

5 CMC III Power Unit

6 CMC III PSM measuring bar for direct connection

7 Up to 16 CAN bus systems can be connected

8 CMC III temperature sensor

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10 CMC III smoke alarm

11 CMC III CAN bus access

12 Up to 16 CAN bus systems can be connected

CMC III monitoring system

CMC III monitoring system

The CMC III is an intelligent monitoring system that uses sensors to measure various environmental values. If defined minimum or maximum limit values are breached, alarm notifications can be sent out via e-mail, text message or SNMP.

Thanks to intelligent control mechanisms, outputs can also be switched automatically and access to an enclosure can be controlled and monitored.

Due to its flexible assembly, the system is suitable for a wide range of applications – from minor roles in standalone enclosures to complex requirements for a suite of enclosures.

The benefits of CMC III at a glance:

- Custom selection and placement of sensors
- Minimal cabling work thanks to bus topology
- Sensors connected to a central processing unit through secure CAN bus technology
- Simple installation and rapid start-up thanks to plug-and-play concept
- Automatic sensor detection
- Network-based access using a standard web browser
- Control and programming software already integrated
- Redundant power supply and power over Ethernet (PoE) possible
- Can be incorporated into higher management systems via SNMP, OPC-UA or Modbus/TCP

Operating the CMC III

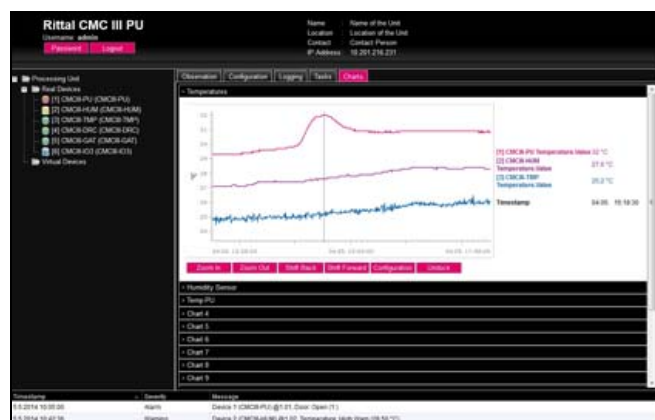
Each CMC III Processing Unit comes with its own integrated website (webserver) as standard. This website can be accessed via the network using just a standard web browser, with no need for additional software or plug-ins.

Access to the functions and measured values of the CMC III is password-protected, and users must have an account on the system and their own password. Alternatively, the CMC III can be connected via LDAP or Radius to an active directory so that user administration can be carried out centrally. The administrator can also use group assignment to manage the rights of users and give them specific write and read rights for each sensor.

The website itself has been kept very simple so that users can get to grips with it quickly, which means that even users with no programming skills can set up and manage the system. The method of operation is based on familiar structures from desktop PCs and alarm scenarios can even be programmed on the website using click commands. A custom view can be designed for day-to-day usage that is activated directly on login. This view allows users both to operate predefined elements of the CMC III interface and create custom lists of variables.

Graphics for sensors and measured values make it easier to operate the system and help users quickly build up an overview. The CMC III can be used to save measured values to an SD card or a USB flash drive and display the values in a graphic on the website. This helps to identify hot spots in the rack and reveal potential opportunities to boost efficiency.

Access to the website can also be managed via https to ensure data is transferred securely in the network. In this case, the connection between the PC and CMC III is encrypted using SSL and access without an encrypted connection from the CMC is no longer supported. Every action that a user executes is also logged by the system. As a result, it is possible to trace exactly which users have made changes to the system so that possible causes can be narrowed down more quickly in the event of an alarm.



CMC III monitoring system

CMC III Processing Unit / Compact

The CMC III Processing Unit and the CMC III Processing Unit Compact are the heart of a CMC III system. This is where all measured values are summarised, evaluated and forwarded.

A CMC III Processing Unit / Compact is the interface between a CMC III system and the user. It is incorporated into the company network and utilises an integrated website to make current values available to every authorised user.

A CMC III Processing Unit / Compact can be powered both in a redundant system via two power packs and using PoE delivered via the connected network cable. The system can be fitted very easily and quickly in the enclosure and incorporates a mounting unit for the enclosure frame and a 1 U mounting unit for up to three devices that can be installed in the 19" section in the enclosure.

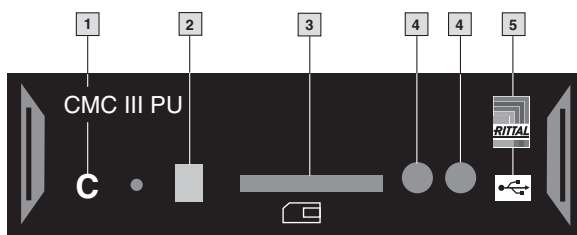
Each CMC III Processing Unit / Compact has four sensors already integrated as standard. Besides a socket for the temperature sensor included in the scope of supply, there is also an infrared sensor at the front for monitoring a door and there are two digital inputs at the rear that can, for example, be used to monitor relays.

Thanks to the simple and self-explanatory web interface, the system as a whole is intuitive to operate and configure. Users do not need to have a great deal of programming know-how to start-up and manage an entire CMC III system. All that is required is a PC with a standard web browser.

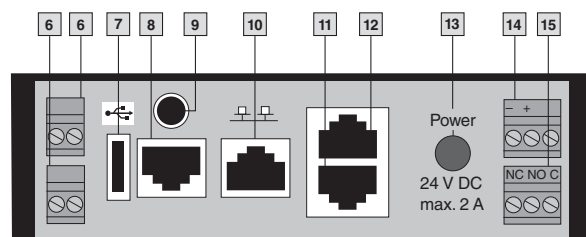
The CMC III Processing Unit / Compact represents the state of the art and has the most important network protocols already integrated into it. The new system supports TCP/IPV6 and the secure SNMPv3 protocol.



Connection information



- 1 "C" button for acknowledging notifications
- 2 Multi-LED for the status display
- 3 SD card slot (only on CMC III Processing Unit)
- 4 Integrated infrared access sensor
- 5 Mini USB port for configuration
- 6 Digital inputs (x 2)
- 7 USB master port (only on CMC III Processing Unit)
- 8 Socket for accessory modules (display unit, GSM unit or ISDN unit)



- 9 Socket for external temperature sensor
- 10 RJ 45 Ethernet interface with PoE
- 11 1st RJ 45 CAN bus connection for CMC III sensors (max. 16)
- 12 2nd RJ 45 CAN bus connection for CMC III sensors (max. 16)
- 13 24 V DC voltage supply (power pack connection)
- 14 24 V DC voltage supply (direct connection)
- 15 Alarm relay output (floating contact)

CMC III control units

CMC III I/O unit

CMC III unit for monitoring up to eight digital inputs and controlling up to four relays. The relays can be linked to measured values in the software so that they are actuated under certain circumstances.

This system can be used to monitor devices and forward messages.

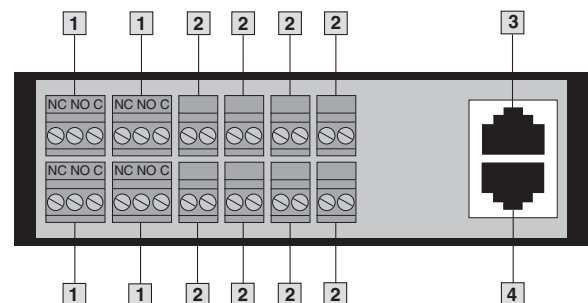
The CMC III I/O unit can not be run with the CMC III Processing Unit Compact.

- Max. number of CMC III Processing Units: 16
- Max. number of CMC III Processing Units Compact: –
- Digital input (terminal): 8 NC/NO
- Relay output (terminal): 4
- Changeover contact: Max. 24 V DC, 1 A
- RJ 45 CAN bus jacks: 2
- W x H x D: 138 x 40 x 120 + 12 mm front
- Colour: RAL 9005/7035

- 1 Relay outputs 1 – 4
- 2 Digital inputs 1 – 8
- 3 RJ 45 CAN bus connection
- 3 RJ 45 CAN bus connection



Connection information



CMC III Power Unit

CMC III unit with one input (C14) and two outputs (C13). The input is switched to the outputs via two relays. As a result, the outputs can be linked to measured values and therefore can be actuated automatically.

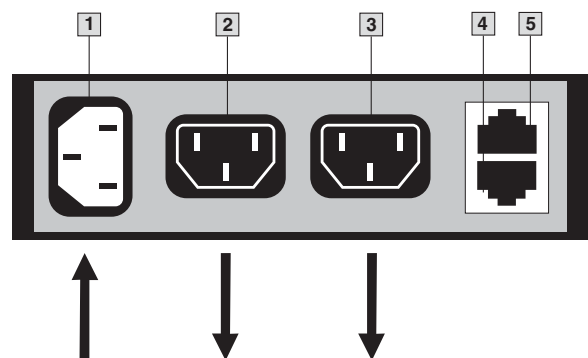
Examples of potential applications include fan regulation. Manual actuation is also possible using the CMC III operating interface. Each output is monitored individually, and various values are measured. Voltage, frequency, current, power and energy are measured for each output. The CMC III Power Unit can not be run with the CMC III Processing Unit Compact.

- Max. number of CMC III Processing Units: 16
- Max. number of CMC III Processing Units Compact: –
- Voltage measurement range: 100 – 230 V, 50/60Hz
- Frequency measurement range: 0 – 60 Hz
- Current measurement range: 200 mA – 10 A
- Power measurement range: 46 W – 2.3 kW
- Energy measurement range: 0 – 100000 kWh
- Fuse: 10 A (1st output + 2nd output)
- RJ 45 CAN bus jacks: 2
- W x H x D: 138 x 40 x 120 + 12 mm front
- Colour: RAL 9005/7035

- 1 Input, C14 power supply
- 2 1st output, C13 power supply
- 3 2nd output, C13 power supply
- 3 RJ 45 CAN bus connection
- 3 RJ 45 CAN bus connection



Connection information



CMC III sensors for direct connection



Temperature sensor

CMC III sensor with internal temperature sensor for in-airflow applications or alternatively with external temperature sensor for all application scenarios.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- Measurement range of internal sensors: +0°C...+55°C
- Measurement range of external sensors: -40°C...+80°C
- Jack for external sensor: 1
- RJ 45 CAN bus jacks: 2
- W x H x D: 80 x 28 x 40 mm
- Colour: RAL 9005/7035



Temperature/humidity sensor

CMC III sensor with temperature sensor and humidity sensor in the enclosure front.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- Temperature measurement range: +0°C...+55°C
- Relative humidity measurement range: 5 %...95 % RH
- RJ 45 CAN bus jacks: 2
- W x H x D: 80 x 28 x 40 mm
- Colour: RAL 9005/7035



Infrared access sensor

CMC III sensor with infrared transmitter and receiver for monitoring doors or side panels.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- Transmitter: Infrared diode
- Receiver: Infrared receiver
- RJ 45 CAN bus jacks: 2
- W x H x D: 80 x 28 x 40 mm
- Colour: RAL 9005/7035



Vandalism sensor

CMC III sensor with integrated acceleration sensor for monitoring the three axes of movement.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- Monitoring: x, y and z axes
- Measurement range: -2/4/8...+2/4/8 g
- Resolution: 0.1 g
- RJ 45 CAN bus jacks: 2
- W x H x D: 80 x 28 x 40 mm
- Colour: RAL 9005/7035

CMC III sensors for direct connection

Analogue airflow sensor

CMC III sensor with analogue sensor for measuring air speed, e.g. for fan monitoring.

- Max. number of CMC III Processing Units: 10
- Max. number of CMC III Processing Units with power supply via PoE: 5
- Max. number of CMC III Processing Units Compact: 4
- Sensor interface: 4 – 20 mA
- Measurement range: 0.5 to 10 m/s
- RJ 45 CAN bus jacks: 2
- Terminals for airflow sensor: 1
- W x H x D: 110 x 30 x 40 mm
- Colour: RAL 9005/7035



Analogue differential pressure sensor

CMC III sensor with analogue pressure sensor for monitoring a pressure differential, e.g. for climate-control applications. Tubing included in the scope of supply can be used to specify two points in the room where pressure is measured. The difference between these two pressure measurements is depicted as the measured value and monitored.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- Pressure measurement points: 2
- Measurement range: -500...+500 Pa
- RJ 45 CAN bus jacks: 2
- W x H x D: 110 x 30 x 40 mm
- Colour: RAL 9005/7035



Universal sensor

CMC III sensor for connecting an external sensor. This sensor has a total of three connection terminals. Two of these terminals can be defined as digital inputs, S0 bus counters or a Wiegand interface for connecting external access monitoring systems. The third connection is an analogue interface for an external signal between 4 and 20 mA.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- RJ 45 CAN bus jacks: 2
- W x H x D: 110 x 30 x 40 mm
- Colour: RAL 9005/7035

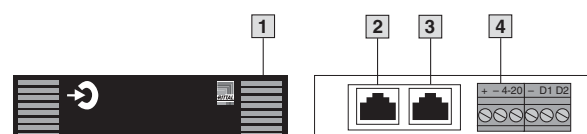
- 1 Multi-LED for the status display
- 2 RJ 45 CAN bus connection
- 3 RJ 45 CAN bus connection
- 4 Universal interface

Pin assignment to terminal 4:

- Pin 1 = output + 24 V DC
- Pin 2 = GND output
- Pin 3 = 4 – 20 mA input
- Pin 4 = 4 – 20 mA GND
- Pin 5 = digital input 1
- Pin 6 = digital input 2



Connection information



CMC III sensors for direct connection



CMC III smoke alarm

The CMC III smoke alarm is fitted at the top of the enclosure and monitors the air inside the enclosure for smoke particles. Settings can be made via the CMC III Processing Unit.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- Measuring method: Silicon PIN photodiode/GaAs infrared LED
- RJ 45 CAN bus jacks: 2
- Diameter: 100 mm
- H: 50 mm
- Colour: White



CMC III leak sensor

The CMC III leak sensor has an external sensor mounted so that the contacts are pointing vertically down to the floor. These two contacts monitor a point on the floor for liquids (leakage). Settings can be made via the CMC III Processing Unit.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- Measuring method: Conductivity measurement
- RJ 45 CAN bus jacks: 2
- Terminals for leak sensors: 1
- W x H x D: 110 x 30 x 40 mm
- Colour: RAL 9005/7035



CMC III leak sensor, 15 m

The CMC III leak sensor monitors a larger area of the floor for leaks. As soon as the 15 metre-long detection cable comes into contact with liquids, the sensor issues an alarm signal to indicate where on the floor the leak is. Settings can be made via the CMC III Processing Unit.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- Measuring method: Conductivity measurement
- RJ 45 CAN bus jacks: 2
- Terminals for leak cable: 1
- Length of leak cable: 15 m
- W x H x D: 110 x 30 x 40 mm
- Colour: RAL 9005/7035

CMC III interface modules

CMC III CAN bus sensor

The CMC III CAN bus sensor supports the connection of selected sensors from the CMC-TC system to the new CMC III, allowing old applications to be upgraded with the CMC III Processing Unit / Compact. As well as the two CAN bus connections, the unit also has another connection for one of the old sensors. In this way, the unit functions as an interface between the old sensor and the new Processing Unit, and adapts the sensor data to the CAN bus protocol.

- Max. number of CMC III Processing Units: 32
- Max. number of CMC III Processing Units Compact: 4
- RJ 12 interfaces: 1 CMC-TC sensor
- RJ 45 CAN bus jacks: 2
- W x H x D: 110 x 30 x 40 mm
- Colour: RAL 9005/7035

The following CMC-TC sensors can be connected to the CMC III CAN bus sensor unit:

- Max. 1 x temperature sensor
- Max. 1 x analogue input 4 – 20 mA
- Max. 5 x access sensors in series
- Max. 1 x airflow sensor
- Max. 1 x smoke alarm
- Max. 1 x motion detector
- Max. 1 x digital input
- Max. 1 x digital relay output
- Max. 1 x voltage monitor
- Max. 1 x 48 V voltage sensor
- Max. 1 x leak sensor
- Max. 1 x leak sensor, 15 m
- Max. 1 x door control unit¹⁾
- Max. 1 x DET-AC extinguishing system²⁾
- Max. 1 x DET-AC early fire detection²⁾

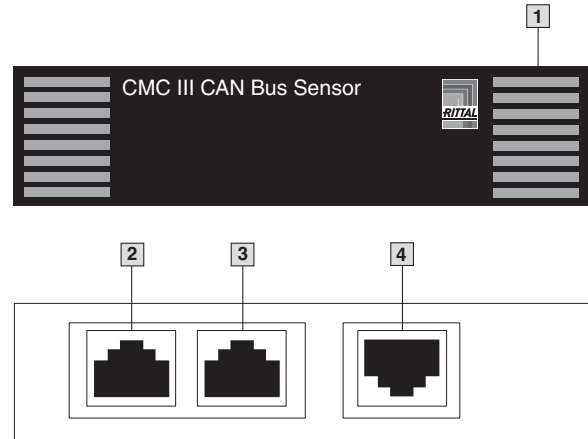
¹⁾ The device has two connections.

²⁾ The device has three connections.

- ❶ Multi-LED for the status display
- ❷ RJ 45 CAN bus connection
- ❸ RJ 45 CAN bus connection
- ❹ Connection for CMC-TC sensor, RJ 12



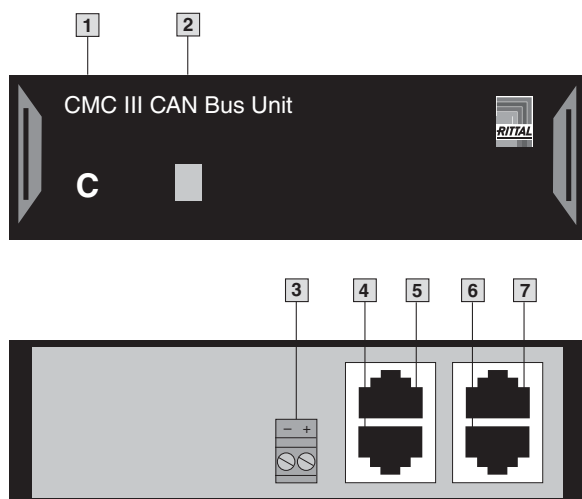
Connection information



CMC III interface modules



Connection information



CMC III CAN Bus unit

The CMC III CAN bus unit acts as an interface between the CMC III Processing Unit and the PSM measurement bars and modules.

The unit has four connections: Two connections represent the interface to the CAN bus and to the other CMC III sensors, while up to four PSM modules (i.e. a total of up to eight PSM modules per CMC III CAN bus unit) or one measurement bar can be connected to each of the other two connections.

When connecting PSM modules, the CMC III CAN bus unit must be externally supplied with 24 V via terminals.

- Max. number of CMC III Processing Units: 4
- Max. number of CMC III Processing Units with power supply via PoE: 1
- Max. number of CMC III Processing Units Compact: 1
- RJ 45 interfaces: 2 CMC-TC units
- RJ 45 CAN bus jacks: 2
- W x H x D: 138 x 40 x 120 + 12 mm front
- Colour: RAL 9005/7035

The following sensors can be connected to the CMC III CAN bus unit:

- Max. 2 x FCS fan control systems
- Max. 2 x FCS fan mounting plates DC
- Max. 2 x 4 x PCU, various active modules
- Max. 2 x 4 x active PSM, various active modules
- Max. 2 x PSM busbars, 16 A
- Max. 2 x PSM busbars, 32 A
- Max. 2 x PSM measurement module, 16 A

- 1 "C" button for acknowledging notifications
- 2 Multi-LED for the status display
- 3 Voltage supply (direct connection)
- 4 RJ 45 connection for CMC-TC unit
- 5 RJ 45 connection for CMC-TC unit
- 6 RJ 45 CAN bus connection
- 7 RJ 45 CAN bus connection

CMC III access control

CMC III CAN bus access

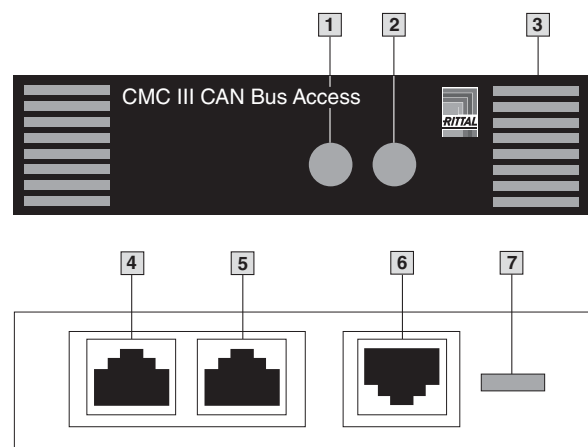
CMC III unit for controlling and monitoring access to enclosures. One handle and one reader unit can be connected to each CMC III CAN bus access. The handles can be linked to various numerical codes or RFID card numbers via the CMC III Processing Unit / Compact website, which means that all the handles connected to a CMC III Processing Unit / Compact can be controlled with just one reader unit. The integral infrared sensor also ensures that the status of the controlled door (open/closed) is monitored.

- Max. number of CMC III Processing Units: 16
- Max. number of CMC III Processing Units with power supply via PoE: 5
- Max. number of CMC III Processing Units Compact: 4
- Transmitter: Infrared diode
- Receiver: Infrared receiver
- Interfaces: 1 CMC III reader unit
- RJ 12 interfaces: 1 handle (electromechanical)
- RJ 45 CAN bus jacks: 2
- W x H x D: 110 x 30 x 40 mm
- Colour: RAL 9005/7035

- 1 Infrared receiver
- 2 Infrared diode (transmitter)
- 3 Multi-LED for status display
- 3 RJ 45 CAN bus connection
- 3 RJ 45 CAN bus connection
- 4 Connection for handle, RJ 12
- 7 Connection for CMC III reader unit



Connection information



CMC III coded lock

The CMC III coded lock is connected to the CMC III CAN bus access. Any amount of eight-digit number combinations can be entered and linked with handles.

- Numerical code: 00000000 – 99999999 (variable)
- Connection cable: 3 m
- W x H x D: 50 x 190 x 25 mm
- Colour: RAL 7035



CMC III transponder reader

The CMC III transponder reader is connected to the CMC III CAN bus access. By contactlessly holding a transponder card in front of it, authorisation (UID of the card) is checked in the CMC III Processing Unit / Compact, and the corresponding door(s) is/are released.

- Technology: Transponder 13.56 MHz
- Tags: ISO 14443A, ISO 14443B, ISO 15693, ISO 18000-3, Mifare
- Connection cable: 3 m
- W x H x D: 50 x 190 x 25 mm
- Colour: RAL 7035



CMC III

access control



Electromagnetic handle

The handle locks the door and monitors the lever. It can always be opened independently of the control system using the master key. A semi-cylinder (lock insert, lock No. 3524 E) is included in the scope of supply, but a semi-cylinder with an overall length of 40 mm to DIN 18 254 can also be used.

A CAN bus access (DK 7030.200) must be fitted on the rack frame for each handle. This device has an integrated infrared access sensor and the handle and a reader unit can be connected.

If the lever handle is closed, the locking mechanism integrated into the handle latches automatically. The handle can be released via the CMC III system in the network or via optional add-on systems, such as Mifare transponder readers. The handle locks without consuming any voltage (no electrical connection). Once the electrical release has been issued, the push-button can be pressed to release the lever. The enclosure must be opened within a specified period of time that is set in the CMC III. Using the key to open the enclosure always overrides all other methods, i.e. the enclosure can always be opened with the key when electrically locked and in the event of a power failure (emergency opening).

Technical specifications:

- Rated voltage: 24 V DC
- Rated current: max. 100 mA
- Connection cable: Length 3 m, RJ 12 connector
- Temperature application range: +5°C to +40°C
- Protection category: IP 40

CMC III accessories

CMC III power pack

The CMC III power pack operates with an input voltage of 100 – 240 V, 50/60 Hz and supplies 24 V. It is specifically tailored to the CMC III design and can be positioned in a CMC III mounting unit. As well as a special connector for the CMC III Processing Unit / Compact, there are also two further terminals available as 24 V outputs.

- Input: C14, 100 – 230 V, 50/60 Hz
- Output: 24 V DC, 2 A
- W x H x D: 138 x 40 x 120 + 12 mm front
- Colour: RAL 9005/7035



CMC III programming cable USB

The CMC III programming cable is used the first time the CMC III Processing Unit starts up. During initial start-up, the programming cable connects the CMC III Processing Unit / Compact to the USB interface of a PC. A driver for Windows systems is also included in the scope of supply and must be installed on the PC.

- Connector 1: USB, series A (for laptops)
- Connector 2: Mini USB (for CMC III Processing Unit / Compact)
- Length: 3 m



CMC III RJ 45 CAN bus connection cable

The CMC III CAN bus connection cables are used to connect sensors to each other and to the CMC III Processing Unit / Compact. As they are available in different lengths, the CMC III system can be adapted to various applications and built to a custom design.

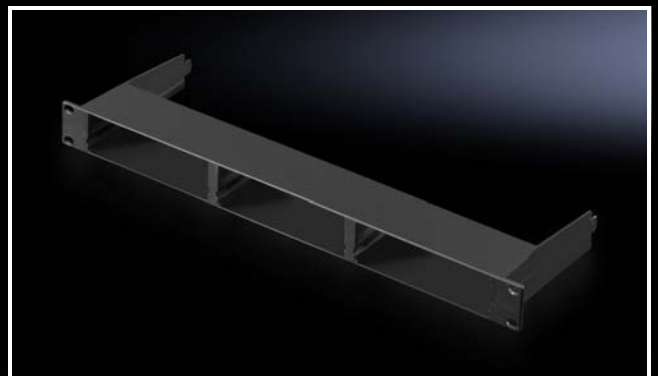
- Connector 1/2: RJ 45
- Lengths: 0.5 m – 10 m



CMC III mounting unit

The CMC III mounting units make it easier to install CMC III units in network and server enclosures. There are two different mounting units – one for installation in the 19" section (encompasses three CMC III units) and one for installation on the enclosure frame. Click and snap-in fixings make installation and subsequent maintenance work easier.

- CMC III mounting unit, 1 U:
W x H x D: 19" x 1 U x 141 mm
- CMC III mounting unit for enclosure frame:
W x H x D: 170 x 50 x 160 mm



CMC III accessories



CMC III GSM unit

A module for a redundant alarm signal can be connected to each CMC III Processing Unit / Compact. The GSM unit quad-band forwards the alarm notifications as an SMS to up to 16 recipients via GSM.

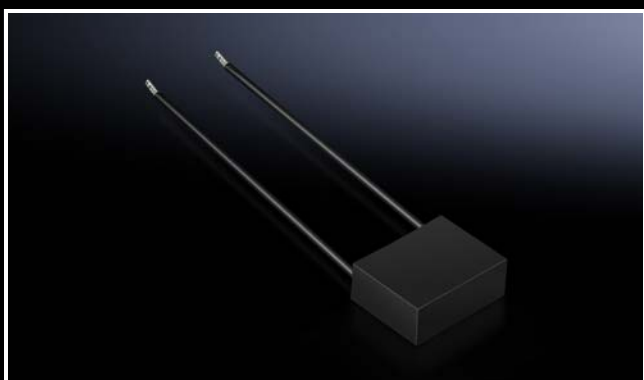
- Frequency range: 850/900/1800/1900 MHz
- W x H x D: 138 x 40 x 120 mm
- Front: 12 mm



CMC III ISDN unit

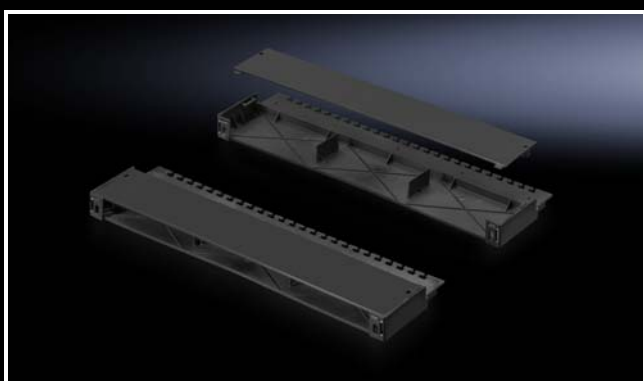
A module for a redundant alarm signal can be connected to each CMC III Processing Unit / Compact. The ISDN unit forwards the alarm notifications as an SMS to up to 16 recipients via ISDN.

- DSS1 (Euro-ISDN)
- W x H x D: 138 x 40 x 120 mm
- Front: 12 mm



CMC III interference suppressor for fans

When using the Power Unit, it is important to suppress interference from the fan motors that it operates. To do this, the interference suppressors for each fan must be connected directly to the motor. Each interference suppressor incorporates a capacitor and a resistor.



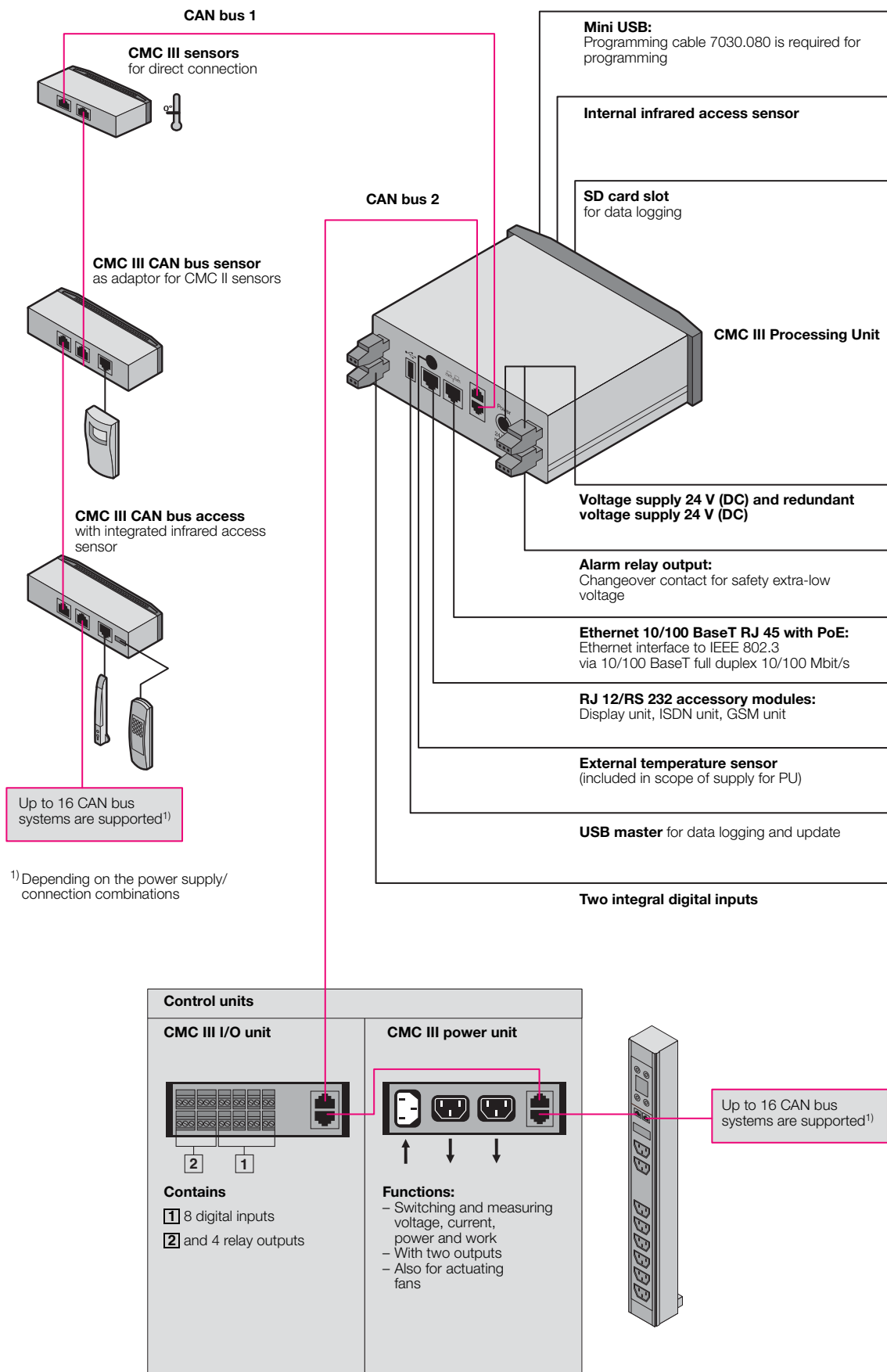
CMC III cable clamp straps

For securing to the rear of the CMC III 19" mounting unit. Enables tidy cable routing behind the built-in CMC III devices and can be used to attach cables for strain relief purposes. Cables can easily be laid in a loop to allow the built-in CMC III devices to be removed from the mounting unit without the need for tools.

CMC III – monitoring system

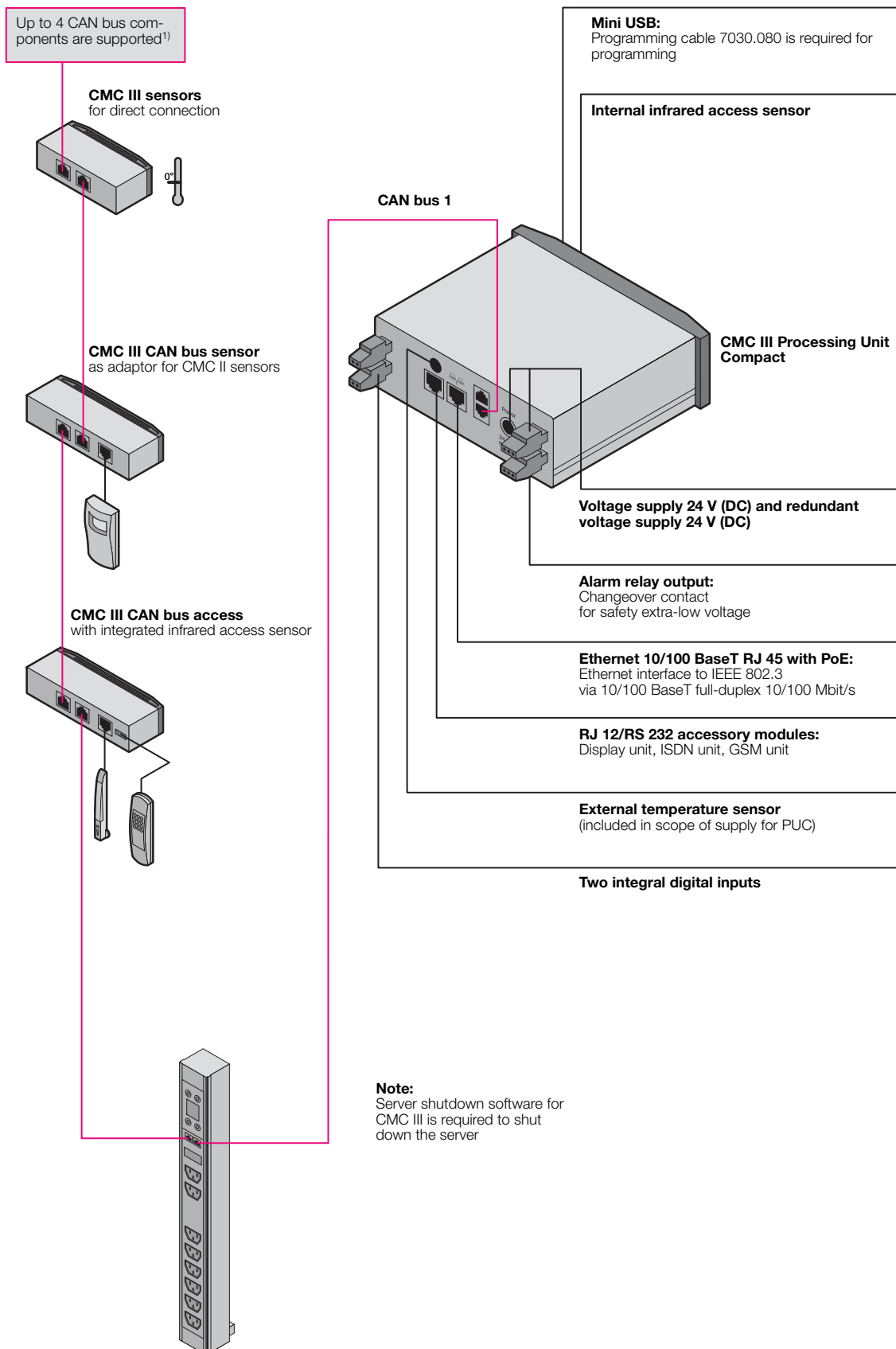
CMC III Processing Unit

System overview



CMC III – monitoring system

CMC III Processing Unit Compact System overview



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- Climate Control
- IT Infrastructure
- Software & Services

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