

String monitoring

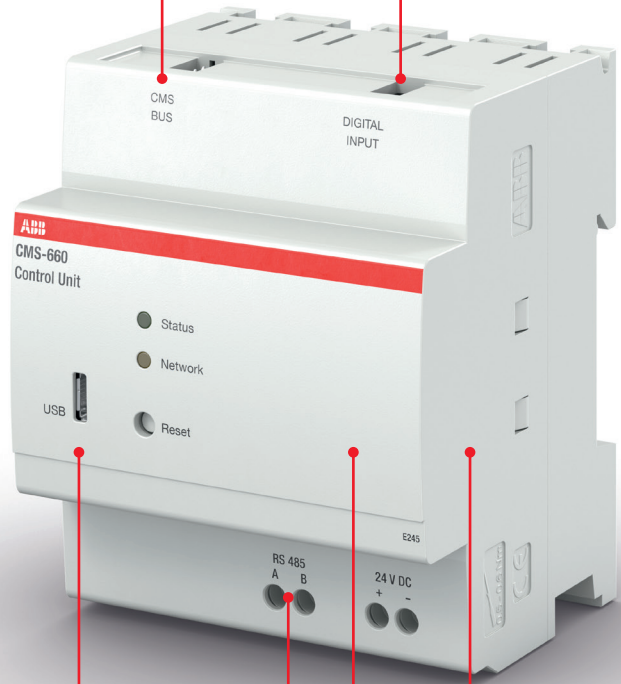
CMS-660 circuit monitoring system

Extreme flexibility

The number (up to 32) and positioning of the sensors is fully customizable, ensuring the highest flexibility in integration to different system conditions

Up-to-date system status

CMS-660 immediately detects unusual system status (e.g. solar shading, over-voltages, breaker trip, high temperature), facilitating maintenance of the system



User friendliness

Local information, thanks to the LEDs, about network and device status. Reset button to easily set the device.

Smart commissioning

Thanks to the intelligent, intuitive configuration, the CMS system can be configured and put into operation in just a few minutes.

Compatibility

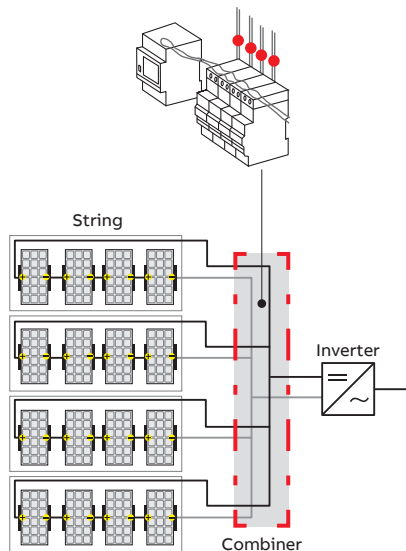
RS485 port to guarantee easy integration with the plant / inverter monitoring systems.

One sensor for all currents and strings

Direct, alternating or mixed – in a wide measuring range up to 80A, allowing the combination of two strings into one solid-core sensor.

String monitoring

CMS-660



Circuit monitoring system for PV applications

The CMS string monitoring increases the efficiency of photovoltaic systems by detecting failures on PV strings. With the easy-to-integrate system you can immediately detect unusual system status, e.g. defective strings, over-voltages, breaker trips or high temperatures, enabling you to quickly implement appropriate countermeasures.

Key features:

- Current and temperature measurement directly from the sensors
- Monitoring of two strings can be combined into one single CMS solid-core sensor
- Integration of SPD and Switch disconnecter status via 2 digital inputs
- Up to 32 flexible monitoring points, placed where measurement is required
- LEDs provide local information about network and device status.
- Modbus RTU protocol guarantees easy integration into plant or inverter monitoring systems
- Connection technology is extremely simple and requires no special tools

Control unit – CMS-660

Main technical specification

CMS-660

General data

| | | |
|--------------------------|-------|--|
| Degree of protection | | IP20 |
| Operating temperature | [°C] | - 25 .. +70 °C |
| Storage temperature | [°C] | - 40 .. +85 °C |
| Dimensions W / H / D | [mm] | 71.8 x 87.0 x 64.9 (4 modules) |
| Screw-type terminals | | 0.5...2.5 mm ² , max 0.6 Nm |
| Altitude | [m] | ≤ 2000 m |
| Insulation strength | [VAC] | 400 |
| Installation on DIN-rail | | 35 mm (DIN EN 50022) |
| Reference standards | | IEC 61010-1 UL 508/CSA C22.2 No. 14 |

Supply

| | | |
|----------------|-------|----------------------------------|
| Supply voltage | [VDC] | 24 (±10%) |
| Power Input | [W] | 0.5 - 11 (dep. on n. of sensors) |

Serial interface (RS-485)

| | | |
|---------------------------|--|--------------------|
| Serial transmission speed | | 2.4 ... 115.2 kbps |
| Cable type | | Twisted, shielded |
| Communication protocol | | Modbus RTU |

Measuring inputs

| | | |
|------------------------|--|----------------------------|
| Max. number of sensors | | 32 |
| Refresh time | | ≤1 sec with max 32 sensors |

Digital inputs

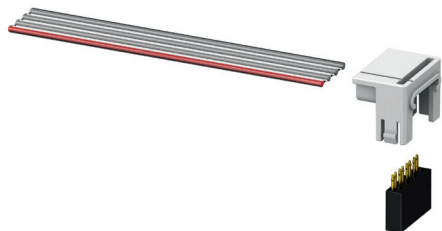
| | | |
|----------------------------|--|----------------------------|
| Connection method | | Push-in spring connection |
| Cable diameter | | max. 0.5mm ² |
| Electrical characteristics | | for potential-free contact |

Micro USB port




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String monitoring

CMS-660



Sensors

| Mounting type | System pro M | DIN rail | Cable Ties |
|------------------|--|---|---|
| | Direct mounting on fuse holders E90 1000V DC | universal use | universal use |
| |  |  |  |
| CMS-120xx (80 A) | | CMS-120DR | CMS-120CA |
| CMS-121xx (40 A) | CMS-121FH | CMS-121DR | CMS-121CA |
| CMS-122xx (20 A) | CMS-122FH | CMS-122DR | CMS-122CA |

| Main technical specifications | | CMS-120xx | CMS-121xx | CMS-122xx |
|---------------------------------|-------|-------------------------------------|------------|------------|
| Max. measured current | [A] | 80 | 40 | 20 |
| Measuring method | | TRMS, AC 50/60 Hz, DC | | |
| Peak factor, distorted waveform | | ≤ 1.5 | ≤ 3 | ≤ 6 |
| AC accuracy* (TA = + 25 °C) | | ≤ ± 1 % | | |
| AC temperature coefficient | | ≤ ± 0,04 % | | |
| DC accuracy* (TA = + 25 °C) | | ≤ ± 1.2 % | ≤ ± 1.4 % | ≤ ± 1.8 % |
| DC temperature coefficient | | ≤ ± 0.14 % | ≤ ± 0.24 % | ≤ ± 0.44 % |
| Resolution | [A] | 0.01 | | |
| Sampling rate, internal | [Hz] | 5000 | | |
| Response time (±1 %) | [sec] | typ. 0.34 | | |
| Max. cable diameter | [mm] | 9,6 | | |
| Insulation strength | [V] | 690V AC/1500V DC | | |
| Reference standards | | IEC 61010-1 UL508/CSA C22.2 No 14 | | |
| Dimensions | | | | |
| CMS-120FH Serie | [mm] | 17.4 x 41.0 x 38.9 | | |
| CMS-120CA Serie | [mm] | 17.4 x 41.0 x 29.0 | | |
| CMS-120DR Serie | [mm] | 17.4 x 51.5 x 43.2 | | |

* All accuracy specifications refer to the relevant full scale value and apply at 25 °C.
The position of the cable affects accuracy.

Accessories

The CMS flat cable is a 4-pin cable to connect sensors and control unit. The cable is available in four lengths (2m, 5m, 10m, 30m). Cables can be adapted, through cutting, to the various lengths required by the application. Maximum cable length of the CMS flat cable depends on the number of sensors.

A connector set is available to connect the flat cable to the sensors.

Order information

Open-core sensors

| Description | | ABB code | Weight of 1 unit (kg) | Unit conf. (Pcs) |
|--|-----------|-----------------|-----------------------|------------------|
| Type | | | | |
| Open-core sensors 18 mm for retrofit of E90 fuseholders 1000VDC | | | | |
| 40 A | CMS-121FH | 2CCA880216R0001 | 0.012 | 1 |
| 20 A | CMS-122FH | 2CCA880217R0001 | 0.012 | 1 |
| Open-core sensors 18 mm for DIN-rail (universal use) | | | | |
| 80 A | CMS-120DR | 2CCA880240R0001 | 0.015 | 1 |
| 40 A | CMS-121DR | 2CCA880241R0001 | 0.015 | 1 |
| 20 A | CMS-122DR | 2CCA880242R0001 | 0.015 | 1 |
| Open-core sensors 18 mm for cable tie mounting (universal use) | | | | |
| 80 A | CMS-120CA | 2CCA880220R0001 | 0.011 | 1 |
| 40 A | CMS-121CA | 2CCA880221R0001 | 0.011 | 1 |
| 20 A | CMS-122CA | 2CCA880222R0001 | 0.011 | 1 |

Solid-core sensors

| Description | | ABB code | Weight of 1 unit (kg) | Unit conf. (Pcs) |
|---|-----------|-----------------|-----------------------|------------------|
| Type | | | | |
| Solid-core sensors 18 mm for pro M & SMISLINE installation devices with twin terminals | | | | |
| 80 A | CMS-100PS | 2CCA880100R0001 | 0.012 | 1 |
| 40 A | CMS-101PS | 2CCA880101R0001 | 0.012 | 1 |
| 20 A | CMS-102PS | 2CCA880102R0001 | 0.012 | 1 |
| Solid-core sensors 18 mm for DIN rail mounting (universally usable) | | | | |
| 80 A | CMS-100DR | 2CCA880128R0001 | 0.015 | 1 |
| 40 A | CMS-101DR | 2CCA880129R0001 | 0.015 | 1 |
| 20 A | CMS-102DR | 2CCA880130R0001 | 0.015 | 1 |
| Solid-core sensors 18 mm for cable tie mounting (universally usable) | | | | |
| 80 A | CMS-100CA | 2CCA880107R0001 | 0.011 | 1 |
| 40 A | CMS-101CA | 2CCA880108R0001 | 0.011 | 1 |
| 20 A | CMS-102CA | 2CCA880109R0001 | 0.011 | 1 |

Control Unit

| Description | | ABB code | Weight of 1 unit (kg) | Unit conf. (Pcs) |
|----------------------|---------|-----------------|-----------------------|------------------|
| Type | | | | |
| CMS-660 control unit | CMS-660 | 2CCA880020R0001 | 0.153 | 1 |

Accessories

| Description | | ABB code | Weight of 1 unit (kg) | Unit conf. (Pcs) |
|------------------------|---------|-----------------|-----------------------|------------------|
| Type | | | | |
| 2 m flat cable | CMS-800 | 2CCA880148R0001 | 0.017 | 1 |
| 5 m flat cable | CMS-802 | 2CCA880331R0001 | 0.045 | 1 |
| 10 m flat cable | CMS-803 | 2CCA880332R0001 | 0.090 | 1 |
| 30 m flat cable | CMS-805 | 2CCA880333R0001 | 0.270 | 1 |
| Connector set (35 pcs) | CMS-820 | 2CCA880145R0001 | 0.024 | 35 |