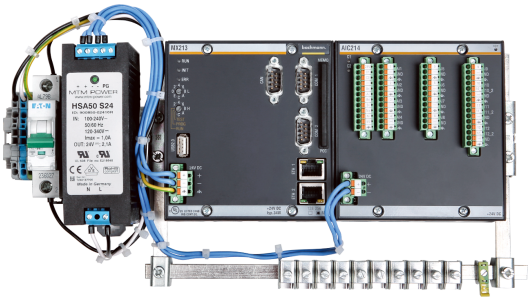
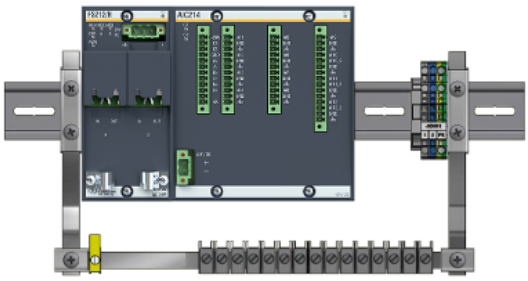
Stand-alone solution



Top Box solution



Retrofit integrated solution [1)]

[1)] *Note that integrated solutions can be included in the main controller. The retrofit kit is for later addition of the functionality, or where the machinery to be monitored is remote from the Main controller.*

CMSadvanced
Condition Monitoring System

The condition monitoring system CMSadvanced is an intelligent monitoring solution without mechanical moving components such as hard disks or fans, which is robust for use under harsh ambient conditions. The system is tested and certified to DNV requirements.

The hardware and software architecture is based on a modular concept, providing flexibility to configure analog and digital inputs and outputs. Different system variants are available, which enable both drive train monitoring and structural monitoring tasks.

CMSadvanced offers a range of sample rates with corresponding filters. Vibration signals are processed in accordance with ISO guidelines for machine vibration to provide realtime rms values of acceleration or velocity as a continuous output. Analysis software also captures frequency data periodically for the purposes of condition monitoring.

Bachmann prides itself on the high quality of hardware. Our systems in the field exceed 99.9% availability. However extensive self-test routines enable a detailed functional check of the CMS including connected sensors.

The Bachmann software offers standard routines for all tasks in connection with vibration monitoring. Plug-ins allow extensions to these capabilities. Script-oriented software enables easy adaptation of monitoring tasks that can arise due to special requirements for specific system parts.

Features

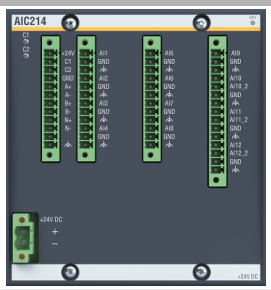
- Modularity
- Easy to expand
- Supports many data formats (CAN, Profinet, OPC etc.)
- Can be integrated within Bachmann controllers
- Continuous ISO rms values
- Wide operating temperature range
- Robust to environmental influences
- Watchdog self-monitoring
- Wide range of sample rates
- Web-based Weblog software and client-based WebLog Expert® software for remote monitoring and diagnostics
- Support from Bachmann's DNV certified monitoring team

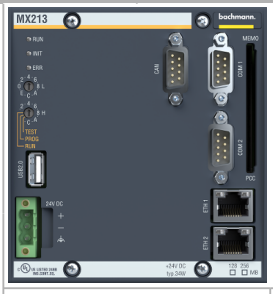
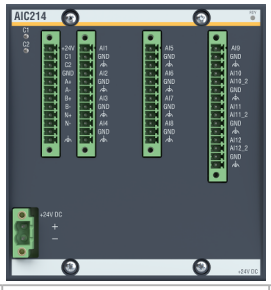
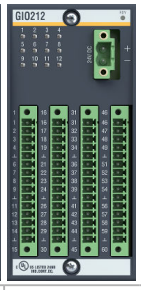
System variants

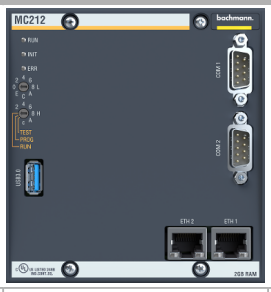
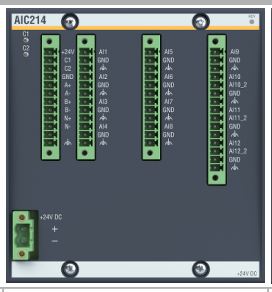
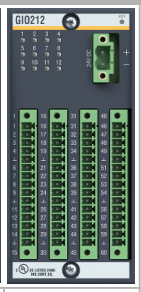
CMSadvanced is available in a range of variants intended to suit a broad range of different application needs.

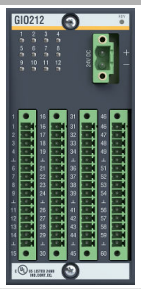
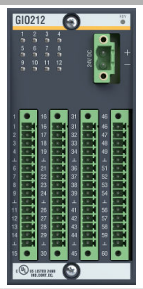
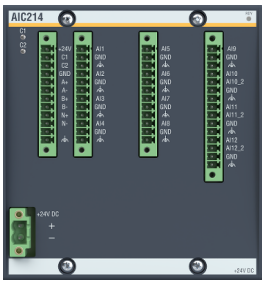
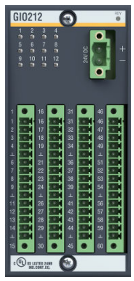
Details are described in the following tables. Bespoke arrangements can also be developed on request.

CMSadvanced stand-alone solution

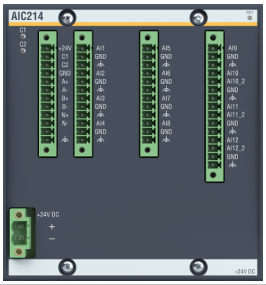
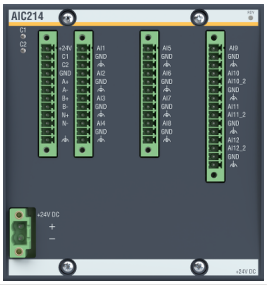
Part Type Designation and Part Number	Bachmann modules				Details
CMS Type 210 (EU) 00033203-00 **CMS Type 210 (US)** 00033203-10					Application: high-frequency vibration and speed measurement for drivetrain monitoring, modularly expandable Backplane: BS205E 00028654-00 Cable harness: EU or US version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD AIC RT 00032043-99
	Slot 1, 2: MX213 CPU/0 CF 00031491-00	Slot 3, 4: AIC214 00028808-00	Slot 5: LM201 00009494-00	Slot 6: –	

Part Type Designation and Part Number	Bachmann modules				Details
CMS Type 211 (EU) 00033204-00					Application: high-frequency vibration and speed measurement for drivetrain monitoring with extended analog inputs Backplane: BS205E 00028654-00 Cable harness: EU version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD AIC RT 00032043-99
	Slot 1, 2: MX213 CPU/0 CF 00031491-00	Slot 3, 4: AIC214 00028808-00	Slot 5: GIO212 00020620-00	Slot 6: –	

Part Type Designation and Part Number	Bachmann modules				Details
CMS Type 212 (EU) 00033205-00 **CMS Type 212 (US)** 00033205-10					Application: high-frequency vibration and speed measurement for drivetrain and structure monitoring with extended analog inputs and high-performance processor Backplane: BS206E (00028685-00) Cable harness: EU or US version Memory: CFast 4GB 00017355-00 License: CMSSTD AIC RT 00032043-99
	Slot 1: NT255 00031426-00	Slot 2, 3: MC212-2GB/0MB CFA 00031731-00	Slot 4, 5: AIC214 00028808-00	Slot 6: GIO212 00020620-00	

Part Type Designation and Part Number	Bachmann modules					Details
CMS Type 213 (EU) 00033206-00						Application: vibration measurement for structure monitoring with extended analog inputs Backplane: BS205E 00028654-00 Cable harness: EU version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD GIO RT 00032042-99
	Slot 1, 2: MX213 CPU/0 CF 00031491-00	Slot 3: LM201 00009494-00	Slot 4: GIO212 00020620-00	Slot 5: GIO212 00020620-00	Slot 6: –	
CMS Type 214 (EU) 00034290-00						Application: high-frequency vibration and speed measurement for drivetrain monitoring with extended analog inputs, modularly expandable Backplane: BS206E 00028685-00 Cable harness: EU version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD AIC RT 00032043-99
	Slot 1, 2: MX213 CPU/0 CF 00031491-00	Slot 3, 4: AIC214 00028808-00	Slot 5: GIO212 00020620-00	Slot 6: LM201 00009494-00		

CMSadvanced Top Box and integrated systems

Part Type Designation and Part Number	Bachmann modules				Details
CMS Type 201 partly integr. (EU) 00033199-00 **CMS Type 201 partly integr. (US)** 00033199-10					Application: high-frequency vibration and speed measurement for drivetrain monitoring for Top Box integration Backplane: BS204 00009752-00 Cable harness: EU or US version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD AIC RT 00032043-99
	Slot 1, 2: MX213 CPU/0 CF 00031491-00	Slot 3, 4: AIC214 00028808-00	Slot 5: –	Slot 6: –	
CMS Type 202 partly integr. (EU) 00033201-00 **CMS Type 202 partly integr. (US)** 00033201-10					Application: high-frequency vibration and speed measurement for drivetrain monitoring for controller integration Backplane: BS203 (00009313-00) Cable harness: EU or US version Memory: CFast 4GB 00017355-00 License: CMSSTD AIC RT 00032043-99 [1]
	Slot 1: FS212/N 00017824-00	Slot 2, 3: AIC214 00028808-00	Slot 4, 5: –	Slot 6: –	

[1] *A CMSSTD license is required for the CMS 202, however this must be associated with the existing CPU in the control system, and so must form a separate line in the order.*

CMSadvanced

AIC214	
Analog measurement channels	12 IEPE enabled measurement channels (3 alternatively ±10 V) + 2 counters
Sampling interval	100 Hz to 51.2 kHz (synchronous)
Error detection	Cable break, interference pulse, phase error, bias voltage
GIO212	
Analog measurement channels	12 selectable (±10 V, 4 mA to 20 mA, counter)
Sampling interval	Up to 400 Hz
Error detection	Cable break, interference pulse, phase error
CPU unit	
Interfaces	Ethernet, FASTBUS, CAN, CANOPEN, UPC UA, Profinet
Power supply	Multi-voltage power supply 100 V to 240 V / 50 Hz to 60 Hz / 50 W
External operating voltage	24 V / 5 V short-circuit-proof
Mechanical conditions and environmental conditions	
Mechanical class 3M4	EN 60721-3-3
Vibration sinusoidal	EN60068-2-6 Test level 2 Hz to 9 Hz ±3,5 mm, 9 Hz to 500 Hz ±10 m/s
Shock and continuous shock	EN 60068-2-27 Test level 15 g over 11 ms, all axes
Air pressure	EN 60068-2-13 Test level: 106 kPa to 58 kPa (0 to 4500 m)
Temperature range	-30 °C to +60 °C between 5% and 95% humidity (no condensation)
Insulation resistance	EN 61557-2
Interference immunity	EN 61000-6-2
Galvanic isolation	AC voltage EN 60255-5 Test level 500 V_{eff}, 50 Hz, 1 min
Electrical tests	ESD EN 61000-4 -2, -3, -4, -5, -6, -8, -9 and -11
Switch cabinet	
Mounting	Wall mounting, fixing feet mounting, mounting with magnets
Degree of protection	IP65
Dimensions	380 mm × 380 mm × 210 mm
External temperature range	-25 °C to +55 °C between 5% and 95% humidity (no condensation)