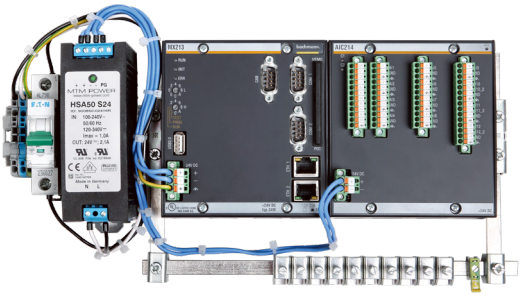
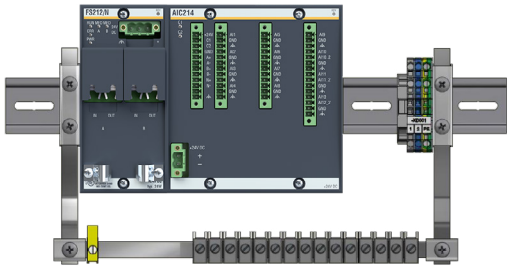
Stand-alone Solution



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 (Ω-Guard®) 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, and 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.

Bachmann software provides comprehensive standard routines for all tasks associated with vibration monitoring. Plug-ins allow extensions to these capabilities. The script-oriented software also enables easy customisation to different monitoring tasks that may arise due to special technical requirements identified for specific plant items.

Advantages

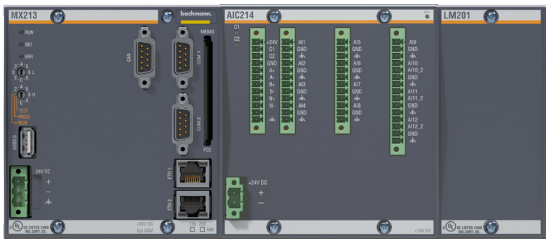
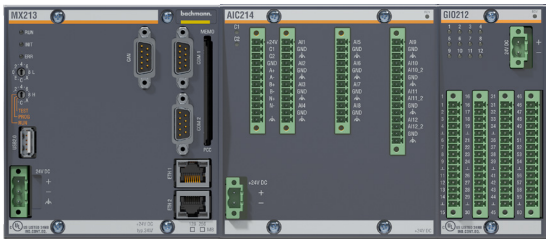
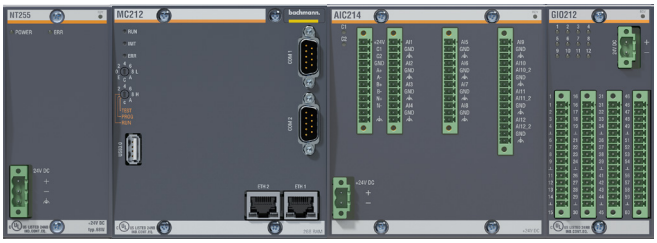
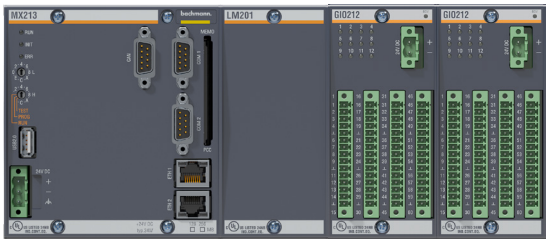
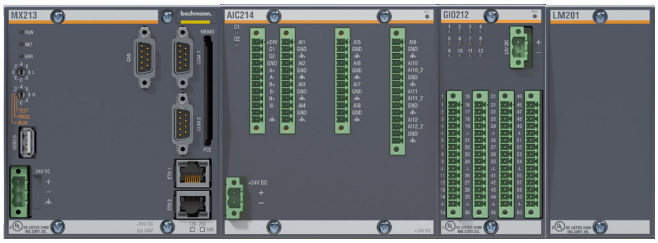
The specific advantages of CMSadvanced include:

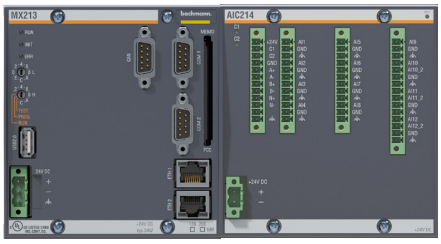
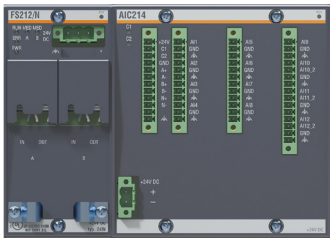
- Modularity
- Easy to expand
- Supports many data formats (CAN, Profinet, OPC etc.)
- Can be integrated within Bachmann controllers
- Continuous ISO rms values
- Wide operating temperature range
- Robust to environmental influences
- Watchdog self-monitoring
- Wide range of sample rates
- Web based “Weblog” 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. These are summarised in the following tables. Bespoke arrangements can also be developed on request.

CMSadvanced Stand-alone Solution

Item	Item-No.	Bachmann Modules	Details
CMS Type 210 EU	00033203-00		Application: high-frequency vibration and speed measurement for drivetrain monitoring, modularly expandable Backplane: BS205E 00028654-00 Slot 1&2: MX213 CPU/0 CF 00031491-00 Slot 3&4: AIC214 00028808-00 Slot 5: LM201 00009494-00 Slot 6: - Cable harness: EU or US version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD AIC RT 00032043-99
CMS Type 210 US	00033203-10		
CMS Type 211 EU	00033204-00		Application: high-frequency vibration and speed measurement for drivetrain monitoring with extended analog inputs Backplane: BS205E 00028654-00 Slot 1&2: MX213 CPU/0 CF 00031491-00 Slot 3&4: AIC214 00028808-00 Slot 5: GIO212 00020620-00 Slot 6: - Cable harness: EU version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD AIC RT 00032043-99
CMS Type 212 EU	00033205-00		Application: high-frequency vibration and speed measurement for drivetrain and structure monitoring with extended analog inputs and high-performance processor Backplane: BS206E 00028685-00 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 Cable harness: EU or US version Memory: CFast 4GB 00017355-00 License: CMSSTD AIC RT 00032043-99
CMS Type 212 US	00033205-10		
CMS Type 213 EU	00033206-10		Application: vibration measurement for structure monitoring with extended analog inputs Backplane: BS205E 00028654-00 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: - Cable harness: EU version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD GIO RT 00032042-99
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 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 Cable harness: EU version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD AIC RT 00032043-99

CMSadvanced Top Box and Integrated Systems			
Item	**Item No.**	**Bachmann Modules**	**Details**
CMS Type 201 partly integr. EU	00033199-00		Application: high-frequency vibration and speed measurement for drivetrain monitoring for Top Box integration Backplane: BS204 00009752-00 Slot 1&2: MX213 CPU/0 CF 00031491-00 Slot 3&4: AIC214 00028808-00 Slot 5: - Slot 6: - Cable harness: EU or US version Memory: CFCard UDMA 4GB 00016586-00 License: CMSSTD AIC RT 00032043-99
CMS Type 201 partly integr. US	00033199-10		
CMS Type 202 integrated EU	00033201-00		Application: high-frequency vibration and speed measurement for drivetrain monitoring for controller integration Backplane: BS203 00009313-00 Slot 1: FS212/N 00017824-00 Slot 2&3: AIC214 00028808-00 Slot 4: - Slot 5: - Slot 6: - Cable harness: EU or US version Memory: - License: CMSSTD AIC RT 00032043-99 [1)]
CMS Type 202 integrated US	00033201-10		

1) A CMSSTD license is required for the CMS-System 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 (3 alternatively ±10 V) + 2 counters
Sampling rate	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 to 20 mA, counter)
Sample rate	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 to 240 V / 50 to 60 Hz / 50 W
External operating voltage	24 V / 5 V short-circuit-proof
Mechanical and Environmental Conditions	
Mechanical class 3M4	EN 60721-3-3
Vibration sinusoidal	EN 60068-2-6 Test level 2 to 9 Hz ±3.5 mm, 9 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 106-58 kPa (0 to 4500 m)
Temperature Range	-30 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
Cabinet	
Mounting	Wall mounting, fixing feet mounting, mounting with magnets
Protection Class	IP65
Dimensions	380 mm x 380 mm x 210 mm
External Temperature Range	-25 to +55 °C between 5 and 95 % humidity (no condensation)