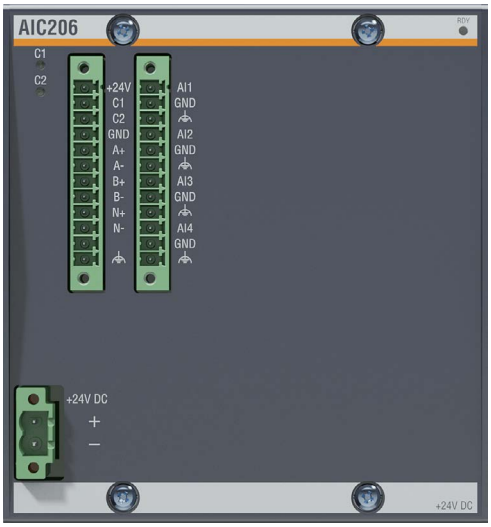


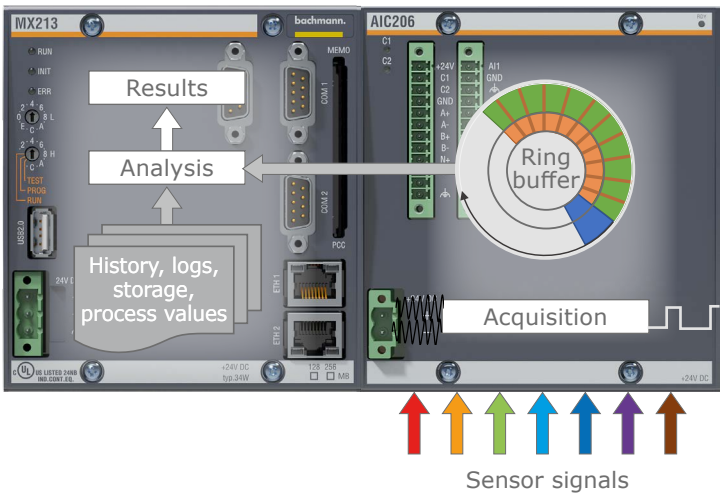
Item	Item no.
AIC206	00031353-00

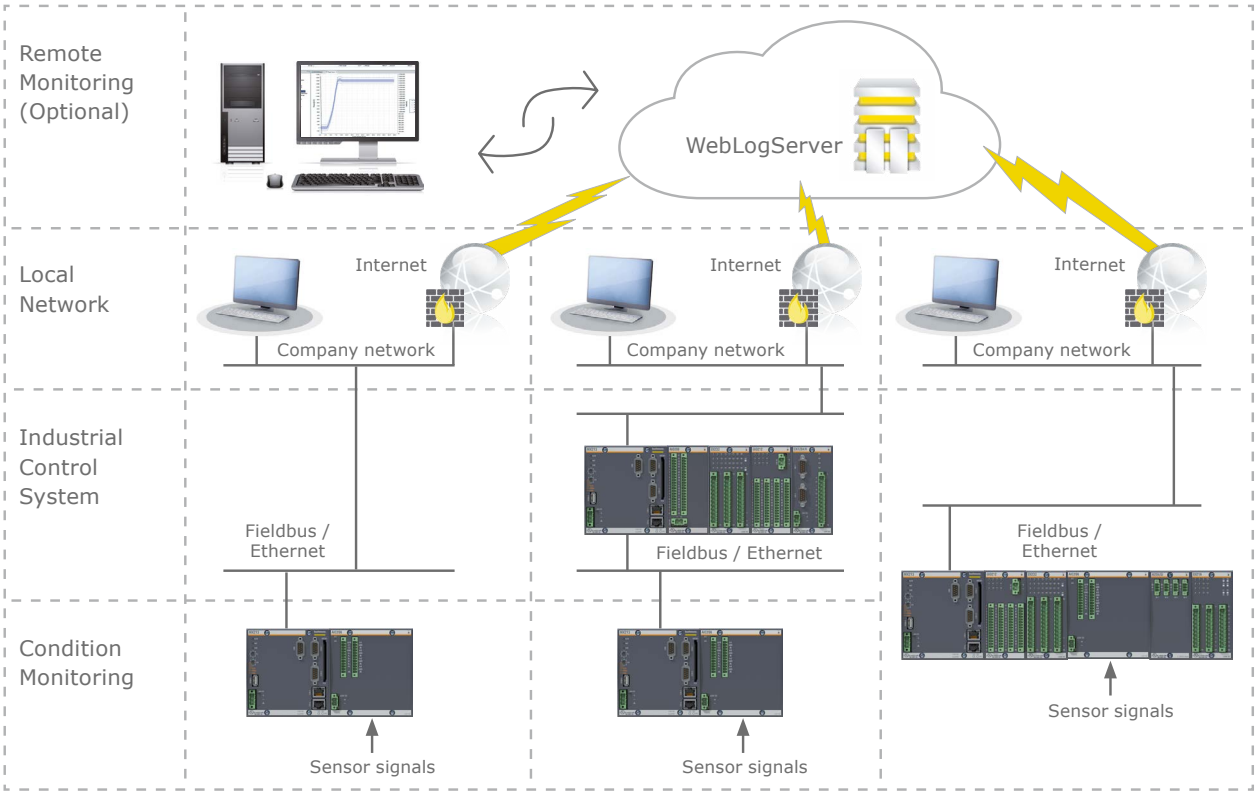
AIC206
Vibration Sensor Input Module

The AIC206 module offers a vibration monitoring solution that can be fully integrated with the control system. The AIC206 can provide up to 4 channels of ICP®/IEPE enabled vibration inputs for high resolution, simultaneous monitoring. Two counter channels are provided for speed inputs, or alternatively as a single differential encoder, giving speed, position, direction of rotation and phase within a single measurement.

Independent signal sampling and processing of each channel ensures that sampling at up to 51.2 kHz is maintained. The upgrade from the AIC212 gives a greater dynamic range and introduces variable gains to accommodate the low signal levels from slow-moving parts. Each channel contains a ring buffer so that continuous values for bandpass filtered overall vibration (as acceleration or velocity) are available, each configurable with up to three alarm levels. Rotational speed is also stored directly in this buffer, which is timestamped. Routine monitoring data is obtained by copying this buffer under defined operating conditions, and/or on an alarm firing.

Integration with the M1 system means that values are available from any signal in the control system, or via field bus (eg Profibus; Modbus). Similarly, vibration values are available as variables within the cycles of the controller programs. The system is expandable simply by adding modules, either for further vibration channels or other input types. The module is also fully compatible with the 12 channel AIC214.





As an M1 standard module, the AIC206 can be implemented either as a "stand-alone" condition monitoring system or incorporated into the various remote or distributed configurations possible with the Bachmann automation system. The use of M1 CPUs allows this CMS to benefit from pre-existing communication and service interfaces, which reduces the start-up and maintenance costs.

The AIC206 system concept allows a free design of the condition monitoring software to the requirements of a specific application.

4 analogue inputs with IEPE interface for piezo vibration sensors:
- Analog inputs individually configurable for sensitivity
- 24 bit A-D Resolution with a dynamic range ≥ 96 dB
- Adjustable sampling rate up to 51.2 kHz
- Adjustable analog and digital filtering
- High-speed ring buffer directly on the module
- Full evaluation of frequency band RMS amplitudes as acceleration and velocity values available, e.g. as per ISO 10816-21
- Configurable threshold levels can be used to generate alarm signals
- Events due to alarm triggering send interrupts to the processor with a 1 µs response

2 counter channels:
- Position detection (incremental encoder input)
- Rotary encoder signal sampled synchronously

- Suitable for embedding in M1 plant management system or as an autonomous CMS
- Up to four AIC206 or AIC214 modules can operate in one system simultaneously
- Any signals from other modules or calculated variables can be used to trigger data storage via the M1
- Analyses can be designed to individual requirements
- Broad range of implementation tools (C, C++,) on the real-time operating system VxWorks®
- Synergy by using fieldbus and service communication
- Local storage in CPU Module Memory Card

AIC206	
Analog Inputs	IEPE
Channels	AI1 – AI4
Input voltage	IEPE standard (0 to 24 V)
A-D conversion; dynamic range	24 bit; ≥ 96 dB
Ring buffer	512 MB -> 67 million samples
Measurement range	AC-coupled ±6 V
Input impedance	10 kΩ
Current source for IEPE channels	< 5 mA / channel
Sample rate / Bandwidth	51.2 kHz / 0.1 Hz bis 21.8 kHz (-3 dB) 25.6 kHz / 0.1 Hz bis 11.1 kHz (-3 dB) 12.8 kHz / 0.1 Hz bis 5.53 kHz (-3 dB) 6.4 kHz / 0.1 Hz bis 2.76 kHz (-3 dB) 3.2 kHz / 0.1 Hz bis 1.38 kHz (-3 dB) 1.6 kHz / 0.1 Hz bis 690 Hz (-3 dB) 0.8 kHz / 0.1 Hz bis 345 Hz (-3 dB) 0.4 kHz / 0.1 Hz bis 173 Hz (-3 dB) 0.2 kHz / 0.1 Hz bis 86 Hz (-3 dB) 0.1 kHz / 0.1 Hz bis 43 Hz (-3 dB)
Full scale error at +25 °C	±0.1 %
Error detection	IEPE: Bias voltage outside expected range; cable break
Over voltage protection	-15 to +36 V

Incremental Counter and Encoder Inputs		
Interface	Optional: Either two counter inputs or one encoder	
	Initiator/Proximity Switch	Incremental encoder
Number of channels	2	1
Input signal	CNT1, CNT2	A-, A+, B-, B+, N-, N+
Analysis	On rising edge	1,2,4-fold edge evaluation or pulse direction mode
Count direction	Switchable via digital input or software	A/B Sequence or pulse direction
Indicator	Yes, green LED per channel	No
Count frequency	10 kHz	100 kHz
Count frequency	5 kHz	100 kHz ≤ 400 kHz at 4-fold edge evaluation
Minimum pulse duration	≥ 100 µs	–
Fault recognition	Spikes	Phase loss
Measurement resolution	32 bit	
Reference frequency	24 MHz ±100 ppm (41.7 ns resolution)	
Signal level	HTL (24 V) with 10 mA sink	

AIC206		
Power Supply	External	Internal
Reverse polarity protection	Yes	
Input voltage	Power supply 24 V (18 to 34 V)	Via backplane BS2xx
Current consumption	180 mA (at +24 VDC) incl. Σ current consumption of sensors (4.1 mA per sensor)	280 mA
Ambient conditions		
Operating temperature	-30 to +60 °C	
Rel. humidity operation	5 to 95 % without condensation	
Storage temperature	-40 to +85 °C	
Rel. humidity storage	5 to 95 % with condensation	
Approvals / Certificates		
General	CE, UL/cUL, CCC	
Maritime	DNV/GL, LR, ABS, BV	

Order codes AIC206		
Item	Item no.	Description
AIC206	00031353-00	Analog measuring module for Condition Monitoring; 4x Input IEPE; 24bit; 0.1%; ≥96dB dynamic range; 20µs sample time; 1x INC HTL; 400kHz; A,A/B/N; 512MB measured data ring buffer; real-time continuous output of values
Accessories		
KZ-AIC206 B+C	00031409-00	Terminal set Phoenix cage clamp (1x KZ 51/02; 2x KZ 35/12) with labelling strips and coding elements