

SKF Multilog On-line System IMx-B

Bogie monitoring system



The SKF Multilog On-line System IMx-B is a bogie monitoring system for all types of railway and other moving vehicles. The SKF Multilog IMx-B is easy to install on a railway bogie and will communicate wirelessly with an office server where maintenance people can monitor the condition of traction motors, gearboxes, axle box bearings and wheels.

Together with SKF @ptitude Monitoring Suite, SKF Multilog IMx-B provides a complex system for early fault detection and prevention, automatic recognition to correct existing or impending conditions, and advanced condition-based maintenance to improve machine reliability, availability, and performance.

Features

- Easy to install on the bogie itself
- Built-in GPRS Router providing communication between train and ground
- Bogie mounted electronics according to standard EN50155
- 16 dynamic or DC inputs and 8 digital or speed inputs
- True simultaneous measurements of all channels; true synchronous measurements programmable up to 16 analogue channels
- Smart system which recognizes the correct condition for when to collect data
- Multi-parameter gating
- Multiple acceleration enveloping filters
- Adaptive alarm levels
- Data buffering in non-volatile memory if communication is interrupted
- Output relay drivers
- Compatible with SKF @ptitude Monitoring Suite



General description

SKF Multilog IMx-B is a key component in an advanced condition monitoring system. It is a robust measurement unit designed for tough railway bogie environments.

Each SKF Multilog IMx-B is equipped with 16 analogue signal inputs. The dynamic signal inputs are configurable for a variety of sensors. Signals for parameters such as acceleration, velocity, temperature and others are easily adopted. Each input can be configured for standard accelerometers, 4 to 20 mA, or ± 25 V. In addition to the analogue channels, 8 digital channels may be used for measuring speed, trigger, or digital status such as indicating when a measurement can take place. Several measurement points may be attached to one channel and both AC and DC measurements can be measured on the same channel. Individual warning and alarm conditions may be set for each measurement point. Warning and alarm levels may be controlled by machine speed or load.

The SKF Multilog IMx-B performs as a machine condition monitoring system with several other units together throughout a complete train with the SKF @ptitude Monitoring Suite as the office tool for maintenance people. The unit's unique built-in hardware auto-diagnosis system continuously checks all sensors, cabling, and electronics for any faults, signal interruption, short circuits or power failure. System alarms are automatically generated for any problems found.

In the case of power failure, the SKF Multilog IMx-B will automatically restart when the power returns.

Technical Data

Environmental

- Dimensions (height \times width \times depth): 200 \times 400 \times 120 mm (7.8 \times 15.7 \times 4.7 in.)
- Weight: 6,5 kg (14.3 lbs.)
- IP rating: IP 66
- Temperature range: -40 to $+70$ °C (-40 to $+160$ °F)
- Maximum altitude: 2 000 m (6,561 ft.)

Power supply

- 24 VDC
- Power consumption: 30 W

Analogue inputs

- Analogue differential inputs: 16
- Individual 24 V power supply, maximum 35 mA/channel
- Selectable standard accelerometer power supply (4 mA)
- Input range: ± 25 V
- Impedance: >100 k Ω

Digital inputs

- Eight digital opto-isolated inputs
- Four channels with individual 24 V power supply, maximum 30 mA per channel

Outputs

- Four relay driver outputs
- One system relay output

Analogue measurement

- 24-bit AD conversion enables continuous transient capture (no gain or AC/DC switching necessary)
- 16 channels with true simultaneous sampling (no multiplexing)
- Simultaneous sampling of different channels with different sampling rates
- Frequency range: from DC to 40 kHz
- Dynamic range: 120 dB
- Signal to noise ratio: 90 dB
- Cross-talk rejection: 100 dB
- Accuracy amplitude: $\pm 2\%$ (up to 20 kHz), $\pm 5\%$ (20 to 40 kHz)
- Accuracy phase: $\pm 3^\circ$ (up to 100 Hz)

Digital measurement

- Frequency range: 0,1 Hz to 12,5 kHz
 - Required pulse width:
 - > 4 ms for electrical positive
 - > 40 ms for electrical negative
- Accuracy frequency: 0,05% of measurement value (typically 0,01% up to 2,5 kHz)
- Pulse counting

Signal processing

- Time waveform
- Vector analysis with circular alarms
- FFT: 100 to 6 400 lines
- SKF's four enveloping bands
- Integration/differentiation in frequency domain
- Window function: Hanning
- Customer formulated mathematical equations
- Dynamic alarm levels, active range determined on multiple parameters
- Data storage on time, event, or alarm condition
- Data buffering in flash memory when communication link is down
- Detection of sensor and cable fault
- Watchdog and self testing

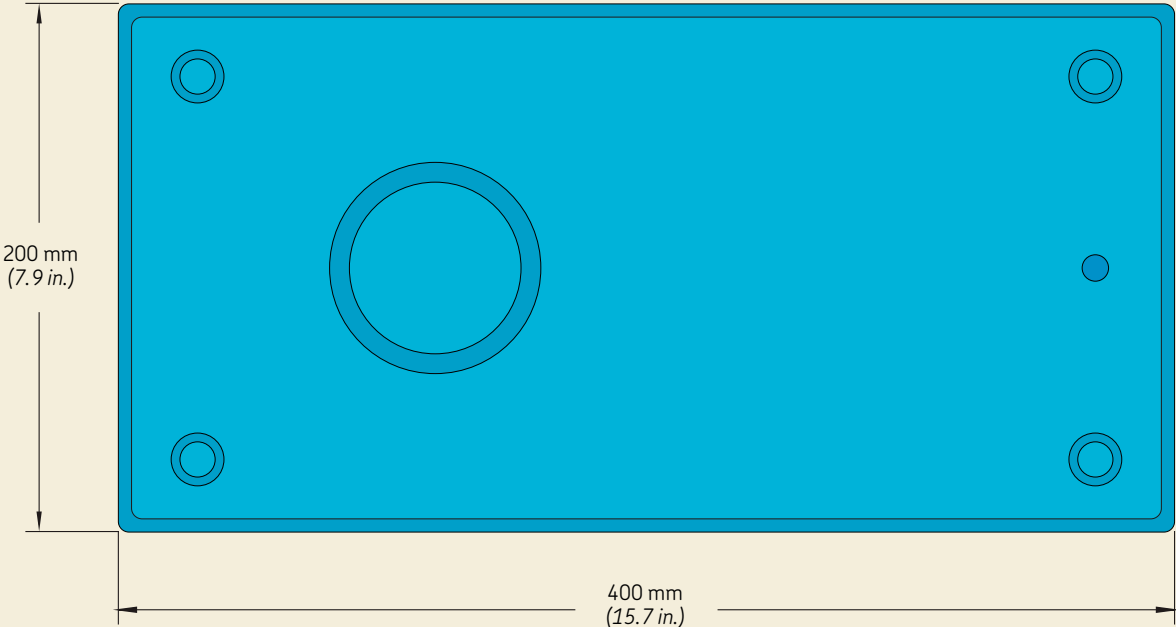
Interface

- Ethernet: 10/100 Mbit RJ45, TCP/IP, switch functionality
- RS 232 service interface
- 2-port Ethernet network switch (possible for daisy chaining)
- RS 485
- GPRS Router

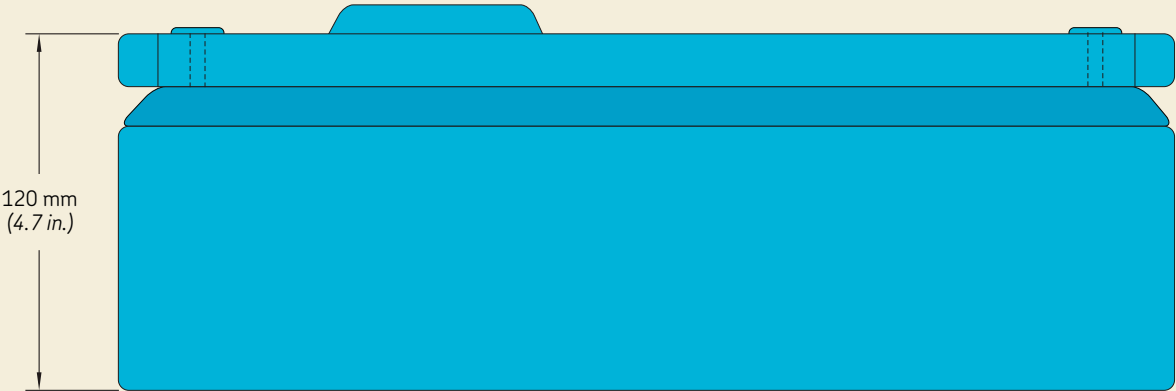
Miscellaneous

- Calibration, traceable to BIPM
- CE certified according to EN61000-6-4 and EN61000-6-2
- Railway bogie mounted electronics according to standard EN50155

Dimensions



Top view



Front view

Ordering information

- SKF Multilog On-line System IMx-B (one unit) [CMON 2017]
- For ordering multiple units, use the ordering table below:

SKF Multilog On-line System IMx-B, CMON 2017

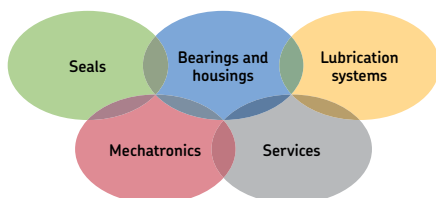
Part number	CMON 2017-xxx
xxx	Number of SKF Multilog IMx-B units
050	50 units
100	100 units
200	200 units

Installation and training

Installation and training available through your local SKF supplier or representative.

Product Support Plans (PSP)

A range of Product Support Plans is available to protect your investment. Contact your local SKF sales representative for additional information.



The Power of Knowledge Engineering

Combining products, people, and application-specific knowledge, SKF delivers innovative solutions to equipment manufacturers and production facilities in every major industry worldwide. Having expertise in multiple competence areas supports SKF Life Cycle Management, a proven approach to improving equipment reliability, optimizing operational and energy efficiency and reducing total cost of ownership.

These competence areas include bearings and units, seals, lubrication systems, mechatronics, and a wide range of services, from 3-D computer modelling to cloud-based condition monitoring and asset management services.

SKF's global footprint provides SKF customers with uniform quality standards and worldwide product availability. Our local presence provides direct access to the experience, knowledge and ingenuity of SKF people.

Please contact:

SKF Condition Monitoring Center – Luleå

Aurorum 30, SE-977 75 · Luleå, Sweden

Tel: +46 (0)31 337 1000 · Fax: +46 (0)920 134 40

Web: www.skf.com/cm

© SKF, @PTITUDE and MULTILOG are registered trademarks of the SKF Group.

All other trademarks are the property of their respective owners.

© SKF Group 2013

The contents of this publication are the copyright of the publisher and may not be reproduced (even extracts) unless prior written permission is granted. Every care has been taken to ensure the accuracy of the information contained in this publication but no liability can be accepted for any loss or damage whether direct, indirect or consequential arising out of the use of the information contained herein. SKF reserves the right to alter any part of this publication without prior notice.

Patents: US 4,768,380 · US 5,679,900 · US 5,845,230 · US 5,854,553 · US 5,992,237 · US 6,006,164 · US 6,199,422 · US 6,202,491 · US 6,275,781 · US 6,489,884 · US 6,513,386 · US 6,633,822 · US 6,789,025 · US 6,792,360 · WO/2003/048714 · US 5,633,811 · US 5,870,699 · US 6,437,692 · US 7,103,511 · US 7,697,492

PUB CM/P8 14192 EN · March 2014

