

SKF Multilog On-line System WMx

CMWA 7830

Compact, eight-channel, field-mounted wireless monitoring device



Introduction

SKF Multilog On-line System WMx is a compact, eight-channel, field-mounted monitoring device that communicates using industry-standard 802.11b/g/n wireless networking. It collects acceleration, velocity, displacement, temperature and bearing condition data and automatically uploads it for viewing, alarm evaluation, and analysis in SKF @ptitude Analyst software.

Key hardware features

- Eight channels (four dynamic, four process)
- Simultaneous vibration measurements
- Two digital inputs for speed / triggering / gating

- WiFi IEEE 802.11b/g/n on 2,4 GHz
- Supports WEP, WPA, or WPA2/PSK security
- External wake-up
- Spectrum and time domain data
- Up to 40 kHz bandwidth
- Up to 12 800 lines resolution
- Battery or 10 to 30 V DC power
- Compact, rugged, housing
- SKF Acceleration Enveloping filters 2, 3 and 4
- Use with standard industrial constant current powered sensors



SKF Multilog WMx is ideal for:

- Semi-critical/balance-of-plant machines
- Monitoring “bad actors”, troubleshooting
- Supplementing walk-around routes especially with installed sensors (at junction box)
- Remote monitoring via Internet
- Low-channel count, dispersed surveillance monitoring
- “End of life” tracking of failing components (e.g., bearings)

Benefits

- Reduced cost of installation
- Project acceleration / quick implementation
- Expanded monitoring coverage
- Maintain existing walk-around routes during manpower shortages
- Practical, temporarily installed 24/7 monitoring
- Easy relocation
- Derive additional value from installed WiFi infrastructure, no dedicated or proprietary wireless network required
- Fully untethered operation

System components

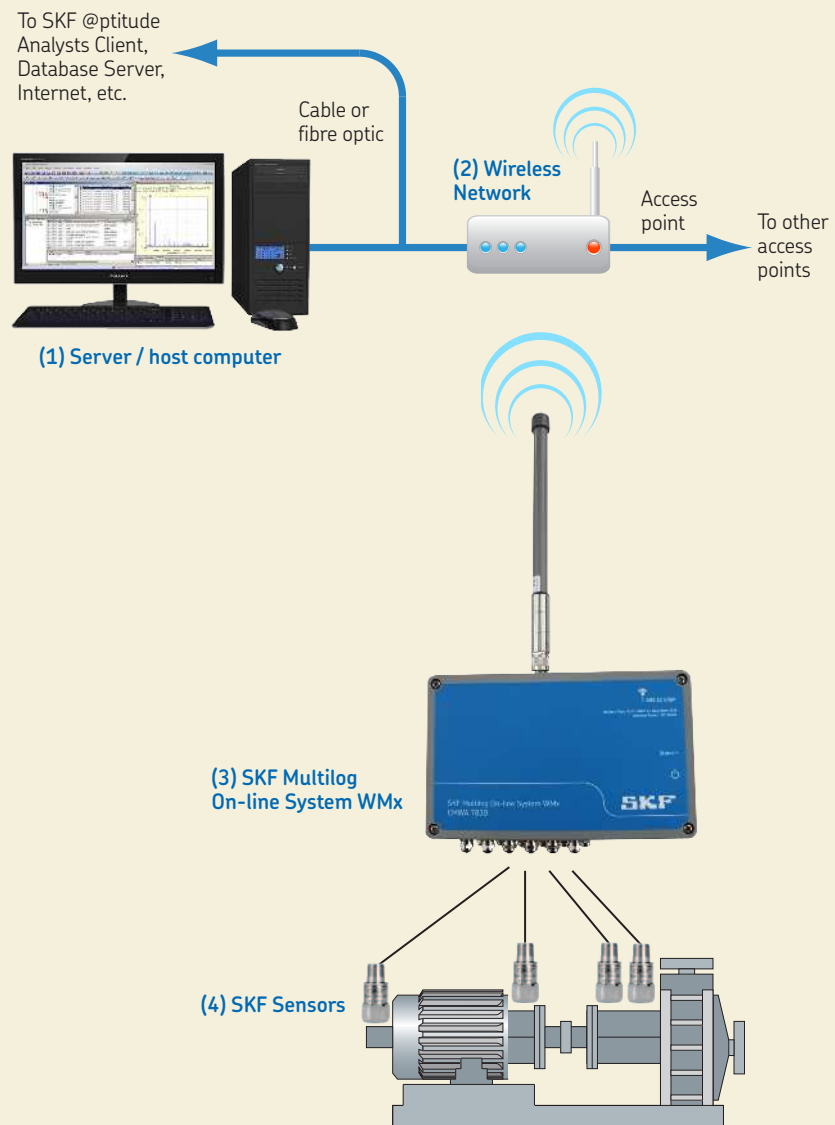
Hardware and basic network

Primary components include:

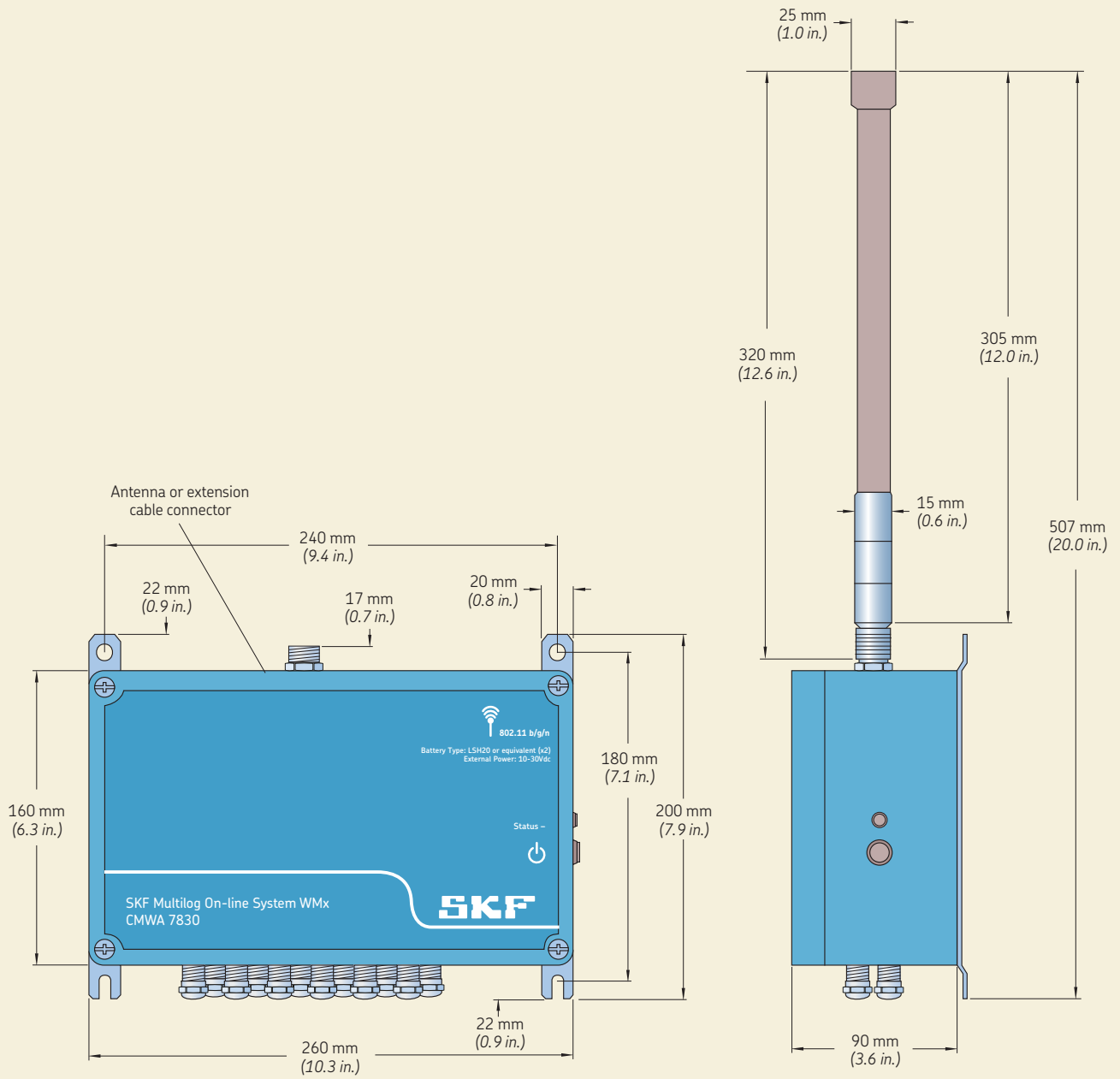
- 1 Server / host computer running SKF Multilog WMx Service*
- 2 Wireless network* supporting 802.11b/g/n
- 3 SKF Multilog WMx wireless monitoring device(s)
- 4 Sensors and cables*

* Purchased separately

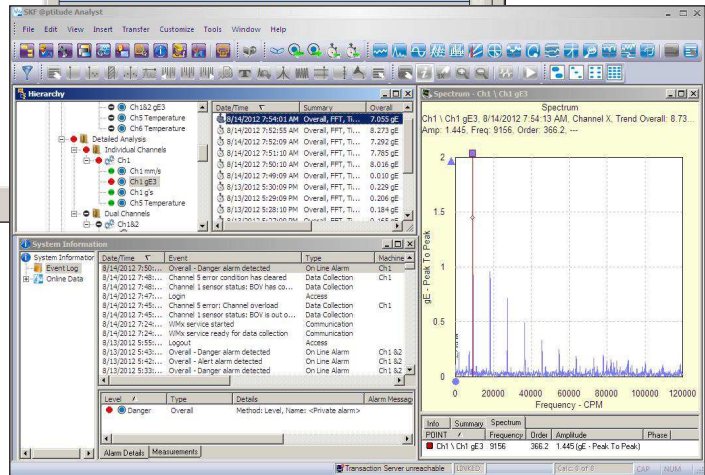
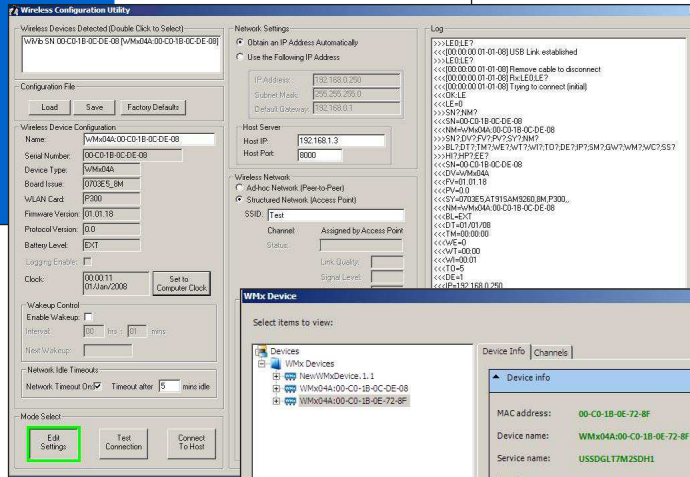
System components: hardware and basic network



SKF Multilog WMx dimensions



Software



Top to bottom:

- SKF @ptitude Analyst software (purchased separately)
- SKF Multilog WMx Wireless Configuration Utility
- SKF Multilog WMx device view in SKF @ptitude Analyst
- Data viewing, analysis and reporting in SKF @ptitude Analyst

Be up and running in three easy steps:

- 1 SKF Multilog WMx Wireless Configuration Utility is used to configure the SKF Multilog WMx to talk to your SKF @ptitude / SKF Multilog WMx Service through your wireless network.

- 2 SKF @ptitude Analyst software makes it easy for you to create the measurement setup for each SKF Multilog WMx.
- 3 Data is automatically uploaded to SKF @ptitude Analyst for viewing, analysis and reporting.

Specifications

Inputs

- Four (4) dynamic / AC channels
 - Input: 10 V peak-peak
 - Constant current diode: 2,4 mA at 20 V DC
 - Other coupling: AC coupling, jumper-configurable
 - ± 25 V range transducer check (e.g., bias voltage, displacement sensor gap) with user-selectable limits set in application
- Four (4) DC channels
 - Range: 0 to +3 V DC, 0 to +10 V fixed range or 4 to 20 mA input with built-in load resistors (jumper-configurable)
- Two (2) trigger (tacho)/gating inputs
 - one analog or digital, one NAMUR (powered) or digital
 - analog input: -25 V to + 25 V
 - digital input: low <0.5 V, and high >5 to 24 V
 - isolated or non-isolated (jumper configurable)
 - maximum frequency: 10 kHz
 - NAMUR (powered) type: two-wire nominal 8,2 V
 - NAMUR max frequency: 400 Hz
- External wake-up: 5 to 24 V DC digital input from PLC

Measurements

- Dynamic / AC channels
 - Acceleration, velocity, displacement, generic AC (Save FFT, Time, or FFT and Time)
 - Two channel Orbit
 - SKF Acceleration Enveloping
 - Filter 2 (50 to 1 000 Hz)
 - Filter 3 (500 to 10 000 Hz)
 - Filter 4 (5 000 to 40 000 Hz)
 - User-configurable Engineering Units (dynamic measurements)
- Static / DC channels: Generic DC, user-specified engineering units, offset and sensitivity (0 to 3 V DC, 0 to 10 V DC or 4 to 20 mA inputs), e.g., temperature

Wireless communications

- Network: WiFi IEEE 802.11b/g/n on 2,4 GHz
- Range: 300 meters (1 000 feet) line-of-sight
- Addressing: Static IP or DHCP
- Encryption: WEP, WPA, WPA2/PSK

Data acquisition modes

- Wake-up mode
 - Programmable from one minute to one day
 - External wake-up from PLC
- Continuous mode: Available for machine troubleshooting

Data acquisition and processing

- Analog digital converter (ADC)
 - 24 bit simultaneous AC coupled measurements on channels 1 to 4
 - 16 bit multiplexed DC coupled measurements on channels 5 to 8
- Sampling rates
 - Effective rate: 64 Hz to 102.4 kHz
 - Effective frequency bandwidth ranges: 25 Hz to 40 kHz*
- Data block lengths
 - 256; 512; 1 024; 2 048; 4 096; 8 192; 16 384; 32 768*
 - Spectral lines: Up to 12 800
 - Windowing: Hanning or flat top

* Subject to valid combinations of bandwidth and data block lengths

Power

- Battery
 - 2 pieces, SAFT LSH 20 (purchased separately)
 - Battery monitoring function
- External power: 10 to 30 V DC, isolated to 1 500 V
- Battery life: Up to three (3) years with one (1) wake-up per day
 - **NOTE 1:** Battery life is dependent on multiple operating parameters including, measurement settings, usage and ambient temperature.
 - **NOTE 2:** Continuous operation at the extreme ends of the ambient operating temperature range, high and low, will significantly shorten battery life.

Serial communications

- One (1) USB port for configuration of wireless network parameters and firmware upgrade

On-board visual indicators

- Seven (7) LEDs for communications, triggering, etc.
 - On / off
 - Wireless signal strength
 - WiFi connection status
 - Data acquisition status
 - Trigger input status
 - Configuration mode
 - Internal failure detection

Wireless Certification

- FCC: Part 15, Class C
- IC: RSS-Gen Issue 3, RSS-210 Issue 8 and RSS-102
- ETSI: EN 300 328 V1.8.1 (2012-06)
- European Community
 - CE
 - RoHS

Mechanical and environmental

- Protection: IP 66
- Enclosure: Cast aluminum, painted
- Weight (with battery): 2,8 kg (6.2 lbs.)
- Operating temperature: -20 to +70 °C (-4 to +158 °F)
- Cable glands: 12 pieces
- Cable entry size: 3,0 to 6,5 mm (0.12 to 0.26 in.)
- Enclosure dimensions:
 - Height: 160 mm (6.3 in.)
 - Width: 260 mm (10.2 in.)
 - Depth: 90 mm (3.5 in.)

Ordering information

Hardware

- **CMWA 7830-01*** SKF Multilog On-line System WMx, base hardware includes:
 - External antenna, 5dBi omni directional [**CMAC 7820-ANT**]
 - Battery holder board [**CMAC 7820-BH**]
 - Product Reference CD, with User Manual

* Batteries (2 pcs) not included.

Required Software

- **CMSW 7300** SKF @ptitude Analyst for SKF Microlog Analyzer, 2013 Edition or later
- **CMSW 7400** SKF @ptitude Analyst 2013 Edition or later

Accessories

Remote antenna installation accessories

- **CMAC 7820-ANT**, Antenna (spare), 5dBi omni directional
- **CMAC 7820-SP**, Surge protector for external antenna N-type to N-type connectors
- **CMAC 7820-MK**, Remote antenna mounting kit, consists of two (2) U-bolts and mounting bracket
- **CMAC 7820-EXTCBL-3M**, Extension cable for external antenna with N-type connectors, 3 meters (9.8 feet)
- **CMAC 7820-EXTCBL-10M**, Extension cable for external antenna with N-type connectors, 10 meters (32.8 feet)

NOTE: One (1) CMAC 7820-ANT is supplied with each SKF Multilog WMx [CMWA 7830-01]

Battery

- **CMAC 7820-BAT-02**, Battery (set of 2), lithium 3.6 V, D cell, type SAFT LSH 20

Battery holder

- **CMAC 7820-BH**, Battery holder (spare), includes battery cradle mounted on PC board with integral connector

NOTE: One (1) CMAC 7820-BH is supplied with each SKF Multilog WMx [CMWA 7830-01]

Recommended sensors

SKF Multilog WMx battery or externally powered

- Vibration sensors (up to 4 per SKF Multilog WMx)
 - CMSS 2100
 - CMSS 2100F
 - CMSS 2200
 - CMSS 2200F
- Combination Vibration and Temperature sensors (up to four per SKF Multilog WMx)
 - CMSS 2100T
 - CMSS 2200T
- Vibration sensors with extended operating temperature range (up to four per SKF Multilog WMx)
 - CMSS 2106
 - CMSS 2207

Example cable / connector assemblies:

Sensor grounding and use of non-isolated cable / connector assemblies is recommended.

- Vibration sensors
 - CMSS 932-68TLN-SY-5M (2-wire, IP 68 connector, twist lock, non-isolated, single shield, yellow cable, 5 m / 16,4 ft long)
 - CMSS 932-68LCN-SY-5M (2-wire, IP 68 connector, locking collar, non-isolated, single shield, yellow cable, 5 m / 16,4 ft long)
- Combination vibration and temperature sensors
 - CMSS 933-68TLN-SY-10M (3-wire, IP 68 connector, twist lock, non-isolated, single shield, yellow cable, 10 m / 32,8 ft long)
 - CMSS 933-68LCN-SY-10M (3-wire, IP 68 connector, locking collar, non-isolated, single shield, yellow cable, 10 m / 32,8 ft long)

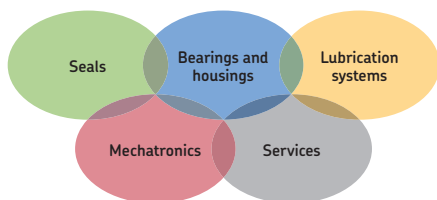
Tachometer and tachometer cable assemblies (in safe area only when used with CMWA 7830-01)

- **CMAC 7911:** (agency approved) tachometer sensor, NAMUR standard, 18 mm tip diameter, M18 x1 thread, 4-pin M12 connector, 5 mm working range
- **CMAC 7911-CABLE-10M**, 10 m (32.8 ft.) cable with 4-pin M12 connector
- **CMAC 7911-MTG FLANGE**, polycarbonate mounting flange for use with CMAC 7911

Support Services

SKF offers a wide range of on-site technical services including:

- System installation services – commissioning, testing, reporting
- Sensor mounting, installation or verification
- Vibration analysis by SKF Reliability experts
- Product and technology specific training through SKF Reliability Maintenance Institute



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 world-wide. 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.

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