Overview

SITRANS SCM IQ is a Siemens Insights Hub-based cloud application, used in conjunction with SITRANS MS200 and SITRANS CC220, for smart condition monitoring and predictive maintenance.

SITRANS MS200 is a battery-powered, wireless multisensor that provides process data that is not normally available for typical process control functions. MS200 can monitor conditions such as vibration states, temperature, and dynamic and static magnetic field strength.

SITRANS CC220 is an industrial IIOT gateway that collects measurement and status data from up to twelve SITRANS MS200 multisensors. It then forwards the data, via the plant network or a secondary data channel, to the SITRANS SCM IQ cloud application.

Benefits

- Detects changes to the normal operating conditions of industrial machinery such as pumps, motors, gears, etc., in industrial settings
- Detects the on/off state of each connected asset
- Labels detected anomalies and sends notifications
- Allows for more efficient maintenance planning through early warnings
- Sustainable sensor design with replaceable battery
- Improves control, protection, and availability of machinery
- Can help to reduce plant downtime
- Detailed FFT visualization for anomaly root cause analysis
- Built-in configuration tools and device management
- Easy commissioning, minimal training required, and long maintenance cycles

Application

SITRANS MS200 multisensors are suitable for use with a wide range of rotating equipment, within all industries that require rugged IIoT sensors. The sensors are suitable for measurement within any industrial environment and in hazardous areas. They can be used indoors and outdoors.

SITRANS MS200 sensors and corresponding SITRANS SCM IQ application, can be used in process industries such as food and beverage, water/wastewater, power generation, utilities, and chemical. Typical applications include filling stations, agitating vessels, and many types of pumps, gears, compressors, fans or bearings.

Design

SITRANS MS200 is contained within a rugged, IP68 and IP69 enclosure for use with rotating equipment. SITRANS CC220 is an IP20 device and is typically mounted inside a cabinet.

SITRANS SCM IQ is designed for use on the Siemens cloud-based IoT ecosystem, Insights Hub. Data and events stored in SITRANS SCM IQ can be utilized by various Siemens cloud-based applications to achieve comprehensive plant supervision and control.

Function

SITRANS MS200, Battery powered clamp-on sensor

- Monitors vibration, temperature, and magnetic field strength of rotating equipment

SITRANS CC220, IIOT gateway

- Cyclically polls data from MS200 multisensors
- Securely uploads data to SITRANS SCM IQ
- Can handle up to twelve SITRANS MS200 sensors

SITRANS SCM IQ, Insights Hub application for smart condition monitoring

- Manages connected SITRANS CC220 gateways and SITRANS MS200 multisensors
- Intuitive training of machine learning models to automatically detect anomalies
- Supports labelling anomalies and sends notifications via email or push notification (when used with SIMATIC Notifier)
- Detects asset state and calculates asset run rate

Selection and ordering data

Selection and ordering data	Article No.
SITRANS MS200 A battery-powered, wireless multisensor that provides process condition data that is collected in addition to the core process control data.	
• For general purpose (non-hazardous)	**7MP2210-2BB22-2-AB1**
• For hazardous areas (instrinsically safe)	**7MP2210-2BB22-2LB1**
SITRANS CC220 A cloud connector that collects measurement and status data from up to eight SITRANS MS200 multisensors, then forwards it to the SITRANS SCM IQ cloud application	**7MP2200-2CB05-2-AA1**
SITRANS SCM IQ SITRANS SCM IQ is a Siemens Insights Hub-based application, used in conjunction with SITRANS MS200 and SITRANS CC220, for smart condition monitoring and predictive maintenance	**SITRANS SCM IQ is distributed by the Siemens Digital Exchange. Please visit:** https://www.dex.siemens.com

Selection and ordering data	Article No.
Operating Instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation.	
Spare Parts	
SITRANS MS200 replacement battery pack with plug, 3.6 V/2.6 Ah	**7MP2210-2AB22-2-AB8**

Technical specifications

SITRANS MS200	
Scope of measurement	Vibration, temperature, and magnetic field strength
Data transmission	
Polling	Cyclic, via SITRANS CC220
Vibration sensor	3-axis accelerometer
Measurement range	±16 g
Repeatability	±10 mg
Accuracy	±10 % of measurement range
Data format	16 bits
Frequency range	13 ... 3 300 Hz
Resolution	0.488 mg
Sampling rate	6 600 Hz
Temperature sensor	
Resolution	0.01 °C (0.018 °F)
Temperature range	• For general purpose (non-hazardous): -30 ... +80 °C (-22 ... +176 °F) • For hazardous areas: -30 ... +50 °C (-22 ... +122 °F)
Accuracy	± 2 °C (3.6 °F)
Repeatability	0.15 °C (0.27 °F)
Voltage supply	
Voltage	3.6 V
Capacity	2.6 Ah
Lithium content	0.65 g (0.023 oz)
Weight of battery	18 g (0.63 oz)
Battery life at 25 °C (77 °F)	2 ... 5 years
Replacement	Replacement batteries are offered by Siemens. Please see spare parts for more details.
Communication	
Bluetooth	Bluetooth Low Energy (BLE)
Data transmission cycle	1 per 100 seconds
Environment	
Storage temperature (with disconnected battery)	-40 ... +85 °C (-40 ... +185 °F)
Ambient temperature (at the fixation point in operation)	• For general purpose (non-hazardous): -30 ... +80 °C (-22 ... +176 °F) • For hazardous areas: -30 ... +50 °C (-22 ... +122 °F)
Altitude	• Operation: -1 000 ... 2 000 m (3 280 ... 6 561.68 ft) • Pressure: 795 ... 1 080 hPa
Rating	IP68 2 m/24 h and IP69, according to IEC 60529
Certificates and approvals	
Radio approvals	RED (EU), FCC (USA), ISED (Canada), MTC (Peru), MINTC (Colombia), WPC (India), OFCA (Hong Kong), ARCOTEL (Ecuador)
Intrinsically safe	ATEX/IECEx: II 2G Ex ib IIC T4 Gb -30 °C < = Ta < = +50 °C

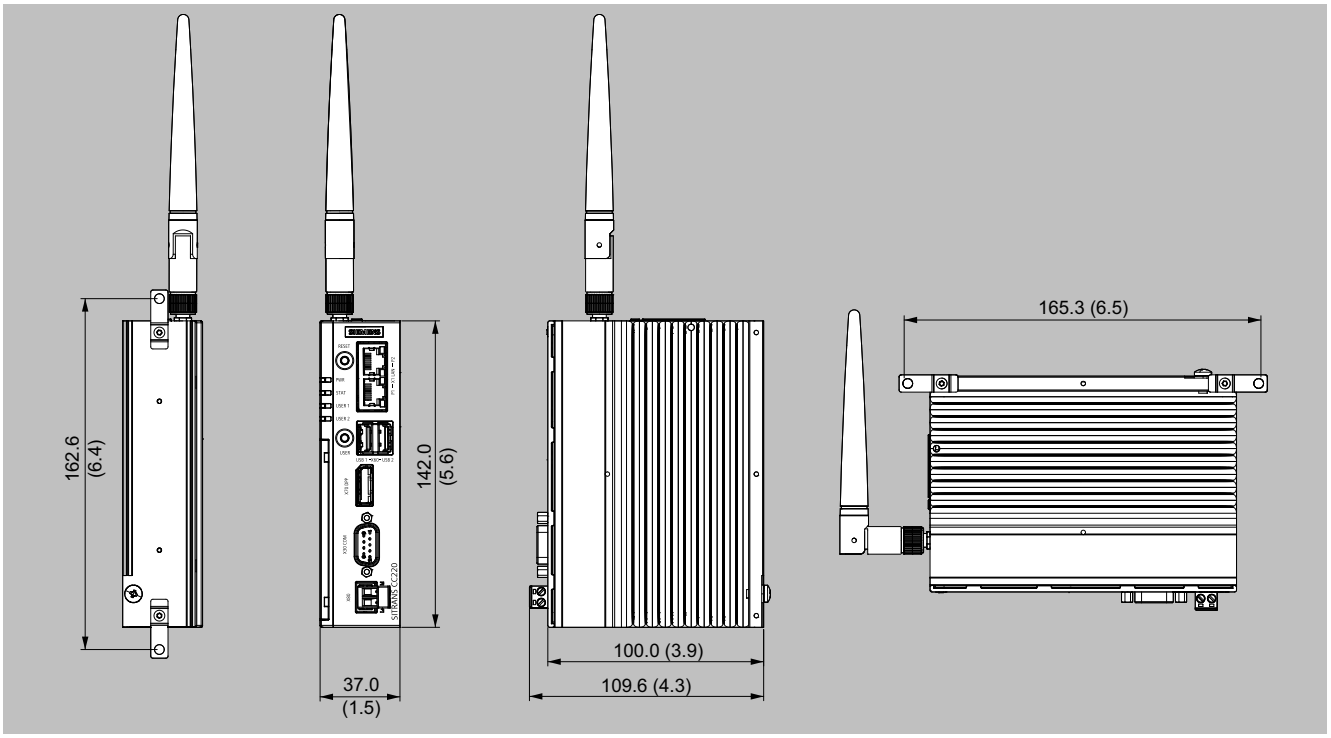
SITRANS CC220	
Functions	
Connecting	Connects SITRANS MS200 multisensor with SITRANS SCM IQ cloud application
Polling	Cyclic polling of SITRANS MS200
Cloud connect	Forwards data to SITRANS SCM IQ cloud. Connection through plant network or Internet Access Point (e.g. SCALANCE M876-4).
Voltage supply	
Voltage	24 V nominal
Fuse	Replaceable

Technical specifications (continued)

Fan	Passive cooling
Communication	
To sensor	Bluetooth Low Energy (BLE)
To cloud	MQTT
Environment	
Storage temperature	-20 ... +70 °C (-4 ... +158 °F)
Ambient temperature	0 ... +50 °C (-32 ... +122 °F)
Altitude	• Operation: -1 000 ... 2 000 m (3 280 ... 6 561.68 ft) • Pressure: 795 ... 1 080 hPa
Rating	IP20, according to IEC 60529
Certificates and approvals	
General purpose	CE
Radio approvals	RED (EU), FCC (USA), ISED (Canada), ANATEL (Brazil), ICASA (South Africa), RATEL (Serbia), MTC (Peru), MINTC (Colombia), WPC (India), OFCA (Hong Kong), ARCOTEL (Ecuador)

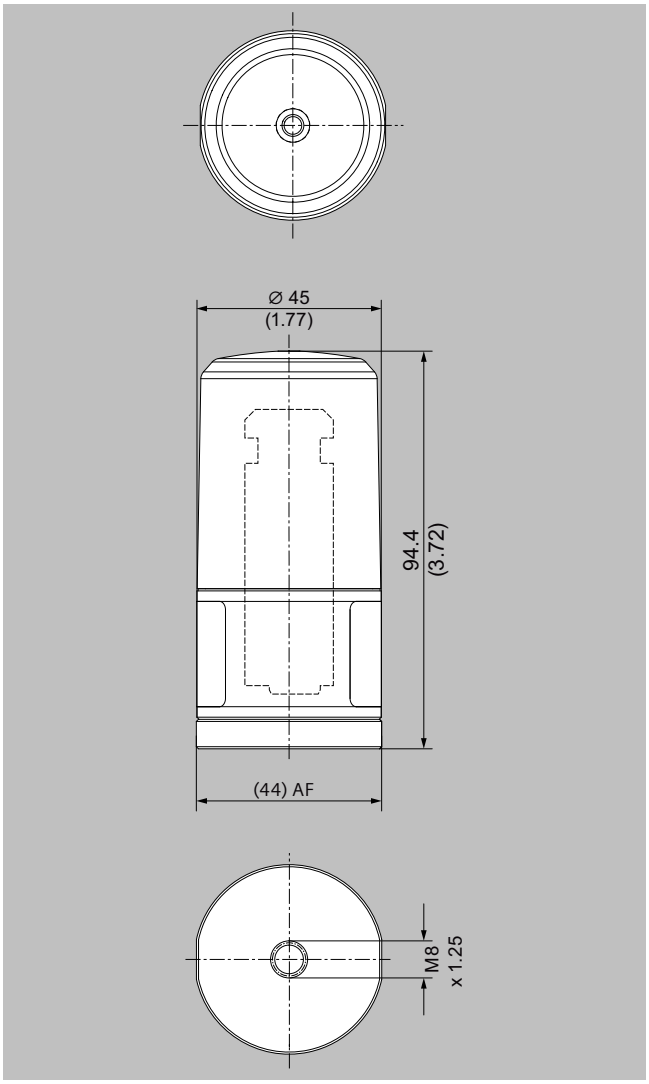
SITRANS SCM IQ	
Device connectivity	Manages connection of SITRANS MS200 and SITRANS CC220 through a convenient user interface
Sensor data modeling	Activation and management of machine learning models
Anomaly management	Documentation and management of detected anomalies
Notifications	Provides notification of detected anomalies via email or push notification (when used with SIMATIC Notifier).

Dimensional drawings



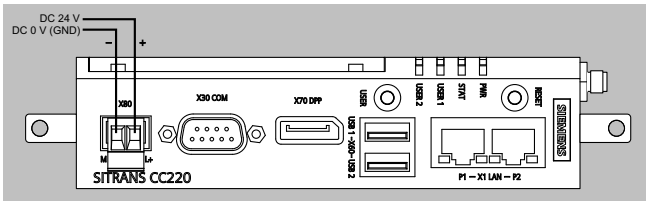
SITRANS CC220, dimensions in mm (inch)

Dimensional drawings (continued)



SITRANS MS200, dimensions in mm (inch)

Circuit diagrams



SITRANS CC220, connections