

SKF Machine Condition Detector Pro IS

CMVL 3600-IS Machine Reliability Inspection System

Intrinsically Safety (IS) rated

The SKF Machine Condition Detector Pro IS (MCD Pro IS) is certified Intrinsically Safe (IS) for Europe and North America. The ruggedized MCD Pro IS is ideal for use in the hazardous environments typically found in the petrochemical Industrial marketplace.

Go / No Go machine monitoring

The Machine Condition Detector Pro IS is designed to provide a straightforward approach to machinery monitoring. The instrument's sensor affixes to a machine point via a MARLIN QuickConnect (MQC) Stud or magnetic bases for automatic collection of vibration and temperature data. Green, yellow and red LEDs provide easy-to-interpret indications of machine status, so operations or maintenance personnel can quickly identify the need for more in-depth analysis on a particular machine.

Multi-parameter monitoring capabilities

The Machine Condition Detector Pro IS operates as a stand-alone device, or as an accessory to the SKF MARLIN hand-held mobile computers for Operator Driven Reliability (ODR). When used with SKF @ptitude Inspector companion software and the MARLIN QuickConnect Line of mechanical and computerized studs, the complete system offers customers in non-hazardous conditions the added power and functionality of immediate in-the-field feedback on alarm conditions, as well as data storage, trending and analysis. Data is logged for trending, SPC (Statistical Process Control) rule violation, and percent change from last measurement and baseline data.

SKF Operator Driven Reliability (ODR) process ensures that operator observations are accurately, thoroughly, and consistently recorded and communicated. Utilizing automated technology that is linked to your maintenance strategy, operators immediately respond to abnormal process conditions, proactively, with in-the-field corrective actions that help increase production output. In the event of degrading asset health, operators can initiate work notifications to your computerized maintenance management system (CMMS), providing enhanced awareness to maintenance management.



ATEX APPROVED



The SKF Machine Condition Detector Pro IS (MCD Pro IS) provides for velocity, enveloped acceleration, and temperature monitoring with general alarm capabilities and has ATEX Certifications.

Vibration monitoring

When performing measurements, the MCD Pro IS's sensor input signal is processed to produce two vibration measurements for each measurement POINT. Velocity vibration identifies phenomena which are observable in the low to mid frequency range, and indicates such structural problems as misalignment, unbalance, mechanical looseness and more. However, events which occur in the higher frequency ranges such as bearing and gear problems, can also be detected by the MCD Pro IS with its "Acceleration Enveloping" capability, a signal processing technique which focuses on enhancing the repetitious vibration signals that characterize such problems.

Temperature

Temperature measurements enhance the "early warning" benefit of the instrument by offering a useful indication of mechanical condition or the load applied to a specific component, since, as a bearing or its lubrication fails, friction causes its temperature to rise.

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General alarm capabilities

When used as a stand-alone tool, the Machine Condition Detector Pro IS may be easily programmed for six alarm settings, which include the “alert” and “danger” levels for each of the three measurements. When measurements are taken, current measured values are automatically compared to six user-defined settings, and the MCD Pro IS’s alarm indicator and LED react appropriately. An “alert” condition provides a user with an early warning of impending problems for which immediate in depth analysis should be performed. A “danger” alarm indicates that a problem has escalated to a point where actions must be made quickly to avoid a serious failure.

MARLIN QuickConnect (MQC) studs for quality, repeatable data collection

Specially designed mechanical and computerized studs enable one or several users to collect consistent, accurate, and repeatable data from each measurement point. Engineered to work exclusively with the Machine Condition Detector Pro IS (MCD Pro IS), the MARLIN QuickConnect (MQC) mechanical/computerized studs provide for a fast, quarter turn connection which temporarily fastens the probe to a measurement point. This reduces the possibility of errors and inconsistencies often resulting from data collected by a variety of individuals using varying methodologies.

Specifications

MEASUREMENTS

Vibration pickup: Integrated piezoelectric acceleration (ceramic, shear type)

Measurement range:

Velocity: 0.3 – 55 mm/s (RMS), 0.02 – 3.00 in/s (equivalent. Peak). Meets ISO Standard 10816-1

Enveloped acceleration: 0.3 gE – 20.0 gE

Temperature: 0 °C to +100 °C +32 °F to +212 °F)

Frequency range:

Overall velocity: 10 Hz – 1 kHz (Tolerances measured within the frequency range are in accordance with ISO 3945)

Enveloped acceleration band 3: 500 Hz – 10 kHz

DISPLAY

Viewing area: 54.99 mm x 17.78 mm (2.165” x 0.700”)

POWER

Main power: Two (2) 1.5 V alkaline “AA” batteries


Battery lifetime: 30 hours

Backup battery: One (1) 3 V BR1225 Lithium Ion Battery

Auto off: Two (2) minute countdown on last operation

HAZARDOUS AREA RATINGS

Intrinsic Safety (IS):

 ATEX: II1G EEx ia IIC T4 (Ta = -20 °C to +40 °C)
Class I, Division 1, Groups A, B, C, D T3A (USA, Canada)

PHYSICAL CHARACTERISTICS

Case: Water and dust resistant (IP 65)

Drop test: Six (6) feet on multiple axes

Dimensions: Length: 190.5 mm (7.50”)

Width: 43.2 mm (1.70”)

Height: 41.4 mm (1.63”)

Weight: 431 gms (0.95 lb) with battery, 635 gms (1.4 lb) with temperature magnet probe tip

USER ENVIRONMENT

Operating temperature: -20 °C to +60 °C (-4 °F to +140 °F) ordinary locations

-20 °C to +40 °C (-4 °F to +104 °F) hazardous locations

Storage temperature: -37 °C to +70 °C (-34 °F to +158 °F)

Humidity: 5% to 95% noncondensing

COMMUNICATIONS PORT

Type: Micro D RS-232

QUICKCONNECT INTERFACE

Receptacle: 1/4 turn 5/8-24 two (2) lead thread with contact

Accessories to fit:

MQC: QuickConnect Stud series – CMSS 26xx

Temperature Magnet

4” (10 cm) Stinger: CMSS 60139-04

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Ordering information

MCD Pro IS (Machine Condition Detector)

CMVL 3600-IS-K-01-C Machine Condition Detector (MCD Pro IS) Kit

Each **CMVL 3600-IS-K-01-C** Kit consists of the following items:

- MCD Pro IS (Machine Condition Detector) probe [CMVL 3600-IS]
- MQC (MARLIN QuickConnect) 1/4-28 stud, one (1) [31706301]
- Temperature magnet for MCD Pro IS (Machine Condition Detector) probe [CMAC 3610]
- Stinger probe 4" (10 cm) [CMSS 60139-04]
- "AA" Alkaline batteries, two (2)
- MCD Pro IS (Machine Condition Detector) setup key [CMAC 3620]
- MCD Pro IS (Machine Condition Detector) padded carrying Case [31736700]
- MCD Pro IS (Machine Condition Detector) user manual [CMVL 3600M-SL]
- MCD Pro IS (Machine Condition Detector) quick start card [CMVL 3600-QS]

MQC (MARLIN QuickConnect) and mounting accessories

- MQC (MARLIN QuickConnect) mechanical M8 x 1.25 mounting thread – three (3) studs per package [CMSS 2600-3]
- MQC (MARLIN QuickConnect) mechanical 1/4-28 mounting thread – three (3) studs per package [CMSS 2610-3]
- MQC (MARLIN QuickConnect) computerized (patent pending) M8 x 1.25 mounting thread – three (3) studs per package [CMSS 2601-3]
- MQC (MARLIN QuickConnect) computerized (patent pending) 1/4 x 28 mounting thread – three (3) studs per package [CMSS 2611-3]
- Tool kit for spot face 1/4-28 [CMAC 9600-01]
- Tool kit for spot face M8 x 1.25 [CMAC 9600-02]
- Drill bit for 1/4-28 kit [CMAC 9600-03]
- Tap for 1/4-28 kit [CMAC 9600-04]
- Pilot for 1/4-28 kit [CMAC 9600-05]

MQC (MARLIN QuickConnect) and mounting accessories (continued)

- Drill bit for M8 x 1.25 kit [CMAC 9600-06]
- Tap for M8 x 1.25 kit [CMAC 9600-07]
- Pilot for M8 x 1.25 kit [CMAC 9600-08]
- End mill or counter bore for either kit [CMAC 9600-09]

Optional accessories

- Cable, MDM (MARLIN I-Pro) to MCD Pro IS (Machine Condition Detector) [CMAC 6107]
- MCD Pro IS (Machine Condition Detector) setup key [CMAC 3620]
- Temperature magnet for MCD Pro IS (Machine Condition Detector) probe [CMAC 3610]
- Probe tip replacement kit for temperature magnet for MCD Pro IS (Machine Condition Detector) [CMAC 3630]
- Magnetic probe tip for MCD Pro IS (Machine Condition Detector) [CMAC 3611]
- Stinger probe 4" (10 cm) [CMSS 60139-04]
- 1/4-28 MQC (MARLIN QuickConnect) for stinger interface [CMSS 2610-1]
- MCD Pro IS (Machine Condition Detector) quick start card [CMVL 3600-QS]
- MCD Pro IS (Machine Condition Detector) user manual [CMVL 3600M-SL]

MARLIN data manager

The MARLIN MCD Pro IS can be used in non-hazardous conditions with the following MARLIN data managers as well as all international language translation kits:

- MARLIN I-Pro CS, Bar Code Scanner [CMDM 6210]
- MARLIN I-Pro NI2, Bar Code Imager, NI (Non-incendive) Class I Division 2 [CMDM 6220]
- MARLIN I-Pro NIA, Bar Code Imager, NI (Non-incendive) ATEX Zone 2 [CMDM 6230]
- MARLIN S-Pro IS data manager, ATEX Zone 1 [CMDM 5360]