SKF MARLIN Condition Detector Pro IS

CMVL 3600-IS Machine Reliability Inspection System

Intrinsically Safety (IS) Rated

ATEX APPROVED

The SKF MARLIN Condition Detector Pro IS (MCD Pro IS) (Patent Pending) provides for Velocity, Acceleration Enveloping, and Temperature monitoring with general alarm capabilities and has ATEX Certifications.

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

The Machine Reliability Inspection System (MARLIN) System offers a comprehensive solution for improving machinery and process reliability and enhancing productivity in industrial process and manufacturing plants.

MARLIN computerizes the operations and maintenance teams and facilitates a "cross-functional" approach to reliability that gets a majority of plant personnel involved in the process of maintaining plant assets.

Go / No Go Machine Monitoring

The MARLIN 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 *(Patent Pending)* 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 MARLIN Condition Detector Pro IS operates as a stand-alone device, or as an integral component of the complete MARLIN System.

By pairing the MCD Pro IS with the MARLIN data managers (MDM), important machinery and process information may be stored for trending review and detailed analysis.

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.

General Alarm Capabilities

When used as a stand-alone tool, the MARLIN 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 LEDs 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. When used with the MARLIN data manager, data is logged for trending, SPC (Statistical Process Control) rule violation, and percent change from last measurement and baseline data.

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 MARLIN 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.

Range of System Components

As an integral component of the complete MARLIN System, the MCD Pro IS is the perfect start to implementing a system which includes the MARLIN Pro data manager,

Machine Inspector companion software and the MARLIN QuickConnect Line of mechanical and computerized studs. The complete system offers the added power and functionality of immediate in-the-field feedback on alarm conditions, as well as data storage, trending and analysis, with the capability to incorporate the MARLIN data into an existing predictive maintenance program.

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 (Eq. Peak). Meets ISO Standard 10861-1

Enveloped Acceleration: 0.3 gE – 20.0 gE

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

Frequency Range:

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

Acceleration Enveloping Band 3: 500 Hz – 10 kHz

DISPLAY

Viewing Area: 2.165" x 0.700" (54.99 mm x 17.78 mm)

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: 7.50" (190.5 mm)
Width: 1.70" (43.2 mm)
Height: 1.63" (41.4 mm)

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

USER ENVIRONMENT

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

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

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

Humidity: 5 – 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" (10cm) Stinger: CMSS 60139-04

Ordering Information

MCD Pro IS (MARLIN Condition Detector)

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

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

- MCD Pro IS (MARLIN Condition Detector) Probe [CMVL 3600-IS]
- MQC (MARLIN QuickConnect) 1/4-28 stud, one (1) [31706301]
- Temperature Magnet for MCD Pro IS (MARLIN Condition Detector) Probe [CMAC 3610]
- Stinger Probe 4" (10cm) [CMSS 60139-04]
- "AA" Alkaline Batteries, two (2)
- MCD Pro IS (MARLIN Condition Detector) Setup Key [CMAC 3620]
- MCD Pro IS (MARLIN Condition Detector) Padded Carrying Case [31736700]
- MCD Pro IS (MARLIN Condition Detector) User Manual [CMVL 3600M-SL]
- MCD Pro IS (MARLIN 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]
- 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]

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Ordering Information

Accessories

- Cable, MDM (MARLIN I-Pro) to MCD Pro IS (MARLIN Condition Detector) [CMAC 6107]
- Cable, MDM (MARLIN Pro IS) to MCD Pro IS (MARLIN Condition Detector) [CMAC 5025]
- Cable, MDM (MARLIN Pro or MARLIN Pro BC) to MCD Pro IS (MARLIN Condition Detector) [CMAC 4613-5000]
- Cable, MCD Pro IS to CMVA 4600 or CMVA 4700 MARLIN MDM [CMAC 4613]
- MCD Pro IS (MARLIN Condition Detector) Setup Key [CMAC 3620]
- Temperature Magnet for MCD Pro IS (MARLIN Condition Detector) Probe [CMAC 3610]
- Probe Tip Replacement Kit for Temperature Magnet for MCD Pro IS (MARLIN Condition Detector) [CMAC 3630]
- Magnetic Probe Tip for MCD Pro IS (MARLIN Condition Detector) [CMAC 3611]
- Stinger Probe 4" (10cm) [CMSS 60139-04]
- 1/4-28 MQC (MARLIN QuickConnect) for Stinger Interface [CMSS 2610-1]
- MCD Pro IS (MARLIN Condition Detector) Quick Start Card [CMVL 3600-QS]
- MCD Pro IS (MARLIN Condition Detector) User Manual [CMVL 3600M-SL]

MARLIN data manager

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

- MARLIN I-Pro data manager kit [CMDM 6110-A-xx]
- MARLIN I-Pro NI data manager kit [CMDM 6120-A-xx]
- MARLIN Pro BC data manager kit [CMDM 5000BC-K-xx]
- MARLIN Pro-IS data manager kit [CMDM 5000 IS-K-xx]

Product Support Plan (PSP)

A range of Product Support Plans are available to protect your investment. Contact your local SKF Reliability Systems Sales Representative for additional information.

ATEX

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SKF Patents include: #US05854553, #US05845230, #US06489884, #US05679900, #US04768380, #US06199422, #US05992237, #US06202491, #US06513386, #US06275781, #US06633822, #US06006164, #US2003 0178515A1, #US6,789,025, #US6,789,360, #WO 03 048714A1