



# SKF MARLIN I-Pro

## The Machine Reliability Inspection System for Operator Driven Reliability

The SKF MARLIN I-Pro is part of the SKF family of hand-held mobile computers for Operator Driven Reliability (ODR). ODR, the framework for organizing the activities of plant operations personnel, is key to an organization's reliability maintenance program. The MARLIN system is the frontline tool for operators, enabling improved reliability and safety through better communication with the plant wide team.

### Built on Knowledge

Having introduced the first inspection tool for operators in 1992, SKF has gained a wealth of knowledge and experience with thousands of system implementations around the world. The MARLIN I-Pro incorporates SKF's extensive knowledge and experience in ODR, and offers advanced technology and an ergonomic design that enhances effectiveness while easing the process of routine inspections.

### High Performance

The MARLIN I-Pro is a rugged, high performance data collector, that enables users to quickly and easily collect, store and analyze overall machine vibration, process and inspection data. The unit enables trending, comparison with previous readings, alarm alerts and more. A "user notes" feature allows an operator to immediately record detailed observations of troublesome machine conditions or questionable measurements.

The unit's graphical-user interface (GUI) facilitates proficiency, enabling users to get up and running in no time – with minimal training required. On-board software provides push-button assistance, offering instructions to guide the user for the quickest and most appropriate response to changes in machine condition. Collected data may then be uploaded to a host PC for further review,



analysis, and uploaded computerized maintenance management system (CMMS) for follow-up action.

The high-resolution, backlit display with 1/4 VGA, along with the touch screen and ergonomic keypad make the MARLIN I-Pro easy to operate – and viewable even in the darkest locations. Drop tested, dust-tight and water resistant (IP 64 certified), the MARLIN I-Pro is designed to withstand even the most hostile industrial environment.

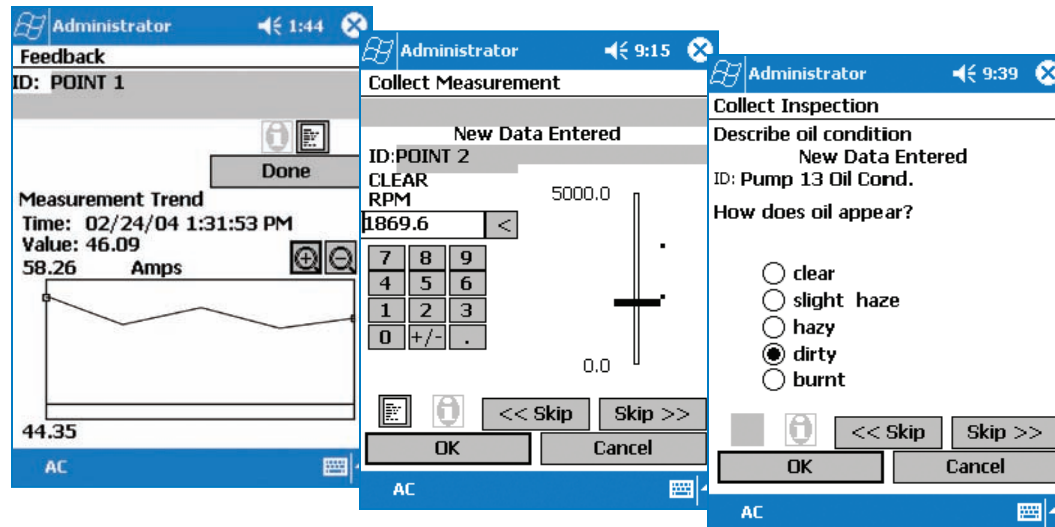
### Complete the System

The SKF Machine Suite software completes the system, allowing for more in-depth analysis and the communication of machine condition between operations, maintenance, engineering and plant management. The connectivity to data historians and computerized maintenance management system (CMMS) improves information usefulness.

The MARLIN is available with a comprehensive range of accessories to

maximize the benefit to your program. These include the patented Mechanical Condition Detector (MCD) and VibPak for identifying overall vibration levels. Additional accessories include sensors, infrared temperature gun, and Radio Frequency Identification (RFID) interrogator/reader.

The MARLIN unit may also be customized to handle statistical process control, scheduling, environmental, OSHA and other regulatory or internal plant requirements.



## SKF at Your Service

SKF offers a vast array of implementation services and support to ensure the essential cultural, process and technology adjustments are made to facilitate the success of your Operator Driven Reliability program. A Client Needs Analysis may be conducted to enable an objective view of your plant's reliability program and to make a determination for the best use of MARLIN to improve your plant's productivity.

SKF is at your service to share our competencies in condition monitoring and reliability maintenance services and to address your specific requirements to fully integrate the MARLIN system into your plantwide program. Our ultimate goal is to make the reliability improvements that align with your organization's business objectives.

## Features and Capabilities

### GLOBAL SETTINGS

- System
  - English or Metric
  - Operator ID
  - Date and Time Format
  - Password Protected (Four Levels)

### DISPLAY

- Daylight Readable Color Display
- Hierarchy
  - MS Explorer Layout
  - Unlimited Levels
  - Visual Indication of Data Storage
  - Bars
  - Pen Interface
- Trend Plots
  - Cursor
  - Zoom
  - Alarm Overlay

### ALARMING

- Threshold
  - Alert
  - Danger
- Window
  - In Window
  - Out Window
- % Changes
- Last Measurement
- Baseline
- SPC (Statistical Process Control)
  - 18 Rules
- Alarm Messages (User Defined)
  - Inspection Points

### NAVIGATION

- Quick Hierarchy Navigation Guide
- Route
  - Download From PC Software
  - Smart Stud
- NonRoute
  - Key In Point Setup
  - Smart Stud

### GENERAL

- Pen Based Interface
- Icon Driven
- Virtual Key Pad
- Forms (Collect)
  - Virtual Analog Gauge
  - Slider Bar
  - Text Inspection (Customizable)
  - Status Bar
  - Machine
  - Machine OK
  - Machine Not Operating
  - Collect
- Notes
  - Free Form Text
  - Coded Notes (User Defined)
- Forms (Review)
  - Current Reading
  - Last Reading
  - Baseline Reading
  - Alarm Summary
  - Date/Time
  - Units On Parameter
  - SPC Rule Status
  - Point ID and Description

- Reports
  - Exception
  - Last Measurement
  - End of Shift
  - Schedule Overdue
  - History
  - Statistics

### MEASUREMENT TYPES

- Conditional Points
- Derived Points
- English or Metric Units
- Volts (AC or DC)
- Temperature: °C and °F
- Pressure (PSI)
- Flow (GPM, LPM)
- Bars
- Speed
- Units per Minute
- Inspection Points (User Definable)
  - Single
  - Multiple (up to five)
- MCD
  - Enveloped Acceleration
  - Velocity
  - Temperature

### ENHANCED ALARMING

- User defined alarm database
  - Public Alarms that can be shared with other users
  - Private alarms that can only be used by specific users
  - Unlimited number of alarms available

- Four (4) overall alarm levels per measurement point
  - Danger High, Alert High, Alert Low, Danger Low
- Alarm Types
  - Overall Alarm
  - Inspection
  - MCD

### COMMUNICATION

- Automatic Report generation based on data
- Download by Hierarchy, Route, or Workspace

### DATA DISPLAYS

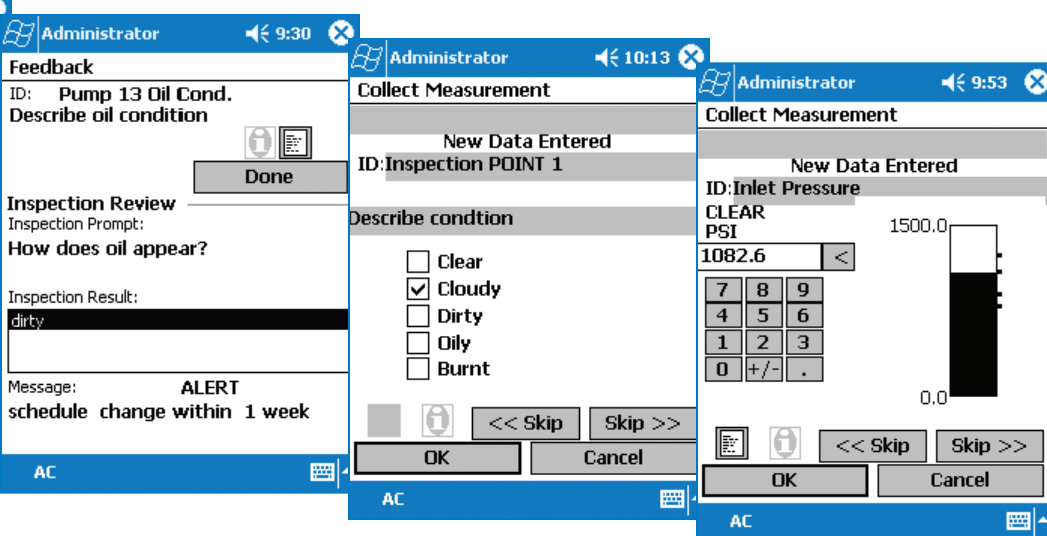
- Overall Trend Displays
- Inspection
- MCD

### SECURITY

- Patented Password Access
- Use Privileges and Rights

### GENERAL

- Context Sensitive Help
- Complete User Manual on Installation CD-ROM (Adobe Acrobat™ PDF format)
- Limited Warranty
- On-Site Product Installation and Training Services Available



## Specifications

### PERFORMANCE CHARACTERISTICS

**Operating System:** Microsoft® Windows Mobile 2003

**Microprocessor:** Intel® XScale™ Processor, 400 MHz

**Memory and Storage:**

- RAM Memory: 64 MB
- Flash ROM: 32 MB, includes ROM folder for application storage

**Internal Slots:**

- Secure Digital (SD)
- CompactFlash (CF) Type II

**Icon Controls:** Power Status, Screen Contrast

**Touch Panel:** Resistive, 15.6 dots per cm (40 dots per inch)

**Pen:** Passive

**PCMCIA Slots:** One type I or II – user accessible

**Keypad:** Numeric

### POWER

**Battery Type:** Lithium Ion, 7.2 V, (2 x 2000 mAh cells) customer replaceable

**Battery Capacity:** 14.4 Watt-hours

**Battery Life:** 6 to 10 hours, application dependent

**Recharging Time:** 4 hours

### COMMUNICATIONS

**Standard Communication Ports:**

- Serial Cable

### USER ENVIRONMENT

**Operating Temperature Range:** -10 °C to +60 °C (+14 °F to +140 °F) application dependent

**Storage Temperature Range:** -20 °C to +60 °C (-4 °F to +140 °F)

**Relative Humidity:** 5% to 95% (non-condensing)

**Rain and Dust Resistance:** IP 64 compliant

**Drop Specification:** 1.5 meters (5 feet)

### PHYSICAL CHARACTERISTICS

**Weight:**

- MARLIN I-Pro Without RFID Interrogator: 568 grams (20 oz)
- MARLIN I-Pro With RFID Interrogator: 1004 grams (35 oz)

### Dimensions:

#### MARLIN I-Pro

- Length: 191.00 mm (7.53 in.)
- Width: 90.00 mm (3.50 in.)
- Depth: 50.00 mm (1.97 in.)

#### RFID Tags

##### CMAC 6125

- Length: 88.25 mm (3.475 in.)
- Width: 21.50 mm (0.850 in.)
- Depth: 4.70 mm (0.185 in.)

##### CMAC 6126

- Length: 210.00 mm (8.250 in.)
- Width: 15.00 mm (0.590 in.)
- Depth: 4.60 mm (0.180 in.)

**Display:** Reflective daylight readable color display, 240 pixels x 320 pixels, 97 mm (3.80 in.) diagonal

### REGULATORY APPROVALS

- FCC Part 15 Class B (Models CMDM 6210 and CMDM 6220)
- CE Mark (Models CMDM 6210 and CMDM 6230)
- UL Listing
- CB Report

### HAZARDOUS AREA RATINGS

**Non-Incendive for:**

- Class I, Division 2, Groups A, B, C, D Temperature Code T6 (Model CMDM 6220 only).
- ATEX, Zone 2 (Model CMDM 6230 only)

### SAFETY CERTIFICATIONS FOR HAZARDOUS ENVIRONMENTS

- The MARLIN I-Pro Models CMDM 6120 and CMDM 6220 has achieved the safety certification rating of Class I, Division 2, Groups A, B, C, D Temperature Code T6 ("Non-Incendive").
- The MARLIN I-Pro Model CMDM 6230 has achieved the Zone 2 safety certification rating in compliance of ATEX Directive (Ex) II3G EExuL IICT6.
- The Mechanical Condition Detector (MCD) is also certified Intrinsically Safe for both Europe and North America.

**SKF MARLIN  
I-Pro  
The Machine  
Reliability  
Inspection  
System for  
Operator Driven  
Reliability**

## Ordering Information

**CMDM 6210** MARLIN I-Pro CS, Bar Code Scanner

**CMDM 6220** MARLIN I-Pro NI2, Bar Code Imager, NI (Non-Incendive) Class I Division 2

**CMDM 6230** MARLIN I-Pro NIA, Bar Code Imager, NI (Non-Incendive) ATEX Zone 2

Each **MARLIN I-Pro Kit [CMDM 62xx-A-xx]** contains:

- MARLIN I-Pro data manager (MDM)
- MARLIN Application
- User Manual (CD)
- Communication/Recharging Dock
- Lithium Ion Battery
- Serial Communication Cable (Dock to PC)
- Carrying Case with Shoulder Strap, Hand Strap, Tethered Stylus
- Secure Digital Card (64 MB)
- Card Extractor
- Quick Reference Card

### MARLIN I-Pro Starter Sets

#### CMDM 62xx-B-xx

- MARLIN I-Pro Kit
- MARLIN Condition Detector (MCD Pro IS) with Cable

#### CMDM 62xx-C-xx

- MARLIN I-Pro Kit
- MARLIN Condition Detector (MCD Pro IS) with Cable
- SKF Machine Inspector Stand-alone Version

### CMRF 6100 RFID (Radio Frequency Identification)

contains:

- RFID Interrogator/Reader
- Two (2) Lithium Ion Batteries
- Battery Charger
- User Manual (CD)

### Accessories

#### HARDWARE

- MARLIN Condition Detector (MCD Pro IS) Kit, requires CMAC 6107 Cable [CMVL 3600-IS-K-01-C]
- Infrared Thermometer Kit, requires CMAC 6108 Cable [CMAC 4220-CE-SL]
- MARLIN VibPak Kit for the MARLIN I-Pro, requires CMAC 3725 Cable [CMVL 3700-40-K]

#### COMMUNICATIONS

- Communication/Recharging Dock [CMAC 6101]
- MARLIN I-Pro to MCD Pro IS Cable [CMAC 6107]
- USB Cable for MARLIN I-Pro, Dock to PC [CMAC 6109]
- Serial Communication Cable, Dock to PC [CMAC 6106]
- MARLIN I-Pro to Infrared Temperature Gun Cable [CMAC 6108]
- MARLIN I-Pro to VibPak Cable [CMAC 3725]

#### BATTERY AND POWER

- MARLIN I-Pro Lithium Ion Battery 7.2 Volts [CMAC 6111]
- MARLIN I-Pro Charger, Four (4) Batteries Simultaneously [CMAC 6112]
- MARLIN I-Pro Charger, One (1) Battery [CMAC 6113]

#### RADIO FREQUENCY IDENTIFICATION (RFID) UHF 915 MHZ

- RFID Lithium Ion Battery [CMAC 6120]
- RFID Charger, Two (2) Batteries Simultaneously [CMAC 6121]
- RFID Tags Non-Metal Mount, Fifty (50) Pack [CMAC 6125]
- RFID Tags Encapsulated for Mounting onto Metal Directly, Fifty (50) Pack [CMAC 6126]

### MISCELLANEOUS

- Carrying Case with Shoulder Strap, Hand Strap [CMAC 6102]
- Tethered Stylus, Five (5) Pack [CMAC 6105]
- Screen Protectors, Twelve (12) Pack [CMAC 6114]

### International

Each **MARLIN I-Pro Kit** is available in the following languages:

- English [CMDM 62xx-A-EN]
- German [CMDM 62xx-A-DE]
- Finnish [CMDM 62xx-A-FI]
- French [CMDM 62xx-A-FR]
- Portuguese [CMDM 62xx-A-PO]
- Spanish [CMDM 62xx-A-SP]
- Swedish [CMDM 62xx-A-SW]

### POWER CORDS

**NOTES:**

- Contact your local SKF Sales Representative for any export restrictions.
- For International Power Cord accessories, two (2) cord sets will be provided, the standard North American power cord and the requested International power cord.

- Power Cord, Australia [CMAC 4222-AU]
- Power Cord, Denmark [CMAC 4222-DK]
- Power Cord, European [CMAC 4222-EUR]
- Power Cord, Israel [CMAC 4222-IL]
- Power Cord, Italy [CMAC 4222-IT]
- Power Cord, Japan [CMAC 4222-JP]
- Power Cord, Switzerland [CMAC 4222-CH]
- Power Cord, United Kingdom [CMAC 4222-UK]

### MQC (MARLIN QuickConnect) and Mounting

- 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 M8 x 1.25 mounting thread – three (3) studs per package [CMSS 2601-3]
- MQC (MARLIN QuickConnect) – Computerized 1/4-28 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]

## Product Support Plans (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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