METSO FIELD CARE – DEVICE AND ASSET MANAGEMENT SYSTEM BASED ON OPEN FDT TECHNOLOGY

Metso FieldCare™ is a totally open solution based on FDT technology. It provides an accurate flow of information during commissioning, operation or maintenance of a production process. Metso FieldCare provides a single tool to manage any device in any communication protocol, and its web-enabled interfaces allow information to be distributed anywhere across the user’s network in real time. The ability to show both standard configuration parameters and device-specific functions, eliminates the need for vendor-specific tools.

Online data flow from all devices is visualised through an innovative colour-coded alert system and a series of selective alarms which provides a clear view of process performance and allows early, easy problem recognition. Metso FieldCare provides real-time information under operational process conditions, and its ability to store and browse data makes prediction of device condition extremely accurate. The information it provides supports predictive maintenance and can be used to plan regular maintenance activities, ensuring sufficient time to order spare parts and plan for service operations. Metso FieldCare™ lowers the cost of ownership as it can manage any device and any communication protocol, helps plan maintenance activities and, as part of the process control system, will be a valuable addition no matter what developments may be introduced in the future.

Benefits

- Metso FieldCare makes it easy
  - With a single tool, you can manage multiprotocol field networks and devices from several manufacturers.
- Access to all essential data
  - FieldCare shows all device features, both standard configuration parameters and device specific functions. This maximizes device performance and eliminates the need to have vendor-specific tools.
  - In short, FieldCare helps you get the best out of every device.

Features

- Field device condition monitoring and configuration
- Multivendor device operation using either vendor specific or generic DTM
- Service work history report
- Network configuration
- DTM catalogue management
- Possibility to define critical devices
- Tracking of user changes
- User management
- Documentation management

Open device support
- Any device vendor can create its own DTM, which can be used in any FDT-based application.
- Allows you to choose ‘Best in Class’ devices, knowing that you will have full software support in a common tool.

Multiprotocol support:
- HART, Profibus PA, FOUNDATION fieldbus, DeviceNet, Interbus, AS-Interface & PROFINET IO
- Applicable also for plants that use hybrid communication systems
- Transparent access to field device, independent of which fieldbus environment is used.

Open system solution offers simplified system integration

On-line condition monitoring
- Collects data on-line and shows trends under real process conditions
- Warns of deterioration during run time, which allows cost-effective predictive maintenance.
**Condition Monitoring**

Metso FieldCare’s Condition Monitoring is a unique feature that monitors field device condition based on NAMUR specification (NE-107). It automatically polls device status information and alerts users to a potential problem before the problem begins to disturb processes. Device status can be OK, alert or warning, and any of those can be shown in real time. Also, NAMUR based statuses (OK, Maintenance required, Out of specification, Check function, Failure), can be used if supported by the device. The real-time data from devices affecting the process is visualized through the colour-coded alert system, thus providing a clear view of performance. Condition Monitoring uses a web-enabled interface that allows the information to be shown anywhere for anybody across the user’s network in real time. Alerts and warnings can be also e-mailed to the right personnel.

Device statuses such as alert or warning are generated by a device itself and FieldCare polls for status changes. The user can also select critical devices that need to be monitored more often than other devices, this selection can be done in the plant view.

FieldCare has a huge library of more than 100 devices with proper alert and warning generation mechanisms, and in practice, any field device can be shown by FieldCare’s Condition Monitoring even when there is no device DTM available.

**Metso FieldCare delivery**

The FieldCare is delivered with an Industrial PC (IPC). The FieldCare and Metso DTM package is already installed and ready to use. This will eliminate all installation problems caused by different operating systems so that start up will be fast and easy.

A stand-alone solution is typically implemented using a Metso HART Gateway for HART instruments and gateways or interface cards for PROFIBUS instruments. For further information on installation, start-up support and training, please contact your nearest Metso office.

**FDT technology**

FDT stands for Field Device Tool. The FDT concept brings about integration possibilities precisely where they are needed most: in engineering, diagnosis, service and asset management. FDT allows for the integration of devices from a variety of manufacturers into the automation system, independent of specific communication technologies or system environments. In this way, device-specific features such as predictive maintenance and optimization are made accessible to the user via the system. The FDT concept covers the complete life-cycle of devices in system environments.

FDT is an open industry specification which provides plug-and-play integration of DTMs (Device Type Managers) for various vendors’ devices into a single tool. FDT is promoted and supported by many vendors of automation devices and systems.

DTMs are device-specific and vendor-specific software applications that provide a user interface for the configuration, calibration and diagnostics of the device. DTMs exist for both field devices and communication devices. DTMs for communication devices represent the communication protocol driver of the devices.

Because communication protocol management is encapsulated into DTMs and the communication between DTMs is protocol-independent, FDT allows the management of multiprotocol field networks with a single tool.

FDT technology allows each vendor to show device functionality in the way intended i.e. there are no hidden features available only in proprietary systems. For more information, please visit www.fdt-group.org.
FIELD DEVICE MANAGEMENT AND DIAGNOSTIC SERVICES

Effective field device management and diagnostic services with Metso FieldCare

Metso has a service, where our specialist further analyzes the field device condition monitoring data collected by Metso FieldCare and reports to the customer on the condition of the installed field equipment. In the same report the customer receives an analysis of the field device performance and recommendations for required predictive maintenance and/or upgrade actions. The field device management and diagnostic services are carried out on-line in the customer’s network, locally or by using a remote connection.

- Advanced analysis on the condition monitoring data
- Report of the field device condition
- Recommendation on the device maintenance and/or upgrade actions
- Recommendation on the schedule for maintenance actions
- Predictive maintenance training for the customer’s personnel on-site
- Analyzing and tracking of the process disturbance to improve plant performance

Diagnostics service benefits

- Analysis on field equipment’s performance; for example when the operating point has shifted to an unwanted area
- Field device condition is known and predicted—minimizes unexpected shutdowns

Metso FieldCare related service products

In order to provide smooth start-up and efficient use of FieldCare, a variety of related service products are available.

Start-up service

Description and benefits of start-up work
FieldCare start-up service consists of commissioning the software and data management for predictive maintenance of smart field devices.
FieldCare start-up service is essential to ensure smooth and fast start-up of the system.

Content of start-up work:
- Create field device network in FieldCare
- Condition monitoring configuration
- TAG entries of devices and initial alarm limit settings as an option

- Maintenance and upgrade actions to the equipment based on real maintenance need
- Predictive maintenance enables purchase of correct spare parts and replacement products in time

Continuous training

- We offer tailored training to develop predictive maintenance practices and fully utilize condition monitoring information.
- Customer’s personnel is able to fully utilize the condition monitoring data for predictive maintenance
- Customer’s personnel are able to solve technical problems and can intensify the use of condition monitoring in his organization

Improvements in control performance and productivity

- Process disturbance root cause analysis and bottleneck tracking
- Analyzed data is used to improve plant performance
- Possibility to use Metso product specialists for problem solving

Remote monitoring

- Device support and analysis is cost effective
- Field device problems can be solved remotely
- Device commissioning, calibration and parameter setting can be done remotely

Training description

Metso’s tailored training develops your predictive maintenance practices and helps you to fully utilize condition monitoring information.
FieldCare training is an essential service to get a good understanding of system behaviour and how to utilize it in daily work, thus ensuring efficient use of the system.

Content of training

- FieldCare usage and administration
- FieldCare condition monitoring usage
- Metso DTMs (basic settings, device specific features and diagnostics)
- Metso’s device specific diagnostics for ND9000, ND800, VG800 and SG9000
- Training material for FieldCare and Metso’s DTMs
Metso HART Gateway to connect field devices to FieldCare

- Preferred Metso solution
- ~40 times faster RS interface and 8 times faster multiplexing with IO channels than an OEM Multiplexer
- Especially advantageous in Condition Monitoring applications
- Easy to setup and fast start-up
- Connect Hart devices via Ethernet to FieldCare
- Seamless connection in FieldCare projects
- Maximum number of devices 512

PC requirement for FieldCare Device Setup
(point-to-point connection):

- Hard disk space: 1 GB
- Processor speed: 1 GHz
- RAM memory: 1 GB
- Operating system:
  - Windows XP SP2 or SP3
  - Windows Vista Ultimate SP1 or SP2
  - Windows Vista Business SP1 or SP2
  - Windows Vista Enterprise SP1 or SP2
  - Windows Server 2003 Standard R2 with SP2
  - Windows Server 2003 Enterprise R2 with SP2
  - Windows 7 Ultimate, 32 and 64 bit
  - Windows 7 Enterprise, 32 and 64 bit

PC for FieldCare Professional

- Hard disk space: 20 GB
- Processor speed: 2.8 GHz
- RAM memory: 2 GB
- Virtual memory setting 2.5 GB
- Operating system:
  - Windows XP SP2 or SP3
  - Windows Vista Ultimate SP1 or SP2
  - Windows Vista Business SP1 or SP2
  - Windows Vista Enterprise SP1 or SP2
  - Windows Server 2003 Standard R2 with SP2
  - Windows Server 2003 Enterprise R2 with SP2
  - Windows 7 Ultimate, 32 and 64 bit
  - Windows 7 Enterprise, 32 and 64 bit

Product specification

- Industrial PC (IPC). Following software preinstalled:
  - Frame application complies to FDT specification
  - version 1.2 + addendum both mandatory and optional commands
  - Communication DTM: HART, Profibus, FOUNDATION fieldbus
  - Generic DTM HART –devices
  - FieldCare Professional including license for 100 devices

Device DTMs for Metso devices:

- Valve controller ND800:
  - HART: rev 4.0, 4.01, 5.0 and 5.02
  - Profibus: rev 1.0
- Valve controller ND9000:
  - HART: rev 1, 2 and 3
  - Profibus: SW 1.00-1.29, 1.30 - 1.50, 1.51-1.80
- Valve controller ND7000:
  - HART: rev 3
  - FOUNDATION fieldbus: Dev. Rev 2, 3 and 5
  - Neles ValvGuard VG800 rev 1.0 and 2.0
  - Neles ValvGuard VG9000 Hart dev rev 1.2 and FF dev rev 1
  - Neles SwitchGuard rev.1
- Metso Blade Consistency Transmitter, Metso SP:
  - HART: M2 SW revision 3.2 or newer
  - Profibus: Metso SP PA Rev A, smart-pulp PA M3
  - smartLC Rev.1
- Metso Microwave Consistency Transmitter, Metso MCA
  - HART: Rev. A or newer
  - Profibus: Rev. 0 or newer
  - Metso Total Solids Transmitter , Metso TS
  - HART: Rev. A or newer
  - Profibus: Rev. 0 or newer
  - kajaaniROTARY:
    - HART: Rev. 0 or newer
    - Profibus: Rev. A or newer

Products which have DTM, but are not included to Metso Automation DTM package:

- Metso Rotating Consistency Transmitter , Metso Rotary, Rev 1.0
- Metso Brightness Measurement, Metso Cormec5, Rev. 2.07
- Metso UV Brightness Measurement, Metso Cormec5 X, Rev. 2.07
- Metso Residual Measurement, Metso Polarox5, Rev 1.07
- Metso Filtrate Residual Measurement, Metso Polarox5 F, Rev 1.07
- Metso Peroxide Residual Measurement, Metso Polarox5 FP, Rev 1.07

Download the latest Metso DTM’s from www.metso.com/valves
use link Documentation/Software downloads

FieldCare Device Setup is for point to point device connection, free of charge, can be downloaded from www.metso.com/fieldcare

FieldCare Professional is for networked device connections and provides automatic online Condition Monitoring
HOW TO ORDER

<table>
<thead>
<tr>
<th>ID Code</th>
<th>Explanation</th>
</tr>
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<tbody>
<tr>
<td>H033947</td>
<td>Software FieldCare Device Setup</td>
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<tr>
<td>H058079</td>
<td>Hardware HART USB modem</td>
</tr>
<tr>
<td>H073669</td>
<td>Software + hardware FieldCare PRO with IPC including license for 100 devices</td>
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<tr>
<td>H033949</td>
<td>Software FieldCare PRO</td>
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<tr>
<td>H034203</td>
<td>License for FieldCare PRO</td>
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<tr>
<td>H034205</td>
<td>Update Software FieldCare PRO</td>
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<tr>
<td>H034815</td>
<td>Training for FieldCare</td>
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<tr>
<td>H034206</td>
<td>Start Up work FieldCare PRO</td>
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<tr>
<td>H081393</td>
<td>Hart Gateway max number of devices 32</td>
</tr>
<tr>
<td>H081394</td>
<td>Hart Gateway max number of devices 64</td>
</tr>
<tr>
<td>H081395</td>
<td>Hart Gateway max number of devices 128*</td>
</tr>
</tbody>
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*if larger than 128 devices contact product management

Example 1.
FieldCare Professional + license for 200 devices:
- FieldCare Professional (H033949) + licenses (H034203) for 200 devices (200 pcs. x H034203)

Example 2.
200 licenses more for FieldCare Professional. Existing licenses 100:
- License (H034203) for 300 devices (100 pcs. + 200 pcs.) x H034203
- + existing Professional-licenses (100 pcs. x H034201)
- License will created for 300 devices but invoiced only for 200

Example 3.
Hart gateway 32 Hart devices that needs Hart communication and FieldCare Professional with Condition Monitoring.
- H081393 Hart Gateway max 32 devices
- H033949 FieldCare software
- H034203 x 32 Fieldcare license for 32 devices.

Example 4
128 Hart devices that needs Hart communication and FieldCare Professional with Condition Monitoring, as pre-installed to PC
- H081395 Hart Gateway max 128 devices
- H073669 Fieldcare Professional pre-installed to industrial PC and pre-licensed for 100 devices

FieldCare is patented, Patent no US 6,298,377