

# Fieldbus Tools Hand-Held Configuration Devices Mobility DHH810-MFT Modular Calibrator with HART® Communications

- **Hand-Held Terminal** - for device calibration and for HART® device configuration, commissioning, and maintenance operations.
- **Supported Devices** - ABB instruments and third party suppliers
- **Supported HART Commands** - Universal, Common Practice, and Device Specific.
- **User Interface** - 2.6" (6.6cm) x 2.6" (6.6cm) display, four soft keys (definitions change with mode requirements) and eight hard keys for user interaction. Display is configurable for 1 to 4 simultaneous measurements.
- **Sensor Modules** – select from a variety of positivelock measurement modules for excellent versatility. All modules can be “hot swapped” – remove or install sensor modules while under power except in Intrinsically Safe areas.
- **Field Recertification** – sensor modules and integral V / I can be recalibrated for zero, span, & linearity through the base unit.
- **Measurement Units** – customary English and Metric System units are selectable
- **User Convenience** – Auto shut off, Damping, Min/Max value capture, display Hold, sensor Zero and direct Contrast adjustment
- **Security Lockout** – Mobility DHH810-MFT settings can be locked out entirely or by specific feature.
- **Diagnostics** – Mobility DHH810-MFT self-tests upon power up and upon installation of sensor modules. Advisories are posted on the display.
- **On-Site Updates** – uses Internet downloads to update and add capability / HART support
- **Extensive Memory** – Memory for 600 HART device profiles.
- **All-in-One Tool** – takes the place of multiple hand-held instruments, simplifies workload and improves productivity.



DHH810-MFT



## Mobility DHH810-MFT Modular Calibrator with HART® Communications

As part of ABB's Mobility line of device hand-helds, the Mobility DHH810-MFT Calibrator is a hand-held terminal for device calibration and configuration of HART® instruments. It interfaces to a wide range of devices supporting ABB instruments as well as those from third party suppliers. Users can view up to four measurements simultaneously on the high resolution LCD or compare HART PV and AO values to corresponding values measured by the NIST traceable Mobility DHH810-MFT. Available sensor modules include a variety of differential, gauge, vacuum and absolute pressure as well as RTD and thermocouple temperature units at varying ranges. A voltage and current meter is integral to the base unit. All HART field devices can be configured, polled, and trimmed using HART communications. Device Specific commands for supported devices are included with the Mobility DHH810-MFT.

The Mobility DHH810-MFT is designed for optimum convenience and usability. It's ergonomic design makes the Mobility DHH810-MFT easy for field carrying and use.

### Design Features

- **USER INTERFACE** – 2.6" (6.6cm) x 2.6" (6.6 cm) display, four soft keys (definitions change with mode requirements) and eight hard keys for user interaction. Display is configurable for 1 to 4 simultaneous measurements.
- **SENSOR MODULES** – select from a variety of positivelock measurement modules for excellent versatility. All modules can be "hot swapped" – remove or install sensor modules while under power except in Intrinsically Safe areas.
- **FIELD RECERTIFICATION** – sensor modules and integral V / I can be recalibrated for zero, span, & linearity through the base unit.
- **MEASUREMENT UNITS** – customary English and Metric System units are selectable
- **USER CONVENIENCE** – Auto shut off, Damping, Min/Max value capture, display Hold, sensor Zero and direct Contrast adjustment
- **SECURITY LOCKOUT** – Mobility DHH810-MFT settings can be locked out entirely or by specific feature

- **DIAGNOSTICS** – Mobility DHH810-MFT self-tests upon power up and upon installation of sensor modules. Advisories are posted on the display.
- **FIELD UPDATES** – uses Internet downloads to update and add capability / HART support
- **EXTENSIVE MEMORY** – Memory for 600 HART device profiles.
- **ALL-IN-ONE TOOL** – takes the place of multiple hand-held instruments, simplifies workload and improves productivity

The Mobility DHH810-MFT includes a Base unit with 3 bays for housing sensor modules and supports Device Specific HART communications. Quick Cal displays HART PV and AO along with DHH810-MFT's NIST traceable measurements. Users can identify needed trim(s) and access the trim function(s) from the same display. Smart Trim allows selection of analog or digital trims without navigating through menu trees. Users can add a Voltage/MilliAmp (VMA) sensor module (part number 3KXD311810L0070) to temporarily power the transmitter loop. Documenting memory and firmware are included with every Mobility DHH810-MFT for use with Mobility DHH820-DMS software. The Mobility DHH810-MFT Calibrator stores up to 200 HART configuration files and over 100 calibration results (as-found & as-left data [up to 21 points each], time/date info, tag). It communicates with the PC hosting DHH820-DMS via a DB-9 connector. USB to DB-9 pin adapters are available.

### Specifications

- **Base Unit:**
  - Length = 9.00" (22.86 cm)
  - Width = 4.70" (11.94 cm)
  - Depth = 3.58" (9.09 cm)
  - Housing = ABS plastic case with shock absorbing boot
  - Weight = 28 ozs (794 g)
  - Modularity = Three bays for measurement modules
- **Display:** 128 x 128 pixel graphic display, 2.6" (6.6 cm) x 2.6" (6.6 cm) viewable area, 5-digit resolution
- **Power:** 6 AA alkaline or NiMH batteries optional 100 – 240 Vac power adapter
- **Temperature:**
  - Storage: -40° F to 140° F (-40° C to 60° C)
  - Operating: 23° F to 122° F (-5° C to 50° C)

- Connections: Pressure: 1/8" (0.3175 cm) FNPT, 316ss Electrical Std. banana jacks (3/4" (1.9 cm) center-to-center) for ±50 mA/Volts, HART & Loop leads  
Data transfer: DB-9 for RS-232C
- Intrinsically Safe Option:  
Class I, Div I areas per CSA 22.2 & UL 913 by MET Laboratories Certification to ATEX pending.
- NIST Traceable Accuracy:  
Pressure: ± 0.025% to ± 0.10% of Full Scale including all effects of linearity, repeatability, hysteresis and temperature over the range of 23° F to 122° F (-5° C to 50° C).  
Current / Voltage: ± 0.025% of Full Scale ± 0.001% of Span per ° F (ref. temp. 70° F) ± 0.0018% of Span per ° C (ref. temp. 21° C)
- Pressure Module Limits/Medias:  
GI / AI sensor modules (part numbers 3KXD311810L0020 through 3KXD311810L0042): 2X range / 316ss compatible DN sensor modules: (part numbers 3KXD311810L0001 through 3KXD311810L0006): 2X range when pressurized on high side only, 150 PSI (10.3 bar) when applied simultaneously to high and low sides / dry gases only
- Sensors Modules:  
2.3" (5.84 cm) L x 1.3" (3.3 cm) W x 2.6" (6.6 cm) D, 8.3 oz (235 g) or less. Positive-lock with spring latch. Depress latch to release. Electrical connections are PC board contacts to spring loaded.
- Electrical  
Compliance: All units CE marked

### Use Cases

The Mobility DHH810-MFT supports a wide range of functions that can help to reduce costs by saving time in start-up, day-to-day operations, and maintenance activities. It powers up quickly, typically in less than 2-3 seconds, and it easily connects with device terminals and/or wiring, making it readily available to begin configuration, calibration and/or troubleshooting.

The locking calibration sensor modules are easy to install and remove, even with power applied, and are readily connected to optional pressure or voltage sources for generating calibration signal inputs. Up to 3 sensor modules can be installed in the Mobility DHH810-MFT at the same time, allowing different device types or ranges to be calibrated without having to swap out modules. The VMA sensor module (Part Number 3KXD311810L0070) can be inserted in 1 of the 3 available bays and used as a portable 24V power source in situations where external power is unavailable.

On power-up the Mobility DHH810-MFT searches for a connected device, and upon finding it, the DHH810-MFT display identifies the device and reveals a wealth of information about the device in its large 6.75 sq. inch (17.15 cm<sup>2</sup>) display area including the primary measurements for each of the installed sensor modules. The large 200-device configuration and 100-device calibration results memory capacity allows the Mobility DHH810-MFT to be used in the field for long periods of time without having to upload its saved data. Below are some of the typical ways that the Mobility DHH810-MFT can be used.

- Commission devices
  - Step-by-step configuration
  - Document as-left configuration
  - Electronic Birth Certificate
  - Step-by-step calibration
- Operations
  - Reconfiguration for process changes
  - Reconfiguration for batch runs
  - Document as-found and as-left configurations
  - Populate DHH820-DMS database software
- Device Maintenance
  - Troubleshoot devices with HART
  - View device error messages
  - Clone devices to commission replacements
  - Preventive review of device status
  - Technician Approval documents actions

The Mobility DHH810-MFT provides HART users with a useful, reliable, and calibration tool. Combine it with our Mobility DHH800-MFC Communicator and Mobility Device Management System (DHH820-DMS) documenting software to provide the only single-source device management solution capable of meeting continually changing documentation requirements.

## Device Management System (DHH820-DMS) Software

### Data Management, Calibration and Maintenance

The Mobility Device Management System (DHH820-DMS) software is used with ABB's Mobility line (DHH810-MFT) of device hand-helds for managing device configuration, calibration procedures, and device documentation. It interfaces to the Mobility hand-held (DHH810-MFT) via a DB-9 serial port connector. USB to DB-9 pin adapters are available.

### Device Management System (DHH820-DMS) Software:

The Mobility Device Management System (DHH-820-DMS) software uses Microsoft SQL Server to support record keeping and retrieval of information. Some of the functions included with DHH820-DMS are listed below.

#### Graphic User Interface

The DHH820-DMS has an easy to use, Windows Explorer-like interface for quick navigation and organization of device data.

#### Data Server

Powerful Microsoft SQL data server provides a robust platform for data storage and management. This widely used database platform enables connectivity to other plant solutions.

#### Associated Documents

Provides links to relevant documents such as technical specifications, calibration certificates, standard operating procedures, and CAD documents. When selected, the documents open in their native application.

#### Activity Logging

Logging of activities related to a device such as alerts, configuration, calibration or other actions that impact a device.

#### Reporting/Queries

Standard reports, such as calibration certificates, activity logs, and scheduled activities. The user can generate custom queries that can be printed or exported for use in other applications.

#### Import/Export Utilities

Data can be imported via DHH820-DMS generated templates for the initial population of the DHH820-DMS database and for exchanging data with other applications.

### Calibration Procedures

Calibration procedure details, such as methods for error calculation, number of test points, transposition equations, and pass/fail criteria can be developed and applied to devices individually or in groups. These procedures are maintained in a library for future use and editing.

### Integrated Solution

DHH820-DMS is tightly integrated within other ABB software applications including System 800xA. This expands on DHH820-DMS standard functionality to allow it to participate in an Asset Optimization solution including online connection to HART devices via HART Multiplexers for asset condition monitoring and notification.

### Documenting Process Calibrator (DPC):

The Mobility DHH810-MFT includes documentation capabilities that enable it to interface with DHH820-DMS and to perform as a Documenting Process Calibrator

### Documenting Calibration and Configuration Data

The DPC reads and stores calibration test points, calibration results (As-Left/As-Found), configuration parameters and calibration reference standard information.

### Upload/Download Functions

Calibration Schedules (Action Lists) are generated by DHH820-DMS and downloaded to the DPC for processing. Once the activities of the action list are completed and documented by the DPC, the information is uploaded from the DPC to the DHH820-DMS database. DHH820-DMS tracks both work-in-progress and planned calibration and configuration activities.

### Communicator/Calibrator & Sensor Module Registration

The DHH810-MFT and sensor modules are registered with the DHH820-DMS. Every action performed is associated with the unique ID of the DHH810-MFT and related sensor modules. The DHH820-DMS tracks DHH810-MFT sensor modules (internal, external, removable) to support the traceability and auditing functions of the DHH820-DMS.

### Scheduling/Planning

Calibration due dates can be assigned to devices, optimizing productivity through planning of calibration activities. Due dates can be assigned according to quality control, Safety Instrumented System ratings, or any other critical requirements. User definable pre-notice can be applied to alert users.

## Action Lists

An Action List is the tool that DHH820-DMS uses to group multiple activities, which can be assigned to calibration and maintenance technicians. The Action List is downloaded to the DHH810-MFT and acts as a “To-Do List” of activities. The Action List activities are tracked by DHH820-DMS to ensure completion of assigned activities and prevent redundancy.

## Use Cases

DHH820-DMS supports two main use cases - calibration and maintenance, and commissioning. A variety of functions as described below are provided within these use cases.

## Calibration And Maintenance

### Alerts/Alarms

Criticality settings based on, for instance, Safety Integrity Levels (SIL) can be assigned to a device. Other acceptance criteria can be established and assigned to a device. These settings are checked and used to notify administrators when acceptance criteria are not met. Devices under alarm or alert are listed in a separate folder for easy access and disposition.

### MFT Upload/Download of Action Lists

A key component in any calibration management solution is a documenting process calibrator. Action Lists that are downloaded to the DHH810-MFT contain all the information necessary to perform activities on a device. The Action List serves as the itinerary for the maintenance technician and includes all relative calibration and/or configuration instructions. The progress and results of these activities are recorded and uploaded to the DHH820-DMS so that the DHH820-DMS maintains the latest activities performed on any device.

### Device Activity Log

Any activity that impacts a device is electronically stamped with date, time, user, and description of activity, user ID and notes. Each device has its own log of associated activities.

### Version Manager

A Version Manager maintains versions of the DPC firmware, DHH820-DMS software, calibration sensor module calibration dates, and Device Object Files (DOF's). This tool provides notices to the user regarding updates and provides a means for auditing and traceability for calibration standards.

## Preventive Maintenance

Utilization of the Action Lists and Scheduling features enable the development of a preventive maintenance plan based on manufacturers recommended calibration cycles, plant standard practices, or historical activity for a device.

## Commissioning

### Device Specific Cloning

New devices can be configured and installed by copying similar existing devices. The user can clone the device information from multiple sources; an off the shelf device, the DHH820-DMS database, or the DHH820-DMS library of standard devices.

### System Cloning

Copying of device information can be performed on a system basis as well. A system can be copied and used as a baseline for developing a similar system for a new division.

### Device Set-Up/Configuration

Commissioning of new devices can be accomplished by assigning the activity to an Action List for download to an DHH810-MFT.

### Upgradeability via Download Site

A download website enables users to update DHH820-DMS software service packs, and DOF Library additions. A subscription to the download site is standard.

## Industry Standard Compliance

DHH820-DMS is built for use in an open system environment.

### FCINTF Specification Support

DHH820-DMS uses ISA's FCINTF interface specification for upload/download communication with Documenting Process Calibrators (DPC's). Many of the popular DPC's on the market support the ISA FCINTF specification.

### Non-Proprietary

The DHH820-DMS and DHH810-MFT utilize a Device Object File (DOF) to communicate with specific smart devices. Although the DOF's technology is protected, full access to the technology is available through the DHH820-DMS and DHH810-MFT open interface architecture.

### Plant Application Compatibility

The DHH820-DMS application was developed using SQL server database, which has features that enable it to support ODBC data exchange and functionality with other plant applications. The DHH820-DMS has export/import capabilities to support manual data exchange including features to map data between other popular device databases.



Ordering information																					
Variant digit No.		1 - 7	8 - 10	11	12	13	14	15	16	17	18	19	20	21							
<b>Mobility DHH810-MFT Modular Calibrator</b>		Catalog No. <b>DHH810-</b>																			
<b>Mobility DHH810-MFT Modular Calibrator with HART® Communications</b>		<b>MFT</b>																			
		- Includes CE Mark, Test Lead Kit, RS-232 Serial Cable, Paper User's Manual, NIST Traceability Certificate standard for modules & base unit, and 3-year download subscription																			
<b>Model Type</b>																					
Calibration and Configuration - All Supported HART devices (ABB and non-ABB)				1	2																
Calibration Only - HART and Conventional devices				2	2																
<b>Documenting Options</b>																					
Standard - As-found & as-left function requires DHH820-DMS database software sold separately				1																	
<b>Certification</b>																					
CE Mark (Standard on all units)							0	0													
CE Mark, Intrinsic Safety certification by MET Laboratories per CSA C22.2 No. 1010.1-92, C22.2 No. 157, and UL913, Fifth Edition Rev. 2/21/97 for Class I, Div I, Groups A, B, C & D							0	1													
<b>Carrying Case and Strap Options</b>																					
Rear Hand Strap with protective boot (Standard on all units)									0												
Rear Hand Strap with protective boot and Fitted Use in Place Soft Carrying Case									1												
Rear Hand Strap with protective boot and MFT Hanging/Shoulder Strap									2												
<b>User's Manual Language</b>																					
English										0	1										
<b>Reserved</b>																					
Always one																			1		
<b>Firmware Language</b>																					
English																				0	1

Note: Selection of the DHH810-MFT12 model is required for configuration of HART devices and calibration of HART and conventional 4-20mA devices while selection of the DHH810-MFT22 model provides support only for calibration of HART and conventional 4-20 mA devices. The upgrade from DHH810-MFT22 to DHH810-MFT12 does not require the return of the hand-held and can be done via keypad entry after purchase of the upgrade with part number 3KXD311810L0300.

CF = Consult Factory

Standards Products =

Additional ordering information		
Mobility DHH810-MFT Modular Calibrator - Accessories	Note	Catalog No.
<b>Sensor Modules</b>		
Modules are Intrinsically Safe when used in accordance with Control Document NIST Traceability Certificate standard for all modules.		
1 - 10" H2O dp (2.5 - 25 mbar), ± 0.1% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.009 H2O dp (± 0.022 mbar))	(FDN0010021)	3KXD311810L0001
0 - 20" H2O dp (0 - 50 mbar), ± 0.1% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.02 H2O dp (± 0.050 mbar))	(FDN0020021)	3KXD311810L0002
0 - 100" H2O dp (0 - 250 mbar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.025 H2O dp (± 0.062 mbar))	(DDN0100021)	3KXD311810L0003
0 - 200" H2O dp (0 - 500 mbar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.05 H2O dp (± 0.125 mbar))	(DDN0200021)	3KXD311810L0004
0 - 400" H2O dp (0 - 1 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.10 H2O dp (± 0.25 mbar))	(DDN0400021)	3KXD311810L0005
0 - 2000" H2O dp (0 - 5 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.50 H2O dp (± 1.25 mbar))	(DDN2000021)	3KXD311810L0006
0 - 20 PSIG (0 - 1.38 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.005 PSIG (± 0.35 mbar))	(DGI0020021)	3KXD311810L0020
0 - 200 PSIG (0 - 13.8 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.05 PSIG (± 3.5 mbar))	(DGI0200021)	3KXD311810L0021
0 - 500 PSIG (0 - 34.5 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.125 PSIG (± 8.6 mbar))	(DGI0500021)	3KXD311810L0022
0 - 1000 PSIG (0 - 69.0 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.25 PSIG (± 17.2 mbar))	(DGI1000021)	3KXD311810L0023
0 - 1500 PSIG (0 - 103.4 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.375 PSIG (± 25.9 mbar))	(DGI1500021)	3KXD311810L0024
0 - 2000 PSIG (0 - 137.9 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.500 PSIG (± 34.5 mbar))	(DGI2000021)	3KXD311810L0025
0 - 3000 PSIG (0 - 206.8 bar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 1.50 PSIG (± 103.4 mbar))	(GGI3000021)	3KXD311810L0026
0 - 900 mm Hg (0 - 1200 mbar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.225 mm Hg (± .30 mbar))	(DAI0900021)	3KXD311810L0040
0 - 2000 mm Hg (0 - 2500 mbar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 0.50 mm Hg Abs (± 0.67 mbar))	(DAI2000021)	3KXD311810L0041
0 - 5200 mm Hg (0 - 7000 mbar), ± 0.025% Full Scale from 23° F (-5 °C) to 122° F (50 °C) (± 13.00 mm Hg Abs (± 17.5 mbar))	(DAI5200021)	3KXD311810L0042
T/C measure and simulate module supports types B,C,E,J,K,N,R,S,T,M,P. Recommend TIO Starter Kit (P/N 3KXD311810L0100)	(TIO0110021)	3KXD311810L0060
RTD measure and simulate module supports 22 different RTDs. Requires Special Module Connectors from RIO Starter Kit (P/N 3KXD311810L0102)	(RIO4000021)	3KXD311810L0065
V/I: meas ±55 Vdc, source 0-28Vdc; mA: meas ±100 mA dc, source 0-100 mA dc. Recommend VMA Starter Kit (P/N 3KXD311810L0101)	(VMA0055021)	3KXD311810L0070

Standards Products =

Starter Kits for Various Sensor Modules		
TIO Starter Kit for P/N 3KXD311810L0060 module t/c meas. & sim. - Universal includes: P/N 3KXD311810L0243 t/c wire Kit 1 for E, J, K, N, T; mini-t/c conn., 1 m cable P/N 3KXD311810L0244 t/c wire Kit 1 for B, K, R/S; mini-t/c conn., 1 m cable P/N 3KXD311810L0245 mV measure / sim. cable assembly; mini-t/c conn.	(A37062)	3KXD311810L0100
VMA Starter Kit for P/N 3KXD311810L0070 module V / I meas. & sim. - Universal includes: P/N 3KXD311810L0203 VMA test lead kit, banana plugs on 9" breakouts both ends, assorted connectors	(A900529-00015)	3KXD311810L0101
RIO Starter Kit for P/N 3KXD311810L0065 module RTD meas. & sim. - Universal includes: P/N 3KXD311810L0242 Measure cable; module connector by four (4) alligator clips P/N 3KXD311810L0241 RTD mating connector (for use with customer's RTD) P/N 3KXD311810L0246 Simulate cable; module connector by two (2) alligator clips	(A37063)	3KXD311810L0102

<b>Additional ordering information</b>		
<b>Mobility DHH810-MFT Modular Calibrator - Accessories</b>		<b>Catalog No.</b>
<b>Kit Options</b>		
Standard kit includes: hard carrying case (P/N 3KXD311810L0141), pressure (P/N 3KXD311810L0160) or vacuum (P/N 3KXD311810L0161) pump, low pressure connection kit (P/N 3KXD311810L0180).		
Standard kit with P/N 3KXD311810L0160 pressure pump	(A36785)	3KXD311810L0120
Standard kit with P/N 3KXD311810L0161 vacuum pump	(A36786)	3KXD311810L0121
<b>Carrying Case / Hanging Strap</b>		
Soft case w/ shoulder strap for carrying one MFT and installed modules, additional modules, test lead kit, hand pump & fittings.	(A36749)	3KXD311810L0140
ABS plastic carrying case with handle and foam insert for MFT base unit and installed modules, additional modules, test lead kit, hand pump, RTD temperature probe, fittings & tubing.	(A36750)	3KXD311810L0141
MFT Hanging/Shoulder Strap, includes factory mounted D-Rings to MFT case, adjustable strap, spring-loaded swivel snaps.	(A36936)	3KXD311810L0142
<b>Pressure Sources</b>		
961P pressure pump with integral variator, bleed valve, 1/8" (0.3175 cm) Female NPT connection, 0 - 145 PSIG (0 - 10 bar)	(B34686)	3KXD311810L0160
961V vacuum pump with integral variator, bleed valve, 1/8" (0.3175 cm) Female NPT connection, -650 mm Hg (-867 mbar)	(B34700)	3KXD311810L0161
PV211 Pressure/Vacuum Pump in Hard Carrying Case. Pump has integral variator, bleed valve, 1/4" (0.3175 cm) Female NPT adapter, 0 - 600 PSI (41.4 bar) 0-28.5 inHg, hose included.	(A37118)	3KXD311810L0162
IAS-AIII service kit For PV211 pump; P/N 3KXD311810L0162 above.	(A37119)	3KXD311810L0163
Fittings Kit; Quick Fit x 1/8 NPTF, x 1/4NPTF, x 3/8 NPTF, x 1/2 NPTF, x 1/8 NPTM, x 1/4NPTM	(A37114)	3KXD311810L0164
Repair parts kit for pressure pump 3KXD311810L0160 (9611)	(A34744-1)	3KXD311810L0165
Repair parts kit for vacuum pump 3KXD311810L0161	(A34744-2)	3KXD311810L0166
<b>Fitting Kits &amp; Accessories</b>		
Low Pressure Connector Kit (not for use above 250 PSIG (17.3 bar)) includes: 1/8" (0.3175 cm) OD tubing length 18 ft (5.49 m), 1/8" (0.3175 cm) OD "T" fittings (2), 1/8" (0.3175 cm) OD tube by 1/8" (0.3175 cm) Male NPT adapters (6) + 3/16" (0.4763 cm) barb to 1/8" (0.3175 cm) Female NPT (1) fitting and 1/4" (0.635 cm) Male NPT to 1/8" (0.3175 cm) Female NPT reducers (2)	(A34386)	3KXD311810L0180
1/8" (0.3175 cm) O.D. tubing to 1/8" (0.3175 cm) Male NPT (not for use above 250 PSIG (17.3 bar))	(A34102)	3KXD311810L0181
1/8" (0.3175 cm) O.D. tubing union tee (not for use above 250 PSIG (17.3 bar))	(A34112)	3KXD311810L0182
1/4" (0.625) Male NPT X 1/8" (0.3175) Female NPT reducer bushing, brass	(A34099-1)	3KXD311810L0183
10 ft (3.05 m) of 1/8" (0.3175 cm) O.D. nylon tubing (not for use above 250 PSIG (17.3 bar))	(A34103-2)	3KXD311810L0184
Push to read equalizing manifold for DP modules, brass, 1/8" (0.3175 cm) Female NPT connections	(A36853)	3KXD311810L0185
High Pressure Connection Kit (not for use above 9,000 PSIG (620.5 bar)) includes: 3' (0.91 m) HP Hose with 1pc 1/8" (0.3175 cm) Male NPT & 1 pc 1/4" (0.635 cm) Male NPT x HP Quick Connect fitting	(A900020-90502)	3KXD311810L0186
High Pressure Connection Kit (not for use above 9,000 PSIG (620.5 bar)) includes: 1' (0.30 m) HP Hose with 1pc 1/8" (0.3175 cm) Male NPT and 1pc 1/4" (0.635 cm) Male NPT x HP Quick Connect fitting	(A900020-90503)	3KXD311810L0187
5 pcs 1/4" (0.635) MNPT x HP Quick Connect Fitting (not for use above 9,000 PSIG (620.5 bar)) includes:	(A900020-90501)	3KXD311810L0188
1 pcs 1/8" (0.3175 cm) Male NPT HP Quick Connect fitting (not for use above 9,000 PSIG (620.5 bar)) includes:	(A900436-00001)	3KXD311810L0189

Standard Products =



<b>Additional ordering information</b>		
<b>Mobility DHH810-MFT Modular Calibrator - Accessories</b>	<i>Note</i>	Catalog No.
<b>Electrical / Communications and Power Accessories</b>		
HART Test Lead Kit - std banana plugs, mini-grabbers, 250 ohm resistor (A900529-00014)	1)	3KXD311800L0011
Standard Test Lead Kit - standard banana plugs with assorted connectors (A900529-00011)		3KXD311810L0201
Standard size 250 ohm shunt resistor required for HART low resistance loops (A36821)		3KXD311800L0012
VMA Test Lead Kit - banana plugs on 9" (22.9 cm) breakouts both ends, assorted connectors (A900529-00015)		3KXD311810L0101
Adapter, standard banana jack (F) to mini-banana jack (M) (A900441-00014)		3KXD311810L0204
DB-9 cable, Male x Female, 6 ft (1.82 m) length (A900447-00052)	1)	3KXD311800L0013
6-pack of AA Alkaline Batteries (A900614-00011)	1)	3KXD311810L0220
6-pack of AA 1.2V NiMH Batteries (A900614-00014)		3KXD311810L0221
NiMH battery charger, holds up to 8 individual AA cells, 8 hours, 120 VAC 60 Hz (A37134)		3KXD311800L0031
Power adapter, with pin connector 100 Vac to 240 Vac, 50-60 Hz (A37160)	1)	3KXD311800L0034
Universal plug adapter kit for P/N 3KXD311800L0034 power adapter (A37159)	1)	3KXD311800L0035
Power adapter with barrel connector 100-240 Vac, 50-60 Hz and Universal plug adapter (9B000007)		3KXD311800L0036
24Vdc Power Supply, input: 120Vac 60 Hz, output: 24Vdc 350 mA (A900447-00135)		3KXD311810L0225
<b>Temperature Accessories</b>		
Pt 100 RTD, DIN Class "A", 0.00385 alpha, 4 lead, 1/4" (0.635 cm) O.D. 300 Series SS probe, 10" (25.4 cm) length, 3.5" (8.9 cm) handle and 5 ft ((1.52 m) coiled cable with connector for RIO temperature module, P/N 3KXD311810L0065		3KXD311810L0240
Mating connector for RTD temperature modules facilitates use of customer's RTD (A900028-90200)		3KXD311810L0241
User cable for RTD temp module, 5 ft (1.52 m) cable, 4 lead wires, alligator clip terminations (A900028-90500)		3KXD311810L0242
T/C wire Kit 1 for types E, J, K, N, T; mini t/c connector, 1 m cable (A36857)		3KXD311810L0243
T/C wire Kit 2 for types B, K, R/S; mini t/c connector, 1 m cable (A36858)		3KXD311810L0244
mV measure/simulate cable assembly; mini t/c connector, 3.5 ft. (1.07 m) copper cable, alligator clips (A36881)		3KXD311810L0245
Simulate cable for RTD temp module, 5 ft (1.52 m) cable, 2 lead wires, alligator clip terminations (A900028-90502)		3KXD311810L0246
<b>Open Bay Protection Module</b>		
Dummy module protects unused (open) sensor module bays in MFT (A36741)	1)	3KXD311810L0260
<b>Media and Manuals</b>		
Mobility Interface Software CD set, latest version (698B277U01)	1)	3KXD311800L0041
Mobility MFT Operations Manual, printed hard copy - one copy supplied with order at no charge and pdf instructions included on CD (694A199U01)	1)	3KXD311810R4301
Upgrade from DHH810-MFT22 to DHH810-MFT12 (DPCHRTUPG-01)		3KXD311810L0300

DPC Manager for Configuration Management (DPCMAN-CFG)	3KXD311820L0001
DPC Manager for Configuration Management (DPCMAN-CAL)	3KXD311820L0002
DPC Manager for Configuration and Calibration Management (DPCMAN-AAL)	3KXD311820L0003
Upgrade DPC Manager to Configuration and Calibration Management(DPCMAN-ALL-UPGRD)	3KXD311820L0004
3-Year Download Subscription for 1 DPC unit	3KXD311800L0051
3-Year Download Subscription for 2 to 4 DPC units	3KXD311800L0052
3-Year Download Subscription for 5 to 9 DPC units	3KXD311800L0053
3-Year Download Subscription for 10 to 19 DPC units	3KXD311800L0054
3-Year Download Subscription for 20 or more DPC units	3KXD311800L0055

Note 1) Included with base order DHH810-MFT

Standard Products =

Ordering information										
Device Management System (DMS) Software		Variant digit No.	1 - 7	8 - 10	11	12	13	14	15	
<b>DHH820-DMS</b>		Catalog No.	<b>DHH820-</b>							
<b>Mobility Device Management System Software</b>		<b>DMS</b>								
Device Management System (DMS) Software, DMS Server and Integral Client, 1 Year Software Maintenance plus Documenting Process Calibrator / Communicator (DPC) Interface to DMS included. This feature enables users to electronically exchange calibration procedure and /or HART Device configuration data with DMS software through a RS-232 Serial Interface.										
<b>Type</b>	1)									
DMS Server with DPC interface (Calibration and Configuration)	2)	1								
DMS Server with DPC interface (Configuration only)	2)	2								
<b>No. of DMS Clients</b>										
No	3)	0								
1 Client integral to DMS Server (Calibration and Configuration)	4)	1								
5 Clients (Calibration and Configuration)	4)	2								
10 Clients (Calibration and Configuration)	4)	3								
1 Client integral to DMS Server (Configuration Only)	5)	4								
5 Clients (Configuration Only)	5)	5								
10 Clients (Configuration Only)	5)	6								
<b>Add 21 CFR 11 Support</b>										
No		0								
<b>Expand Existing DHH820-DMS</b>										
New Initial Purchase		0								
Expand from 1 to 5 clients (Calibration and Configuration)	6)	1								
Expand from 5 to 10 clients (Calibration and Configuration)	6)	2								
Expand from 1 to 10 clients (Calibration and Configuration)	6)	3								
Expand from 1 to 5 clients (Configuration Only)	7)	4								
Expand from 5 to 10 clients (Configuration Only)	7)	5								
Expand from 1 to 10 clients (Configuration Only)	7)	6								
<b>Expand Existing DHH820-DMS (already have 21 CFR Part 11)</b>										
No		0								

Notes:

- 1) Latest version of Mobility Interface Software CD set is included. CD sets for previous versions are available on a request basis.
- 2) Entry of 1 for Digit 11 provides the full DMS. Entry of 2 provides a version of DMS that only supports uploading, downloading, and documenting of device configuration information.
- 3) Zero entry of Digit 12 is required and only valid when expanding an existing DMS that has already been purchased
- 4) Non-zero entry of Digit 12 is required for any new DMS purchase. These options may only be selected if Digit 11 is a one.
- 5) Non-zero entry of Digit 12 is required for any new DMS purchase. These options may only be selected if Digit 11 is a two.
- 6) Non-zero entry of Digit 14 is only valid if Digit 12 is zero, and requires supply of existing DMS serial number with the PO. These options may only be selected if Digit 11 is a one.
- 7) Non-zero entry of Digit 14 is only valid if Digit 12 is zero, and requires supply of existing DMS serial number with the PO. These options may only be selected if Digit 11 is a two.

Additional ordering information		
<b>Device Management System (DMS) Software - Accessories</b>		Catalog No.
Mobility Interface Software CD set, latest version	(698B277U01)	3KXD311800L0041
DMS Operations Manual, printed hard copy	(694A200U01)	3KXD311820R4301
One copy included with order at no charge. Pdf instructions included on CD		
DMS Installation and Upgrade Guide,	(694A201U01)	3KXD311820R4401
One copy included with order at no charge. Pdf instructions included on CD		
Annual Subscription for Updating DMS Server		
with Integral Client		3KXD311820L0101
with 5 Clients		3KXD311820L0102
with 10 Clients		3KXD311820L0103

Standards Products =

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