

DHH805-A

Handheld communicator



Engineered solutions for all applications

Measurement made easy

DHH805-A handheld communicator

Introduction

The the DHH805-A is a handheld terminal for device configuration of HART® instruments.

It interfaces to a wide range of devices supporting ABB instruments with an option to support those from third party suppliers.

All supported HART field devices can be configured, polled and trimmed using the Mobility DHH805.

For more information

Further publications for DHH805-A handheld communicator are available for free download from www.abb.com/pressure

The Company

We are an established world force in the design and manufacture of measurement products for industrial process control, flow measurement, gas and liquid analysis and environmental applications.

As a part of ABB, a world leader in process automation technology, we offer customers application expertise, service and support worldwide.

We are committed to teamwork, high quality manufacturing, advanced technology and unrivalled service and support.

The quality, accuracy and performance of the Company's products result from over 100 years experience, combined with a continuous program of innovative design and development to incorporate the latest technology.

Table of contents

1. Introduction	4	7 HART® communications.....	17
1.1 Instruction manual structure	4	7.1 Overview.....	17
1.2 Models covered by this manual.....	4	7.2 HART® Commands.....	17
1.3 Product description.....	4	7.3 HART® Connections	17
2 Safety notes.....	5	7.4 Generic HART® Commands.....	18
2.1 General safety information	5	7.5 HART® Communication / Online Mode.....	19
2.2 Use of instruction	5	7.6 Multidrop Poll (addresses 1 – 63).....	19
2.3 Qualified personnel.....	5	7.7 Offline menu mode	19
2.4 Health and safety	5	7.7.1 Configuration management - Edit	20
2.5 Returning devices.....	5	7.7.2 Configuration management - Create	20
2.6 Disposal.....	6	7.7.3 Configuration management - Delete.....	20
2.7 Information on WEEE.....	6	7.7.4 Configuration management - Clone	21
2.8 Transport and storage	6	7.8 Online menu mode	21
2.9 Safety information for electrical installation	6	7.9 Device status warning	21
2.10 Contacting ABB	6	7.10 Save / send configuration functions	21
2.11 Conclusions	6	7.11 DD Structure.....	22
3 DHH805-A overview	7	7.11.1 266 Pressure Transmitter.....	22
3.1 DHH805-A components overview	7	7.11.2 TTX200 Temperature Transmitter	25
3.2 DHH805-A display overview	8	7.11.3 FSM4000 Flow Transmitter	26
3.2.1 Symbols	8	7.11.4 EDP300 Positioner	31
3.3 Keypad Overview	8	8 PC-Tool	40
4 First steps.....	9	8.1 Overview.....	40
4.1 Opening the box	9	8.2 Installation procedure	40
4.2 Preliminary inspection.....	9	8.3 PC-Tool homepage	40
4.3 DHH805-A Start up procedures.....	9	8.4 Main tabs explanation	40
4.4 Activation procedure	10	8.4.1 File	40
4.4.1 Activation via PC-Tool	10	8.4.2 Tools	40
4.4.2 Manual activation	11	8.4.3 Help	41
4.5 Disclaimers	11	8.5 Troubleshooting.....	43
4.5.1 END-USER LICENSE AGREEMENT	11	8.6 Prerequisites	44
4.5.2 Personal Data Handling Authorization	13	8.6.1 Minimum System Requirements.....	44
4.5.3 Data Acquisition and Handling Authorization	13	8.6.2 Recommended System Requirements	44
5 License upgrade	14	8.7 Further information	44
5.1 Overview.....	14	9 Hazardous area considerations	45
5.2 License upgrade procedure	14	9.1 Intrinsically safe operations.....	45
5.2.1 License upgrade via PC-Tool	14	9.2 Intrinsic Safe Control Document.....	46
5.2.2 Manual upgrade.....	14	9.2.1 Intrinsically safe FM Us and Canada Approved*.....	46
6 General operation	15	9.2.2 Non Incendive FM Us and Canada Approved.....	47
6.1 Power options.....	15	9.2.3 Entity and Non-Incendive concepts	48
6.2 Communication / AC adapter dongle	15		
6.3 Navigating menus on the DHH805-A display	15		
6.4 Turning the DHH805-A on	15		
6.5 DHH805-A settings	16		
6.5.1 Settings.....	16		
6.5.2 Communication.....	16		
6.6 NiMh Battery Considerations	16		

1. Introduction

1.1 Instruction manual structure

The present manual provides information on operating and troubleshooting the hand held terminal DHH805-A. Every section in the present manual is dedicated to the specific phase of the life cycle starting from the receipt of the communicator and its identification, detailing activation process, connection to the instrument, configuration, troubleshooting, license upgrade, firmware update and maintenance operations.

1.2 Models covered by this manual

DHH805-A is the model number for the handheld product covered by this manual.

1.3 Product description

The Hand Held Communicator provides a smart interface with HART electronic devices: it is designed to enable the plant engineer to configure, calibrate and troubleshoot the transmitters either before or after field installation.

The Hand Held Communicator can store in its non-volatile memory hundreds of transmitter configurations.

The Communicator employs a four line by twenty dot matrix characters LCD and a 23 key tactile feedback keyboard.

The hand held terminal is based on standard Bell 202 FSK (Frequency Shift Keying) current modulation superimposed on the 4 to 20 mA analog signal: since the energy balance added to the current loop is virtually equal to zero no disturbance or interference occurs on the analog process signal.

This version of the Communicator, when powered by internal rechargeable batteries, is certified intrinsically safe for use in hazardous locations according to the standard printed label placed on the battery pack.

2 Safety notes

2.1 General safety information

The “Safety” section provides an overview of the safety aspects to be observed for operating the device.

The device has been constructed in accordance with the state of the art and is operationally safe. It has been tested and left the factory in perfect working conditions. The information in the manual, as well as the applicable documentation and certificates, must be observed and followed in order to maintain this condition throughout the period of operation.

Full compliance with the general safety requirements must be observed during operation of the device. In addition to the general information, the individual sections in the manual contain descriptions of processes or procedural instructions with specific safety information.

Only by observing all of the safety information can you reduce to the minimum the risk of hazards for personnel and/or environment. These instructions are intended as a comprehensive overview and do not contain detailed information on every conceivable event that may occur during setup, operation and maintenance work.

For additional information, or in the event of specific problems not covered in detail by these operating instructions, please contact the manufacturer. In addition, ABB declares that the contents of this manual are not part of any prior or existing agreements, commitments, or legal relationships; nor are they intended to amend these.

All obligations of ABB arise from the conditions of the relevant sales agreement, which also contains the solely binding warranty regulations in full. These contractual warranty provisions are neither extended nor limited by the information provided in this manual.

Read these instructions before starting installation; save these instructions for future reference.

2.2 Use of instruction

Danger – <Serious damage to health/risk to life>. This message indicates that an imminent risk is present. Failure to avoid this will result in death or serious injury.

Caution – <Minor injuries>. This message indicates a potentially dangerous situation. Failure to avoid this could result in minor injuries. This may also be used for property damage warnings.

Important. This message indicates operator tips or particularly useful information. It does not indicate a dangerous or damaging situation.

Warning – <Bodily injury>. This message indicates a potentially dangerous situation. Failure to avoid this could result in death or serious injury

Attention – <Property damage>. This message indicates a potentially damaging situation. Failure to avoid this could result in damage to the product or its surrounding area.

2.3 Qualified personnel

Operations on the device may only be performed by trained specialist personnel who have been authorized by the plant operator. The specialist personnel must have read and understood the manual and comply with its instructions.

Warning – <Possible process upsets>. Maintenance must be performed only by qualified personnel and only after securing equipment controlled by this product. Adjusting or removing this product while it is in the system may upset the process being controlled. Some process upsets may cause injury or damage.

2.4 Health and safety

To ensure that our products are safe and without risk to health, the following points must be noted:

- The relevant sections of these instructions must be read carefully before proceeding.
- Warning labels on containers and packages must be observed.
- Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given.
- Normal safety precautions must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and/or temperature.
- Chemicals must be stored away from heat, protected from extreme temperatures
- When disposing of chemicals ensure that no two chemicals are mixed.

Safety advice concerning the use of the equipment described in this manual or any relevant hazard data sheets (where applicable) may be obtained from the Company address on the back cover, together with servicing and spares information.

2.5 Returning devices

Use the original packaging or suitably secure shipping package if you need to return the device for repair purposes. Fill out the return form (trouble sheet - see the end of the document) and include this with the device.

According to EC guidelines and other local laws for hazardous materials, the owner of hazardous waste is responsible for its disposal. The owner must observe the proper regulations for shipping purposes.

All devices sent back to ABB must be free from any hazardous materials (acids, alkalis, solvents, etc.). A Material Safety Data Sheet (MSDS) for all process liquids must accompany returned equipment (see the end of this document for the official form). Contact the factory for authorization prior to returning equipment.

2.6 Disposal

ABB actively promotes environmental awareness and has an operational management system that meets the requirements of EN ISO 9001:2015 and EN ISO 14001:2015. Our products and solutions are intended to have minimum impact on the environment and persons during manufacturing, storage, transport, use and disposal.

This includes the environmentally friendly use of natural resources. ABB conducts an open dialog with the public through its publications.

This product/solution is manufactured from materials that can be reused by specialist recycling companies.

2.7 Information on WEEE Directive 2012/19/EU (Waste Electrical and Electronic Equipment)

This product or solution is subject to the WEEE Directive 2012/19/EU or corresponding national laws. Starting from August 15th 2018, electrical and electronic equipment marked with the crossed-out wheeled bin symbol may not be disposed as unsorted municipal waste. Waste of electrical and electronic equipment (WEEE) shall be treated separately using the national collection framework available to customers for the return, recycling and treatment of WEEE.

Proper disposal prevents negative effects on people and the environment, and supports the reuse of valuable raw materials. ABB can accept and dispose of returns for a fee.

2.8 Transport and storage

- After unpacking, check the device for transport damage.
- Check the packaging material for accessories.
- During intermediate storage or transport, store the device in the original packaging only.

The duration of storage of the unused device is strictly related to the duration of the batteries (see paragraph 6.6 "Consideration about NiMH batteries).

Warranty conditions are stipulated on the order acknowledgment by the supplier.

2.9 Safety information for electrical installation

Warning. Electrical connections may only be established by authorized specialist personnel in accordance with the electrical circuit diagrams. The electrical connection information in the manual must be observed; otherwise, the applicable protection type may be affected.

2.10 Contacting ABB

Should assistance be required with any of the company's products, contact the following:

- Telephone: +39 0344 58111
- Internet: www.abb.com

Select Instrumentation & Analytical from the Our Offerings section

Select Contact Directory from the Products & Services tab. Then select your country location from the Your Country drop-down menu in the center of the page.

Select Service from the Instrumentation & Analytical Product Group listing and complete the requested information in the pop-up window.

2.11 Conclusions

Important. The information contained in this document is subject to change without notice.

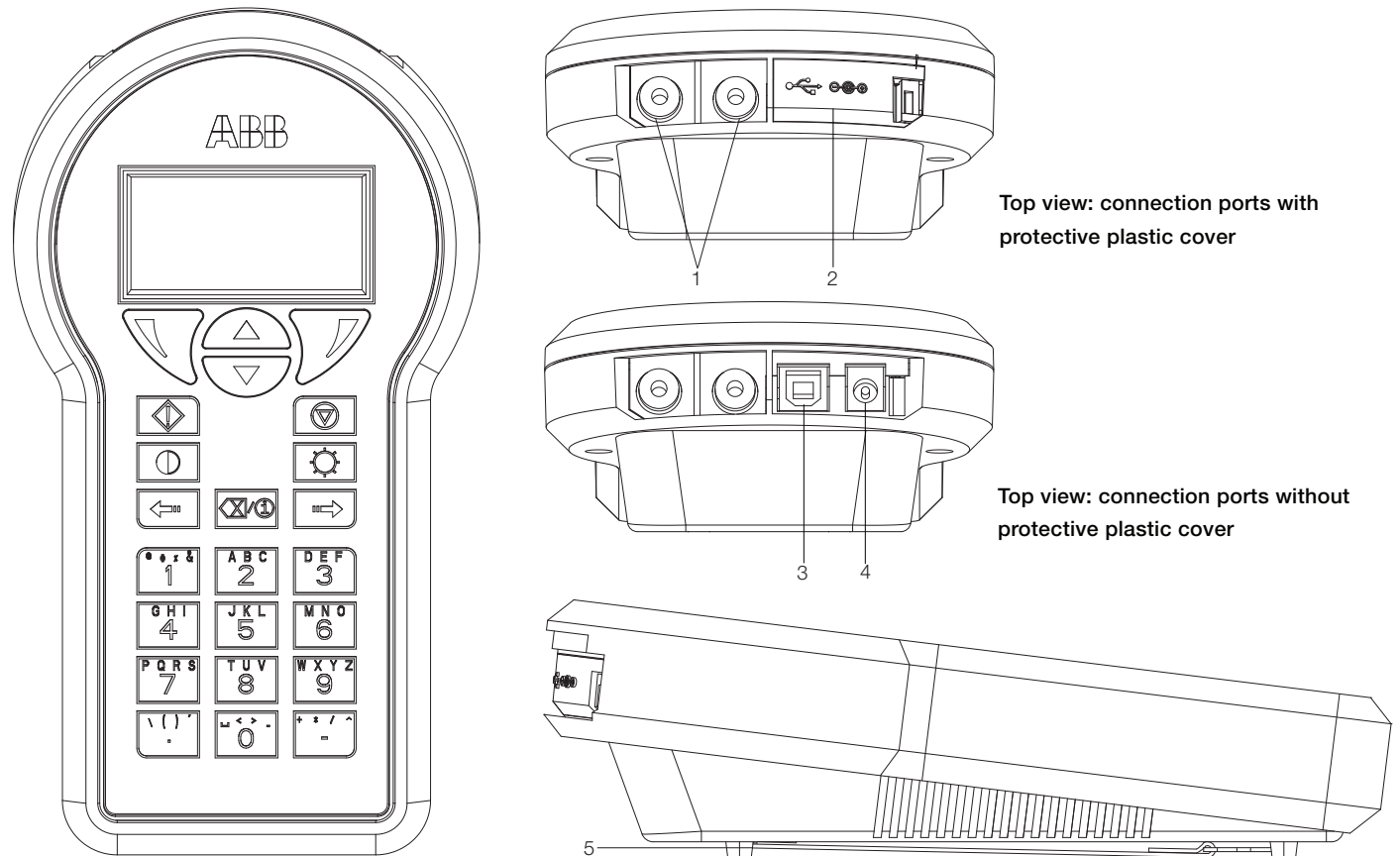
ABB SpA., its affiliates, employees, and agents, and the authors of and contributors to this publication specifically disclaim all liabilities and warranties, express and implied (including warranties of merchantability and fitness for a particular purpose), for the accuracy, currency, completeness, and/or reliability of the information contained herein and/or for the fitness for any particular use and/or for the performance of any material and/or equipment selected in whole or part with the user of/or in reliance upon information contained herein. Selection of materials and/or equipment is at the sole risk of the user of this publication.

This document contains proprietary information of ABB SpA., and is issued in strict confidence. Its use, or reproduction for use, for the reverse engineering, development or manufacture of hardware or software described herein is prohibited. No part of this document may be photocopied or reproduced without the prior written consent of ABB SpA.

3 DHH805-A overview

3.1 DHH805-A components overview

DHH805-A is a full function HART® Communicator supporting Universal, Common Practice and Device Specific commands for commissioning, configuration and maintenance operations. HART® field devices can be configured, polled, and trimmed using the DHH805-A with HART® communications.



1 HART® connectors | 2 Protective plastic cover | 3 USB port | 4 Power supply unit connection | 5 Hand strap
Figure 1: DHH805-A overview







Important. For Intrinsically Safe applications, refer to the Hazardous Area Use section of this manual. For specific details on use of approved DHH805-A and applicable restrictions refer to Intrinsic Safety Control Drawings in Section 9 of this manual.

3.2 DHH805-A display overview

The display of DHH805-A is a 128 x 64 pixel graphic display with backlight. Viewable area is 5,6 cm x 2,8 cm (2.2 in. x 1.1 in.) for 4 viewable message lines. The display provides three types of information:



- Header information including: menu or submenus titles, alpha or numeric entry mode indicator and battery level
- Main data display shows operating menus and submenus (editable parameters and device information included)
- Footer information defining: display navigation keys functionality (defined hereafter) as well as some defined operation icons (i.e.: information frames or uppercase lock).


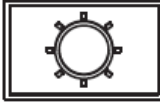






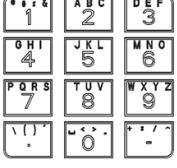
3.2.1 Symbols

	Battery symbol indicates DHH805-A remaining portion of battery.
	Electrical plug symbol indicates the AC adapter is connected and batteries are recharging.
	This symbol indicates that the selected parameter can be edited with alphabetic characters
	This symbol indicates that the selected parameter can be edited with numeric characters
	The symbol here on the left indicates that the chosen submenus contain a list of selectable options.
	This symbol appears on the bottom of the display and indicates that the device is performing HART commands and/or is communicating with a live connected HART instrument.

3.3 Keypad Overview

DHH805-A keypad has three basic key types: single function keys, dual-function keys, and soft keys with changing definitions. The following table shows keys and their relevant meanings:

	ON. In order to power the HHT on, user has to keep this key pressed for five (5) seconds (until the backlight is on). The unit will display the ABB logo, the software revision number and ABB website address. The message “Polling...” will be briefly displayed: in this phase, the HHT scans the network according to its customized configuration (address 0 or polling mode) and then it provides the list of all the connected devices, if any. If at least one device with is found, the HHT immediately goes into online status and displays information about the device. If no device is found, the HHT Main navigation screen is shown.
	OFF. To turn DHH805 off, press and hold the OFF key for approximately five (5) seconds. The unit will display the message “Shutting down...”.

	DISPLAY CONTRAST. This key allows the user to adjust the contrast of the LCD display for ambient lighting and user preferences at any time and in any operating mode. Pressing and holding this key cycles through all available contrast settings. After adjusting Display Contrast, wait at least five (5) seconds before turning unit off to insure storage of new contrast setting.
	BACKLIGHT. This key toggles the backlight feature between Very low intensity / Low intensity / Mid intensity / High intensity to illuminate the display in poor ambient light conditions. Battery life is affected by use of the backlight feature; High intensity is the most aggressive. To disable backlight function access the dedicated menu entry under “Settings”
	LEFT / RIGHT ARROW KEYS. These keys support cursor movement forward and backward for text / numeric editing needs on customizable parameters. The default edit mode is “overwrite.”
	DELETE / HELP. This editing key will delete the character located on the left of the cursor in a text / numeric string while editing customizable parameters. The HELP function is performed during the device navigation only on some specific items. This function can be exploited only when a device is connected to the HHT. When available, the information icon will appear in the bottom center of the display.
	LEFT NAVIGATION KEY. This key has different meanings according to the menu or submenu user is navigating. It can mean: <ul style="list-style-type: none"> – Back: go back to the previous menu / submenu – Cancel: exit without saving the selected parameter value – No: as answer within some specific question frames
	RIGHT NAVIGATION KEY. This key has different meanings according to the menu or submenu user is navigating. It can mean: <ul style="list-style-type: none"> – Edit: edit customizable parameters – Select: enter a submenu or select a parameter value in a list (enumeration) – Apply: apply the new entered value – Ok: save selected parameter and display stored parameter value – Yes: as answer within some specific question frames – On: for powering on the device for the first time before activation.
	UP NAVIGATION KEY. The up navigation key is useful when scrolling up/down a list (menu and submenus with their relevant entries). This key enables the writing in uppercase during the editing of customizable parameters (i.e.: change password). This key can also be used for scrolling up a long help message.
	DOWN NAVIGATION KEY. The down navigation key is useful when scrolling up/down a list (menu and submenus with their relevant entries). This key disables the writing in uppercase (if selected) during the editing of a customizable parameters (lowercase as default). This key can also be used for scrolling down a long help message.
	ALPHA-NUMERIC KEYPAD. All the keys are essential to insert alphabetic or numeric strings in all editable fields. Numbers (with the decimal point and the minus sign) are the only characters that can be written when editing numerical fields whereas within alphanumeric strings they always follow all the letters enabled for the pressed key.

4 First steps

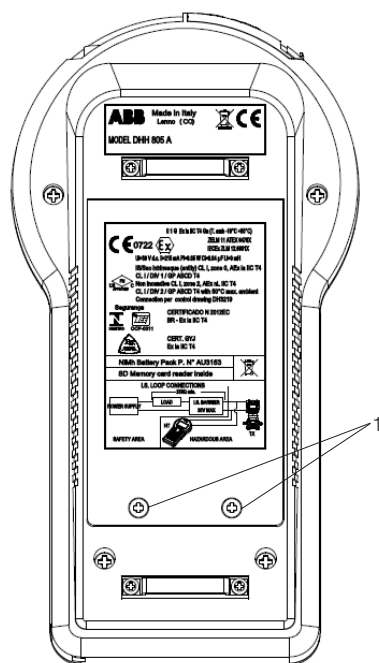
4.1 Opening the box

DHH805-A is delivered inside an hard plastic case containing:

- a carrying bag made of anti-static polyester with removable and adjustable belt
- a pack of four type AA 1.5 V disposable alkaline batteries for use in safe areas only (AA alkaline batteries not supplied)
- a sealed pack of rechargeable NiMH battery for use in hazardous areas
- a universal AC power supply unit with four interchangeable plugs (UK, USA, Europe and Australia)
- two standard banana jacks
- a USB cable to connect DHH805-A to the PC
- a leadset for transmitter connection (1,5 mt. / 5 ft)
- a CD-Rom / DVD-Rom containing PC-Tool installation files, user's manual and HART® DD library
- an instruction sheet for DHH805-A PC connection
- a screwdriver

4.2 Preliminary inspection

Once opened the box, check the device for transport damage and check the packaging material for accessories. Before powering the DHH805-A on, it is necessary to remove the rubber shell and install one of the battery packs provided by tightening the screws located in the rear bottom of the Hand Held Communicator.



1 Battery fixing screws

Figure 2: DHH805-A rear view without rubber protective shell

Important. Please use the NiMH battery pack only when in hazardous areas.

4.3 DHH805-A Start up procedures

To connect your DHH805 HART® Hand Held Terminal to the DHH805 PC-Tool please follow the following instructions:

1. Install the DHH805 PC-Tool from the DVD-Rom you have inside the device packaging: a driven installation procedure starts and all the needed actions are explained step by step.

Note.

Minimum system requirements for DHH805 PC-Tool software are:

Hardware:

- Intel Pentium® D 2,8 GHz or AMD Athlon™ 64 X2 4400+ processor
- Screen resolution of 1024x768 or greater
- Broadband Internet connection
- DVD-ROM reader

Software:

- Latest Windows XP, Windows 7 or Windows Vista Service Packs
- 1 gigabyte (GB) RAM (32-bit) for XP version or 1.5 gigabyte (GB) RAM (32-bit) for Windows 7 and Windows Vista.
- 200 megabytes (MB) to 2 gigabytes (GB) available hard disk space (32-bit)
- Microsoft NET Framework 3.5 or later

2. Unhook the elastic handle strap on the back of the device.
3. Remove the protective rubber shell from the strap
4. On the back of the device (see picture to left), release the battery pack fixing screws from the holes located at the bottom of the battery pack seat.
5. Install the rechargeable battery pack and tighten the fixing screws.
6. By inserting the provided DVD now and running the DHH805 Setup.exe, the DVD will walk you through steps 7-8, installing the program on your computer, and synching the device to the program.

Note. Operation of the DHH805 is only allowed in safe areas.

7. In the black cardboard box inside the DHH805 suitcase, you will find the battery charger and 4 power plug adapters. Select the adapter that is compatible with your AC power plug and snap it into place on the AC power connection.
8. Open the plastic cover found on the top side of the DHH805 and plug in the power cord of the battery charger and connect the hand terminal to the PC via the USB cable. After a few seconds, the backlight will come on indicating that the DHH805 has turned on.
9. A short message will be displayed on DHH805. Depress the bottom right-hand corner navigation key (On) and access the activation menu.

10. Continue to follow instructions on the computer screen until the activation screen appears.
11. To activate the DHH805 select “Via PC-Tool” or “Manually” in the activation menu on the display.

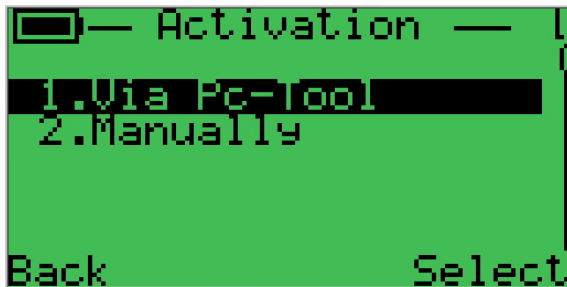


Figure 3: Activation selection possibilities

If you choose “Via PC-Tool” Click on File > Home on the PC-Tool top bar on your computer software. This should “enable” the activation button. If not, Click File>Home>Re-Start in the top bar menu. Once the activation button appears, follow the instructions on the computer screen.

Note. When the DHH805 is synchronizing, it will display the message “synchronizing.” DHH805 will indicate “Connected” when it complete synchronizing.

If you choose “Manually” you must contact your designated ABB product manager listed in the gray box below. They will need the DHH805 tag.

Note. DHH805 tag can be found printed on the white cardboard packing box or on the DHH805 screen under Activation > Manually > DHH805 tag.

After you receive the activation code, enter it by the following: Activation > Manually> Activation Code> Edit.

“Device activated successfully!” will appear when it is complete.

Note. To perform the activation “Via PC-Tool” an internet connection may be required. To activate DHH805 “Manually” obtain an activation code by contacting ABB using the following contact information

DHH805.Support@it.abb.com

You will require DHH805 tag (printed on the white cardboard packing box or visible on the DHH805 under *Activation > Manually > DHH805 tag*)

11. After activation, the DHH805 is ready to communicate with your HART® devices.

In order to connect the Hand-Held Terminal to the PC to manage DD files or configuration, it is necessary to synchronize them. To do this operation, select “Settings” on DHH805 main menu and confirm with the right navigation key “Select”. Scroll down to “Listening”, confirm with the right navigation key “Select” and refresh PC-Tool homepage clicking *File > Home*.

4.4 Activation procedure

4.4.1 Activation via PC-Tool

ABB DHH805-A can be easily activated via PC-Tool in two different ways: off-line and on-line. Please proceed to your preferred section.

Off-line activation

After connecting the DHH805-A to the PC-Tool as explained in the previous paragraph, the PC-Tool installer will check for internet connection availability. If no internet connections are available, you can click the “Activation” button that appears on PC-Tool homepage. The user will see a warning message (see figure 5) for starting the offline activation procedure. By flagging the “Off-line Activation” box, the user can click on “Printed activation request form” or follow the “Phone assisted activation instructions”.

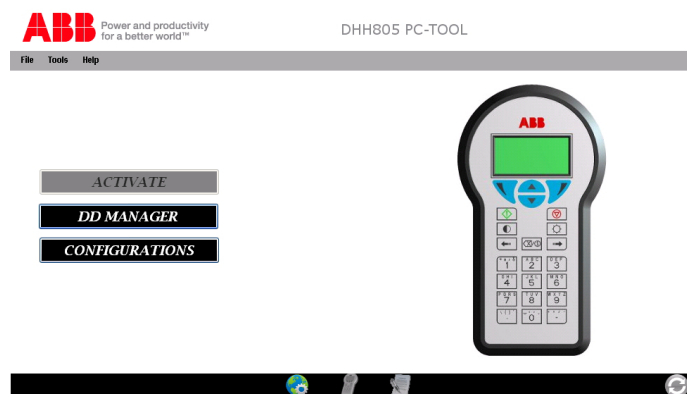


Figure 4: DHH805-A PC-Tool - Activation button

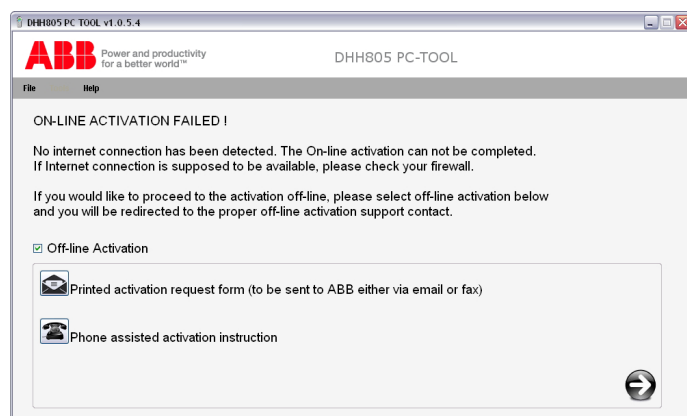


Figure 5: Off-line activation warning message

The selection of “Printed activation request form” allows user to fill in a dedicated information form. After accepting “ABB License Agreement” and “Remote Data Acquisition and Personal Data Collection” agreements (see paragraph 4.5 “Authorizations”), the PC-Tool generates a printable file which should be signed and returned via fax or e-mail (fax numbers and e-mail addresses available in *Help > PC-Tool Help > Contact us*).

By clicking on “Phone assisted activation instructions” a pop-up window will show four dedicated telephone numbers: a specialist will help users in activating the DHH805-A.

On-line activation

If the internet connection is in place, the activation panel (see figure 6) is displayed.

Figure 6: DHH805-A PC-Tool On-line activation

Once the form above has been populated, user has to proceed by clicking on the activation button on the top-right-hand corner. By accepting the “ABB License Agreement” and the “Remote Data Acquisition and Personal Data Collection” agreements, the device connected to the PC-Tool will be activated automatically: the activation code will be written inside the DHH805-A by the software itself.

Important. Please refer to DHH805 tag when making enquires. DHH805 tag can be found on a pop-up window (see figure 6), on the cardboard packing and inside the DHH805-A navigation menu (*Activation > Manually > DHH805 tag*).

The Activation Code, once received, should be written inside the dedicated box (see figure 6) of the PC-Tool or keyed in on the DHH805-A (*Activation > Manually > Activation Code*)

Important. The activation code is free of charge and can be used only once per device.

4.4.2 Manual activation

Device activation procedure can be performed at any time manually. User needs to have the activation code and write it as it is (hyphens included) inside the dedicated entry of the DHH805-A navigation menu (*Activation > Manually > Activation Code*). PC-Tool allows user to write the activation code manually inside a dedicated window. User can get the code by contacting ABB product managers listed in the previous paragraphs. For accessing this activation panel (see figure 7) no internet connection has to be detected. Once activated, the DHH805-A is ready for DD management.

Figure 7: DHH805-A PC-Tool Off-line activation

4.5 Disclaimers

As mentioned in the previous paragraphs, user shall accept some terms in order to start using ABB DHH805-A.

Please read them carefully.

4.5.1 ABB S.p.A. END-USER LICENSE AGREEMENT FOR ABB SOFTWARE

IMPORTANT-READ CAREFULLY: This END-USER License Agreement (“EULA”) is a legal agreement between you (either an individual or a single entity) and ABB SpA. (“ABB”) for the ABB Software accompanying this EULA, which includes computer software and may include associated media, printed materials, and “online” or electronic documentation (“SOFTWARE PRODUCT” or “SOFTWARE”). By installing, copy or otherwise using the SOFTWARE PRODUCT, you agree to be bound by the terms of this EULA. If you do not agree to the terms of this EULA, discontinue installation, copy, or use of the SOFTWARE PRODUCT, destroy all copies and all component parts of the SOFTWARE PRODUCT, and promptly contact ABB for instructions on return of the SOFTWARE PRODUCT for a refund.

SOFTWARE PRODUCT LICENSE

The SOFTWARE PRODUCT is protected by copyright laws and international copyright treaties, as well as other applicable intellectual property laws and treaties. This is a License and not a “sale” of the SOFTWARE PRODUCT. ABB grants you a non-exclusive right to use this copy of the SOFTWARE PRODUCT.

APPLICABILITY

This EULA shall solely apply to the software accompanied with this license, and shall not be effective to convey rights in any other software.

GRANT OF LICENSE

Except as otherwise expressly provided in this EULA, you may only install and use one copy of the SOFTWARE PRODUCT on one computer system.

You may make a single back-up copy of the computer software portion of the SOFTWARE PRODUCT only for archival purposes.

LIMITATION OF LICENSE

You are only allowed to install/use it together with the DHH805-A Hart hand held configurator device provided to you inside this package.

Using the SOFTWARE PRODUCT on many computers by sharing all of or partial of the SOFTWARE PRODUCT.

Decompose the SOFTWARE PRODUCT and use it in the different computers or embody it into other software systems.

Delete the copyright notices on any copy of the SOFTWARE PRODUCT.

Disclose, transfer, provide, rent or otherwise make available in any form, SOFTWARE, or any portion thereof, to a third party without the prior consent of ABB.

Reverse engineer, decompile, or disassemble the SOFTWARE PRODUCT, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation.

PROGRAM REMAINS ABB'S PROPERTY

All rights not specifically granted under this EULA are reserved by ABB. All title and intellectual property rights in and to the SOFTWARE PRODUCT, the accompanying printed materials, and any copies of the SOFTWARE PRODUCT, including all rights in patents, copyrights, trademarks, and trade secrets applicable thereto, shall remain vested in ABB or his licensor.

TERMINATION

Without prejudice to any other rights, ABB or his licensor may terminate your right to use the SOFTWARE PRODUCT under this EULA if you fail to comply with the terms and conditions of this EULA. Upon termination, you shall immediately stop using the SOFTWARE PRODUCT, remove all copies of the SOFTWARE PRODUCT and any related information from any electronic equipment under your control, and return to ABB the original disc media, the accompanying printed materials, and any material you have copied thereof within one month.

TERMINATION CERTIFICATE

Within one month after the termination of this Agreement, you shall furnish to ABB a certificate certifying that through your best efforts, and to the best of your knowledge, the original and all copies, in whole or in part, in any form, of SOFTWARE PRODUCT have been destroyed.

MAINTENANCE

ABB shall not be responsible for maintenance or field service of SOFTWARE under this EULA.

LIMITED WARRANTY

SOFTWARE is provided on an "AS IS" basis and without warranty of any kind, either express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose, or non infringement. The entire risk arising out of use or performance of the SOFTWARE PRODUCT remains with you. ABB does not warrant that the functions contained in the SOFTWARE will be uninterrupted or error free. ABB does not represent or warrant that SOFTWARE furnished hereunder is free of infringement of any third party patents, copyrights, or trade secrets.

LIMITATION OF LIABILITY

ABB'S TOTAL LIABILITY HEREUNDER FOR DAMAGES OF ANY NATURE SHALL NOT EXCEED THE TOTAL PAYMENT MADE BY YOU FOR THE SOFTWARE. ABB SHALL NOT BE LIABLE FOR ANY SOFTWARE FAILURE RESULTING FROM ACCIDENT, ABUSE, MISAPPLICATION, OR MODIFICATION WITHOUT PERMISSION. IN NO EVENT SHALL ABB BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF, OR INABILITY TO USE, THE SOFTWARE PRODUCT, EVEN IF ABB HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

DESCRIPTION OF OTHER RIGHTS AND LIMITATIONS

Language Version Selection. You may be provided with a selection of language version for the SOFTWARE PRODUCT licensed under this EULA. If the SOFTWARE PRODUCT is included in more than one language version, you are licensed to use only one of the language versions provided. As part of the setup process for the upon selection, the language version selected by you will be set up on the computer system, and the language version(s) not selected by you will be automatically and permanently deleted from the hard disk of the computer system.

Separation of Components. The SOFTWARE PRODUCT is licensed as a single product. Its component parts may not be separated for use on more than one computer.

Confidentiality of Performance and Test Results. You are not allowed to disclose the performance and test results of the SOFTWARE PRODUCT to any third party without written approval of ABB.

Single Computer. The SOFTWARE PRODUCT is licensed with the HARDWARE as a single integrated product. The SOFTWARE PRODUCT may only be used with the HARDWARE as set forth in this EULA.

UPGRADE

If the SOFTWARE PRODUCT is labeled as an upgrade, you must be properly licensed to use a product identified by ABB as being eligible for the upgrade in order to use the SOFTWARE PRODUCT ("Eligible Product"). For the purpose of upgrade product only, "HARDWARE" shall mean the computer system or computer system component with which you received the Eligible Product which came with the HARDWARE. You may use the resulting upgrade product only in accordance with the terms of this EULA and only with the HARDWARE.

NOTICE

All notices in connection with this EULA shall be in writing and shall be given by certified mail, return receipt requested, at the following address: ABB SpA., Via Statale, 113 LENNO (CO) ITALY.

GOVERNING LAW AND DISPUTE RESOLUTION

This EULA shall be governed and interpreted by the ITALIAN laws. All disputes arising in connection with this EULA which cannot be settled amicably shall be resolved by arbitration through an ITALIAN court. The arbitration shall be final and binding upon both Parties. The arbitration fee (and costs) shall be born by the non-prevailing Party. In the course of arbitration, both Parties shall continue their respective contractual obligations except those matters under dispute arbitration.

ENTIRE AGREEMENT

This EULA sets forth the entire understanding between the parties with respect to the subject matter herein, and merges and supersedes all prior written herein, and understandings, express or implied, concerning such matters and, notwithstanding any provisions to the contrary, shall take precedence over any conflicting terms which may be contained in your purchase order acknowledgement form. This EULA states the entire obligations of ABB in connection with the SOFTWARE PRODUCT.

Important. Terms defined in the “End-user License Agreement for ABB Software” are to be accepted in order to start using ABB DHH805-A.

4.5.2 ABB S.p.A. Personal Data Handling Authorization IMPORTANT- READ CAREFULLY:

The DHH805-A PC-Tool software allows you to register your device specifying your personal information as well as location, e-mail address and telephone number.

These information will be used by ABB to notify you about available firmware or software upgrades, known issues or available product enhancements.

As ABB aims to preserve the right to protect anybody’s personal data, we confirm that any kind of treatment will be according to common rules of correctness, lawfulness, transparency and protection of your rights and your privacy.

The treatment of all this data will be carried on by authorized personnel with the following procedures: Use of paper, computer managed archives and electronic data transmission.

Your personal data will never be transmitted to anybody outside ABB without your previous written authorization.

YES, I authorize ABB to collect and handle my data.

NO, I do not authorize ABB to collect and use my personal data.

4.5.3 ABB S.p.A. Data Acquisition and Handling Authorization

IMPORTANT- READ CAREFULLY:

In the philosophy of continuous product improvement, ABB SpA may collect data related to the functionality of your DHH805-A as well as the one of the DHH805-A PC-Tool Software.

Typical data collection may range from functionality errors detected by the on-board diagnostics to miss-interpretation errors with DDs or with some devices from specific manufacturers. To accomplish this, data related to the specific loaded DDs may be transmitted to our servers and being handled by ABB Research & Development, Service Teams as well as any other ABB division, Business Unit or department.

By accepting the agreement you expressly Authorize ABB to collect data from the DHH805-A HART® Hand Held terminal without any limitation.

Failing to accept the agreement will not allow ABB to detect if your specific device is not working correctly and notify you any possible available firmware update that may fix any eventual issue via the DHH805-A PC-Tool software.

YES, I authorize.

NO, I DO NOT authorize.

5 License upgrade

5.1 Overview

By default, DHH805-A communicates with ABB devices only. Model codification enables user to select a universal license allowing communication with all devices from all manufacturers. Universal communication capability for ABB-only devices can also be purchased separately.

5.2 License upgrade procedure

Once the device with “ABB only” license has been activated successfully, the license upgrade can be performed via PC-Tool or automatically.

Important. To have the PC-Tool communicating with the DHH805-A always select [Settings > Listening] on handheld main menu.

5.2.1 License upgrade via PC-Tool

As per activation, ABB PC-Tool will detect internet connection availability.

Off-line license upgrade procedure

To upgrade DHH805-A license when no internet connection is in place, PC-Tool will show a warning message (see figure 8). By flagging the “Off-line update” box, the user has now two possibilities: clicking on “Printed update request form” or following the “Phone assisted update instructions”.

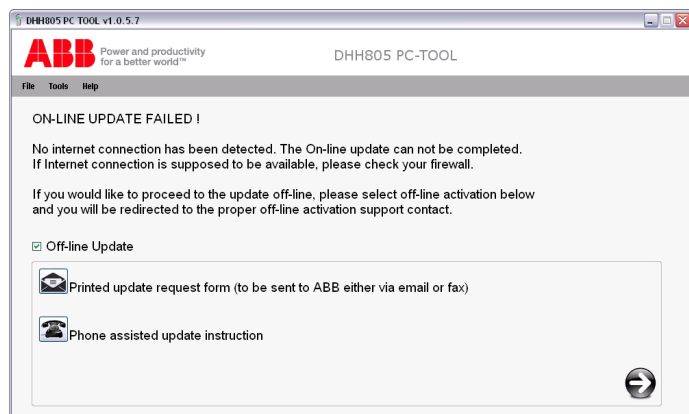


Figure 8: DHH805-A PC-Tool Off-line license update

The selection of “Printed update request form” allows user to fill in a dedicated information form. After accepting “ABB License Agreement” as well as “Remote Data Acquisition and Personal Data Collection” agreements (see paragraph 4.5 “Authorizations”), the PC-Tool generates a .pdf file which should be signed and returned via fax or e-mail (fax numbers and e-mail addresses available in Help > PC-Tool Help > Contact us).

By clicking on “Phone assisted update instructions” a pop-up window will show three dedicated telephone numbers: a specialist will help users in upgrading DHH805-A license.

Important. License upgrade is subject to Purchase Order to ABB. When performing the off-line procedure, please always mention our Order Acknowledgment number and device DHH805 tag.

The Upgrade Code, once received, should be written inside the dedicated box (see figure 9) of the PC-Tool or keyed in on the DHH805-A (Upgrade > Manually > Upgrade Code)

Important. The upgrade code is can be used only once per device.

Online license upgrade procedure

When operating online via PC-Tool, the upgrade panel here below is shown.

Figure 9: DHH805-A PC-Tool On-line upgrade panel

Once the form here above has been populated, user has to proceed by clicking on the upgrade button on the top-right-end corner. By accepting the “ABB License Agreement” as well as the “Remote Data Acquisition and Personal Data Collection” agreements, the device connected to the PC-Tool will check on the database if the connected DHH805 has been enabled for license upgrade.

Important. Please read “ABB License Agreement” as well as the “Remote Data Acquisition and Personal Data Collection” agreements carefully before proceeding with license upgrade.

If the license upgrade procedure is successful, the upgrade code will be automatically written inside the device. Otherwise, the upgrade panel will show an error icon and a warning message will be displayed (see figure 10).

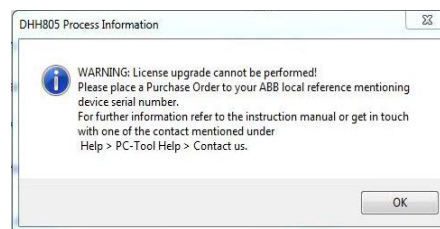


Figure 10: PC-Tool information message

5.2.2 Manual upgrade

License upgrade procedure can be performed later on manually. User needs to have the upgrade code and write it as it is (scores included) inside the dedicated entry of the DHH805-A navigation menu (Upgrade > Manually > Upgrade Code). Once the license has been upgraded from “ABB only” to “Full”, the DHH805-A will start communicating with all devices from all manufacturers.

6 General operation

6.1 Power options

DHH805-A general purpose unit can be powered for portable operation by four (4) AA alkaline batteries.

Note. AA alkaline batteries are not supplied.

The handheld configurator for Intrinsically Safe environments must be powered by approved rechargeable NiMH batteries (see the “Hazardous Area Use” section of this manual and the Intrinsically Safety Control Drawing shipped with every device for more information). AA alkaline and NiMH batteries are standard supplied items.

For bench top applications and download operations, the AC adapter (P/N EV3030 included with each device) is recommended. The AC adapter is only for use in safe areas.

6.2 Communication / AC adapter dongle

To connect DHH805-A to a PC use the USB cable provided inside the communicator case. See the “Updating DHH805-A Firmware and DDs” and “Documenting HART® Configurations with ABB PC-Tool” sections of this manual for more information on communications.

Important. DHH805-A can be connected to a PC only in safe areas. See the “Hazardous Area Use” section of this manual and the Intrinsic Safety Control Drawing in the Appendix of this manual for more information.

6.3 Navigating menus on the DHH805-A display

Several methods of navigating through the handheld communicator menus are available to the user for maximum convenience and utility.

- Soft keys: Use Up and Down soft keys to move cursor arrow to the desired menu option. Then use the *Select* soft key to accept the indicated choice. Soft key navigating tools are found throughout the DHH805-A main displays and HART® communication displays.
- Multi-page lists: Multi-page lists have a scroll bar symbol along the right hand side of the display indicating the existence of other information that can be viewed by using the Up and Down soft keys.
- Numbered item menus: All items displays have numbered menu lines when needed. This gives fast access directly to the desired menu line.
- Menu HOME key: To quickly retreat from any location to the main menu, hold for a few seconds the Delete / Help key. This will return the display to the initial main screen. The Home function will be disallowed if user is editing a parameter or if HART® task is in process (device navigation).
- Off-line menu HOME key: To quickly retreat from any location in the device menu to the initial menu screen, hold for a few seconds the Delete / Help key. This will return the display to the initial DHH805-A screen.

6.4 Turning the DHH805-A on

Use the dedicated ON key to power up the handheld communicator. A brief diagnostic runs while the ABB logo and DHH805-A firmware version is displayed. A message is displayed indicating the communicator is scanning for HART® devices within the defined address range (address equal to zero as default). The splash screens here below are displayed.



Figure 11: splash screens for Communication

After start up, the following scenarios are possible.

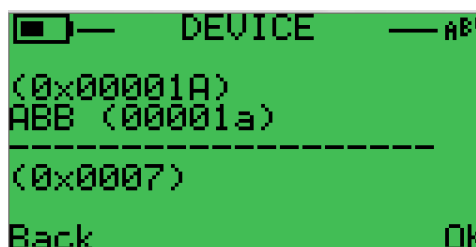


Figure 12: Device found

If the handheld communicator is connected to a HART® device with an address within the customized range (and there is sufficient loop resistance), DHH805-A immediately establishes HART® communication with the device. A scrolling display similar to the example above appears. The soft keys are then used to commission, re-configure, or maintain the connected device.



Figure 13: No devices within the address range

If no HART® device is connected, if a HART® device with address different from the defined one is connected, or if a connected device is not found due to wiring or loop resistance problem, the communicator will display the screen here above.

6.5 DHH805-A settings

Handheld terminal menu features two sections as mentioned above. The following paragraphs aim to give a clear explanation of all functions.

6.5.1 Settings

This section contains different functions strictly related to the DHH805-A that can be scrolled easily by using the up and down navigation keys. Submenus are:

- **Device List:** this section contains a list of all the Device Descriptor files uploaded on the SD card of DHH805-A. This list is sorted by manufacturer and device type.
- **Polling:** used to set the address range to be scanned by the DHH805-A during the first connection. Different methods are available: address 0, from 1 to 15, from 1 to 63 (maximum address fixed by HART® 7), and custom. By selecting custom on main polling menu, it is possible to define an address range different from the standard ones.
- **Listening:** is the submenu to be used when user wants to have the DHH805-A communicating with the PC-Tool (firmware upgrade DD and configuration management).
- **Contrast:** this submenu allows contrast adjustments by using the left and right arrow keys. Contrast range goes from 0 to 100. Once edited, the customized value is stored and maintained until new parametrization.
- **Backlight:** by accessing to this submenu, it is possible to select “backlight behavior” (always enabled, disabled and on key press) and “backlight level” (from 0 to 3). In order to navigate through these functions use the up and down navigation keys, while to adjust the level push the left and right arrow keys.
- **Auto power off:** this part of the menu has to be used when the user wants to set the auto power off of the device. DHH805-A powers off automatically by itself after 10 minutes from the last activity (communication with USB port or operation with the keyboard). All unsaved parameter changes will be discarded.
- **Password:** by entering this submenu, user can decide whether to protect the device or not. Password is an alphanumeric case sensitive string whose maximum length is 6 characters.
- **Log mode:** when enabled, this function allows to view on PC screen the DHH805-A display. To view it, use the PC-Tool and click on Tools > Display HHT Screen.
- **Modem:** this function has to be used when user wants the DHH805-A to be a modem HART®, transmitting the USB input as an HART® Physical Layer to the output.
- **DHH805 tag:** this entry shows the device DHH805 tag, useful when making enquiries to ABB.
- **Revision:** this submenu contains information about software, hardware and FPGA revision.
- **Memory info:** by navigating through this submenu, user will have a clear idea of memory status. Memory info shows the number of uploaded DDs and configurations, total and used memory, as well as free space on SD card.

- **Language:** DHH805-A features a multi language menu. By editing this setting, users can choose between: English, Italian, German, French and Japanese. By editing this parameter, the user changes the visualization language of DD files as well (if one of the above languages is not supported, English will be used).
- **Upgrade:** by acting on this entry, it is possible to perform device upgrade both manually or via PC-Tool (please see chapter 5 “License upgrade” for further reference).

The following chart shows all of the default factory settings:

Default factory settings

Parameter	Default setting
Polling	Address 0
Contrast	50
Backlight	On key press - level 2
Auto power off	Disabled
Language	English

6.5.2 Communication

Within this submenu, user can navigate the instrument managing DD files and configurations.

This section can be entered both online and offline.

When online, DHH805-A polls the defined address range (address 0 by default) and loads the connected instrument DD file (see figures 10 and 11). User can navigate the instrument and explore DD structure. In online mode, it is possible to download and save instrument configurations and send the existing ones. Configurations will be named and saved with instrument tag automatically. If the file name is already existing, user can overwrite it.

In offline mode, the user navigates the SD card where all DD files are sorted by manufacturer and device type. Within this section user can edit, create, delete and clone configurations.

6.6 NiMh Battery Considerations

Batteries have a continuous run time with highest backlight level of about 16 hours. Without backlight, the average battery life is 100 hours. DHH805-A keeps on working with empty battery signal for 2 hours.

In order to maximize batteries' life, configure “Auto power off” and backlight “On key press”.

Though the power supply unit (supplied as standard) ensures the complete charge of the batteries, ABB recommends to occasionally discharge them completely. This will increase batteries' performance over the year.

Battery pack needs to be fully charged almost once per year and it should be removed if DHH805-A remains unused for long periods.

Keep the battery pack at temperatures below 35°C (95°F). This will reduce battery auto discharge.

Do not short-circuit batteries.

Apply anti-static precautions when handling the memory card or replacing the battery pack

7 HART® communications

7.1 Overview

DHH805-A provides device specific HART® communication functions that allow the user to poll, configure, and maintain supported HART® field devices. The handheld communicator uses all Device Description commands to facilitate communication with a HART® field device.

You can use the DHH805-A to commission devices, for operational re-configuration needs, delete or maintain devices through analog and sensor trim adjustments, and many other features.

The DHH805-A will communicate with any HART® device through Universal and Common Practice Commands using the standard Generic DD (Device Description). However, it must have the DD for a specific HART® device installed before it can execute Device Specific Commands. You can consult the large and growing list of available DD at www.hartcomm.org for an up-to-date list of HART® devices for device specific support.

The list is found under Product Catalogue > All products. When HART® device support for new devices becomes available, the DHH805-A can easily be field updated using the dedicated PC-Tool.

7.2 HART® Commands

Three HART® command types are used by the DHH805-A to communicate with HART® field devices. First, Universal Commands are primarily used to identify a field device by its model number and tag number and to read process data from the device. This communication is referred to as “polling”.

The DHH805-A can poll any HART® Device. Second, Common Practice Commands are used for calibration and maintenance functions that are common to many devices. An example of this would be trims or adjustments for the devices’ analog outputs. Third, Device Specific Commands are used to handle functions that are unique to a particular device or manufacturer. Examples of these commands include sensor zero, sensor trim, calibration curve characterization, density inputs required for calculations made by the HART® device, or other configuration functions unique to the specific device.

7.3 HART® Connections

HART® connections are made using two standard banana jacks (3/4” center) located at the top end of the handheld terminal (see figure 1). Polarity is not a concern for HART® connections, therefore, both jack collars are blue. ABB supplies a HART® lead kit complete with mini-grabber connections.

For low load loops (less than 250 Ω), a 250 Ω resistor may be needed in the loop to insure reliable HART® communications. Refer to the following diagram for connection details.

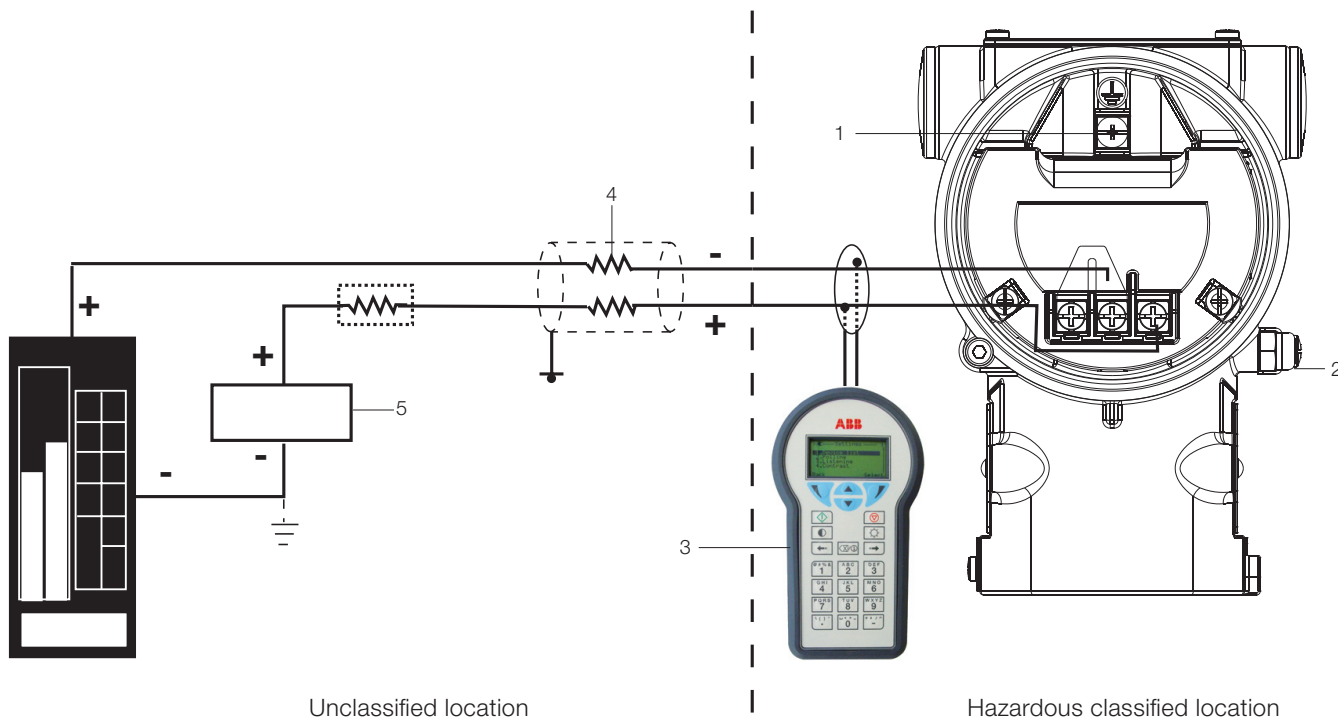


Figure 14: DHH805-A wiring

7.4 Generic HART® Commands according to protocol Revision

DHH805 is able to communicate with HART® Revision 5, 6 and 7. Here below the list of Generic Commands according to the protocol revision.

HART 5	HART 6	HART 7
command: 0 READ UNIQUE IDENTIFIER	command: 0 READ UNIQUE IDENTIFIER	command: 0 READ UNIQUE IDENTIFIER
command: 1 READ PRIMARY VARIABLE	command: 1 READ PRIMARY VARIABLE	command: 1 READ PRIMARY VARIABLE
command: 2 READ P. V. CURRENT AND PERCENT OF RANGE	command: 2 READ P. V. CURRENT AND PERCENT OF RANGE	command: 2 READ LOOP CURRENT AND PERCENT OF RANGE
command: 3 READ DYNAMIC VARIABLES AND P. V. CURRENT	command: 3 READ DYNAMIC VARIABLES AND P. V. CURRENT	command: 3 READ DYNAMIC VARIABLES AND LOOP CURRENT
command: 6 WRITE POLLING ADDRESS	command: 6 WRITE POLLING ADDRESS	command: 6 WRITE POLLING ADDRESS
command: 11 READ UNIQUE IDENTIFIER ASSOCIATED WITH TAG	command: 11 READ UNIQUE IDENTIFIER ASSOCIATED WITH TAG	command: 11 READ UNIQUE IDENTIFIER ASSOCIATED WITH TAG
command: 12 READ MESSAGE	command: 12 READ MESSAGE	command: 12 READ MESSAGE
command: 13 READ TAG, DESCRIPTOR, DATE	command: 13 READ TAG, DESCRIPTOR, DATE	command: 13 READ TAG, DESCRIPTOR, DATE
command: 14 READ PRIMARY VARIABLE SENSOR INFORMATION	command: 14 READ PRIMARY VARIABLE SENSOR INFORMATION	command: 14 READ PRIMARY VARIABLE SENSOR INFORMATION
command: 15 READ PRIMARY VARIABLE OUTPUT INFORMATION	command: 15 READ PRIMARY VARIABLE OUTPUT INFORMATION	command: 15 READ PRIMARY VARIABLE OUTPUT INFORMATION
command: 16 READ FINAL ASSEMBLY NUMBER	command: 16 READ FINAL ASSEMBLY NUMBER	command: 16 READ FINAL ASSEMBLY NUMBER
command: 17 WRITE MESSAGE	command: 17 WRITE MESSAGE	command: 17 WRITE MESSAGE
command: 18 WRITE TAG, DESCRIPTOR, DATE	command: 18 WRITE TAG, DESCRIPTOR, DATE	command: 18 WRITE TAG, DESCRIPTOR, DATE
command: 19 WRITE FINAL ASSEMBLY NUMBER	command: 19 WRITE FINAL ASSEMBLY NUMBER	command: 19 WRITE FINAL ASSEMBLY NUMBER
command: 34 WRITE PV DAMPING VALUE	command: 7 READ LOOP CONFIGURATION	command: 7 READ LOOP CONFIGURATION
command: 35 WRITE PRIMARY VARIABLE RANGE VALUES	command: 8 READ DYNAMIC VARIABLE CLASSIFICATIONS	command: 8 READ DYNAMIC VARIABLE CLASSIFICATIONS
command: 36 SET PRIMARY VARIABLE UPPER RANGE VALUE	command: 20 READ LONG TAG	command: 20 READ LONG TAG
command: 37 SET PRIMARY VARIABLE LOWER RANGE VALUE	command: 21 READ UNIQUE IDENTIFIER ASSOCIATED WITH LONG TAG	command: 21 READ UNIQUE IDENTIFIER ASSOCIATED WITH LONG TAG
command: 39 EEPROM CONTROL	command: 22 WRITE LONG TAG	command: 22 WRITE LONG TAG
command: 40 ENTER/EXIT FIXED PRIMARY VARIABLE CURRENT MODE	command: 34 WRITE PRIMARY VARIABLE DAMPING VALUE	command: 34 WRITE PRIMARY VARIABLE DAMPING VALUE
command: 44 WRITE PRIMARY VARIABLE UNITS	command: 35 WRITE PRIMARY VARIABLE RANGE VALUE	command: 35 WRITE PRIMARY VARIABLE RANGE VALUE
command: 45 TRIM PRIMARY VARIABLE CURRENT DAC ZERO	command: 36 SET PRIMARY VARIABLE UPPER RANGE VALUE	command: 36 SET PRIMARY VARIABLE UPPER RANGE VALUE
command: 46 TRIM PRIMARY VARIABLE CURRENT DAC GAIN	command: 37 SET PRIMARY VARIABLE LOWER RANGE VALUE	command: 37 SET PRIMARY VARIABLE LOWER RANGE VALUE
command: 108 WRITE BURST MODE COMMAND NUMBER	command: 38 RESET CONFIGURATION CHANGED FLAG	command: 38 RESET CONFIGURATION CHANGED FLAG
command: 109 BURST MODE CONTROL	command: 39 EEPROM CONTROL	command: 39 EEPROM CONTROL
command: 41 PERFORM TX SELF TEST	command: 40 ENTER/EXIT FIXED CURRENT MODE	command: 40 ENTER/EXIT FIXED CURRENT MODE
	command: 43 SET PRIMARY VARIABLE TO ZERO	command: 43 SET PRIMARY VARIABLE TO ZERO
	command: 44 WRITE PRIMARY VARIABLE UNITS	command: 44 WRITE PRIMARY VARIABLE UNITS
	command: 45 TRIM PRIMARY VARIABLE CURRENT DAC ZERO	command: 45 TRIM PRIMARY VARIABLE CURRENT DAC ZERO
	command: 46 TRIM PRIMARY VARIABLE CURRENT DAC GAIN	command: 46 TRIM PRIMARY VARIABLE CURRENT DAC GAIN
	command: 108 WRITE BURST MODE COMMAND NUMBER	command: 108 WRITE BURST MODE COMMAND NUMBER
	command: 109 BURST MODE CONTROL	command: 109 BURST MODE CONTROL
	command: 41 PERFORM TX SELF TEST	command: 41 PERFORM TX SELF TEST
	command: 42 PERFORM DEVICE RESET	command: 42 PERFORM DEVICE RESET

7.5 HART® Communication / Online Mode

After power up, DHH805-A automatically detects if a field device is connected and attempts to establish HART communications; this is the factory default “Auto” poll function. When a device with address zero is found, the handheld terminal provides feedback to the user and starts the initial HART display for the connected device. See an example of Online Mode below.



Figure 15: Device found

After polling, when no device connection is detected the DHH805-A shows an information screen (see figure 15).

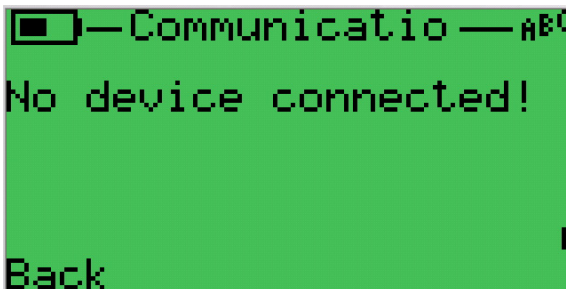


Figure 16: No device within the address range

7.6 Multidrop Poll (addresses 1 – 63)

To initiate a Multidrop Poll, select “Settings > Polling > Method Edit”. DHH805-A can poll different address ranges: address 0, addresses from 1 to 15 (HART 5), addresses from 1 to 63 (HART 6 and HART 7), or a customized range (as shown in figure 16). As mentioned in paragraph 6.5.1, default polling address is 0.

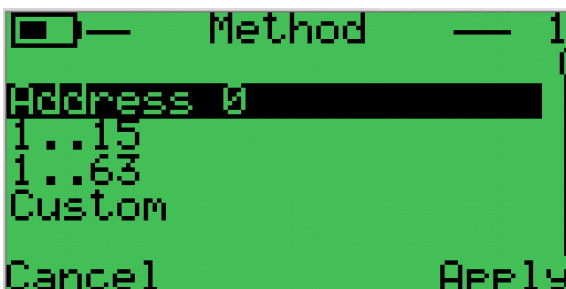


Figure 17: Polling options

After selecting the desired address range to be polled, DHH805-A shows the list of all devices within that range sorted by tag (see figure 17).

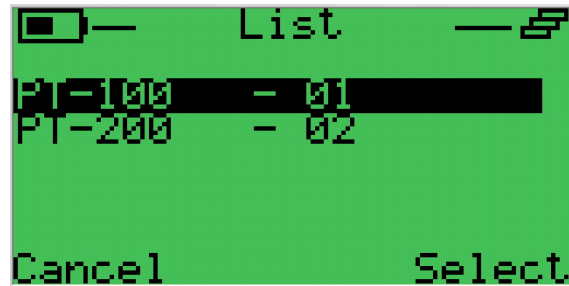


Figure 18: Device list after a multidrop polling

7.7 Offline menu mode

After accessing offline mode from the communications menu, the Offline Menu allows the user to review DHH805-A stored device configuration list on the 8 Gb SD card. Configurations are sorted by manufacturer, device type, DD and device revision as well as to perform some functions on the selected DD. These operations are described here below.

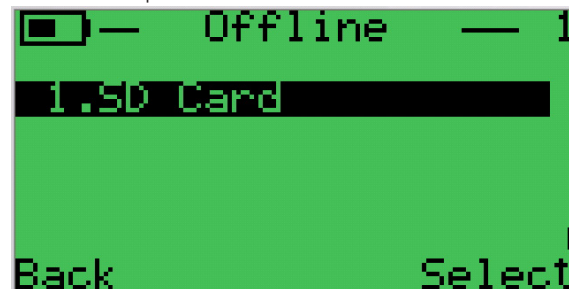


Figure 19: Offline menu. Mandatory selection

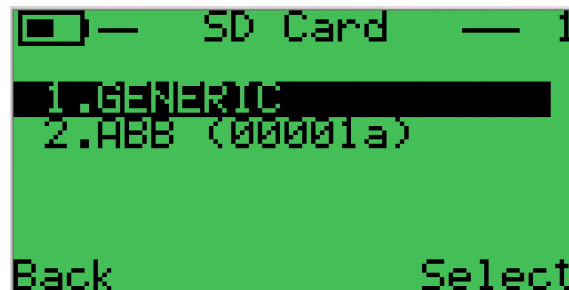


Figure 20: DD List on SD Card sorted by manufacturer



Figure 21: Device type



Figure 22: Saved DD files

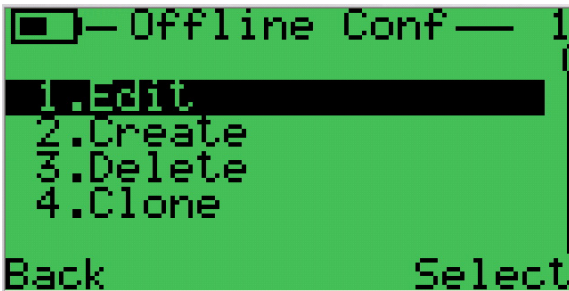


Figure 23: Configuration management

7.7.1 Configuration management - Edit

When navigating DD stored files, DHH805-A shows the screen here above (see figure 21 and 22). Once the Edit option has been selected, user gets access to offline configuration management. A progress bar indicates the percentage of configuration structure upload completion. As stated above, configurations are named, stored and sorted by instrument tag. DHH805-A can store up to 1000 device profiles (DD files) and up to 200 configurations. Lists can be scrolled by using the up/down navigation keys.



Figure 24: Configuration list

This screen lists all stored HART configurations by instrument tag number. The configurations stored enable fast commissioning of replacement devices, cloning of existing systems, or re-configuring for changes in process conditions or batch runs. Any configuration in the list can be sent to another HART device of the same manufacturer and model. The display can show 20 character tag numbers. Truncated tags are listed if more than 20 characters are used. Moving the cursor down to the tag of interest and pressing the Select soft key will provide a detailed information screen (see figure 24)



Figure 25: Editable configuration parameters in offline mode

This list features the Info icon. By pushing the Delete / Help button, user can read some detailed information about all editable parameters of the selected configuration (see figure 25).

Parameter editing is extremely simple. By selecting the Edit push button, user can modify and customize all configuration entries.

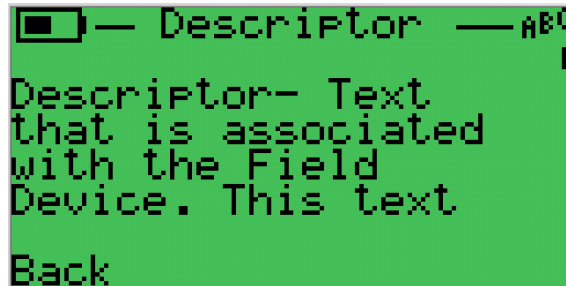


Figure 26: Information on editable configuration parameters

7.7.2 Configuration management - Create

Configurations can be created from the beginning by entering the second item on the list shown in figure 22. When user selects Create, DHH805-A shows the screen here below:



Figure 27: Configuration name

New configuration name will be instrument tag number, therefore it can feature a maximum length of 8 characters, otherwise an appropriate warning message will be displayed. The arrow icon in the bottom centre of the display indicates that the string is case sensitive. To enable/disable caps lock push the up navigation key. When the list of configurable parameters (see figure 24) appears, user can enter consistent values for all the parameters.

7.7.3 Configuration management - Delete

To delete configurations, select Delete under the Offline Configuration menu (figure 22). DHH805-A will show the configuration list (figure 23). Before deleting configurations, the handheld terminal will ask for confirmation and then gives a feedback about deletion outcome (as shown here below).



Figure 28: Deletion confirmation and feedback

7.7.4 Configuration management - Clone

Configuration cloning allows users to double a configuration stored on DHH805-A. After selecting the configuration to be cloned, the handheld terminal shows the same screen as per figure 26. Configuration is loaded, and DHH805-A redirects user automatically to the device type menu entry.

7.8 Online menu mode

Online Setup is the normal HART® communication mode. This mode enables communication with HART® field devices at the Universal, Common Practice, and Device Specific Command levels for full device setup and functionality.

Menus displayed for the connected device follow the HART® device manufacturer's menu structure.

If user does not have the dedicated DD file, DHH805-A will ask if the user wants to use a generic DD (see figure 28)



Figure 29: Generic DD confirmation

7.9 Device status warning

Device status warning can be shown on the top-left-hand corner of the DHH805-A display (see figure 29).



Figure 30: Device status message

DHH805-A can display four different status:

- LCF (Loop Current Fixed): the generated current is different from the reading of the instrument. This mismatch can occur when user is performing current output simulation or a polling address has been set.
- MAL (Device Malfunctioning): the connected instrument is not working properly. User can find further details under DD diagnostics.
- MSA (More Status Available): DD diagnostics is to be checked.
- PRO (Process): handheld terminal shows this status message when device variables (process and non-process) are out of limits as well as when the loop current is saturated. More details can be found under DD diagnostics.

7.10 Save / send configuration functions

HART® device configurations may be saved to DHH805-A SD Card memory (8 Gb) or sent from the handheld terminal memory to a HART® device. These functions are useful for cloning a device configuration for use in another transmitter of the same configuration, for recording as-found and as-left configurations for later review, for returning HART® devices to previously used configurations, etc...

The Save / Send function may be accessed in one of two ways:

- Press the right navigation key (OK) when the device has been found (see figure 26). DHH805-A loads the DD file and user accesses the Online main menu. Save / Send commands are located within Configuration Handling.
- From the main screen appearing after activating the device (see figure 29 here below), select Settings > Device List. DHH805-A polls the address(es) and will return the same screen as per figure 28. Then proceed as mentioned above.

7.11 DD Structure

Important. To edit devices parameters navigate the below DD structures (here only 4 examples are mentioned).

DHH805 static menus are available in English, French, Italian, German and Japanese. DD file entries will always be in English.

7.11.1 Device Setup - 266 Pressure Transmitter

IDENTIFY

DEVICE

- Manufacturer
- Device Type
- Device Serial No
- Device Revision
- HART Revision

ADDITIONAL DEVICE REVISION

- Hardware Revision
- Software Revision

MEASUREMENT POINT

- Address
- Write Protection
- Communication Tag
- Date
- Final Assembly Number
- Descriptor
- Message

ADDITIONAL INFORMATION

- Long Tag
- Sensor Type
- Sensor Revision

CONFIGURATION

COMMUNICATION TYPE

- Burst Mode
- Burst Command

PARAMETERIZE

GENERAL

- Local Operations
- Soft Write Protection

SENSOR SET-UP

P-DP SENSOR

- Sensor Type
- Upper Sensor Limit
- Lower Sensor Limit
- Minimum Span

STATIC PRESS SENSOR

- Upper Sensor Limit
- Lower Sensor Limit
- Minimum Span

OPERATIONAL LIMITS

- Max Temperature Limit
- Min Temperature Limit
- Max Working Pressure

UNIT

- Temperature Unit

UNIT

- Temperature Unit
- Static Pressure Unit

SENSOR MATERIALS

BASIC SENSOR MATERIALS

- Diaphragm Material
- Filling Fluid

GAUGE SENSOR

- Process Connection Material

PROCESS CONNECTION HIGH SIDE

- Connection Type
- Flange Material
- O-Ring Material
- Blanking Plug

PROCESS CONNECTION LOW SIDE

- Connection Type
- Flange Material
- O-Ring Material
- Blanking Plug

REMOTE SEALS

QUANTITY

- Number

LOW SIDE

- Type
- Diaphragm Material
- Filling Fluid

HIGH SIDE

- Type
- Diaphragm Material
- Filling Fluid

P-DP

PROCESS VARIABLE [P/DP]

MEASURED VALUE

- Pressure

- Output

- PV % range

MEASURED VALUE

- Pressure

SCALING

VALUE INPUT

- Unit

- Lower Range Value

- Upper Range Value

PROCESS PRESSURE TRANSFER

- Rerange 4-20mA

PV BIAS

- Pressure

- Set PV Val

- Set PV to Zero

- Bias Value

- PV Bias Reset

PARALLEL SHIFT

- Parallel Shift

TRANSFER FUNCTION

LINEARIZATION TYPE

- Linearization Type

SQUARE ROOT SETTING

- Lin.Square Root Point [%]

- Cut Off

OUTPUT [P/DP]

FILTER

- Damping

SCALING

- Unit

- Custom Unit

- Lower Range Value

- Upper Range Value

HART MAPPING

- PV is

- SV is

- TV is

- QV is

- Change PV Mapping

- Change SV Mapping

- Change TV Mapping

- Change QV Mapping

STATIC PRESSURE**PROCESS VARIABLE****MEASURED VALUE**

Static Pressure

Output

PV % range

MEASURED VALUE

Static Pressure

SCALING**VALUE INPUT**

Static Pressure Unit

Lower Range Value

Upper Range Value

PROCESS PRESSURE TRANSFER

Rerange 4-20mA

PV BIAS

Static Pressure

Set PV Val

Set PV Zero

Bias Value

PV Bias Reset

PARALLEL SHIFT

Parallel Shift

OUTPUT**FILTER**

Damping

SCALING

Unit

Custom Unit

Lower Range Value

Upper Range Value

CURRENT OUTPUT**FAIL SAFE**

Current Fail Safe

Fail Safe Level

CURRENT SATURATION LIMITS

Low Saturation

High Saturation

CURRENT ALARM LIMITS

O/P during fault

Low Alarm Value

High Alarm Value

TOTALIZER**INPUT SETTING**

Totalizer Status

Totalizer Mode

BATCH SETTING

Count direction

Preset Value

Reload

TOTALIZER 1

Unit

Conv.Factor

Custom Unit

TOTALIZER 2

Unit

Conv.Factor

Custom Unit

DISPLAY**GENERAL**

Display Revision

GENERAL

Display Revision

Contrast

Language

DISPLAY SETTING

Display Mode

Line 1 View

Line 2 View

Bargraph View

DISPLAY SCALING

Linearization Type

Unit

Custom Unit

Upper Range Value

Lower Range Value

CALIBRATION**PRESSURE SENSOR**

Cal Pressure

Full trim

Zero trim

Integration Time

Sensor Temperature

Sensor Temperature Trimming

STATIC PRESSURE

Cal Static Pres

Full trim

Zero trim

Lo Trim

CURRENT OUTPUT

D/A trim

SIMULATION

Input Simulation

Input Simulation

Loop test

OPERATE

Output

Pressure

Static Pressure

Sensor Temperature

Scaled Output

Totalization 1

Totalization 2

Totalization Batch

OPERATE

Output

Pressure

Sensor Temperature

Scaled Output

DIAGNOSIS**DIAGNOSIS MONITORING**

Diag Simulation

ELECTRONICS

Status group 2

Status group 5

Status group 2

Status group 3

Status group 4

More Info

SENSOR/ACTUATORS

Status group 2

Status group 2

Status group 0

Status group 2

More Info

Status group 0

Status group 0

INSTALLATION/START UP

Status group 4

Status group 3

More Info

Device status

Status group 4

More Info

Status group 5

More Info:

OPERATING CONDITIONS	SENSOR/ACTUATORS
Status group 4	Diagnosis Masking Byte 2
More Info	PROCESS
Status group 5	Diagnosis Masking Byte 4
More Info	Diagnosis Masking Byte 0
PROCESS	Diagnosis Masking Byte 0
Status group 4	Diagnosis Masking Byte 0
Status group 0	Diagnosis Masking Byte 3
Status group 0	Diagnosis Masking Byte 4
Status group 4	Diagnosis Masking Byte 4
Status group 0	Diagnosis Masking Byte 4
Status group 4	Diagnosis Masking Byte 4
More Info	PILD
Status group 3	PILD MONITORING
Status group 4	PILD Execute
More Info	PILD Status
	PILD Output
SIMULATION	PILD TRAINING
Diag Simulation	Training Output
ELECTRONICS	Training Time
Diagnosis Simulation Group1	Training Retries
Diagnosis Simulation Group3	Auto Retrain
Diagnosis Simulation Group1	PILD SETTING
Diagnosis Simulation Group1	Sensitivity
Diagnosis Simulation Group2	Detection Time
Diagnosis Simulation Group3	Max.Press.Deviation
SENSOR/ACTUATORS	Band Autotuning
Diagnosis Simulation Group2	Band Low
Diagnosis Simulation Group0	Band High
Diagnosis Simulation Group1	Affect PV
Diagnosis Simulation Group4	HISTORIC INFO
Diagnosis Simulation Group4	DEVICE
Diagnosis Simulation Group0	No. Power On
Diagnosis Simulation Group0	Total Working time
INSTALLATION/START UP	PRESSURE VARIABLE LOGGING
Diagnosis Simulation Group3	Min.Pressure Value
Diagnosis Simulation Group4	Max.Pressure Value
Diagnosis Simulation Group4	Reset
Diagnosis Simulation Group4	SENSOR TEMPERATURE LOGGING
Diagnosis Simulation Group5	Min.Temperature Value
Diagnosis Simulation Group5	Max.Temperature Value
Diagnosis Simulation Group5	Reset
Diagnosis Simulation Group5	STATIC PRESSURE LOGGING
OPERATING CONDITIONS	Min.Static Pressure Value
Diagnosis Simulation Group3	Max.Static Pressure Value
Diagnosis Simulation Group3	Reset
Diagnosis Simulation Group3	EXTRAS
Diagnosis Simulation Group3	RESETS
PROCESS	RESET
Diagnosis Simulation Group0	Reset Device
Diagnosis Simulation Group0	Reset to User Sensor Trimming
Diagnosis Simulation Group0	Reset Configuration To Default
Diagnosis Simulation Group0	SAVINGS
Diagnosis Simulation Group3	Save as User Sensor Trimming
Diagnosis Simulation Group2	Save Configuration asDefault
Diagnosis Simulation Group2	LOAD FACTORY SETTINGS
Diagnosis Simulation Group2	Reset Factory Sensor Trimming
Diagnosis Simulation Group0	Reset Factory Output Trimming
Diagnosis Simulation Group0	TOTALIZER
Diagnosis Simulation Group1	TOTALIZER PROTECTION
Diagnosis Simulation Group1	Totalizer Status
Diagnosis Simulation Group1	CHANGE PASSWORD
Diagnosis Simulation Group1	Totalizer Status
Diagnosis Simulation Group1	Change Password
Diagnosis Simulation Group1	RESET TOTALIZER
Diagnosis Simulation Group1	Reset Totalizer 1
Diagnosis Simulation Group1	Reset Totalizer 2
	Reset Totalizer Batch
CONFIGURATION	
ELECTRONICS	
Diagnosis Masking Byte 2	
Diagnosis Masking Byte 3	
INSTALLATION/START UP	
Diagnosis Masking Byte 4	
OPERATING CONDITIONS	
Diagnosis Masking Byte 4	
Diagnosis Masking Byte 5	

Important. DD structure changes according to instrument design (gauge, absolute or differential pressure measurement with or without one or two diaphragm seals).

7.11.3 Device Setup - FSM4000 Flow Transmitter

PROCESS VARIABLES

PV
 To>F
 Overflow F
 To<R
 Overflow R
 ToD
 Overflow D

DIAG/SERVICE

Loop test

DIAGNOSIS

ERRORS

Errors 1
 Errors 2
 Error Memory 1
 Error Memory 2

WARNINGS

Warnings 1
 Warnings 2
 Warnings 3
 Mains interrupt

STATUS

Status 1
 Status 2
 Reset Error regist
 Reset Conf.changed

EXTENDED DIAGNOSIS

EXT.DIAG. ERR/WARN

EXT.DIAG ERRORS

Err.ext.Diag 1
 Err.ext.Diag 2
 Err.ext.Diag 3
 Err.ext.Diag 4

EXT.DIAG WARNINGS

Warn.ext.Diag 1
 Warn.ext.Diag 2
 Warn.ext.Diag 3
 Warn.ext.Diag 4

EXT.DIAG REGISTER

Reg.ext.Diag 1
 Reg.ext.Diag 2
 Reg.ext.Diag 3
 Reg.ext.Diag 4
 Reset

EXT.DIAG MODE

Wrk hrs Converter
 Wrk hrs Primary

CURRENT

Coil current
 Coil voltage
 Coil resistance
 Coil temperature
 Coil isolation resistance
 DAC
 Electrode voltage E1
 Electrode voltage E2
 Electrode balance
 Linearity
 Signal noise ratio

MODE

Coil current status
 Coil voltage status
 Coil resistance status
 Coil temperature status
 Coil isolation resistance status
 DAC status
 Electrode voltage E1 status
 Electrode voltage E2 status
 Electrode balance status
 Linearity status
 Signal noise ratio status

MODE

Mass short circuit coil status
 Electrodes state status
 Start Diagnosis
 Start Diagnosis manual

EXT.DIAG HISTORY

COIL CURRENT

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9

Coil current

Coil current 1
 Coil current 2
 Coil current 3
 Coil current 4
 Coil current 5
 Coil current 6
 Coil current 7
 Coil current 8
 Coil current 9
 Coil current min
 Coil current max
 Set to default

COIL VOLTAGE

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Coil voltage
 Coil voltage 1
 Coil voltage 2
 Coil voltage 3
 Coil voltage 4
 Coil voltage 5
 Coil voltage 6
 Coil voltage 7
 Coil voltage 8
 Coil voltage 9
 Coil voltage min
 Coil voltage max
 Set to default

COIL RESISTANCE

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Coil resistance
 Coil resistance 1
 Coil resistance 2
 Coil resistance 3
 Coil resistance 4
 Coil resistance 5
 Coil resistance 6
 Coil resistance 7
 Coil resistance 8
 Coil resistance 9
 Coil resistance min
 Coil resistance max
 Set to default

COIL TEMPERATURE

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Coil temperature
 Coil temperature 1
 Coil temperature 2
 Coil temperature 3
 Coil temperature 4
 Coil temperature 5
 Coil temperature 6
 Coil temperature 7
 Coil temperature 8
 Coil temperature 9
 Coil temperature min
 Coil temperature max
 Set to default

COIL ISOLATION RESISTANCE

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Coil isolation resistance
 Coil isolation resistance 1
 Coil isolation resistance 2
 Coil isolation resistance 3
 Coil isolation resistance 4
 Coil isolation resistance 5
 Coil isolation resistance 6
 Coil isolation resistance 7
 Coil isolation resistance 8
 Coil isolation resistance 9
 Coil isolation resistance min
 Coil isolation resistance max
 Set to default

DAC

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 DAC
 DAC 1
 DAC 2
 DAC 3
 DAC 4
 DAC 5
 DAC 6
 DAC 7
 DAC 8
 DAC 9
 DAC min
 DAC max
 Set to default

ELECTRODE VOLTAGE E1

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Electrode voltage E1
 Electrode voltage E1 1
 Electrode voltage E1 2
 Electrode voltage E1 3
 Electrode voltage E1 4
 Electrode voltage E1 5
 Electrode voltage E1 6
 Electrode voltage E1 7
 Electrode voltage E1 8
 Electrode voltage E1 9
 Electrode voltage E1 min
 Electrode voltage E1 max
 Set to default

ELECTRODE VOLTAGE E2

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Electrode voltage E2
 Electrode voltage E2 1
 Electrode voltage E2 2
 Electrode voltage E2 3
 Electrode voltage E2 4
 Electrode voltage E2 5
 Electrode voltage E2 6
 Electrode voltage E2 7
 Electrode voltage E2 8
 Electrode voltage E2 9
 Electrode voltage E2 min
 Electrode voltage E2 max
 Set to default

ELECTRODE BALANCE

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Electrode balance
 Electrode balance 1
 Electrode balance 2
 Electrode balance 3
 Electrode balance 4
 Electrode balance 5
 Electrode balance 6
 Electrode balance 7
 Electrode balance 8
 Electrode balance 9
 Electrode balance min
 Electrode balance max
 Set to default

LINEARITY

Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Linearity
 Linearity 1
 Linearity 2
 Linearity 3
 Linearity 4
 Linearity 5
 Linearity 6
 Linearity 7
 Linearity 8
 Linearity 9
 Linearity min
 Linearity max
 Set to default

SIGNAL NOISE RATIO
 Wrk hrs Converter
 Wrk hrs Converter 1
 Wrk hrs Converter 2
 Wrk hrs Converter 3
 Wrk hrs Converter 4
 Wrk hrs Converter 5
 Wrk hrs Converter 6
 Wrk hrs Converter 7
 Wrk hrs Converter 8
 Wrk hrs Converter 9
 Wrk hrs Primary
 Wrk hrs Primary 1
 Wrk hrs Primary 2
 Wrk hrs Primary 3
 Wrk hrs Primary 4
 Wrk hrs Primary 5
 Wrk hrs Primary 6
 Wrk hrs Primary 7
 Wrk hrs Primary 8
 Wrk hrs Primary 9
 Signal noise ratio
 Signal noise ratio 1
 Signal noise ratio 2
 Signal noise ratio 3
 Signal noise ratio 4
 Signal noise ratio 5
 Signal noise ratio 6
 Signal noise ratio 7
 Signal noise ratio 8
 Signal noise ratio 9
 Signal noise ratio min
 Signal noise ratio max
 Set to default
 Set all to default

EXT.DIAG ADJUST
 Coil temperature
 Temperature offset
 Reference resistance
 Cable length
 SPAN
 Value Electr. Volt. E1
 Angle Electr. Volt. E1
 Value Electr. Volt. E2
 Angle Electr. Volt. E2

ZERO
 Value Electr. zero E1
 Angle Electr. zero E1
 Value Electr. zero E2
 Angle Electr. zero E2
 Transfer reference resistance
 Transfer electrode zero

EXT.DIAG FINGERPRINT
 FINGERPRINT P1 P2
 Wrk hrs Converter
 Wrk hrs Primary
 CURRENT
 Coil current
 Coil voltage
 Coil resistance
 Coil temperature
 Coil isolation resistance
 DAC
 Electrode voltage E1
 Electrode voltage E2
 Electrode balance
 Linearity
 Signal noise ratio
 Wrk hrs Converter P1
 Wrk hrs Primary P1

PRODUCT 1
 Coil current P1
 Coil voltage P1
 Coil resistance P1
 Coil temperature P1
 Coil isolation resistance P1
 DAC P1
 Electrode voltage E1 P1
 Electrode voltage E2 P1
 Electrode balance P1
 Linearity P1
 Signal noise ratio P1
 Copy current to p1
 Wrk hrs Converter P2
 Wrk hrs Primary P2

PRODUCT 2
 Coil current P2
 Coil voltage P2
 Coil resistance P2
 Coil temperature P2
 Coil isolation resistance P2
 DAC P2
 Electrode voltage E1 P2
 Electrode voltage E2 P2
 Electrode balance P2
 Linearity P2
 Signal noise ratio P2
 Copy current to p2

FINGERPRINT SU FAC
 Wrk hrs Converter
 Wrk hrs Primary
 CURRENT
 Coil current
 Coil voltage
 Coil resistance
 Coil temperature
 Coil isolation resistance
 DAC
 Electrode voltage E1
 Electrode voltage E2
 Electrode balance
 Linearity
 Signal noise ratio
 Wrk hrs Converter SU
 Wrk hrs Primary SU

START UP
 Coil current SU
 Coil voltage SU
 Coil resistance SU
 Coil temperature SU
 Coil isolation resistance SU
 DAC SU
 Electrode voltage E1 SU
 Electrode voltage E2 SU
 Electrode balance SU
 Linearity SU
 Signal noise ratio SU
 Copy current to start up
 Wrk hrs Converter Fac
 Wrk hrs Primary Fac

FACTORY
 Coil current Fac
 Coil voltage Fac
 Coil resistance Fac
 Coil temperature Fac
 Coil isolation resistance Fac
 DAC Fac
 Electrode voltage E1 Fac
 Electrode voltage E2 Fac
 Electrode balance Fac
 Linearity Fac
 Signal noise ratio Fac

BASIC SETUP

Qmax
 Unit Qmax
 Unit totalizer
 Damping
 Tag
 Descriptor
 Message
 Date

DETAILED SETUP

DEVICE INFO

Poll.addr.
 Tag
 Descriptor
 Manufacturer
 Model
 Date
 Dev id
 Order-Number
 Software rev
 Version
 Primary Tag
 Converter Tag
 Message

OPERATING

Metersize
 Cal-fact 10m/s
 Qmax
 Low flow cut off
 Contact output
 Contact input
 Pulse factor
 Edit Pulse Factor
 Pulse width
 Edit Pulse Width
 Damping

TOTALIZER

To>F
 Set Totl.forward
 To<R
 Set Totl.reverse
 ToD
 Set Totl.diff.
 Reset Totalizer

UNITS

Unit Qmax
 Unit totalizer
 SPECIAL UNIT
 Units name
 Unit factor
 Prog. Unit
 Density

OPERATING CONFIG.

Detector e.pipe
 Alarm e.pipe
 Iout at e.pipe
 EPD Mode
 Adj.EPD full pipe
 Adj.EPD empty pipe
 Threshold
 Operating mode
 Flow direction
 Flow indication
 Noise reduction

SYSTEM ZERO
 System zero
 Auto.adj.Sys.zero

PS-Code

DISPLAY MODE

Display mode
 1st line
 2nd line
 3rd line
 4th line
 Language

ALARMS

Max. Alarm
 Min. Alarm
 Iout at Alarm
 Iout Low Alarm
 Iout High Alarm
 Alarm e.pipe
 Iout at e.pipe
 Contact output
 Error 3 mask
 Error 4 mask

PRIMARY

Span Adjust
 Zero Adjust
 Phase
 Referencevoltage
 Order-Number
 Calib.Date
 Tester
 Testrig
 Cal-fact 10m/s
 Frequency Primary
 Type of Primary
 Metersize

CONVERTER

Span Adjust ->V
 Span Adjust <-R
 Span Adjust ->V
 Span Adjust <-R
 Span Adjust ->V
 Span Adjust <-R
 Zero Adjust
 Zero Adjust
 Zero Adjust
 Adjust Iout 4mA
 Adjust Iout 20mA
 Instrument No.

FUNCTIONTEST

Test Contact outp.
 Test Contact input
 Test Memory
 Test Pulse Output
 Test QSimulation
 Loop test

REVIEW

Model
 Distributor
 Metersize
 Cal-fact 10m/s
 Qmax
 PV Min span
 Unit totalizer
 Damping
 Pulse factor
 Pulse width
 Low flow cut off
 Operating mode
 Flow indication
 Flow direction
 AO Alarm typ
 Xfer fnctn
 Write protect
 Manufacturer
 Dev id
 Tag
 Descriptor
 Message
 Date
 Universal rev
 Fld dev rev
 Software rev
 Version
 Poll addr
 var-Num req preams
 var-PV

var-AO1
 var-PV % rnge
 var-Qmax

7.11.4 EDP300 Positioner

DEVICE SETUP	X/Y VALUES
IDENTIFY	X0
DEVICE	X1
Manufacturer	X2
Device type	X3
Device ID	X4
Device serial no	X5
Device revision	X6
Universal rev	X7
ADDITIONAL DEVICE REVISION	X8
Hardware revision	X9
Software revision	X10
MEASUREMENT POINT	Y0
Poll addr	Y1
Write protect	Y2
Descriptor	Y3
Message	Y4
Long tag	Y5
Date	Y6
Tag	Y7
Final asmbly num	Y8
POSITIONER	Y9
Pneumatic type	Y10
Device options	X11
EASY SET-UP	X12
EASY SET-UP	X13
Actuator type	X14
Vent position	X15
Pneumatic type	X16
Dispaly value	X17
Engineering unit (Temperature)	X18
Pressure unit	X19
Engineering unit	X20
Auto adjust mode	X21
Easy setup	Y11
AUTO ADJUST	Y12
Auto adjust mode	Y13
Progress	Y14
Auto adjust status	Y15
Set auto adjust mode	Y16
Start auto adjust	Y17
Stop auto adjust	Y18
PARAMETERIZE	Y19
INPUT	Y20
SETPOINT RANGE	Y21
Setpoint range min	ENGINEERING UNIT
Setpoint range max	Engineering unit
Setpoint damping ramp down	Set Eng unit
Setpoint damping ramp up	OUTPUT SCALING
Setpoint filter	Min
Setpoint Configuration	Max
DIGITAL INPUT	Set output scaling
Digital input function	Calculated value (Output)
Digital input logic	FEEDBACK
DI default setpoint	ANALOG FEEDBACK
Digital Input Configuration	FB current min
UNIVERSAL INPUT SCALING	FB current max
True current (Input)	FB characteristic
INPUT RANGE	Alarm logic
Min	Position feedback
Max	Config Analog FB Signal
Set input range	DIGITAL FEEDBACK
DAMPING	SWITCH 1
Damping ramp	Switch 1 function
Set damping ramp	Switch 1 value
CHARACTERISTIC CURVE	Switch 1 logic
Input characteristic	Switch 1 active
Set input characteristic	Config SW 1
USER CURVE	
Load curve from device	
Save curve to device	

SWITCH 2	
Switch 2 function	
Switch 2 value	
Switch 2 logic	
Switch 2 active	
Config SW 2	
SWITCH 1	
Switch 1 value	
Switch 1 active	
Config SW 1	
SWITCH 2	
Switch 2 value	
Switch 2 active	
Config SW 2	
CONTROL PARAMETER	
CONTROL PARAMETER	
KP Up	
KP Down	
TV Up	
TV Down	
Y Offset Up	
Y Offset Down	
Dead band	
Dead band approach	
Dead band timeout	
Dead band control time	
Zone	
Set control parameters	
Load from archive	
Save to archive	
CONTROL MODE	
Control mode	
Set control mode	
MAINTENANCE COUNTER	
Total travel counter limit	
Movement counter limit	
Min movement Value	
Min travel value	
Set Maintenance counters limit	
VALVE PARAMETER	
END POSITION BEHAVIOUR 0%	
Tight shut [End Position 0%]	
Dead angle [End Position 0%]	
Control at 0%	
Config End Position 0%	
END POSITION BEHAVIOUR 100%	
Tight shut [End Position 100%]	
Dead angle [End Position 100%]	
Control at 100%	
Config End Position 100%	
DEVICE SET-UP	
BASIC SETTING	
Vent position	
Actuator type	
Setpoint direction	
Setpoint characteristic curve	
	USER CURVE
	Load curve from device
	Save curve to device
	X/Y VALUES
	X0
	X1
	X2
	X3
	X4
	X5
	X6
	X7
	X8
	X9
	X10
	Y0
	Y1
	Y2
	Y3
	Y4
	Y5
	Y6
	Y7
	Y8
	Y9
	Y10
	Y11
	Y12
	Y13
	Y14
	Y15
	Y16
	Y17
	Y18
	Y19
	Y20
	Y21
	Config Basic setting
	VALVE RANGE
	Valve lower range
	Valve upper range
	Set Valve range
	WORKING RANGE
	Working lower range
	Working upper range
	Set Working range
	GENERAL
	Write protection
	Squawk

CALIBRATION

- PRESSURE SENSOR LIMITS
 - Supply pressure limit low
 - Supply pressure limit high
 - Set limits
- MEASURED VALUES
 - Supply pressure
 - Pressure Y1
 - Pressure Y2
- CALIBRATE TO ATMOSPHERE
 - Adjust all sensors
 - Calibrate supply pressure
 - Calibrate Y1 pressure
 - Calibrate Y2 pressure
 - Ventilate Y1 pressure
 - Ventilate Y2 pressure
 - Finish calibration
- SIMULATION
- UNIVERSAL INPUT
 - Universal input
 - Start simulation
 - Stop simulation
- DIGITAL FEEDBACK
 - Switch Point 1
 - Simulate SW 1
 - Switch Point 2
 - Simulate SW 2
- ANALOG FEEDBACK
 - Alarm via analog feedback
 - Simulate
- ALARM OUTPUT
 - Alarm Output
 - Simulate
- EXTRA
- RESETS
 - Device reset
 - Factory Setting
 - Switch HART Protocol Rev
 - Configuration Flag Reset
 - Reset Travel counter
 - Reset Movement counter
 - Reset Alarm History
 - Reset diagnosis status
- SPECIAL FUNCTION
 - Lock dev status
 - Lock function DI
 - Access channel
- PROCESS VALUES
- OBSERVE VALUES
 - OBSERVE VALUES
 - OBSERVE VALUES
 - Position
 - Position status
 - Setpoint value
 - Setpoint status
 - Deviation
 - Setpoint
 - Current status
 - Pressure Y1
 - Pressure Y1 status
 - Pressure Y2
 - Pressure Y2 status
 - Differential pressure
 - Differential pressure status
 - Supply pressure
 - Temperature
 - Travel counter
 - Movement counter
 - True current (Input)
 - Calculated value (Output)
- TREND VALUES
- CHART VALUES
- PRESSURE VALUES
- OTHERS

BAR GRAPHS

- BAR GRAPH (PROCESSES)
- BAR GRAPH (PRESSURE)
- BAR GRAPH (OTHERS)
- ADJUST SET VALUES
- ADJUST SET VALUES
 - RANGES
 - Valve lower range
 - Valve upper range
 - Working lower range
 - Working upper range
- SETPOINT & POSITION
- OTHERS
 - Setpoint [W]
 - Position [X][%]
 - Temperature
 - Device status
 - Setpoint
 - True current (Input)
 - Calculated value (Output)
 - Supply pressure
- OPERATION MODE
 - Actual mode
 - Target mode
 - Manual Setpoint
 - Set target mode

DIAGNOSIS

- DIAGNOSIS
- MONITORING
 - MONITORING
 - DEVICE STATUS
 - Diag simulation status
 - Device status
 - STATUS BYTE 0
 - Status group 0
 - STATUS BYTE 1
 - Status group 1
 - STATUS BYTE 2
 - Status group 2
 - STATUS BYTE 3
 - Status group 3
 - STATUS BYTE 4
 - Status group 4
 - STATUS BYTE 5
 - Status group 5
- SIMULATION
 - SIMULATION
 - DIAG SIMULATION ON/OFF
 - Diag simulation status
 - Simulation on
 - Simulation off
 - SIMULATE BYTE 0
 - Byte 0
 - Simulate
 - SIMULATE BYTE 1
 - Byte 1
 - Simulate
 - SIMULATE BYTE 2
 - Byte 2
 - Simulate
 - SIMULATE BYTE 3
 - Byte 3
 - Simulate
 - SIMULATE BYTE 4
 - Byte 4
 - Simulate
 - SIMULATE BYTE 5
 - Byte 5
 - Simulate

CONFIGURATION

CONFIGURATION
 CONFIGURE BYTE 0
 Byte 0
 Mask
 CONFIGURE BYTE 1
 Byte 1
 Mask
 CONFIGURE BYTE 2
 Byte 2
 Mask
 CONFIGURE BYTE 3
 Byte 3
 Mask
 CONFIGURE BYTE 4
 Byte 4
 Mask
 CONFIGURE BYTE 5
 Byte 5
 Mask

SETTINGS

SETTINGS
 POSITIONING LOOP MONITORING
 Dead band timeout
 Determinated stroke time up
 Determinated stroke time down
 Set Position timeout time
 FRICTION ALARM DETECTION
 KP UP
 Limit low (KP Up)
 Limit high (KP Up)
 Set KP UP Limits
 KP Up
 KP Up (Ref)
 Set KP Up (Ref)
 KP DOWN
 Limit low (KP Dn)
 Limit high (KP Dn)
 Set KP Down Limits
 KP Down
 KP Down (Ref)
 Set KP Down (Ref)
 Y OFFSET UP
 Limit low (Offset Up)
 Limit high (Offset Up)
 Set Offset Up Limits
 Y Offset Up
 Y Offset Up (Ref)
 Set Y Offset Up (Ref)
 Y OFFSET DOWN
 Limit low (Offset Dn)
 Limit high (Offset Dn)
 Set Offset Down Limits
 Y Offset Down
 Y Offset Down (Ref)
 Set Y Offset Down (Ref)
 STICTION ALARM DETECTION
 TV UP
 Limit low (Tv Up)
 Limit high (Tv Up)
 Set TV Up Limits
 TV Up
 TV Up (Ref)
 Set TV Up (Ref)
 TV DOWN
 Limit low (Tv Dn)
 Limit high (Tv Dn)
 Set TV Down Limits
 TV Down
 TV Down (Ref)
 Set TV Down (Ref)
 ZERO POINT DISPLACEMENT
 Zero Point Deviation Value
 Set Zero Point Deviation
 GENERAL SETTINGS
 Time latch
 Set Time Latch

NE107 CONFIGURATION

SENSOR
 Position measurement Failure
 Edit
 OPERATION
 OPERATION 1
 Setpoint out of range
 Edit
 Controller inactive
 Edit
 Electronic temperature out of limits
 Edit
 Overpressure from supply
 Edit
 Supply pressure limit low exceeded
 Edit
 Supply pressure limit high exceeded
 Edit
 Pressure NV chip defect
 Edit
 OPERATION 2
 Pressure hammer from supply
 Edit
 Analog output simulation active
 Edit
 Binary output simulation active
 Edit
 Fail safe active - via user
 Edit
 Binary input active
 Edit
 Analog output supply fault
 Edit
 ACTUATOR
 ACTUATOR GROUP 1
 Valve blocked
 Edit
 Positioning timeout - Check valve maintenance
 Edit
 kp up exceeded
 Edit
 kp Down exceeded
 Edit
 Stroke counter limit exceeded
 Edit
 Travel counter limit exceeded
 Edit
 Leakage during operation
 Edit
 Leakage chamber 1
 Edit
 Leakage chamber 2
 Edit
 Leakage in actuator
 Edit
 ACTUATOR GROUP 2
 Pressure NV Data defect
 Edit
 tv up exceeded
 Edit
 tv down exceeded
 Edit
 Y-Offset Up exceeded
 Edit
 Y-Offset Down exceeded
 Edit
 Friction limit exceeded
 Edit
 Stiction limit exceeded
 Edit
 Universal input out of range
 Edit
 Partial stroke failed
 Edit
 Universal input limit exceeded
 Edit

ELECTRONICS	
ELECTRONICS	
Setpoint failure electronics	Min
Edit	Average
Electronic temperature measurement failure	Max
Edit	Reset
Configuration data failure	HOURS
Edit	Min
Electronics - NV chip defect	Average
Edit	Max
Non volatile data defect	Reset
Edit	SUPPLY PRESSURE
Option module defect	ENDLESS
Edit	Min
Fail safe active - via device error	Average
Edit	Max
Pressure measurement defect	Reset
Edit	DAYS
CONFIGURATION	Min
CONFIGURATION	Average
Positioning unstable	Max
Edit	Reset
Device not calibrated	HOURS
Edit	Min
PROCESS	Average
PROCESS	Max
Position out of travel range	Reset
Edit	DIFFERENCE PRESSURE
Zero-Point displacement	ENDLESS
Edit	Min
Switchpoint 1 exceeded	Average
Edit	Max
Switchpoint 2 exceeded	Reset
Edit	DAYS
ALARM MASK	Min
ALARM MAPPING	Average
Alarm Output	Max
Edit	Reset
ANALOG FEEDBACK	HOURS
Check function	Min
Edit	Average
Off specification	Max
Edit	Reset
Maintenance	UNIVERSAL INPUT
Edit	ENDLESS
Failure	Min
Edit	Average
DIGITAL FEEDBACK	Max
Switch 1	Reset
Edit	DAYS
Switch 2	Min
Edit	Average
	Max
	Reset
DRAG INDICATORS	HOURS
Config time window	Min
CONTROL DEVIATION	Average
ENDLESS	Max
Min	Reset
Average	TREND HISTOGRAM
Max	Config time window
Reset	POSITIONING TIMEOUTS
DAYS	ENDLESS
Min	< 0 % [EL]
Average	0 - 10 % [EL]
Max	10 - 20 % [EL]
Reset	20 - 30 % [EL]
HOURS	30 - 40 % [EL]
Min	40 - 50 % [EL]
Average	50 - 60 % [EL]
Max	60 - 70 % [EL]
Reset	70 - 80 % [EL]
TEMPERATURE	80 - 90 % [EL]
ENDLESS	90 - 100 % [EL]
Min	> 100 % [EL]
Average	Reset endless
Max	
Reset	

DAYS	MAIN USED VALVE POSITION
< 0 % [DAYS]	ENDLESS
0 - 10 % [DAYS]	< 0 % [EL]
10 - 20 % [DAYS]	0 - 10 % [EL]
20 - 30 % [DAYS]	10 - 20 % [EL]
30 - 40 % [DAYS]	20 - 30 % [EL]
40 - 50 % [DAYS]	30 - 40 % [EL]
50 - 60 % [DAYS]	40 - 50 % [EL]
60 - 70 % [DAYS]	50 - 60 % [EL]
70 - 80 % [DAYS]	60 - 70 % [EL]
80 - 90 % [DAYS]	70 - 80 % [EL]
90 - 100 % [DAYS]	80 - 90 % [EL]
> 100 % [DAYS]	90 - 100 % [EL]
Reset days	> 100 % [EL]
HOURS	Reset endless
< 0 % [HRS]	DAYS
0 - 10 % [HRS]	< 0 % [DAYS]
10 - 20 % [HRS]	0 - 10 % [DAYS]
20 - 30 % [HRS]	10 - 20 % [DAYS]
30 - 40 % [HRS]	20 - 30 % [DAYS]
40 - 50 % [HRS]	30 - 40 % [DAYS]
50 - 60 % [HRS]	40 - 50 % [DAYS]
60 - 70 % [HRS]	50 - 60 % [DAYS]
70 - 80 % [HRS]	60 - 70 % [DAYS]
80 - 90 % [HRS]	70 - 80 % [DAYS]
90 - 100 % [HRS]	80 - 90 % [DAYS]
> 100 % [HRS]	90 - 100 % [DAYS]
Reset hours	> 100 % [DAYS]
TREND	Reset days
VALVE MOVEMENTS	HOURS
ENDLESS	< 0 % [HRS]
< 0 % [EL]	0 - 10 % [HRS]
0 - 10 % [EL]	10 - 20 % [HRS]
10 - 20 % [EL]	20 - 30 % [HRS]
20 - 30 % [EL]	30 - 40 % [HRS]
30 - 40 % [EL]	40 - 50 % [HRS]
40 - 50 % [EL]	50 - 60 % [HRS]
50 - 60 % [EL]	60 - 70 % [HRS]
60 - 70 % [EL]	70 - 80 % [HRS]
70 - 80 % [EL]	80 - 90 % [HRS]
80 - 90 % [EL]	90 - 100 % [HRS]
90 - 100 % [EL]	> 100 % [HRS]
> 100 % [EL]	Reset hours
Reset endless	TREND
DAYS	VALVE CYCLES
< 0 % [DAYS]	ENDLESS
0 - 10 % [DAYS]	< 0 % [EL]
10 - 20 % [DAYS]	0 - 10 % [EL]
20 - 30 % [DAYS]	10 - 20 % [EL]
30 - 40 % [DAYS]	20 - 30 % [EL]
40 - 50 % [DAYS]	30 - 40 % [EL]
50 - 60 % [DAYS]	40 - 50 % [EL]
60 - 70 % [DAYS]	50 - 60 % [EL]
70 - 80 % [DAYS]	60 - 70 % [EL]
80 - 90 % [DAYS]	70 - 80 % [EL]
90 - 100 % [DAYS]	80 - 90 % [EL]
> 100 % [DAYS]	90 - 100 % [EL]
Reset days	> 100 % [EL]
HOURS	Reset endless
< 0 % [HRS]	DAYS
0 - 10 % [HRS]	< 0 % [DAYS]
10 - 20 % [HRS]	0 - 10 % [DAYS]
20 - 30 % [HRS]	10 - 20 % [DAYS]
30 - 40 % [HRS]	20 - 30 % [DAYS]
40 - 50 % [HRS]	30 - 40 % [DAYS]
50 - 60 % [HRS]	40 - 50 % [DAYS]
60 - 70 % [HRS]	50 - 60 % [DAYS]
70 - 80 % [HRS]	60 - 70 % [DAYS]
80 - 90 % [HRS]	70 - 80 % [DAYS]
90 - 100 % [HRS]	80 - 90 % [DAYS]
> 100 % [HRS]	90 - 100 % [DAYS]
Reset hours	> 100 % [DAYS]
TREND	Reset days

HOURS	
< 0 % [HRS]	DAYS
0 - 10 % [HRS]	< 0 % [[DAYS]]
10 - 20 % [HRS]	0 - 10 % [DAYS]
20 - 30 % [HRS]	10 - 20 % [DAYS]
30 - 40 % [HRS]	20 - 30 % [DAYS]
40 - 50 % [HRS]	30 - 40 % [DAYS]
50 - 60 % [HRS]	40 - 50 % [DAYS]
60 - 70 % [HRS]	50 - 60 % [DAYS]
70 - 80 % [HRS]	60 - 70 % [DAYS]
80 - 90 % [HRS]	70 - 80 % [DAYS]
90 - 100 % [HRS]	80 - 90 % [DAYS]
> 100 % [HRS]	90 - 100 % [DAYS]
Reset hours	> 100 % [DAYS]
TREND	Reset days
UNIVERSAL INPUT	HOURS
ENDLESS	< 0 % [HRS]
< 0 % [EL]	0 - 10 % [HRS]
0 - 10 % [EL]	10 - 20 % [HRS]
10 - 20 % [EL]	20 - 30 % [HRS]
20 - 30 % [EL]	30 - 40 % [HRS]
30 - 40 % [EL]	40 - 50 % [HRS]
40 - 50 % [EL]	50 - 60 % [HRS]
50 - 60 % [EL]	60 - 70 % [HRS]
60 - 70 % [EL]	70 - 80 % [HRS]
70 - 80 % [EL]	80 - 90 % [HRS]
80 - 90 % [EL]	90 - 100 % [HRS]
90 - 100 % [EL]	> 100 % [HRS]
> 100 % [EL]	Reset hours
Reset endless	TREND
DAYS	AVERAGE CONTROL DEVIATION
< 0 % [DAYS]	ENDLESS
0 - 10 % [DAYS]	< 0 % [EL]
10 - 20 % [DAYS]	0 - 10 % [EL]
20 - 30 % [DAYS]	10 - 20 % [EL]
30 - 40 % [DAYS]	20 - 30 % [EL]
40 - 50 % [DAYS]	30 - 40 % [EL]
50 - 60 % [DAYS]	40 - 50 % [EL]
60 - 70 % [DAYS]	50 - 60 % [EL]
70 - 80 % [DAYS]	60 - 70 % [EL]
80 - 90 % [DAYS]	70 - 80 % [EL]
90 - 100 % [DAYS]	80 - 90 % [EL]
> 100 % [DAYS]	90 - 100 % [EL]
Reset days	> 100 % [EL]
HOURS	Reset endless
< 0 % [HRS]	DAYS
0 - 10 % [HRS]	< 0 % [DAYS]
10 - 20 % [HRS]	0 - 10 % [DAYS]
20 - 30 % [HRS]	10 - 20 % [DAYS]
30 - 40 % [HRS]	20 - 30 % [DAYS]
40 - 50 % [HRS]	30 - 40 % [DAYS]
50 - 60 % [HRS]	40 - 50 % [DAYS]
60 - 70 % [HRS]	50 - 60 % [DAYS]
70 - 80 % [HRS]	60 - 70 % [DAYS]
80 - 90 % [HRS]	70 - 80 % [DAYS]
90 - 100 % [HRS]	80 - 90 % [DAYS]
> 100 % [HRS]	90 - 100 % [DAYS]
Reset hours	> 100 % [DAYS]
TREND	Reset days
FRICTION	HOURS
ENDLESS	< 0 % [HRS]
< 0 % [[EL]]	0 - 10 % [HRS]
0 - 10 % [EL]	10 - 20 % [HRS]
10 - 20 % [EL]	20 - 30 % [HRS]
20 - 30 % [EL]	30 - 40 % [HRS]
30 - 40 % [EL]	40 - 50 % [HRS]
40 - 50 % [EL]	50 - 60 % [HRS]
50 - 60 % [EL]	60 - 70 % [HRS]
60 - 70 % [EL]	70 - 80 % [HRS]
70 - 80 % [EL]	80 - 90 % [HRS]
80 - 90 % [EL]	90 - 100 % [HRS]
90 - 100 % [EL]	> 100 % [HRS]
> 100 % [EL]	Reset hours
Reset endless	TREND

STICTION

ENDLESS

< 0 % [EL]
 0 - 10 % [EL]
 10 - 20 % [EL]
 20 - 30 % [EL]
 30 - 40 % [EL]
 40 - 50 % [EL]
 50 - 60 % [EL]
 60 - 70 % [EL]
 70 - 80 % [EL]
 80 - 90 % [EL]
 90 - 100 % [EL]
 > 100 % [EL]
 Reset endless

DAYS

< 0 % [DAYS]
 0 - 10 % [DAYS]
 10 - 20 % [DAYS]
 20 - 30 % [DAYS]
 30 - 40 % [DAYS]
 40 - 50 % [DAYS]
 50 - 60 % [DAYS]
 60 - 70 % [DAYS]
 70 - 80 % [DAYS]
 80 - 90 % [DAYS]
 90 - 100 % [DAYS]
 > 100 % [DAYS]
 Reset days

HOURS

< 0 % [HRS]
 0 - 10 % [HRS]
 10 - 20 % [HRS]
 20 - 30 % [HRS]
 30 - 40 % [HRS]
 40 - 50 % [HRS]
 50 - 60 % [HRS]
 60 - 70 % [HRS]
 70 - 80 % [HRS]
 80 - 90 % [HRS]
 90 - 100 % [HRS]
 > 100 % [HRS]
 Reset hours

TREND

FRICTION STICTION SETTING

PRESSURE OUTPUT Y2

Pressure Y2
 Activate/Deactivate Y2

FRICTION LIMITS

Limit 0
 Limit 1
 Limit 2
 Limit 3
 Limit 4
 Limit 5
 Limit 6
 Limit 7
 Limit 8
 Limit 9
 Limit 10
 Set limits

STICTION LIMITS

Limit 0
 Limit 1
 Limit 2
 Limit 3
 Limit 4
 Limit 5
 Limit 6
 Limit 7
 Limit 8
 Limit 9
 Limit 10
 Set limits

DATA AND COUNTERS

LOAD COUNTERS

Travel counter
 Total travel counter limit
 Set Limit

MOVEMENT COUNTERS

Movement counter
 Movement counter limit
 Set Limit

POWER DOWN CYCLES

Power down counter

DATA

PRODUCTION DATE

Production date
 Production time

VALVE MOUNTING DATE

Valve mounting date
 Valve mounting time
 Set valve mounting date

HOST DATE

Host date
 Host time
 Set Host Time
 Total time since production
 Total time since valve mounted
 Total operating time

VALVE SEAT TEST

ACCEPTABLE TOLERANCE

Min
 Max
 Set parameters

ACCEPTABLE UAI TOLERANCE

Min
 Max
 Set parameters
 Check UAI
 Check/Uncheck UAI

VALVE SEAT TEST

Diagnosis mode
 Progress
 Test status
 Test result
 Start test
 Stop test

LEAKAGE TEST

Diagnosis mode
 Progress
 Test status
 Test result
 met-Start test
 met-Stop test

PARTIAL STROKE TEST

met-Last test
 TEST INTERVAL
 Start test every
 met-Set test interval

VENT AMOUNT

PS Vent amount
 met-Set vent amount

POSITIONING TIMEOUT

Timeout value
 Dead Time
 met-Set parameters

TEST

Partial stroke state
 Progress
 Test status
 met-Start test (Now)
 met-Stop test

VALVE SIGNATURE TEST

SETTINGS

Steps
 met-Set Steps

```

TEST
  Diagnosis mode
  Progress
  Test status
  met-Start test
  met-Stop test
  GRAPH
    met-Get trend
    met-Save to archive
    met-Load from archive
SPEED OVER POSITION TEST
  SETTINGS
    Air Capacity
    Scaling factor
    Y-offset up
    Y-offset down
    met-Set parameters
  TEST
    Diagnosis mode
    Progress
    Test status
    met-Start test
    met-Stop test
    GRAPH
      met-Get trend
      met-Save to archive
      met-Load from archive
STEP RESPONSE TEST
  SETTINGS
    Start position
    Stop position
    Interval
    met-Set parameters
  TEST
    Diagnosis mode
    Progress
    Test status
    met-Start test
    met-Stop test
    GRAPH
      met-Get trend
      met-Save to archive
      met-Load from archive

```

Important. DD structure changes according to instrument design.

Repeated entries across all DD structure examples are shown for convenience only, when “Online” those entry will change according to manufacturer and instrument settings.

8 PC-Tool

8.1 Overview

DHH805-A needs the dedicated software called PC-Tool. Using this software, the user can manage Device Description files and configurations, upgrade license, update DHH805-A firmware, and monitor SD Card memory.

Note. SD Card memory status is also available under Settings > Memory info.

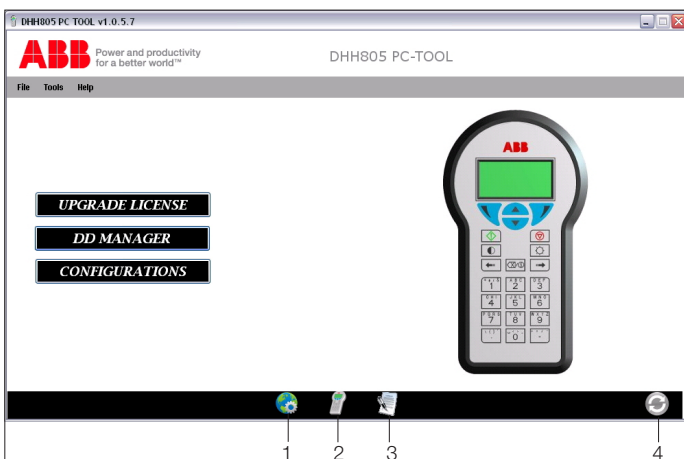
8.2 Installation procedure

Once the DVD has been inserted in the DVD-Rom reader, the driven installation procedure begins. Many PC configurations are checked and at the end PC-Tool software is installed. In case of unexpected errors, an intuitive troubleshooting section leads users to DHH805 and PC-Tool complete functioning.

Note. PC-Tool installer start autonomously thanks to an autorun file. In case your system administrator has disabled autorun functioning, browse DVD resources and click on DHH805 Setup.exe

8.3 PC-Tool homepage

DHH805-A PC-Tool is a user-friendly, intuitive software made by ABB. On the homepage, the status bar allows the user to know about whether the internet resources are correctly in place, whether the DHH805-A is connected to the PC-TOOL properly, and important device information, such as license type, device serial number, and update availability. See the below figure for locations of this information.



1 Internet connection icon | 2 DHH805-A connection icon | 3 DHH805-A license type and DHH805 tag information icon | 4 Update icon
Figure 31: PC-Tool homepage

Note. When internet resources and DHH805-A connection are not in place, the icons are coloured grey.

License type and DHH805 tag icon is active only when the device is connected. Update icon blinks when new software and/or firmware release(s) is (are) available.

PC-Tool homepage features a menu bar composed by three tabs:

- **File:** contains basic software commands such as Home, Restart and Close
- **Tools:** features the most important commands such as License Upgrade, DD Manager, Configuration Manager, Display HHT Screen and Check for Updates.
- **Help:** gives users information about PC-Tool usage, error log, main software settings, and reference contacts.

8.4 Main tabs explanation

8.4.1 File

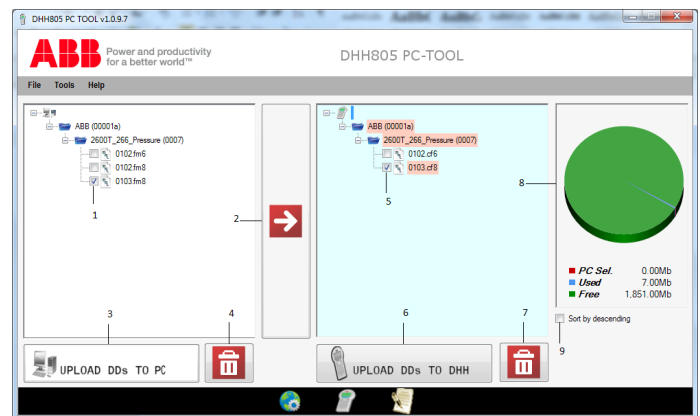
Under the File menu, the user can select three different commands:

- **Home:** refreshes PC-Tool homepage and performs software basic checks (internet resources availability, DHH805-A connection to the PC and identification, and firmware and software updates availability).
- **Restart:** re-launches PC-Tool program quickly, in the case of application misbehaving
- **Close:** stops the application, similar to the window close command in the top-right-hand corner.

8.4.2 Tools

This section contains the most important device management commands.

- **Upgrade license:** upgrades depending on the internet connection. It can be performed online or offline.
- **DD Manager:** enables user to upload DD files from PC to DHH805-A. Also, it is accessible directly from PC-Tool homepage.

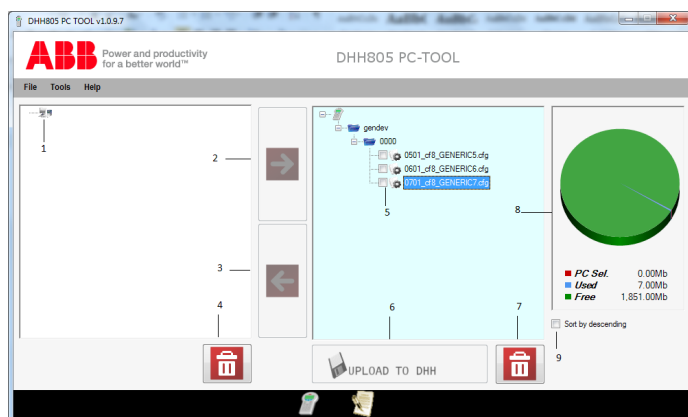


1 PC-Tool tree | 2 Transfer button | 3 Upload DDs to PC | 4 Recycle bin of left tree | 5 DHH805-A tree | 6 Upload button | 7 Recycle bin of right tree | 8 DHH805-A SD Card memory status with colour legend | 9 Tree sorting in descending order
Figure 32: PC-Tool DD manager

To upload a DD file from your PC:

- Click the browse button (7) and search for a manufacturer DD folder (do not select a single DD folder, it won't be uploaded). The folder will then appear inside the left library tree (1).
- Select all DD files to be transferred to the DHH805-A tree (5) by using the transfer button (2). The files should appear under DHH805-A tree with a green flag.
- Upload to the SD Card memory by pushing the upload button (4). SD Card memory status is clearly shown by the pie diagram on the right (6). The colour legend below indicates the size of selected files, used and free memory space. Files can be deleted from DHH805-A or from the PC with the recycle bin button (3).

- **Configurations Manager:** accessible directly from PC-Tool homepage, this command enables user to manage all configurations saved on DHH805-A and / or within PC-Tool. Bidirectional uploads / downloads are allowed.



1 PC configuration tree | 2 “Transfer-to-DHH805-A” button | 3 “Transfer-to-PC” button | 4 Recycle bin for left tree | 5 DHH805-A configuration tree | 6 “Upload-to-DHH805-A” button | 7 Recycle bin for right tree | 8 DHH805-A SD Card memory status | 9 Tree sorting by descending

Figure 33: Configuration manager

Configuration handling

- Configurations can be saved on DHH805-A in offline mode.
- Once stored inside the SD card memory, they will appear under the DHH805-A configuration tree (5), and the memory pie diagram (6) will be updated accordingly.
- Configurations (named with instrument tag number) can be managed using the different transfer buttons (2, 3), deleted (4), and uploaded both on DHH805-A (if stored on the PC) and on PC memory (7, 8).
- Configuration saved on PC-Tool will appear under the PC configuration tree (1) and automatically saved at C:\Data\DHH805\Configurations.

- **Display HHT Screen:** this function has been designed to allow users to see DHH805-A screen on the PC using the PC-Tool software. In order to perform this function,

Connect the hand-held terminal to the USB port of the PC and to the power supply.

Once the function has been selected, go to the DHH805-A main menu and edit the dedicated parameter (Settings > Log mode > Enable).

Important. Bidirectional communication (emulation) is not possible.

- **Check for updates:** this panel allows user to see the running DHH805-A firmware and PC-Tool software revisions. As mentioned in the very first chapters, PC-Tool automatically detects updates once opened. A blinking icon in the lower right-hand corner and a warning message will inform the user of new software and/or firmware releases.

Select the manual update option to update firmware manually (if there is no internet service available (or required firmware update forcefully))

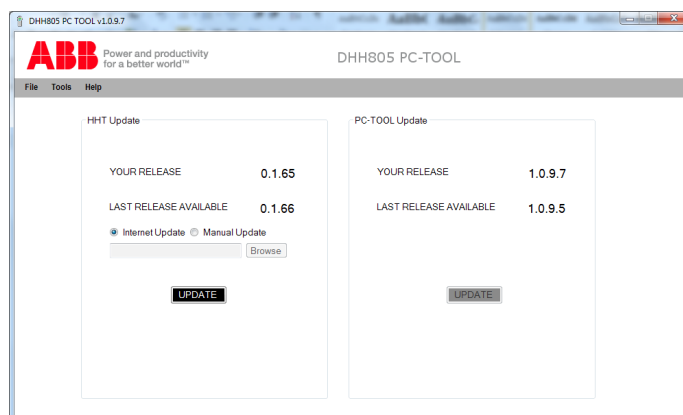


Figure 34: Update panel

8.4.3 Help

Under the Help menu user can find details about:

- **PC-Tool Help:** the three submenus gives users' suggestions and information about software functioning (PC-Tool Help), preliminary operations (Getting Started), and contact people (Contacts) for activation / upgrade license procedures as well as any other possible clarifications needed.
- **Log:** this entry is the functioning acquisition system allows users to monitor every PC-Tool action. In case of software malfunctioning, log should be sent to your ABB contact in order to have problems solved. The written log file can be found at C:\Data\DHH805\Log_Error and opened by using a common text editor.

- **Settings:** the figure below shows the settings panel. By accessing it, the user has the possibility of enabling the introduction tips (see figure 3) simply flagging the related box (1).

Advanced Options - Communication fields (2) should not be edited. By default, this panel is locked: to unlock press the dedicated button (3) and then save pressing the appropriate button (4). A confirmation icon (5) will appear.

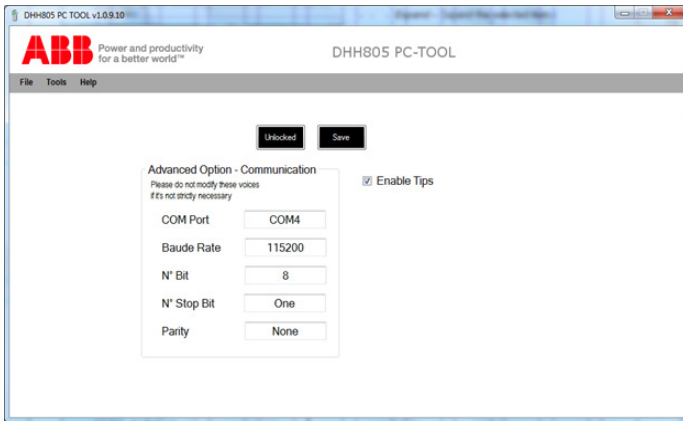


Figure 35: PC-Tool DD manager

- **Context menu:** Context menu available for items in the tree in the DD manager / Configuration by using the right click button

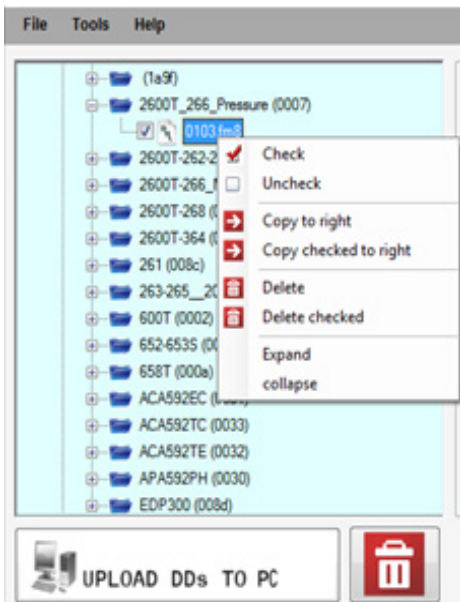


Figure 36: Action drop-down box

Copy checked to right– Select any item and “Copy to right”. The checked items under the selected item will be moved to right side view (Vice versa for “Copy checked to left” option)

Delete – Delete the selected item.

Delete checked – Delete the checked items under the selected item.

Check – Select any item and check. The selected item and all of its sub items will be checked.

Uncheck – Select any item and uncheck. The selected item and all of its sub items will be unchecked.

Copy to right – Select any item and “Copy to right”. The selected item and all of its sub items will be moved to right side view (Vice versa for “Copy to left” option)

Expand – Expand the selected item.

Collapse – Collapse the selected item.

- **Contacts:** this window lists contact people for activation / license upgrade procedure assistance. Divided by geographical location, these contacts will also help users with DHH805-A and PC-Tool-related issues.

- **About registration:** this submenu has to be accessed when the user wants to modify his own contact details or change his acceptance to “ABB License Agreement” as well as “Remote Data Acquisition and Personal Data Collection” agreements (see paragraph 4.5 “Authorizations”)

8.5 Troubleshooting

Error Code	Solution
G001	Close PC-Tool Shut down DHH805-A Disconnect and connect the USB cable to your PC
G002	PC-Tool will be restarted automatically
G003	PC-Tool will be restarted automatically
G004	PC-Tool will be restarted automatically
G005	PC-Tool will be restarted automatically
G006	Close PC-Tool Shut down DHH805-A Disconnect and connect the USB cable to your PC
G007	Close PC-Tool Shut down DHH805-A Disconnect and connect the USB cable to your PC
G008	PC-Tool will be restarted automatically
G009	PC-Tool will be restarted automatically
G010	Please inform ABB about the corrupted DD or send the error log saved in DHH805->Log_Error folder
G011	Please inform ABB about the corrupted DD or send the error log saved in DHH805->Log_Error folder
G012	PC-Tool will be restarted automatically
G013	PC-Tool will be restarted automatically
G014	PC-Tool will be restarted automatically
G015	PC-Tool will be restarted automatically
G016	PC-Tool will be restarted automatically
G017	Try again later
S001	Close PC-Tool and shut down DHH805-A
S002	Close PC-Tool and shut down DHH805-A
S003 Error removing generic DD	Close PC-Tool and shut down DHH805-A
S004 Error writing generic DD	Close PC-Tool Shut down DHH805-A If the problem persists, please extract SD card and format it
S005 Error writing new / generic DD	Close PC-Tool and shut down DHH805-A
S006	Close PC-Tool and shut down DHH805-A
S007	PC-Tool will be restarted automatically
S009	Try to update later If problem persists, get in touch with your ABB reference contact
S010	PC-Tool will be restarted automatically
S011	PC-Tool will be restarted automatically
S012	PC-Tool will be restarted automatically
S013	PC-Tool will be restarted automatically
S015	Close PC-Tool Shut down DHH805-A If problem persists, get in touch with your ABB reference contact
S003 Error removing generic DD	Close PC-Tool and shut down DHH805-A
S004 Error writing generic DD	Close PC-Tool and shut down DHH805-A
S005 Error writing new DD	Close PC-Tool and shut down DHH805-A
S005 Error writing generic DD	Close PC-Tool and shut down DHH805-A
S015 Error writing the GlobalDictionary	Close PC-Tool Shut down DHH805-A If problem persists, get in touch with your ABB reference contact

8.6 Prerequisites

8.6.1 Minimum System Requirements

Hardware:

- Intel Pentium® D 2,8 GHz or AMD Athlon™ 64 X2 4400+ processor
- Screen resolution of 1024 x 768 or greater
- Broadband Internet connection ¹
- DVD-ROM reader

Software:

- Latest Windows XP, Windows 7 or Windows Vista Service Packs
- 1 gigabyte (GB) RAM (32-bit) for XP version or 1.5 gigabyte (GB) RAM (32-bit) for Windows 7 and Windows Vista.
- 200 megabytes (MB) to 2 gigabytes (GB) available hard disk space (32-bit) ²
- Microsoft NET Framework 3.5 or later
- Adobe Reader 9.0 or later

8.6.2 Recommended System Requirements

Hardware:

- Intel® Core 2 Duo 2.4 GHz or AMD Athlon™ 64 X2 5600+ 2.8 GHz processor
- Broadband Internet connection ¹
- DVD-ROM reader

Software:

- Latest Windows® 7 Service Pack
- 4 gigabyte (GB) RAM (32-bit)
- 3 gigabytes (GB) available hard disk space (32-bit) ²

Note.

¹ Some wireless connections can not be defined as “broadband internet connections”. Results with wireless connections may vary

² Worse case: by importing the entire DD Library required hard disk space is more than 1 gigabyte (GB).

8.7 Further information

DHH805 PC-Tool: simply click on Help > PC-Tool Help.

Latest updates: updates are detected automatically by the software itself (blinking icon on the bottom right corner). In case you would like to verify if new software releases are available, click Tools > Check for update

Technical support: to view all the support resources available, visit www.abb.com

9 Hazardous area considerations

9.1 Intrinsically safe operations

The DHH805-A HART Communicators is certified for intrinsically safe operations according to ATEX, IEC Ex, FMus, FMc and Inmetro.

Refer to the Intrinsic Safety Control Drawing in section 9.2 of this manual for more information.

The DHH805-A is delivered with an Intrinsic safety rechargeable battery pack, identified by the proper markings as well as a General purpose AA battery pack holder. The device running with the general purpose battery pack **MUST NOT** be used in hazardous areas. The DHH805-A with Intrinsically Safe certification can be identified by the specific label on rear of the battery pack of the unit. A sample of the Intrinsically Safe and general purpose labels are shown below for reference.

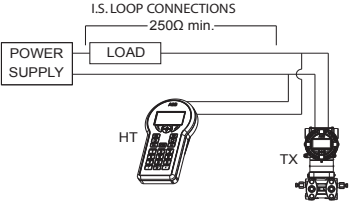
<p align="center">- WARNING - DON'T USE IN HAZARDOUS AREAS</p> <p align="center">- AVERTISSEMENT - NE PAS UTILISER EN PRESENCE D'UNE ATMOSPHERE EXPLOSIVE</p>	<p align="center">II 1 G Ex Ia IIC T4 Ga (T. amb -10°C +50°C) ZELM 11 ATEX 0478X IECEX ZLM 12.0001X</p> <p>UI=30 V d.c. Ii=215 mA PI=0.85 W CI=0.04 uF LI=0 mH Voc=2.4 Vdc Iec=26 mA Po=61 mW Ca=99 uF La=100 mH</p> <p>IS CL I / DIV 1 / GP ABCD T4 US Only IS/Sec intrinseque (antilly) CL I, zone 0, Ex/AEx Ia IIC T4 NI CL I / DIV 2 / GP ABCD T4 US Only CL I, zone 2, IIC T4 US only Connection per control drawing DH3219</p> <p>FM APPROVED</p> <p>Seguranca INMETRO OCP 0004</p> <p>CERTIFICADO N° TÜV 13.2463X Ex Ia IIC T4 Gb-10°C < Ta < +50°C) UI=30 V Ii=215mA PI=0.85 W CI=0.04 uF LI=0 Bateria NiMH P.N° AU3135</p>	<p>Warning. Serious injury or death may result from explosions. Do not connect the Communication / AC Adapter to the DHH805-A while in a hazardous area. This warning applies to the USB connector as well as to the AC Adapter.</p>
<p>Battery Box: Part N° AU3160 Use n°4 alkaline batteries type AA 4 x 1.5 V d.c. - Do not recharge!</p>	<p align="center">CERT. GYJ Ex Ia IIC T4</p>	<p>Warning. Serious injury or death may result from explosions. Before making electrical connections to an Intrinsically Safe DHH805-A at the HART jacks, verify the HART instrument of interest is installed in accordance with intrinsically safe field wiring practices.</p>
<p align="center">SD Memory card reader inside</p> 	<p align="center">NiMH Battery Pack P. N° AU3153 SD Memory card reader inside</p>	<p>Note. Restrictions apply to the use of Intrinsically Safe DHH805-A units in hazardous areas. Refer to the Intrinsic Safety Control Drawing in Section 9.2 of this manual for more information. ABB reserves the right to revise the Intrinsic Safety Control Drawing without notice. Contact ABB (www.abb.com) for the current Intrinsic Safety Control Drawing.</p>
<p>ABB Made in Italy Lenno (CO)</p> <p>MODEL DHH 805 A</p> <p>N°136</p>	<p align="center">WARNING</p> <p>DO NOT REMOVE PLUGS COVER IN HAZARDOUS AREAS. USE BATTERY CHARGE EV3030 INPUT 15Vdc / 200 mA</p> <p align="center">INPUT 15Vdc / 200 mA</p> <p>NE PAS ENLEVER LE COUVRE IN ATMOSPHERE EXPLOSIVE. UTILISER LE CHARGEURS EV 3030</p> <p align="center">AVERTISSEMENT</p>	

Figure 35: DHH805-A rear labels (respectively: general purpose and Intrinsically Safe)

Note the following WARNINGS and REQUIREMENTS for Intrinsically Safe DHH models:

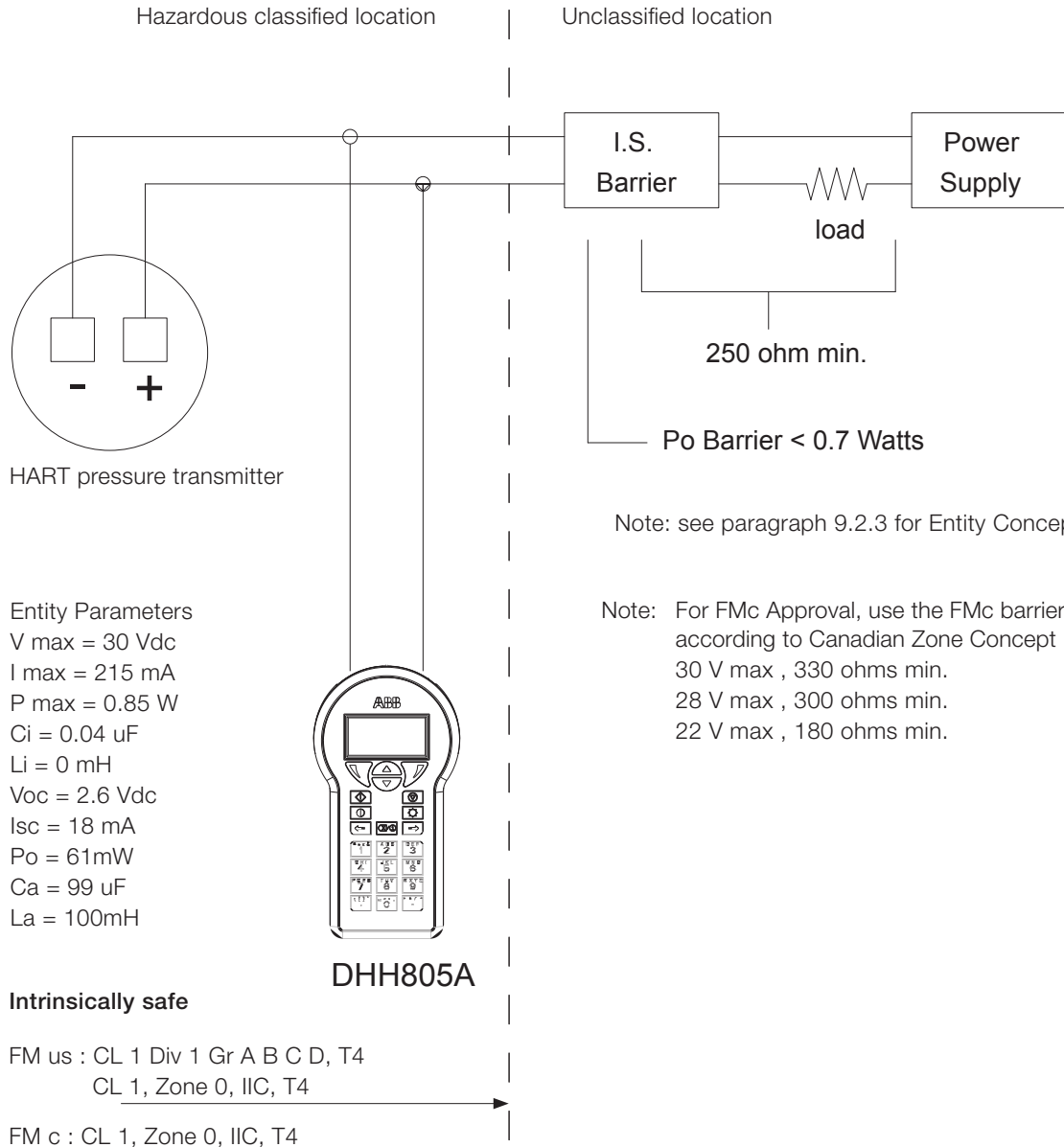
Substitution of components may impair Intrinsic Safety.

To prevent ignition of flammable or explosive atmospheres;

- Disconnect power before servicing
- DO NOT open the unit, including battery compartment, or attempt to service the unit when located in flammable or potentially explosive atmosphere. Remove to safe area.
- DO NOT use the general purpose AA battery pack in hazardous areas.
- DO NOT use the elastic band in hazardous areas.
- DO NOT replace batteries while in explosive or hazardous atmospheres
- DO NOT use any battery type other than those listed on the "Intrinsic Safe Control Document" found in Section 9.2 of this manual.
- DO NOT use USB connection above 40°C (104°F) ambient temperature.
- DO NOT recharge the unit when ambient temperature exceeds 35°C (95°F).
- DO NOT recharge the unit while the device is communicating with a field device
- ONLY use original SD memory card supplied from ABB (code EV3032), installation of a different SD card make the Hazardous area certification invalid.

9.2 Intrinsic Safe Control Document

9.2.1 Intrinsically safe FM Us and Canada Approved*

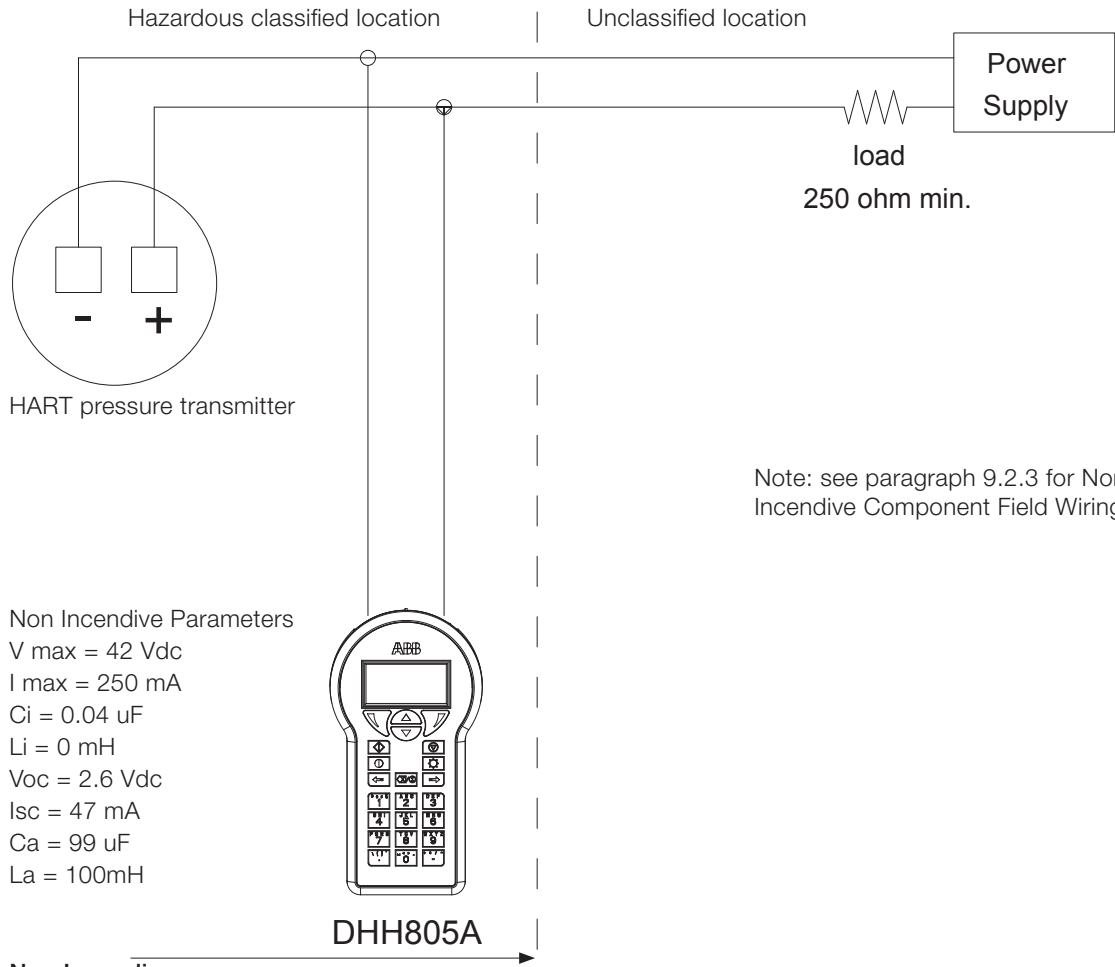


Warning. Use of the charger port is not allowed while the DHH805-A is connected or located in hazardous area

Warning. Use of the USB port is not allowed while the DHH805-A is connected or located in hazardous area

***Note.** For FMc the equipment is approved only for the Canadian Zone Concept.

9.2.2 Non Incendive FM Us and Canada Approved



Note: see paragraph 9.2.3 for Non Incendive Component Field Wiring

Non Incendive Parameters
 V max = 42 Vdc
 I max = 250 mA
 Ci = 0.04 uF
 Li = 0 mH
 Voc = 2.6 Vdc
 Isc = 47 mA
 Ca = 99 uF
 La = 100mH

Non Incendive
 FM us : CL 1 Div 2 Gr A, B, C, D - T4
 FM us : Suitable for Zone 2

Warning. Use of the charger port is not allowed while the DHH805-A is connected or located in hazardous area

Warning. Use of the USB port is not allowed while the DHH805-A is connected or located in hazardous area

9.2.3 Entity and Non-Incendive component field wiring concepts

Entity Concept

Equipment which is FM approved for intrinsic safety may be connected to the barriers based on the ENTITY CONCEPT. This concept permits interconnections of approved transmitters, meters and other devices in combinations which have not been specifically examined by FM, provided that the agency's criteria are met. The combination is then intrinsically safe if the entity concept is acceptable to the authority having jurisdiction over the installation.

The entity concept criteria are as follows :

- The intrinsically safe devices, other than barriers, must not be a source of power.
- The maximum voltage (V_{max}) and current (I_{max}) which the device can receive and remain intrinsically safe, must be equal or greater than the voltage (V_{oc} or V_t) and current (I_{sc} or I_t) which can be delivered by the barrier.
- The sum of the maximum unprotected capacitance (C_i) for each intrinsically device and the interconnecting wiring must be less than capacitance (C_a) which can be safely connected to the barrier.
- The sum of the maximum unprotected inductance (L_i) for each intrinsically device and the interconnecting wiring must be less than the inductance (L_a) which can be safely connected to the barrier
- The maximum entity parameters V_{max} , I_{max} , C_i , and L_i for the hand held communicator model DHH805A are listed in paragraph 9.2.1 of this document.
- The entity parameters V_{oc} or V_t , I_{sc} or I_t , C_a and L_a for barriers are provided by the barrier manufacturer.

Non incendive Component Field Wiring concepts

The Non-Incendive field wiring concept is very similar to the entity concept except it allows devices approved with Non-Incendive Component Field Wiring parameters to be installed in Division 2 hazardous classified location when connected to the appropriate sources of power provided that the appropriate criteria are met. The combination is then safe if the concept is acceptable to the authority having jurisdiction over the installation.

The criteria are as follows :

- There must be only one source of power. The source may be an intrinsic safety barrier or it may be a device marked with Non-Incendive Component Field Wiring parameters suitable for connection to Non-Incendive circuit components located in zone 2 hazardous location.
- The maximum voltage (V_{max}) and current (I_{max}) which the device can receive and remain Non-Incendive, must be equal to or greater than the voltage (V_{oc} or V_t) and current (I_{sc} or I_t) which can be delivered by the source of power.
- The sum of the maximum unprotected capacitance (C_i) for each device and the interconnecting wiring must be less than the capacitance (C_a) which can be safely connected to the source of power.
- The sum of the maximum unprotected inductance (L_i) for each device and the interconnecting wiring must be less than inductance (L_a) which can be safely connected to the source of power.
- The Non-Incendive Components Field Wiring parameters V_{max} , I_{max} , C_i , L_i , for the Hand Held Communicator model DHH805A are listed in paragraph 9.2.2.
- The parameters, V_{oc} , or V_t , I_{sc} , or I_t , C_a and L_a , for the source of power are provided by the manufacturer of that equipment.



RETURN REPORT – No.: _____

*) Please always fill in. Otherwise the case will not be handled as return

CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH (C.O.S.H.H.)

Decontamination declaration - EQUIPMENT RETURNED FOR REPAIR, CALIBRATION OR CREDIT

From _____

Description _____
Return authorization no. _____
Model number _____
Serial number _____

- | | |
|----|--|
| A) | The above equipment has not been in contact with any material which is hazardous to health. |
| B) | The above equipment has been in contact with the material(s) noted below but that it has now been completely de-contaminated and is now safe to handle and dismantle without any special precautions.
Material(s) which have been in contact with this equipment: |
| C) | If A) or B) are not applicable full instructions for the safe handling of this equipment for disposal must be supplied. |

Please delete A), B) or C) above as applicable, complete the signature section below, then send the completed declaration either with the returned items, or by fax for the attention of the Calibration & Repair Centre..
Note – no action to examine or repair equipment will be undertaken until a valid COSHH declaration has been received, completed by an authorized officer of the end user company.

Signed _____
Name _____
Position _____
Date _____

ABB S.p.A
Process Automation Division
Uffici Commerciali / Sales Office:
Via Statale, 113 - 22016 Lenno (CO) Italy
Tel. +39 0344 58 111
Fax +39 0344 56 278
e-mail: abb.instrumentation@it.abb.com

EC-Declaration of Conformity

We ABB SpA – ABB PA Division
 Business Unit Measurement Products
 Via Statale 113
 22016 Lenno (Como) Italy

Declare that the :

DHH805A Hand Held Communicator

are in conformity with the Council Directive 94/9/EC of 23 March 1994
and is designed and constructed in compliance with the following standards:

EN 60079-0 : 2009
EN 60079-11 : 2012
EN 60079-26 : 2007

EC- Type Examination Certificate : **ZELM 11 ATEX 0476X**
Certified by : **ZELM**
Identification number : **0820**
Address : Siekgraben 56, D-38124 Braunschweig Germany

Notified Body entrusted with the surveillance

Name : **CESI**
Identification number : **0722**
Address : Via Rubattino 54, 20134 Milano Italy

Lenno 08/08/2012

ABB SpA – ABB PA Division
Business Unit Measurement Product

Walter Volo
Certification Manager

ABB SpA
Process Automation Division
Sede legale
Registered Office
Via Vittor Pisani, 16
20124 Milano - Italy
www.abb.it

Direzione e
Uffici Amministrativi
Headquarters and
Accounting Services
20099 Sesto S. Giovanni (MI) - Italy
Via Luciano Lama, 33
Tel.: +39 02 2414.1
e-mail: info.padivision@it.abb.com

Capitale Sociale
Share Capital
€ 107.000.000 i.v. / fully paid up
P.IVA/VAT: IT 11988960156
Codice Fiscale/Fiscal code: 00736410150
Registro delle Imprese di Milano/
Official Company Book: 00736410150
R.E.A. Milano: 1513225

Altre sedi e unità produttive
Other offices and factories
Genova
San Marco (LU)
Lenno e Ossuccio (CO)
Vittuone (MI)
Marghera (VE)
Teverola (CA)
Malta

EC DECLARATION OF CONFORMITY

We: ABB S.p.A. – *ABB PA Division*
Business Unit Measurement Products
Via Statale, 113
22016 Lenno (Como)
Italy

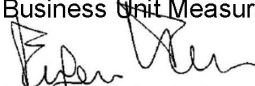
Declare that the :

DHH805A Hand Held Communicator

are in conformity with the following standards:

- EN 61326-1 (2006)** Electrical equipment for measurement, control and laboratory use
EMC requirements. Part 1 : General requirements
- EN 61326-2-2 (2006)** Electrical equipment for measurement, control and laboratory use –
EMC requirements – Part 2-2 : Particular requirements – Test
configurations, operational conditions and performance criteria for
portable test, measuring and monitoring equipment used in low-
voltage distribution systems.

following the provisions of the EMC Directive 2004/108/EC.

ABB S.p.A. – *ABB PA Division*
Business Unit Measurement Products

Eugenio Volonterio
Technical Director

Lenno, 08th August 2012

ABB SpA
Process Automation Division
Sede legale
Registered Office
Via Vittor Pisani, 16
20124 Milano - Italy
www.abb.it

Direzione e
Uffici Amministrativi
Headquarters and
Accounting Services
20099 Sesto S. Giovanni (MI) - Italy
Via Luciano Lama, 33
Tel.: +39 02 2414.1
e-mail: info.padivision@it.abb.com

Capitale Sociale
Share Capital
€ 107.000.000 i.v./fully paid up
P.IVA/IVAT: IT 11988960156
Codice Fiscale/Fiscal code: 00736410150
Registro delle imprese di Milano/
Official Company Book: 00736410150
R.E.A. Milano: 1513225

Altre sedi e unità produttive
Other offices and factories
Genova
San Marco (LU)
Lenno e Ossuccio (CO)
Vittuone (MI)
Marghera (VE)
Teverola (CA)
Malta

Intentionally blank

Intentionally blank

Products and customer support

ABB's portfolio for valve automation:

- Continuous electrical actuators and pneumatic actuators
- Electro-pneumatic, pneumatic, and digital positioners
- I/P signal converters

ABB's pressure measurement:

- Absolute, gauge and differential pressure transmitters
- IEC 61508 SIL2/3 certified pressure transmitters and switches
- Multivariable transmitters
- Interface level/density transmitters
- Pressure measurement remote seals
- Pressure measurement accessories
- Pneumatic pressure transmitters

ABB's temperature measurement:

- Universal temperature sensors
- High-temperature sensors
- Temperature sensors for sanitary applications
- Mineral isolated temperature sensors
- Thermowells
- Temperature transmitters
- IEC 61508 SIL2/3 certified temperature sensors and transmitters

ABB's portfolio of recorders and controllers:

- Process controllers and indicators
- Videographic recorders
- Paper chart recorders
- Field mountable indicators and controllers

ABB's portfolio of level measurement:

- Magnetic level gauges
- Magnetostrictive and guided wave radar level transmitters
- Laser and scanner level transmitters
- Ultrasonic, capacitance and vibrating fork level transmitters and switches
- Rotating paddle and thermal dispersion level switches
- IEC 61508 SIL2/3 certified level transmitters

ABB's portfolio of device management:

- Fieldbus and wireless solutions
- Scalable asset & device management
- Asset vision software
- Mobility handhelds

Customer support

We provide a comprehensive after sales service via a Worldwide Service Organization.

Contact one of the following offices for details on your nearest Service and Repair Centre.

ABB S.p.A.

Via Statale 113,
22016 Lenno (Co) – Italy
Tel: +39 0344 58111
Fax: +39 0344 56278

ABB Automation Product GmbH

Schillerstrasse 72
D-32425 Minden – Germany
Tel: +49 551 905534
Fax: +49 551 905555

ABB Inc.

125 E. County Line Road
Warminster, PA 18974 – USA
Tel: +1 215 6746000
Fax: +1 215 6747183

ABB Inc.

3450 Harvester Road
Burlington, Ontario L7N 3W5 – Canada
Tel: +1 905 6810565
Fax: +1 905 6812810

ABB Ltd.

32 Industrial Area, NIT,
Faridabad - 121 001, Haryana – India
Tel: +91 129 2448300
Fax: +91 129 2440622

ABB Engineering (Shanghai) Ltd.

No.5, Lane 369, Chuangye Rd., Pudong District,
Shanghai 201319 - P.R. China
Tel: +86 21 6105 6666
Fax +86 21 6105 6677

Client Warranty

Prior to installation, the equipment referred to in this manual must be stored in a clean, dry environment, in accordance with the Company's published specification. Periodic checks must be made on the equipment's condition. In the event of a failure under warranty, the following documentation must be provided as substantiation:

- A listing evidencing process operation and alarm logs at time of failure.
- Copies of all storage, installation, operating and maintenance records relating to the alleged faulty unit.

ABB Ltd.

Measurement & Analytics

Howard Road St. Neots
Cambridgeshire PE19 8EU
UK

Tel: +44 (0)1480 475321

Fax: +44 (0)1480 217948

ABB S.p.A.

Measurement & Analytics

Via Luigi Vaccani 4
22016 Tremezzina (CO)
Italy

Tel: +39 0344 58111

ABB Inc.

Measurement & Analytics

125 E. County Line Road
Warminster PA 18974
USA

Tel: +1 215 674 6000

Fax: +1 215 674 7183

abb.com/pressure



We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

© ABB 2018

All rights reserved

3KXD311000R4201