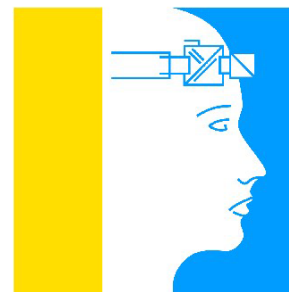


## DIGITAL EPIC D200 DTM®

### USER GUIDE

An EPIC performance in every condition. The Digital EPIC D200 serves a wide range of applications for any environment. A valve position transmitter with available switch options, offering industry leading linearity and hysteresis. The D200 feature accurate position measurement with digital communications via HART(R) protocol in a simple integrated package.



**PACTware™**

supported by  
Buerkert Werke GmbH



## DTM VERSION 1.5.297

**IOM:** TECH-562-EN

**REVISION:** -

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**REVIEWED BY:** William Ferrez

**DATE:** 09/09/2020

**APPROVED BY:** Jason Moorehead

**DATE:** 09/15/2020

# DIGITAL EPIC D200 DTM

## USER GUIDE

### 1 INSTALLATION

Section 1 provides an overview of the software components required to operate the Digital EPIC D200 DTM. A step by step installation procedure is detailed in Section 2 of this document. Before proceeding to Section 2, please ensure you have downloaded and installed PACTware or the FDI Package onto the appropriate device. To download the Digital EPIC DTM visit [www.westlockcontrols.com](http://www.westlockcontrols.com).

#### 1.1 PACTware

PACTware is a free FDT DTM based frame application. It is used to communicate with the field device using the generic or device specific DTM. There are other host manufacturers that provide DTM based container or frame application. the Digital EPIC D200 should work on any FDT 1.2 based frame application such PACTware. Download the software from the PACTware website at <https://pactware.com/service/download>.

After downloading the PACTware, start the installation process by running the setup.exe file. Follow the on-screen instructions to complete the installation.

#### 1.2 FDI Package

For different systems that use FDI technology, follow the guidelines on the FieldComm Group to install the FDI Package <https://fieldcommgroup.org/technologies/fdi/fdi-documents-and-downloads>. To download the FDI Package, please visit [www.westlockcontrols.com](http://www.westlockcontrols.com).

#### 1.3 HART® Communication

HART® communication modem is a required component for the DTM to communicate with the Digital EPIC D200. This is usually provided on the CD-Rom that is included with the HART® Modem or it can be downloaded from the HART® modem manufacturers website. The DTM acts as a driver for the HART® modem and connects the PACTware and the Digital EPIC D200. Once downloaded, install the modem driver on the PC by running the setup.exe file.

### 2 INITIAL SETUP

To communicate with the Digital EPIC D200, a PACTware project needs to be created with different DTM components. This project will include the generic HART® communication DTM or a communication DTM specific to the HART® modem you are using for the setup. The Digital EPIC D200 DTM will also be included. Follow the steps below to install the DTM, Section 2.1 and create a PACTware project, Section 2.2. **Figure 1** illustrates the requirements for the initial setup.

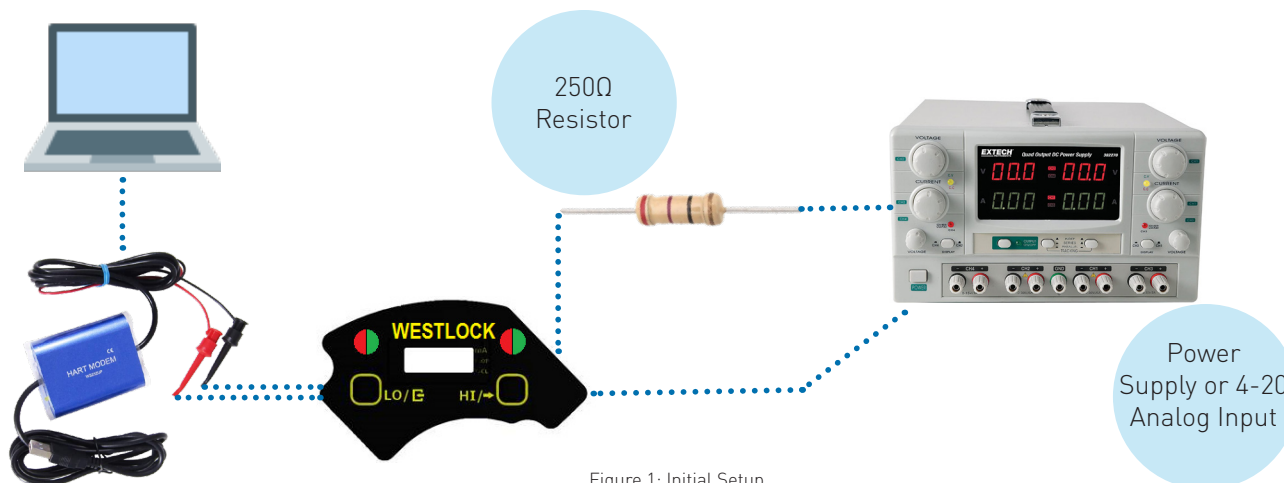


Figure 1: Initial Setup

#### 2.1 DTM Setup

1. Download and install the DTM to your PC. The download link can be found on the Westlock Controls website at [www.westlockcontrols.com](http://www.westlockcontrols.com).
2. Connect the HART® modem to the HART® terminals on the Digital EPIC D200, then plug the modem into the PC where PACTware was installed.
3. Power up the D200 electronics through the power supply or 4-20 mA Analog Input block from the DCS. Reference the latest TECH-546-EN Installation and Operating Manual for wiring and setup of the D200 unit.

2.2 PACTware Setup

Follow the steps detailed below to create a PACTware project.

- 1. Double click on the PACTware icon the desktop to open the DTM. The main screen will be on display as shown in Figure 2.

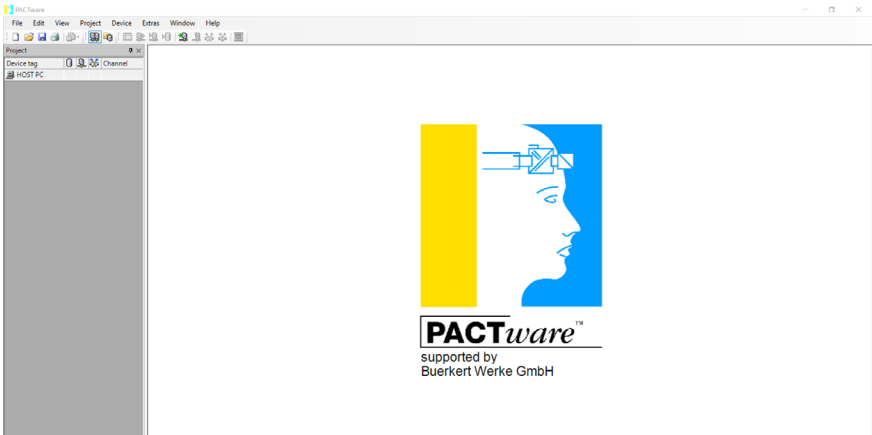


Figure 2: PACTware Home Screen

- 2. Click on Device Catalog icon which is located on the upper right hand toolbar. Alternatively, select View on the top of the menubar and select Device Catalog. Figure 3 illustrates the the Device Catalog screen.

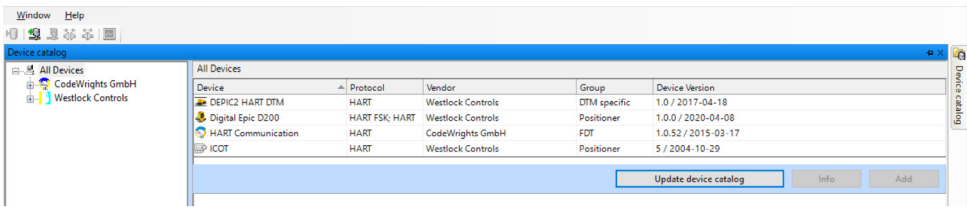


Figure 3: Device Catalog

- 3. In the Device Catalog window, right click on HART® Communication and then click Add. You may also select HART® Communication and clicik Add on the bottom right of the window.
- 4. Within the Project window, right click on the Communication option, COM#, then select the Parameter option as shown in Figure 4 and Figure 5.

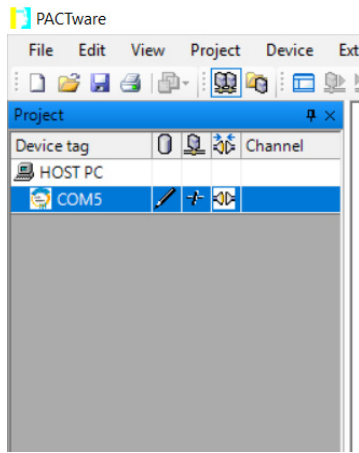


Figure 4: View of COM#

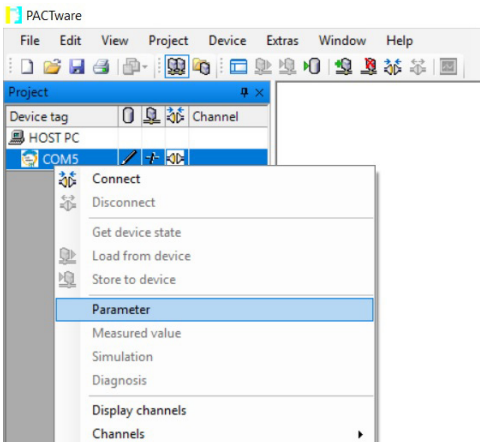


Figure 5: View of Parameter Setting

5. Configure the parameters for the HART® Communication as shown in **Figure 6**, then select OK.

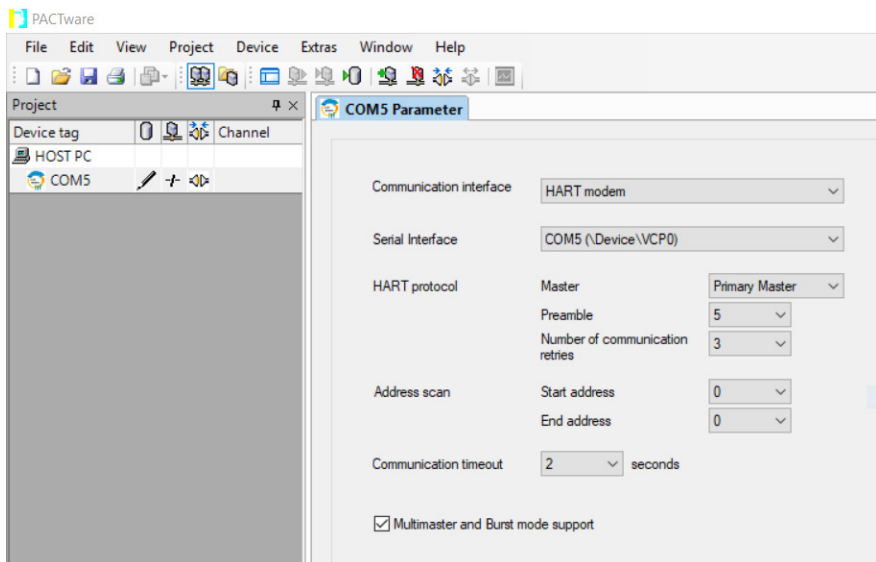


Figure 6: HART® Communication  
Parameter Settings

**NOTE**

Serial Interface: This should be the HART® modem Communication Port (COM#) number. If you are using RS232 HART® modem, the default port is COM1. If you are using the USB HART® modem, to find out the correct COM port number assigned by the PC and use it for the parameter settings follow the steps below.

1. Right click the Windows Start button and click on *Device Manager* as seen in **Figure 7**.
2. Once *Device Manager* is open, select the drop down arrow on *Ports*. You are now able to see what COM Port is assigned to the HART® modem. See **Figure 8**.

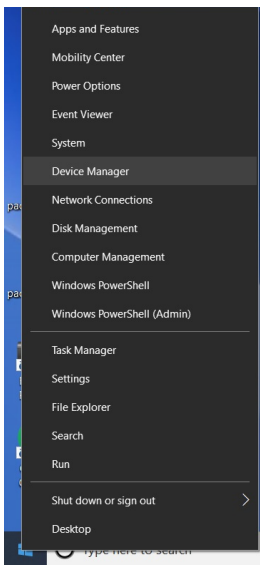


Figure 7: Finding COM Port for HART  
Modem

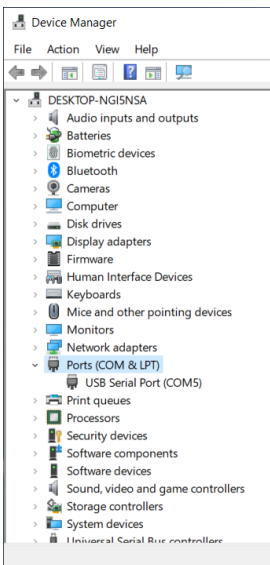


Figure 8: Device Manager - Ports

6. Return to the Project Window. Right click on the HART® Communication *COM#* and click connect. The *COM#* will be highlighted once the connection is made.
7. Open *Device Catalog* again (see step 2) and select Digital EPIC D200, then click *Add*. Alternatively, within the Project Window, right click *COM#* and select *Add Device*, select Digital EPIC D200, then click OK. See **Figure 9** and **Figure 10**.

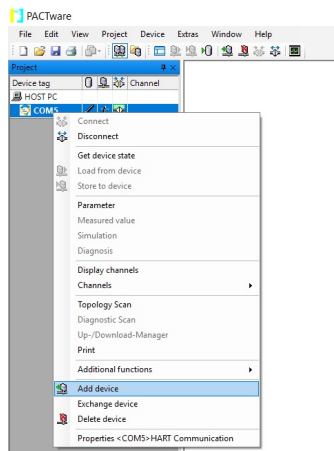


Figure 9: Add Device

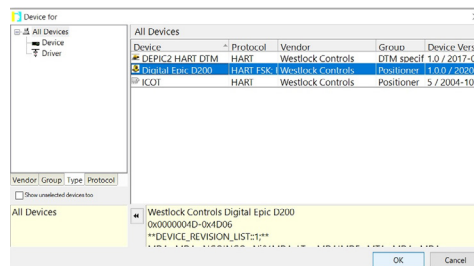


Figure 10: Adding Digital EPIC D200

8. Back on the Project Window, right click Digital EPIC D200 DTM and click *Connect*. Once the connection is made, it will be highlighted. See Figure 11.

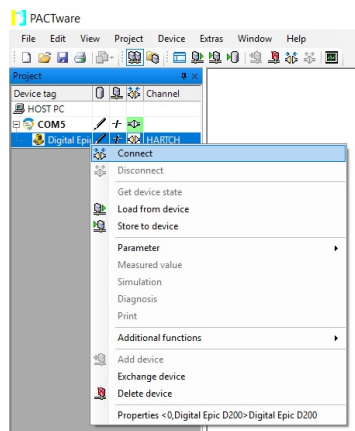


Figure 11: Connect Digital EPIC D200

9. Right click on Digital EPIC D200, then click *Load From Device*. This will load all parameters from the Digital EPIC D200 to the DTM.

### 3 ACCESSING MEASURED VALUE

Once the DTM and PACTware is intalled, you are now able to start calibrating the device and viewing Parameters. Follow the steps detailed blow to being this process.

1. In the Project Window, right click on Digital EPIC D200 as shown in **Figure 12**. Select *Measured Value* to launch the screen.  
Alternatively, you may also select *Device* from the top of the menu bar and then selecting *Measured Value* as shown in **Figure 13**.
2. Once Measure Value screen is launched, you are now able to see Process Variables and Final Position Chart. See Section 3.1 for more details.

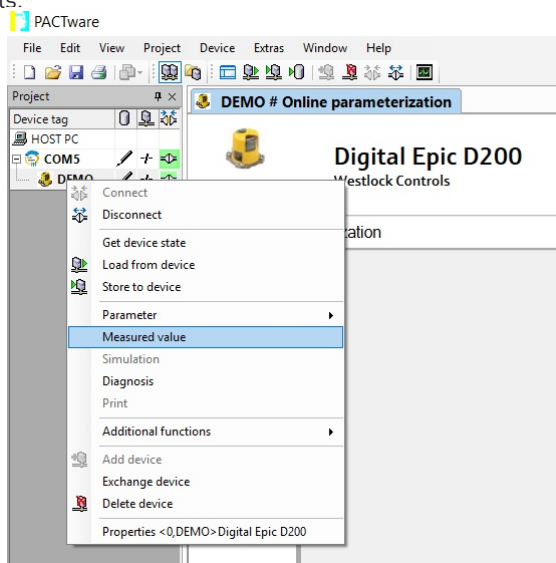


Figure 12: Accessing Measured Value

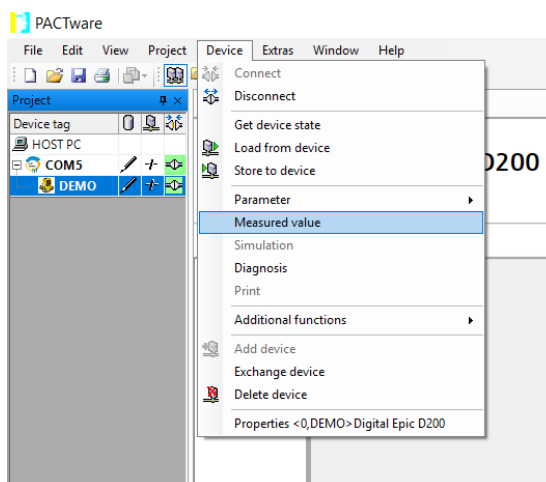


Figure 13: Accessing Measured Value  
From Device Menu

#### 3.1 Measured Value Options

*Measured Value* is divided into two sections as described below.

- *Process Variables*: This tab displays the visual values of Loop Current in mA, Temperature in °C or °F and PV Position in %. See **Figure 14**.
- *Final Position Chart*: This tab displays a visual representation of position 0% to 100%. See **Figure 15**.

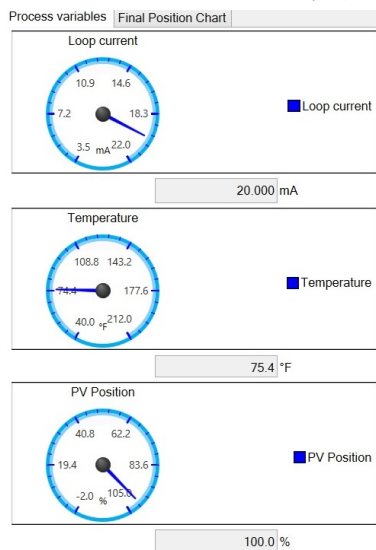


Figure 14: Process Variables

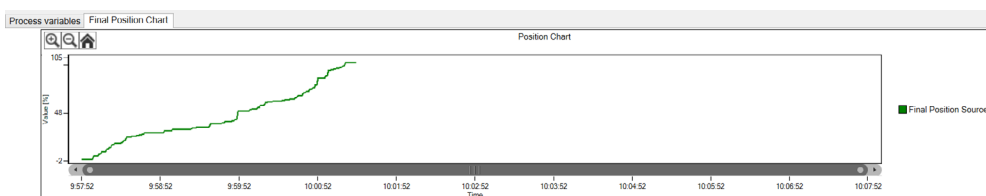


Figure 15: Final Position Chart

## 4 PARAMETER

Section 4 describes the Parameters of the Digital EPIC D200 that can be configured through the DTM. Within the Project Window, right click Digital EPIC D200 and select *Parameter*. Once selected, the options *Parameterization* and *Online Parameterization* are available.

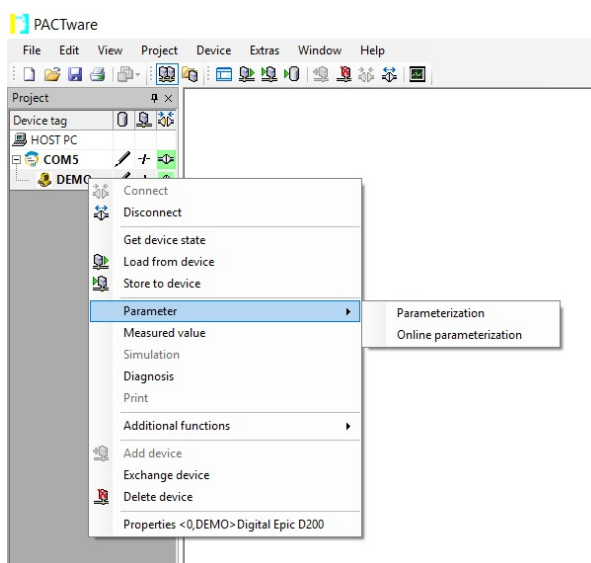


Figure 16: Parameter Options

### 4.1 Parameterization

*Parameterization* shows the offline parameterization of the Digital EPIC D200. It is used to access information when the device is offline. Information can be downloaded when the device is online again. Under this menu, the following five options are available (**Figure 17**):

1. *Tag* – Enter 8-bit values
2. *Long Tag* – Enter values up to 32-bits.
3. *Descriptor* – Change parameter descriptions
4. *Message* – Enter desired message
5. *Date* – Change the default date

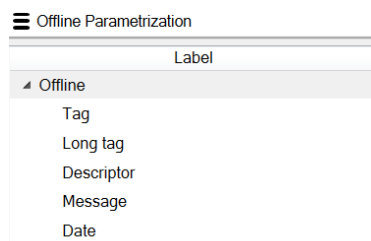


Figure 17: Offline Parameterization

### 4.2 Online Parameterization

This menu shows the *Online Parameterization* of the Digital EPIC D200. Under this menu, the following options are available (**Figure 18**):

- *Diagnostics*
- *Calibration & Setup*

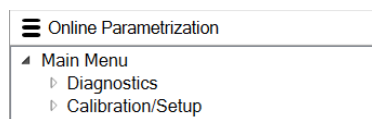


Figure 18: Online Parameterization

#### 4.2.1 Diagnostics

Within the *Diagnostics* menu, the following submenus are available (Figure 19):

- *Device Commissioning Function*
- *Device Specific Status*

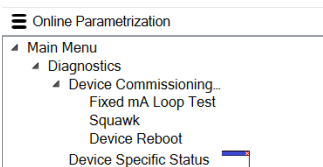


Figure 19: Online Parameterization Submenus

### 4.2.1.1 Device Commissioning Functions

When this menu option is selected, the following options are displayed:

#### 1. Fixed mA Loop Test

This method allows the you to put the device into a fixed current mode rather than representing the actual valve position. This is useful to locate any issues related to the HART® Communication 4-20 mA loop. The device will stay in fixed current mode until *End* is selected within this test. It is recommended to connect to an accurate multimeter during this test. There are four options available for this test (See **Figure 20**):

- 4 mA
- 20 mA
- *Other* - Ability to enter any value between 4 and 20 mA
- *End* - This option will end the Fixed mA Loop Test

Follow the on-screen instructions to complete the test.

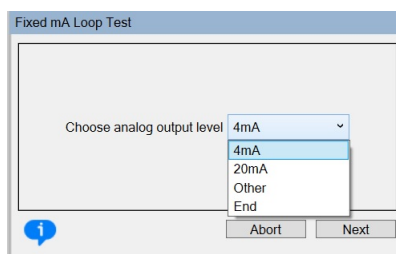


Figure 20: Fixed mA Loop Test

#### 2. Squawk

The Squawk function allows you to visually locate the Digital EPIC D200 to ensure the DTM is communication with the correct device in case of multi-drop mode *or* if the device is located at a different location (i.e. such as an overhead with HART® Communication access point at another location). The following options are available under the *Squawk* function:

- *Change Number of Squawks* - Able to change the number of times the LED blinks
- *Squawk*
- *Exit*

Once Squawk is selected, the DTM will communicate to the Digital EPIC D200 and prompt the visual indicators, the LEDs, to flash on the module. See **Figure 21**. Follow the on-screen instructions to perform Squawk.

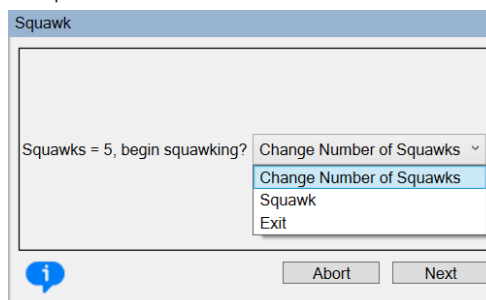


Figure 21: Squawk

#### 3. Device Reboot

With this option, you are allowed to reboot the Digital EPIC D200 from the DTM without disconnecting the power source. This will quickly restart the device and will *NOT* erase any data. Follow the on-screen instructions to perform the reboot.

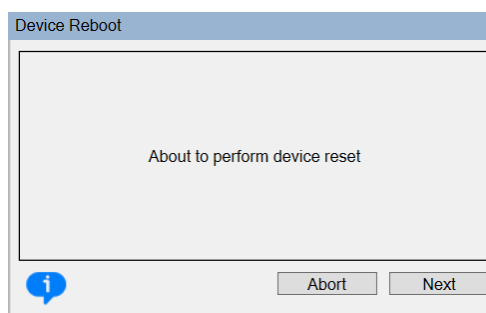


Figure 22: Device Reboot

### 4.2.2 Device Specific Status

Once this menu option is selected, the following options are available:

#### 1. Field Device Status

This menu shows the field device status as denoted by the HART® specifications in **Figure 24**. Please refer to the HART® specifications for the details of each status under this menu. Green denotes the status is active. red denotes the status is inactive.

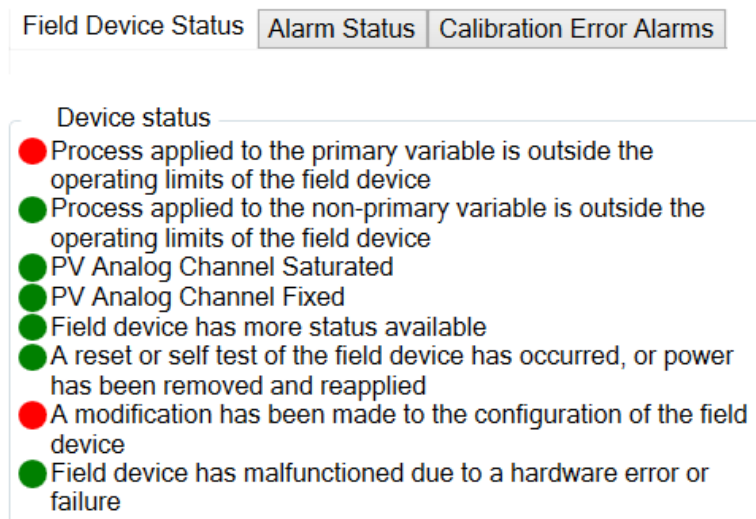


Figure 23: Field Device Status

#### 2. Alarm Status

Under this tab, the status (active or inactive) of Cycle Alarm is shown if enabled. See **Figure 24**. The Cycle Alarm can be enabled or disabled in the Service/Alarm Config menu under the Configuration menu in Section 5.1.

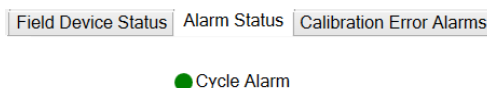


Figure 24: Alarm Status

#### 3. Calibration Error Alarms

Under this menu, the status of the Calibration errors are displayed while performing the operation in the Calibration Menu. See **Figure 25**.

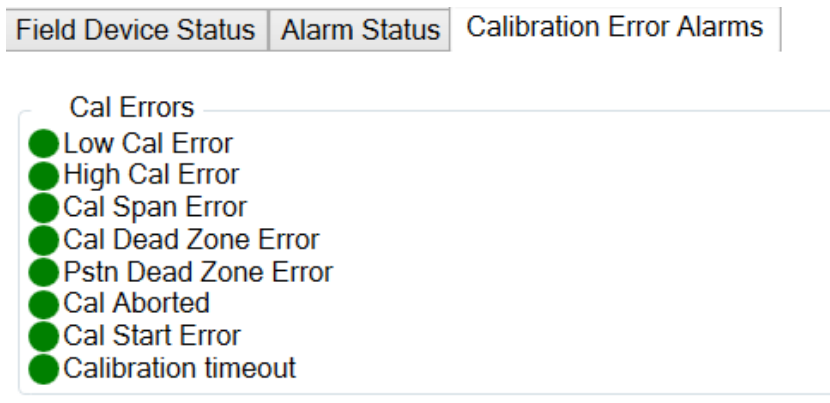


Figure 25: Calibration Error Alarm

### 5 CALIBRATION/SETUP

Within the Calibration/Setup menu, the following submenus are available:

1. Configuration
2. Calibration

#### 5.1 Configuration

##### 1. Basic Configuration

The submenus under *Basic Configuration* are as follows (see **Figure 26**):

Actuator Type:	Rotary
LCD Units:	Position %
Pstn Disp (FLOP):	% Closed
Temp Units:	Fahrenheit
Set Factory Defaults	

Figure 26: Basic Calibration Options

- *Actuator Type*: By default, the Digital EPIC D200 is setup as mounted on a rotary actuator. This is a *read only* option and therefore cannot be changed.
- *LCD Units*: The follow options are available to view on the LCD
  - Position %
  - Output Current mA
- *Pstn (Position) Display (FLOP)*: This menu has the following options:
  - % Open
  - % Close
- *Temp Units*: The temperature can be viewed as:
  - Celcius
  - Fahrenheit
- *Set Factory Defaults*: This menu allows you to perform restore all parameters on the device to their factory defaults settings. You **MUST** re-configure and re-calibrate the device after performing *Factory Defaults*.

##### 2. HART® Configuration

Under *HART® Config*, the following options are available (**Figure 27**):

Multidrop Mode	
Poll addr	0
Loop current mode	Enabled
Manufacturer	Westlock Controls
Model	Digital Epic D200
Tag	DEMO
Long tag	
Descriptor	ROTARY
Date	1/3/2013
Num req preams	5
Num resp preams	5
Final asbly num	0
Message	

Figure 27: HART® Configuration

- *Multidrop Mode*: Under Multipdrop Mode, the following options are displayed:
  - Poll addr: The polling address is used by the DTM to initially communicate with the device and determine the full address. the polling address can be changed from its factory default value of 0 if the device is configured for the *HART® Multidrop Mode*. Please note that in this mode, the *Loop Current Mode* should be disabled.
  - Loop Current Mode: Can be enabled or disabled with the following affects:
    - Enable: The loop current **WILL** reflect the current position of the valve.
    - Disable: The loop current will be fixed at 4 mA and **WILL NOT** reflect the current position of the valve.
- *Manufacturer*: Displays the name of the manufacturer of this device, Westlock Controls. This menu is *read only* and therefore cannot be changed.
- *Model*: Displays teh model fo the device, Digital EPIC D200. This is *read only* and therefore cannot be changed.
- *Tag*: Able to enter 8-bit value.
- *Long Tag*: Able to enter values up to 32-bit.
- *Descriptor*: Able to change the description.
- *Date*: Able to change the date.
- *Num req preams*: This option is *read only* and therefore cannot be changed.
- *Num resp preams*: Able to change response preams.
- *Final Assembly num*: Either you or the Factory can change the final assembly number.
- *Message*: Custom message can be entered.

**NOTE:** Reference HART Protocol Specification documentation for further explaintations of these menu options.

### 3. Service/Alarm Configuration

Under this menu, the following options are available (**Figure 28**):

- *Maint Service*
  - *Last Service Date*: Able to change last service date.
  - *Last Service Time*: Able to change last service time.
- *Burnout Config (NE43)*
  - *Burnout Current*: Two options are available
    - ◊ *Downscale*: When selected, "-1.25" is displayed on LCD.
    - ◊ *Upscale*: When selected, "103" is displayed on LCD.
- *Cycle Alarm*: The Cycle Alarm has three parameter options as shown below:
  - *User Cycle Count*: Provides current count of valve cycles
  - *Cycle Limit*: Indicates the limit to generate a cycle alarm (if enabled) and when the Cycle Count reaches this value.
  - *Cycle Alarm Control*: There are two options listed below:
    - ◊ *Enable*: If enabled, an alarm will be generated when the Cycle Count reaches the Cycle Limit
    - ◊ *Disable*: If disabled, no alarm will be generated.

**NOTE:** Burnout is defined as a signal to notify invalid sensor reading from either low or high extremes.

The screenshot shows a configuration interface with the following sections and fields:

- Maint Service**
  - Last Service Date: 4/20/2019
  - Last Service Time: 00:00:00
- Burnout Config (NE43)**
  - Burnout Current: Downscale
- Cycle Alarm**
  - User Cycle Count: 0
  - Cycle Limit: 10
  - Cycle Alarm Control: Disable

Figure 28: Service & Alarm Configuration

4. Set Factory Defaults

This menu allows you to perform restore all parameters on the device to their factory defaults settings. You **MUST** re-configure and re-calibrate the device after performing *Factory Defaults*. See **Figure 29**.

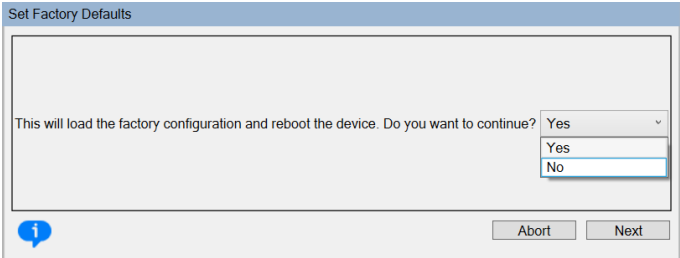


Figure 29: Set Factory Defaults

5. Open/Close Position Cutoff

There are 3 options available (See **Figure 30**):

- Open Pstn Cutoff
- Close Pstn Cutoff
- Pstn Deadband

Open Pstn Cutoff	<input type="text" value="3.0"/>	%
Close Pstn Cutoff	<input type="text" value="3.0"/>	%
Pstn Deadband:	<input type="text" value="0.5"/>	%

Figure 30: Open/Close Position Cutoff

5.2 Calibration

The following options are available under the Calibration menu:

1. Low Position Calibration

This calibration method allows you to perform calibration on the lower end of the position (0%). Follow the onscreen instruction (**Figure 31**).

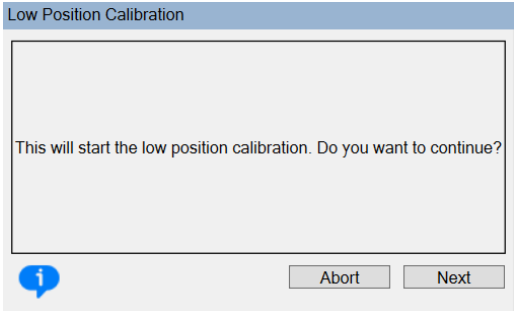


Figure 31: Low Position Calibration

2. High Position Calibration

This calibration method allows you to perform calibration on the upper end of the position (100%). Follow the onscreen instruction (**Figure 32**).

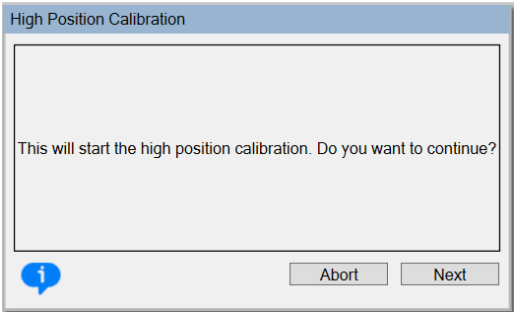


Figure 32: High Position Calibration

### 3. Custom mA Output Calibration

The Digital EPIC D200 provides valve position feedback through the 4-20 mA analog output current. This mA output current has factory default value of 4 mA for the valve close (0%) position and 20 mA for the valve open (100%) position. It may be beneficial to fine tune these values or perform a custom mA calibration where the desired mA output values different than the factory default values. This calibration allows the you to adjust these values. You are required to connect the accurate mA current meter in the loop during this calibration. The following options are available (**Figure 33**):

- 4mA
- 20mA
- Other
- End

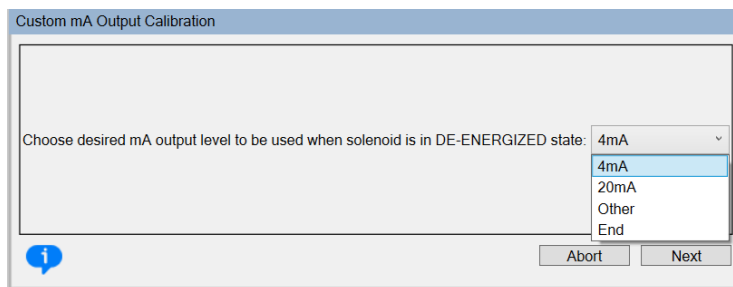


Figure 33: Custom mA Output Calibration

### 4. mA Reverse

This parameter shows the mA output calibration as detected by the Digital EPIC D200 during the mA output calibration (**Figure 34**). The following options are available:

- *Direct (4-20mA)*: This indicates that that the mA output current for the valve close position is less than the mA output current for the valve open position
- *Reverse(20-4mA)*: This indicates the mA output current for the valve close position is more than the mA output current for the valve open position.

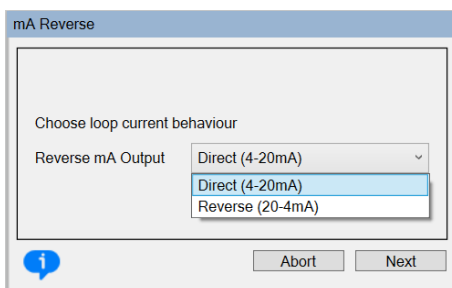


Figure 34: mA Reverse

6 PROCESS VARIABLES

This section displays the visual values of Loop Current in mA, Temperature in °C or °F and PV Position in %. Figure 35 illustrates these values.

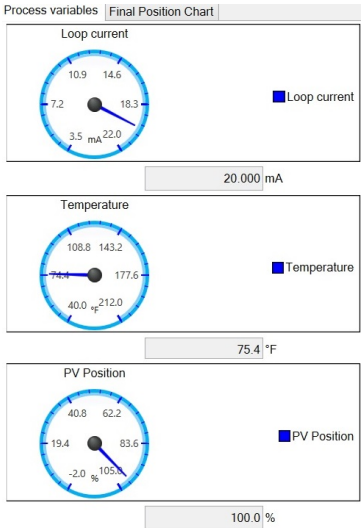


Figure 35: Process Variables

7 FINAL POSITION CHART

This section displays a graphical representation of positon 0% to position 100%

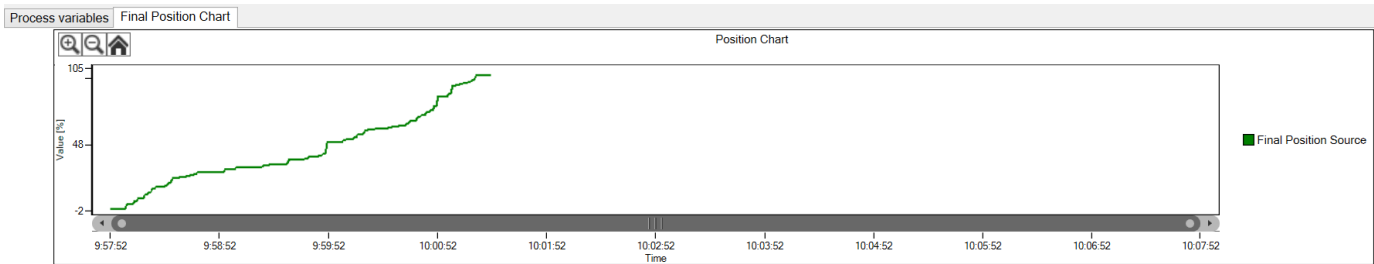


Figure 36: Final Position Chart

8 ABBREVIATIONS

- DTM - Device Type Manager
- FDT - Field Device Type
- I/O - Input/Output
- LED - Light Emitting Diode
- LCD - Liquid Crystal Display
- UI - User Interface



**Translations**

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