ValveLink™ Mobile Software

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ValveLink Mobile software lets you configure, calibrate and troubleshoot FIELDVUE™ DVC6200, DVC6200f, DVC2000, DVC6000 and DVC6000f digital valve controllers using Emerson's AMS Trex™ Device Communicator. See the table below for hardware requirements. Diagnostic and configuration data collected using ValveLink Mobile software can be transferred to ValveLink Solo, ValveLink SNAP-ON™, ValveLink DTM or ValveLink PLUG-IN for PRM® applications to be analyzed and archived.

Hardware Requirements

AMS Trex Device Communicator	The HART® or FOUNDATION™ Fieldbus communicator needs to be licensed for ValveLink Mobile software and licensed for HART of Fieldbus communications. Upgrade Studio is required to be installed to use the Trex communicator file transfer utility to create export files, which can be imported into ValveLink software.

Installation

AMS Trex Device Communicator

ValveLink Mobile is automatically installed and unlocked when the device is registered and ValveLink Mobile is licensed.

Figure 1. Trex Communicator

Connecting to Digital Valve Controller

The Trex communicator may be connected to the loop wiring or directly to the digital valve controller. To connect directly to the digital valve controller, attach the clip-on wires to the Loop + and - terminals located in the digital valve controller terminal box.

Launching ValveLink Mobile Software

Select the ValveLink Mobile icon from the main menu to launch the software. Select HART or FOUNDATION Fieldbus communications to start a session.

Establishing a Connection

With ValveLink Mobile software, you can navigate through the menu structure without being connected to a device. This can be used to explore the menu structure, review diagnostic data or transfer diagnostic data files to a PC while offline.

Select the Fieldbus or HART **Connect** icon from the home screen to communicate with a field instrument.

Figure 2.   Home Screen
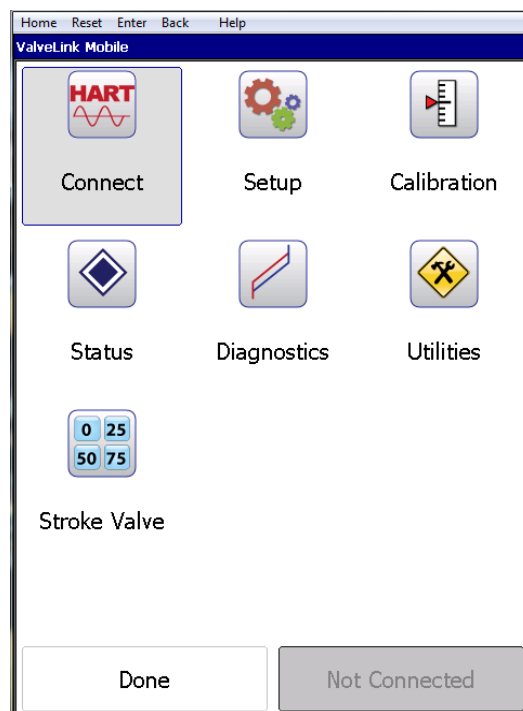
Navigation Tips

List controls are scrolled with grab-and-drag input as shown Figure 3.

Once you find a variable that you want to change, click the selection button (>).

NOTE

The selection button may not be visible if you are not connected to a device.

Parameters that cannot be changed will have a ⊘ symbol next to the selection button. This will usually happen when the instrument mode is In Service for HART devices or AUTO for Fieldbus devices.

The command bar located at the bottom of the screen has two soft keys. The left Done soft key is used to go back one screen. The right soft key displays instrument mode (In Service, Out of Service or Not Connected for HART devices; AUTO, MAN, OOS or Not Connected for Fieldbus devices). Select this key to change the instrument mode.

Most tasks will display a green highlighted bar to indicate that the task has completed successfully. For offline diagnostic tests, wait for the green <mark style="background-color: #00ff00">Completed</mark> highlight to appear on the graph before moving on to the next task.


Figure 3.   List Control Navigation

Graph Controls

Graphs are displayed in real time or statically after a test has been completed. Graph areas can be zoomed in by dragging a selection rectangle around the desired region of interest. Axes can be translated by grabbing the scale and sliding it to the desired position. Zooming and translation are shown in Figure 4. To return back to the default view, tap the graph.

Figure 4.   Graph Zoom and Translate Controls
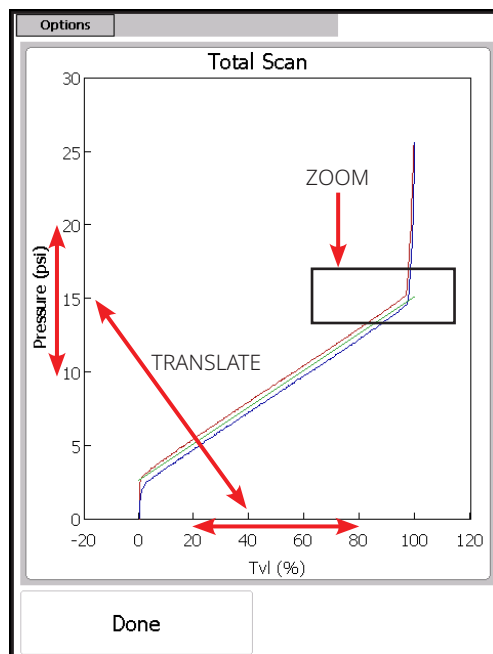
When graphs are being drawn in real time, you can zoom in on the data or translate the axes. When this occurs, updates to the display will be paused but data will continue to be collected in the background. Tap the graph to restart the real time display.

Crosshairs, shown in Figure 5, can be displayed by selecting the directional pad (up, down, left, right arrows) "Enter" or Checkmark key until the crosshairs appear. Crosshairs can be moved by grabbing and dragging any point on the screen. X-Y coordinates are displayed in the lower right corner. To clear the crosshairs, press the directional pad "Enter" or Checkmark key again.

PD graphs (see Figure 6) can display up to four variables on two graphs. The second graph can be viewed by grabbing a graph anywhere except the y-axis scale and sliding the display up or down. Alternatively, graphs can be moved by pressing the up or down directional pad arrow keys.

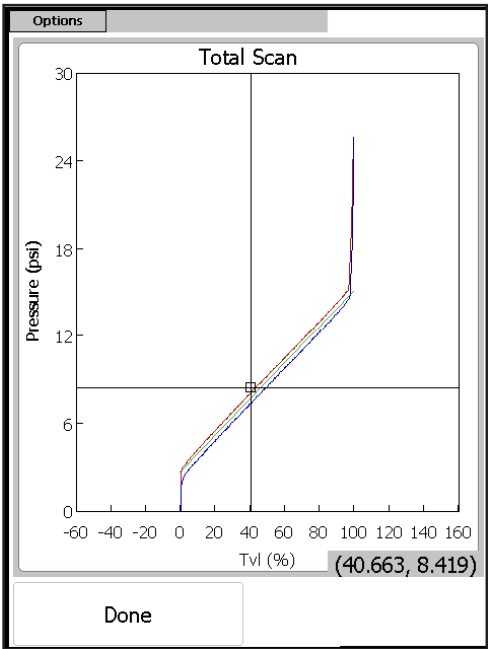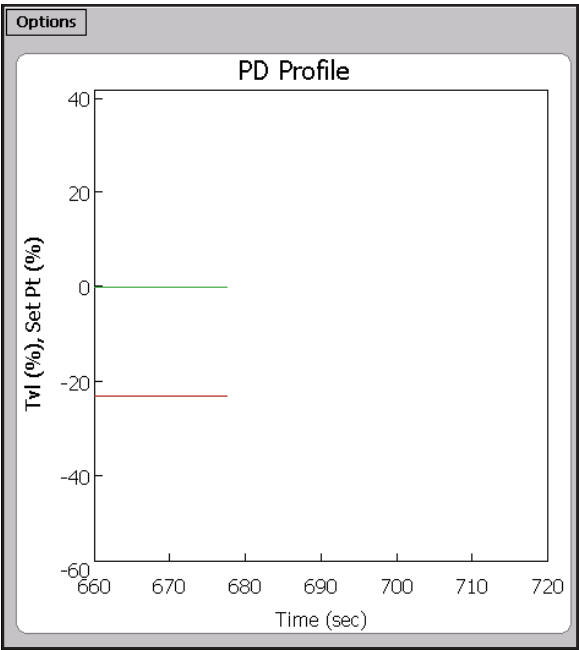**Figure 5.   Graph Crosshairs and Coordinates**

Figure 6.   PD Real Time Graphs

ValveLink Mobile File Transfer on AMS Trex Device Communicator

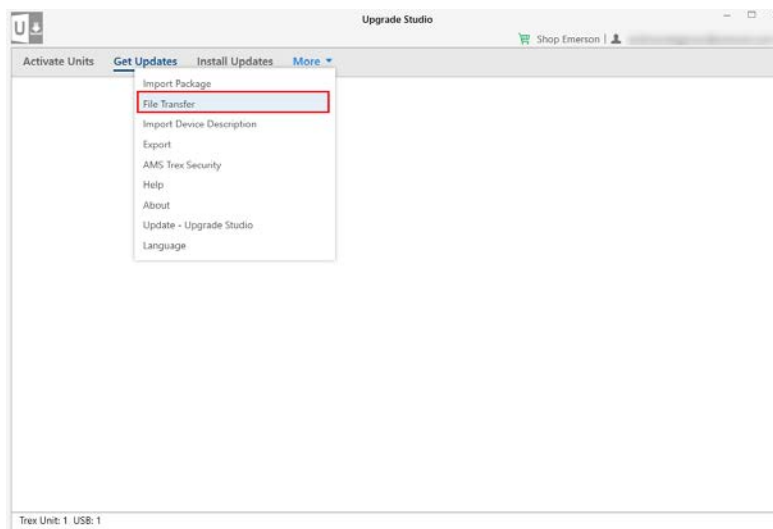Connect your Trex communicator to the PC you wish to export the files to with the USB connection.

NOTE
Ensure ValveLink Mobile software is closed and will not be accessed for the entirety of this transfer.
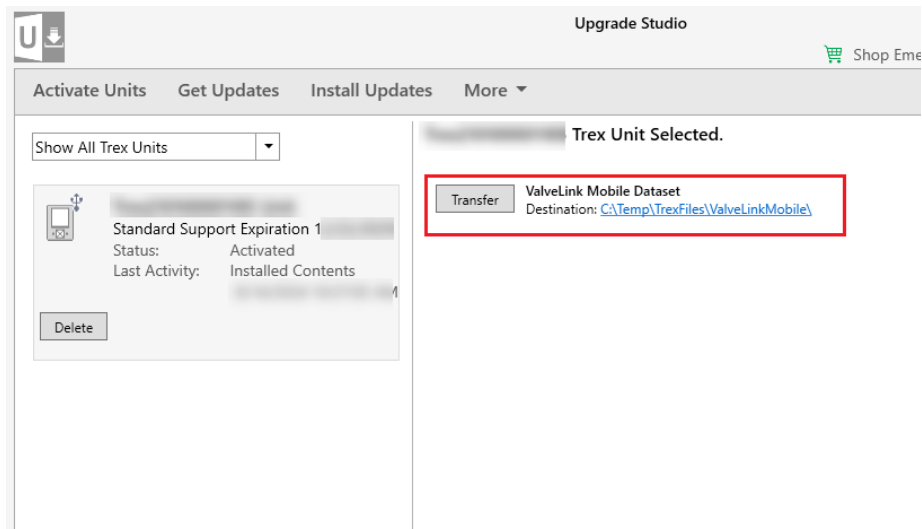
Open Upgrade Studio. Click on More > File Transfer.
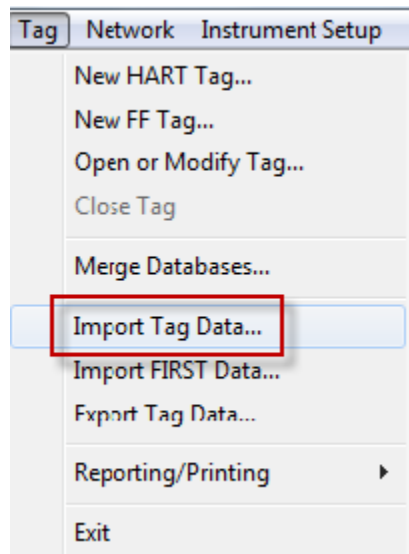
Figure 7.   File Transfer

Click the Transfer button next to ValveLink Mobile Dataset.

The .exp files can then be individually imported in to ValveLink software.

Figure 8. Transfer ValveLink Mobile Dataset
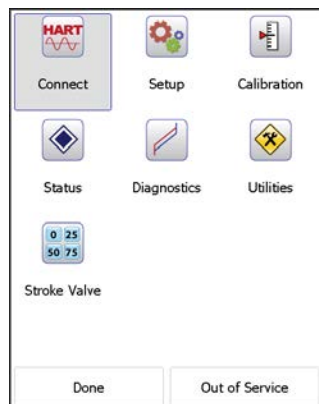

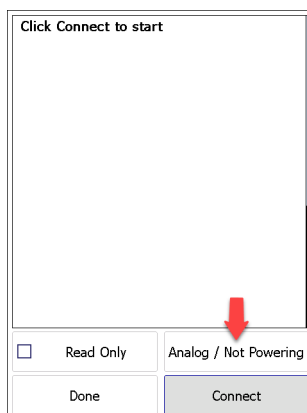**Figure 9. Import Tag Data**

NOTE

This process does not delete the files from the Trex communicator. Files must be deleted from the ValveLink Mobile application, at Utilities > Data Set Explorer.
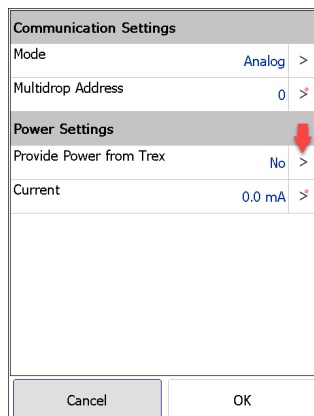
AMS Trex Powering the Loop
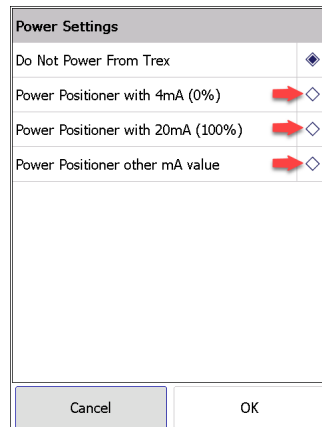
1. From the main menu, click on Connect.

2. During the connect stage, select the top right button (of the bottom four) to power the device.

3. In the Communication Settings page, select the > button for the Provide Power from Trex option.

4. On the Power Settings page, select either Power Positioner with 4 mA, 20 mA or other mA value for HART devices (shown below) or Yes for Fieldbus devices.
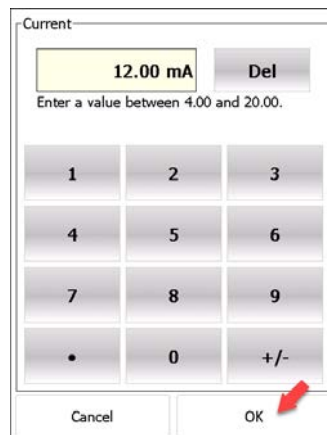

5. If you select Power Positioner other mA value, you will be asked to enter an mA value beteween 4.00 and 20.00 with the keypad. Once you have entered your value, click OK to return to the previous page.
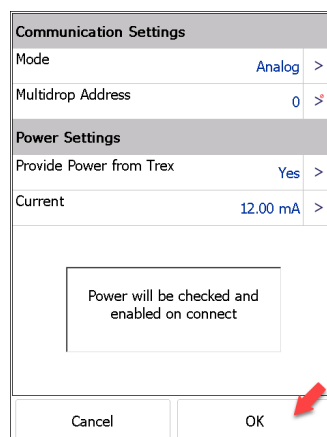
6. Click OK to return to the initial Connect page.

7. Click Connect to connect and begin powering your device.
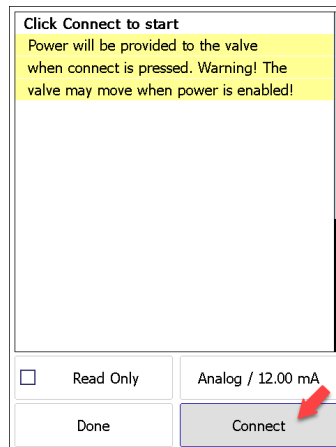
8. Information will load on the screen. Once the process completes, you should see a green bar indicating you have successfully connected to the device. Click Done to return to the main menu.
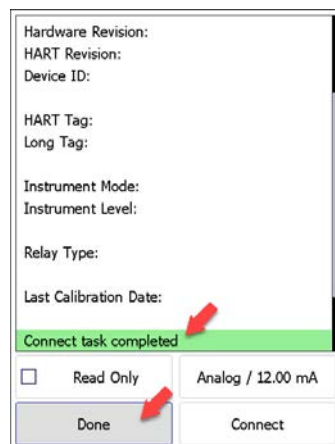
9. If connected to a HART device, your main menu will now have a Power icon.
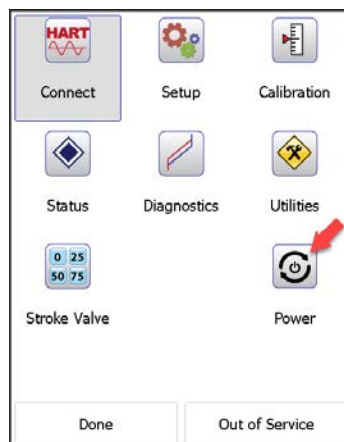
10. Click on the Power icon to adjust the current provided to your device.

NOTE

The Device Communicator Plus Communication Module is required to power the loop through ValveLink Mobile.

Menu Structure

CONNECT
Connect is the starting place for establishing communications with a FIELDVUE instrument. Select Connect to access valve tag, last calibration date and other relevant connection information. For Fieldbus devices, the instrument must be at a permanent address to connect and change parameters.

SETUP

Setup Wizard

Use the Setup Wizard to guide you through initial instrument setup and calibration. All fields must be filled in before you can select Apply to download settings to the instrument. The instrument mode must be Out of Service (HART) or MAN (Fieldbus) before the Setup Wizard can download parameters to the instrument.

Initial Setup

Fundamental instrument parameters, such as Zero Power Condition. Once these have been established, they generally do not need to be changed.

Tuning

Parameters for tuning travel and pressure servo controllers.

Response

Parameters for configuring rate limits, input filter time constant, and input characteristic.
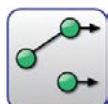
Travel / Pressure Control

Parameters for configuring cutoffs, travel limits, and pressure fallback.

Alerts

Parameters for enabling alerts and setting alert thresholds. Alert states can be viewed using Status.

SIS (HART)

Parameters for configuring and enabling SIS Tier (Safety Instrumented Systems) alerts, values, and diagnostics (Partial Stroke Test).

FST / PST (Fieldbus)

Parameters for configuring and enabling PST Tier (Partial Stroke Test) alerts, values, and diagnostics (Partial Stroke Test)

Detailed Setup

Engineering Units

Use Engineering Units to set instrument units. The display of operational parameters in ValveLink Mobile will be consistent with units configured in the instrument.

Write Protection

Used to enable or disable Write Protection in the instrument. When enabled, Write Protection prevents configuration and calibration changes to the instrument.

Save Detailed Setup

Save Detailed Setup is used to save a record of all device parameters. Saved data can be viewed in Data Set Explorer.

Spec Sheet

Reference list detailing valve body, actuator, and trim construction. Used to provide context for diagnostics.

CALIBRATION

Auto Travel Cal

Auto Travel provides guided procedures for calibrating travel control and pressure fallback.

Manual Travel Cal

Manual Travel provides guided procedures for manually calibrating travel feedback. Parameters for pressure fallback can be manually set in Detailed Setup.

Partial Stroke Cal

Partial Stroke Calibration provides a routine to set the Partial Stroke Test parameters.

Travel Sensor Adjust

This routine allows for adjusting the magnetic array to ensure it is in the appropriate position for a full travel range reading.

SOV Calibration

Solenoid Valve Test calibration initiates a routine to configure SOV Test parameters.

STATUS

Monitor Tab	Displays operating parameters, such as input current, travel and supply pressure.
Alerts Tab	Summarizes instrument alert states:

 Alert ON   Alert not enabled

 Alert OFF   Alert not read

Device Info Tab	Shows tag, firmware revision, device ID, etc.
Save Data Tab	Save status monitor information. Results can be viewed in Data Set Explorer or transferred to desktop computer using Wireless File Transfer.

DIAGNOSTICS

Total Scan

Pressure versus travel, travel versus time, and pressure versus time graphs are available using Total Scan. This is an offline test that must be run with the instrument mode Out of Service (HART) or MAN (fieldbus). Total Scan tests are used to estimate friction, bench set, and seat load.

Step Response

Stroking Time

Response to target set point values of 0%, 100%, and 0%. Used to estimate the time required to fully open and fully close a valve.

25% Step Study

Dynamic response to target set point values of 0%, 25%, 50%, 75%, 100%, 75%, 50%, 25%, and 0%. Used to check linearity.

Large Step Study

10%, 20%, ..., 80% steps from a baseline of 10%. Used to assess stability of valves with complex accessory configurations.

Performance Step Test

Bidirectional steps with amplitudes of 0.25%, 0.5%, 1%, 2%, 5%, and 10%. Used to estimate valve dead band and dynamic response.

PD One Button

Preconfigured, on-line diagnostic tests for identifying faults. Must be run with the instrument mode set In Service.

PD Traces

Real time traces of any device variable. Must be run with the instrument mode In Service for HART devices. PD traces can be run in MAN or AUTO for fieldbus devices. PD Traces are especially useful for tracking down limit cycles or other atypical behavior.

Partial Stroke

Run the Partial Stroke Test and analyze the data during and after the test.

LCP Utilities

Tools to view and test the Local Control Panel.

Upload Diagnostics (Fieldbus)

Read diagnostics stored on the device and upload to ValveLink Mobile.

UTILITIES

Data Set Explorer

Select Data Set Explorer to view all diagnostic data by tag.

Fieldbus Tools

Set Device Address

Used to define a permanent or temporary address for the instrument. Device parameters can only be changed when the device is at a permanent address. Use a temporary address to initialize an address on a host system.

Set Device Tag

Sets device tag.

Set Output Block

Used to define an analog or discrete set point source.

Restart

Reboots the microprocessor. This function does not change device parameters.

Device List

Scans and displays all device tags and addresses on a segment. The device list can be displayed without being connected to a specific instrument.

Block Modes

Displays resource, transducer, AO and DO block modes.

HART Tools

Toggle Burst Mode

Select Toggle Burst Mode to temporarily disable burst communications. This will improve speed and reduce communication errors.

HART Revision

If supported, HART Revision can be used to set HART 5 or HART 7 communications protocol in the instrument.

Instrument Family

For DVC6200 instruments, select DVC6000 for devices with a potentiometer feedback sensor or DVC6200 for devices with a magnetic array feedback sensor.

Instrument Level StepUp

Instrument Level StepUp is used to change the diagnostic tier in the instrument with a device specific 15-digit code.

About

About displays standard software identification information.

STROKE VALVE

Stroke Valve is a routine for moving a valve to 0%, 25%, 50%, 75% and 100% lifts or by jogging the valve up or down in 2% increments from any starting point.

TREX POWERING THE LOOP (HART)

If you are connected via the AMS Trex and providing power to a HART device, you can adjust the current and monitor voltage

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