# Masoneilan* SVI* FF

Advanced Performance Digital Positioner
Bench Quick Start (Rev D)

Instruction Manual

## About this Guide

This instruction manual applies to the following instruments and approved software:

- SVI FF
    - with firmware version 1.0.0.x or higher
    - with ValVue* version 3.x
    - SVI FF DTM version 1.00.X or 1.1.0.0 or 1.2.0.x

In no case does this manual guarantee the merchantability of the positioner or the software or its adaptability to a specific client needs.

Please report any errors or questions about the information in this manual to your local supplier or visit www.geoilandgas.com/valves.

## DISCLAIMER

THESE INSTRUCTIONS PROVIDE THE CUSTOMER/OPERATOR WITH IMPORTANT PROJECT-SPECIFIC REFERENCE INFORMATION IN ADDITION TO THE CUSTOMER/OPERATOR'S NORMAL OPERATION AND MAINTENANCE PROCEDURES. SINCE OPERATION AND MAINTENANCE PHILOSOPHIES VARY, GE (GENERAL ELECTRIC COMPANY AND ITS SUBSIDIARIES AND AFFILIATES) DOES NOT ATTEMPT TO DICTATE SPECIFIC PROCEDURES, BUT TO PROVIDE BASIC LIMITATIONS AND REQUIREMENTS CREATED BY THE TYPE OF EQUIPMENT PROVIDED.

THESE INSTRUCTIONS ASSUME THAT OPERATORS ALREADY HAVE A GENERAL UNDERSTANDING OF THE REQUIREMENTS FOR SAFE OPERATION OF MECHANICAL AND ELECTRICAL EQUIPMENT IN POTENTIALLY HAZARDOUS ENVIRONMENTS. THEREFORE, THESE INSTRUCTIONS SHOULD BE INTERPRETED AND APPLIED IN CONJUNCTION WITH THE SAFETY RULES AND REGULATIONS APPLICABLE AT THE SITE AND THE PARTICULAR REQUIREMENTS FOR OPERATION OF OTHER EQUIPMENT AT THE SITE.

THESE INSTRUCTIONS DO NOT PURPORT TO COVER ALL DETAILS OR VARIATIONS IN EQUIPMENT NOR TO PROVIDE FOR EVERY POSSIBLE CONTINGENCY TO BE MET IN CONNECTION WITH INSTALLATION, OPERATION OR MAINTENANCE. SHOULD FURTHER INFORMATION BE DESIRED OR SHOULD PARTICULAR PROBLEMS ARISE WHICH ARE NOT COVERED SUFFICIENTLY FOR THE CUSTOMER/OPERATOR'S PURPOSES THE MATTER SHOULD BE REFERRED TO GE.

THE RIGHTS, OBLIGATIONS AND LIABILITIES OF GE AND THE CUSTOMER/OPERATOR ARE STRICTLY LIMITED TO THOSE EXPRESSLY PROVIDED IN THE CONTRACT RELATING TO THE SUPPLY OF THE EQUIPMENT. NO ADDITIONAL REPRESENTATIONS OR WARRANTIES BY GE REGARDING THE EQUIPMENT OR ITS USE ARE GIVEN OR IMPLIED BY THE ISSUE OF THESE INSTRUCTIONS.

THESE INSTRUCTIONS ARE FURNISHED TO THE CUSTOMER/OPERATOR SOLELY TO ASSIST IN THE INSTALLATION, TESTING, OPERATION, AND/OR MAINTENANCE OF THE EQUIPMENT DESCRIBED. THIS DOCUMENT SHALL NOT BE REPRODUCED IN WHOLE OR IN PART TO ANY THIRD PARTY WITHOUT THE WRITTEN APPROVAL OF GE.

## Copyright

# Bench Quick Start

The goal of this procedure is to perform a configuration of the SV FF up to running Find Stops and Autotune on a bench. Additionally, this document also provides guidance on when to run signatures and produce associated reports. This procedure uses GE's ValVue3 software and the SVI* FF DTM.

**WARNING**

*Changing the Application to Normal mode may switch the TB to MAN or AUTO mode and move the valve. It may be dangerous if someone is still working with the valve.*

**NOTE**

*Do not use this procedure when connecting the SVI FF to a DCS host.*

This procedure consists of the following major steps:

# 1. Physical Setup

*You can use existing NI hardware, but Communication Manager must be Version 4.1.1.49152 or higher.*

1. Buy the National Instruments® (NI) hardware/software. For suggested components as of May 2014, see "Appendix A: Suggested NI Hardware" on page 15.

2. Install the NI software (NI-FBus Communication Manager minimum) that comes with the NI hardware and restart the laptop/PC.

3. Prepare the NI hardware by:

   a. Install two leads in any spare terminal on hub. Use these leads for connecting to the SVI FF.

   b. Plug the nine-pin, three lead cable into the USB-8486. Connect the leads to the power hub, any terminal as follows: red lead to **+**; green to S; black lead to **-.**

   c. Plugging the USB plug into USB-8486 into the laptop/PC.



**Figure 1    Bench Setup Equipment**

4. Mount the SVI FF on the actuator per instructions in the SVI FF Quick Start Guide.

5. Pipe the SVI FF to the actuator. Ensure:

   □ The airset provides the SVI FF with at least 5 psig more supply pressure than required by the actuator.

   □ Any other pneumatic accessories are correctly piped without restricting the SVI FF output(s) to the actuator.

6. Plugging in the hub power supply and ensure the hub LED is green.

# 2. Software Install and Configuration

1. Start the NI the FBus *Communication Manager.*

**NOTE**

!

*Masoneilan recommends using Version 4.1.1.49152 of NI FBus Communication Manager or higher with ValVue3. If you have an older version, upgrade via the NI website.*

*If NI FBus does not start, various tools exist including NI Interface Configuration Utility and NI Dialog utility, which are useful in analyzing communications issues. ValVue3 will not work if there is no FF communication via NI hardware and software. The following dialogs appear:*



**Figure 2    NI Communications Failure**

*Refer to GEA31031 SVI FF Digital Positioner Instruction Manual, Troubleshooting appendix for basic NI hardware and software troubleshooting instructions. See NI tools manuals for additional help.*

2. Download the SVI FF DTM and ValVue3 and install. See "Appendix B: Download Instructions" on page 16 for download site.

**NOTE**

!

*You must have Windows® administrator rights. Install the software as an administrator.*

3. Sign on to ValVue3 with default values (first time only):

- ☐ User name *admin*.

- ☐ Password *ValVue3*.

**NOTE**

*For security purposes, change your password during the first use.*

*The ValVue and SVI FF DTM license trial period works as follows:*
*1. Once you download and install the ValVue software, you are granted a 30 day trial period. During the 30 days, you have access to all the advanced features of ValVue and the SVI FF DTM.*
*2. Once the first 30 days expires, you lose the advanced features of both ValVue and the SVI FF DTM. You then have an additional 30 day period with just standard features, after which you must register to continue using the product.*
*We strongly encourage you to register your license with us as soon as possible. Contact GE at software.reg@ge.com.*

*The evaluation periods for both are independent of each other and commence with first use.*

**NOTE**

*If you have updated ValVue, a dialog appears when you open ValVue3:*



*Click:*

- ☐ **Yes** *and the library is updated.*
- ☐ **No** *and you need to manually updated from the DTM Library Management dialog to access any new functionality.*

*ValVue version 3.30 or later. For earlier versions continue with manual DTM Library update.*

4. Click **Settings > DTM Library** and Figure 3 appears.



**Figure 3    DTM Library Management**

5. Click **Update** and once the *DTM Updates* list refreshes, select the **GE NI-FBUS-FF DTM** and the **SVI FF** and click **Add Sel**.

6. Click **OK** to close *DTM Library Management* dialog.

7. Click **Settings > Field Networks**, click **Add** and Figure 4 appears. Select the **GE NI-FBUS-H1 Comm.** DTM and click **OK**.



**Figure 4    Add Field Network**

8. Click **OK** again to add the *FF H1 Interface* to *Network View* (Figure 5).



**Figure 5    Network View**

9. Right-click on the **FF H1 Interface** and click **Add New Device** and Figure 6 appears.



**Figure 6    Add New Device**

10. Connect the SVI FF to the power hub leads. The connection is not polarity sensitive.

11. Highlight **SVI FF** and click **OK**.

12. Right-click **FF H1 Interface,** click **Additional Functions > LiveList**. *LiveList* appears (Figure 7).



**Figure 7    LiveList**

13. Locate *Actual Devices*, which shows the address for the SVI FF connected to the H1 network. In this example the SVI FF has *22* as *Actual Address* (inside red box). The SVI FF DTM needs to connect to *Address 22*. *Live List* section *Configured Devices* shows the address used by the SVI FF DTM. See blue box above: SVI FF DTM has *Address 17*.

**NOTE**

⚠

*Your actual addresses and hardware names may be different than this example. Use your address, not the example address.*

14. Locate the *Address* field (blue box), click in it, change the address to match the *LiveList Address* shown in Figure 7 marked by the red box and click **Change Address** (set this to match the physical device address, presented in *Actual Devices*).

15. Click **Apply** and then **Close**.

16. Right-click on the SVI FF in the *Project* pane and click **Connect**.

17. Click **OK** to the DTM evaluation period warning. The SVI FF DTM opens.

**NOTE**

⚠

*GE recommends getting the advanced version of the DTM and registering your software.*

18. Check that the SVI FF is connected (see red oval in Figure 8).

**NOTE**

! *If you have updated the FF DTM software, a dialog appears when you open ValVue 3:*



*Click:*

☐ *Yes and the library is updated.*
☐ *No and you need to manually updated from the DTM Library Management dialog to access any new functionality.*

*SVI II FF DTM version 1.30 or later. For earlier versions continue with manual DTM Library update (step 19).*



**Figure 8    Connected**

If not it does not connect, correct the address using the address on the DTM screen. Disconnect and then reconnect.

A dialog appears asking whether to upload all parameters.

19. Click **Yes.** If the dialog does not appear, click **Upload All Parameters** icon (see red box in Figure 8).

**NOTE**

! *Upload means to pull data from the SVI FF and load data into DTM onto the PC. Download puts data from the DTM into the SVI FF.*

# 3. Performing Basic Configuration

Figure 9 shows the SVI FF DTM with some key areas highlighted. For more detail, refer to the online help.



**Figure 9    SVI FF DTM**

①    DTM help icon      ③    *Quick Start Configuration* tab

②    Device help icon      ④    *Calibration* tabs in the directory tree

1.  Select **Quick Start Configuration** and the *Quick Start Configuration* tab appears. Set, as required:

☐ *Air Action*                           ☐ *Remote Sensor*

☐ *Control Tuning*                  ☐ *Characterization Type*

☐ *Device Address and Device Tag*    ☐ *Download the Settings*

These steps under most conditions setup the positioner properly.

| **NOTE** ⚠ | *Once all procedures are complete, you must put the SVI FF into Normal mode before returning to operations. Do this by:* |
|---|---|

☐ *Choosing Normal from the local display*

☐ *or using the SVI FF DTM and on the Positioner State tab, clicking the **Details** button and setting the state back to Normal*

☐ *or by setting the parameter 86.APP_MODE to Normal.*

# 4. Optional Find Stops and Open Stops Adjustments

1. Click **Calibration > Find Stops** and the tab appears (Figure 10). Click **Auto Stop Limit** and then **Start**. If the attempt is:

   ☐ Successful, skip to "5. Perform Autotune" on page 14.

   ☐ Not successful, read the *Find Stops Log*. Note the reasons for failure. If magnets are out of range, then:

   a. Click **Find Stops** tab.

   b. Adjust the magnet noting *Raw Sensor Value* and picture of magnets.



**Figure 10    Find Stops**

2. For ATO actuator, perform an Open Stop Adjustment by:

**NOTE**

⚠

*Use mechanical means, if available on the valve, to restrict the stops. If not available, use the Masoneilan software.*

a.  Measuring and recording the full mechanical travel.

b.  Checking Valspeq specs for required full travel.

c.  Calculating the stop adjustment %:

    ☐  Open Stops Adjustment (OSA) is defined as the ratio between required and full travel:

OSA = (required travel)*100/(full mechanical travel).

For example: (3.8" required travel)*100/(4.8" full mechanical travel) = 79 % stop adjustment.

A sample procedure is:

1. Click the **Find Stops** tab and entering *79%* in *Open Stop Adjustment* field.

2. Click the **Download Selected Tabs** icon.

3. Note the change in *Position* %.

4. Click **Trend** menu and **Position Setup**, enter 100% in *Manual Setpoint* field and hit the Tab key. Red box in Figure 11.



**Figure 11    Trend**

5. Check the travel scale on actuator to make sure 100% in DTM matches 100% on the travel scale.

**NOTE**

!

*Once all procedures are complete, you must put the SVI FF into Manual or Auto mode before returning to operations.*

# 5. Perform Autotune

1.  Select the **Autotune** tab.



**Figure 12    Autotune Tab**

**CAUTION**

*Procedures (e.g. Find Stops, Auto Tune, Step Test, Ramp Test, Signature) should NOT be invoked if the ValVue sequencer is running.*

*Do not Auto Tune if manual tuning has been used. Auto Tune creates new parameters that override the manual tuning parameters.*

*Control Tuning must be Custom in Quick Start Configuration Tab for Autotune to run (Figure 12 on page 14).*

*For a successful Auto Tune process, the supply pressure must be at least 5 psi (34.5 kPa) above the spring range.*

**WARNING**

*This procedure moves the valve.*

*Before beginning the Auto or Manual range calibration, confirm that the valve is isolated from the process. This procedure exhausts and then fills the valve actuator to supply pressure and therefore strokes the valve over its full range.*

*Supply pressure MUST NOT exceed the actuator pressure rating marked on the actuator. Positioner supply pressure MUST BE at least 5 psi higher than the upper spring range of the valve.*

To run the autotune:

1. Ensure the Transducer Block is in manual, using the SVI FF DTM, as per Figure 13.



**Figure 13    Transducer Block Mode**

2. Select an **Auto Tune Aggressiveness**, if necessary.

3. Enter an **Auto Tune Supply Pressure** (standard unit only).

4. Click  Start Auto Tune  .

# Appendix A: Suggested NI Hardware



**Figure 14    Suggested NI Hardware**

# Appendix B: Download Instructions

## Masoneilan Software

### Download and Install ValVue3

1. Go to the *Resource Library* (*https://www.geoilandgas.com/file-download-search*) and enter *ValVue* in the search field (red arrow in Figure 15).



**Figure 15    Download Center: Search for Valve 3**

The results appear (red box in Figure 15).

2. Select **Download** below *ValVue V3.30 Installer Download* and Figure 16 appears.



**Figure 16    Opening Dialog**

| NOTE | *The dialog that appears for download varies by the program used.* |

3. Click **Save File**, click **OK** and it saves to the *Windows Downloads* folder.

> **NOTE**
> [!]
> For fastest installation, save the download file to your laptop/PC. *Don't install from the website.*

4. Open *Windows Explorer* and click the **Windows Downloads** folder.

> **NOTE**
> [!]
> *If you have a previous install of ValVue3 you are prompted to uninstall first and then you must run the installer again to finish the upgrade.*

> **NOTE**
> [!]
> *If you are upgrading from ValVue 2.x you must update the SQL database location to match ValVue3's.*

5. Double-click on the installer and follow the instructions to install.

**Download and Install the SVI FF DTM**

1. Go to the *Resource Library* (*https://www.geoilandgas.com/file-download-search*) and enter *SVI FF* in the search field (red arrow in Figure 17).



**Figure 17    Download Center: Search for SVI FF DTM**

The results appear (red box in Figure 17).

2. Select **Download** below *SVI FF DTM* and Figure 18 appears.



**Figure 18    Opening Dialog**

**NOTE**

[!]   *The dialog that appears for download varies by the program used.*

3. Click **Save File**, click **OK** and it saves to the *Windows Downloads* folder.

**NOTE**

[!]   For fastest installation, save the download file to your laptop/PC. *Don't install from the website.*

4. Open **Windows Explorer** and click the **Windows Downloads** folder.

**NOTE**

[!]   *If you have a previous install of the SVI FF DTM you are prompted to uninstall first and then you must run the installer again to finish the upgrade.*

5. Double-click on the installer and follow the instructions to install.

# Appendix C: DTM Versions

The DTM comes in two versions – Standard and Advanced. Table 1 illustrates the capabilities of each version.

**Table 1   Advanced versus Standard SVI FF DTM Versions**

| Feature | Sub-feature | Advanced | Standard |
|---|---|---|---|
| Device States | Positioner State | X | X |
| | Positioner Alert Log | X | X |
| | Trend and Position Setup | X | - |
| | Device State | X | X |
| Configuration | Control Configuration | X | X |
| | Extended RB Configuration | X | - |
| | Extended TB Configuration | X | - |
| | Alerts | X | X |
| | LCD Display | X | X |
| Calibration | Find Stops | X | X |
| | Auto Tune | X | X |
| | Quick Wizard | X | - |
| | Full Wizard | X | - |
| Diagnostics | Step Test | X | - |
| | Ramp Test | X | - |
| | Signature Test | X | - |
| | Histograms | X | - |
| | Trends | X | - |
| Identification | | X | X |
| Security | | X | - |
| Print | | X | X |
| Write Notes | | X | X |

*This page intentionally left blank.*

# DIRECT SALES OFFICE LOCATIONS

**AUSTRALIA**
Brisbane
Phone: +61-7-3001-4319
Fax:    +61-7-3001-4399

Perth

Phone: +61-8-6595-7018
Fax:    +61-8-6595-7299

Melbourne
Phone: +61-3-8807-6002
Fax:    +61-3-8807-6577

**BELGIUM**
Phone: +32-2-344-0970
Fax:    +32-2-344-1123

**BRAZIL**

Phone: +55-19-2104-6900

**CHINA**
Phone: +86-10-5689-3600
Fax:    +86-10-5689-3800

**FRANCE**
Courbevoie
Phone: +33-1-4904-9000
Fax:    +33-1-4904-9010

**GERMANY** Ratingen
Phone: +49-2102-108-0
Fax:    +49-2102-108-111

**INDIA**
Mumbai
Phone: +91-22-8354790
Fax:    +91-22-8354791

New Delhi
Phone: +91-11-2-6164175
Fax:    +91-11-5-1659635

**ITALY**

Phone: +39-081-7892-111
Fax:    +39-081-7892-208

**JAPAN**
Tokyo
Phone: +81-03-6871-9008
Fax:    +81-03-6890-4620

**KOREA**
Phone: +82-2-2274-0748
Fax:    +82-2-2274-0794

**MALAYSIA**
Phone: +60-3-2161-0322
Fax:    +60-3-2163-6312

**MEXICO**

Phone: +52-55-3640-5060

**THE NETHERLANDS**
Phone: +31-15-3808666
Fax:    +31-18-1641438

**RUSSIA**
Veliky Novgorod
Phone: +7-8162-55-7898
Fax:    +7-8162-55-7921

Moscow
Phone: +7 495-585-1276
Fax:    +7 495-585-1279

**SAUDI ARABIA**

Phone:  +966-3-341-0278
Fax:     +966-3-341-7624

**SINGAPORE**
Phone: +65-6861-6100
Fax:    +65-6861-7172

**SOUTH AFRICA**

Phone: +27-11-452-1550
Fax:    +27-11-452-6542

**SOUTH & CENTRAL
AMERICA AND THE CARIBBEAN**
Phone: +55-12-2134-1201
Fax:    +55-12-2134-1238

**SPAIN**
Phone: +34-93-652-6430
Fax:    +34-93-652-6444

**UNITED ARAB EMIRATES**
Phone: +971-4-8991-777
Fax:    +971-4-8991-778

**UNITED KINGDOM**
Bracknell
Phone: +44-1344-460-500
Fax:    +44-1344-460-537

Skelmersdale
Phone: +44-1695-526-00
Fax:    +44-1695-526-01

**UNITED STATES**
Jacksonville, Florida
Phone: +1-904-570-3409

Corpus Christi, Texas
Phone: +1-361-881-8182
Fax:    +1-361-881-8246

Deer Park, Texas

Phone: +1-281-884-1000
Fax:    +1-281-884-1010

Houston, Texas
Phone: +1-281-671-1640
Fax:    +1-281-671-1735

www.geoilandgas.com/valves

GEA31457D            01/2017