# Masoneilan\* SVI\* FF

Advanced Performance Digital Positioner Bench Quick Start (Rev D)

Instruction Manual





GE Data Classification: Public

## About this Guide

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

- □ SVI FF
  - $\Box$  with firmware version 1.0.0.x or higher
  - $\Box$  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.

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# **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.





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.



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" on page 4
- "2. Software Install and Configuration" on page 5
- "3. Performing Basic Configuration" on page 11
- "4. Optional Find Stops and Open Stops Adjustments" on page 12
- "5. Perform Autotune" on page 14

## 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<sup>®</sup> (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.



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:

NI-FBUS	S Communications Manager 4.1.1	
01. 2014-0	J7-29 11:28:44.172 Preparing Initializaiton	*
NI-FBUS P	rocess Startup: Warning	
4	Interface Configuration Error: The configurated board 0 does NOT exist. Run your NI-FBUS Configuration Utility and check your board configuration. Click OK to exit NI-FBUS Communications Manager and reconfigure your board.	
	OK Cancel	

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.



You must have Windows  $^{\ensuremath{\mathbb{R}}}$  administrator rights. Install the software as an administrator.

- 3. Sign on to ValVue3 with default values (first time only):
  - User name *admin*.
  - □ Password ValVue3.



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.



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

Question	X
?	The Device Library seems to be out of date. Would you like to update it now?
	Yes <u>N</u> o

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.

DTM Library N	fanagement							×
🔍 DTN	/ Library N	Management						
DTM Updates -				1	DTM Library			
Name FF H1 Communic FVP Advanced D D SVI FF NI FBUS H1 Com D GE NI-FBUS-H	Version in 11.13.28 T 1.001 1.00.0000 3.0 1.00 3.0 1.00 1.	Vendor Code/Wights Gmb GE Oil & Gas GE Oil & Gas NI GE Oil & Gas	Date 2010-04-13 2013-06-06 2012-01-01 2001-05-14 2001-05-14 2013-11-29	Add All >> Add Sel > < Remove Sel << Remove All	Name	Version	Vendor	Date
😴 Update							🕑 ОК	Cancel

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.

Add Field Network						×	
Field Network Confi	guration						
Field Network:	FF H1 Interface					_	
Communication DTM: FF H1 Communication DTM							
Field Network Name:	Device FF H1 Communica NI FBUS H1 Com GE NI-FBUS-H1 C	Protocol Fieldbus FF H1 Fieldbus FF H1 Fieldbus FF H1	Vendor CodeWrights Gmb NI GE Oil & Gas	Device Version 1.1.13.28 / 2010-0 3.0 / 2001-05-14 4.0 / 2013-11-29			
				📀 ок	🔀 Car	ncel	
			and the second sec				

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.

Types Device	Protocol	Version	Date
FVP Advance	d Fieldbus FF H1	1.001	2013-06-0
SVI FF	Fieldbus FF H1	1.00.0000	2012-01-0
			1
•			

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.



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.



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).



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).



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.

SVI FF Online parameterization SVI FI		ONEIL AN PRODUCTS	X 4 D
GE Oil & Gas Tag:	CV0000 Devi	celD: 0047450008-234567890123456789012	
Man.	ID: 0x4745 Type. ID: 8 Devi	ce Rev: 01 DD: 01 SW: 1.0.0.1	
Quick Start Configuration		10	
Device States Positioner State	Air Action	Remote Sensor	
	Air To Open C Air To Close	Internal Sensor     C Remote Sensor	
Device State			
Control Configuration	- Control Tuning		
Configuration	Single Acting	C Double Acting	
Travel Alerts	C Fastest C Fast C Medium C (Small) C Medium C (E	ow C Slowest C Autotune (* Custom Jig) C (Biggest)	
Configuration	Characterization Type 3		
Pressure	E C Linear C EQ% 30 C EQ% 50	C Quick Open C Camflex % C Custom	
Iemperature     IP Output     Extended RB Configuration	Network Settings		
Extended TB Configuration	Device Address	17	
LCD Display	Device Tag	CV0000	
Find Stops			
Quick Wizard			
Diagnostics			
Signature Test 			
	Figure 9	SVI FF DTM	
	I heln icon	uick Start Configuration tab	
		and start configuration tab	
2 Dev	ice help icon (4) C	Calibration tabs in the directory tr	e
1. Select <b>Q</b>	uick Start Configuration (	and the Quick Start Configurat	<i>ion</i> tab appears. Se
required	:		
Air Action	ז	Remote Sensor	
🗆 Control T	uning	Characterization T	/pe
Device A	ddress and Device Taa	Download the Sett	inas
	alless and bevice rug		

These steps under most conditions setup the positioner properly.



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:



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

- Measuring and recording the full mechanical travel. a.
- Checking Valspeg specs for required full travel. b.
- 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 % stopadjustment.

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.



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



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

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Edit View Favorite	s Tools Help								
Favorites 🛛 🏤 🔅 Ma	&C Quality Dashbo	ard 🔅 Age Claim 🙁 Channel	Connect 🙋 MyTrain	ing 🙋 My Cases 🙋	EMS 🙋 Web Slic	e Gallery 👻 🚮 benefits	ge.com € ENOVIA	👌 • 🗟 • 🖬 e	🔹 🔻 Page 🕶
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		Products	Industries & Applications	Support & Services	Community	Academic	Events & Training		
	My Shop	ping Cart (US Doll	ars)						
	Part Number	Description		Est Ship	Unit Price	Qty Line Total	Your Cart Options		
	781160-01	USB-8486, 1-Port FOUNDATIO	ON Fieldbus Interface	2-5	\$ 2,081.00	1 \$2,081.00 ×	Buy Now		
	199566-02	Cable Assy, 9-pin DSUB fema 2M	le to 3-wire pigtails, Fi	eldbus H1, 10 - 15	\$ 21.00	1 \$21.00 ×	Get Instant Quote		
	777335-01	Fieldbus Benchtop Power Sur	oply Kit, Universal 100-	-240VAC 12 - 20	\$ 536.00	1 \$536.00 ×	Print Cart		
						Update Quantity 🕥	L Download to Excel		
					Total It	ems: 3	We accept payments by credit or	ard or Terms of	
				Shipping in Unite	d States: FedEx 2-3	Day: \$2,038.00	Credit Safe, Secure Shopping		
					Order	Fotal: \$ 2,667.08	Hassle Free Warranty		
					COVE MARCHELINER		Simple Returns		
				Add Part Numb	ers Continue S	Buy Now			
				Add Part Numb	ers Continue S	Buy Now	VISA 🐟 🏧	IEX	
				Add Part Numb	ers Continue S	Buy Now	VISA 😂 🔤	TEX.	

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).

		G	Q, Search		♥ ↓	4
						9
P	Products by Industry Segment	Services	Solutions	About	Contact I	Js
icluding ou	ur product and service brochure	es, fact shee	ts, quality cer	tifications and n	more.	
IVue			<b>B</b>			
			~			
			-			
			-			
164	ValVue V3.30 installer Download	1	ValVus	eFF Lite v2.32.1 for	FVP only	
	ValVue V3.30 Installer Download Download	1	ValVue (replac Down	eFF Lite v2.32.1 for ced by ValVue v3 an load	FVP only Id device DTM	)
	ValVue V3.30 Installer Download Download	]	ValVue (replac Down	eFF Lite v2.32.1 for ced by ValVue v3 an load	FVP only Id device DTM	)
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	ValVus VJ.30 Installer Download Download ValVus FF vor. 2.32.1 for FVP (replaced ValVus V3 and device DTH) Download	by	ValVue (repla Downi ValVue SNAP- Downi	eFF Lite v2.32.1 for ced by ValVue v3 an load eFF v2.32.1 Emerso -ON for FVP only load	FVP only Id device DTM In AMS	)
	I cluding or	Products by industry Segment	Products by Industry Segment Services	Products by Industry Segment Services Solutions	Products by Industry Segment Services Solutions About	Products by industry Segment Services Solutions About Contact I

The results appear (red box in Figure 15).

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

pening valvue_3.30_installer.zip						
You have chosen to open:						
🔒 valvue_3.30_installer.zip						
which is: Compressed (zipped) Folder (798 MB)						
from: https://www.geoilandgas.com						
What should Firefox do with this file?						
Open with Windows Explorer (default)						
Do this <u>a</u> utomatically for files like this from now on.						
OK Cancel						

Figure 16 Opening Dialog



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.



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.

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).

https://www.geoilandgas.com/file-download-	search		C" Q, Se	earch 🗢 🗣 🔺
Visited 🛞 Getting Started				
Prowse our document library and dow	vnload documents including	our product and service brochures, f	act sheets, qua	ality certifications and more.
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Chinese				
English		Download		Download
French				
🗖 German		SVIFF Rev 1 DD package		SVI FF DTM v1.3.0.0
🗖 Italian		Download		Download
Portuguese				
🖾 Russian		Masoneilan SVI FF eDDL v1.00.19.rc15		Masoneilan SVI FF Positioner Handheld
🖾 Spanish		Download		Download
Other				
іе Туре	111	Masoneilan SVI FF Advanced Performance Digital Valve Positioner -		Masoneilan SVI FF Advanced Performance Digital Valve Positioner -
Article		Italian Download		Russian Download
Brochures		Masoneilan SVI EE Advanced		Masoneilan SVI EE Arivanceri
Case Study		Performance Digital Valve Positioner -		Performance Digital Valve Positioner -
Drawings		Spanish		Chinese

The results appear (red box in Figure 17).

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



Figure 18 Opening Dialog



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



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.



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.

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

 Table 1
 Advanced versus Standard SVI FF DTM Versions

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# 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

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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

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#### SOUTH AFRICA

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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

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