

# pAdvisor - Quick Guide

- Tool for SATRON pressure and dp Smart/Hart transmitters

<b>Contents:</b>	<b>Page</b>
<b>1. Program features</b>	2
<b>2. Installation and setup</b>	3
<b>3. Basic functions</b>	
3.1 Start pAdvisor	4
3.2 Configuration	5
3.3 Trim, Sensor zero and span trim	6
<b>4. Special functions</b>	
4.1 Recorder	7
4.2 Calibration	8
4.3 Diagnostic	9
4.3.1 Current loop test	
4.3.2 Transmitter status	
4.3.3 HART communication status	
4.4 User Function settings	10

---

## Satron Instruments Inc.

FI-33960 Pirkkala, Finland  
p. +358 207 464 800

[www.satron.com](http://www.satron.com)

## 1. Software features

### Features:

- **Configuration**  
Via this window transmitter's configuration can be uploaded from the transmitter, edited and downloaded back to the transmitter. Configuration can also be saved to a file and reopened in pAdvisor when needed and printed with PC's printer.
- **Trim and Calibration**  
Via these windows dp/pressure transmitter can be trimmed and calibrated.
- **Recorder**  
Via this window process pressure and temperature values can be measured, monitored on screen and saved to a file for later analysis.
- **Diagnostic**  
Via this window transmitter's output current and output current loop can be tested. HART communication information and all alarm/error messages can be read from transmitter.

### With pAdvisor you will always have:

- **All Special features for Satron Smart transmitters**  
You have full access to all Satron Smart transmitter's special definitions and functions (User Function definitions for pressure/output response, VDU transmitter's settings, trim and process values monitoring, transmitter status information ...).
- **Free software upgrades**  
The latest version of the Satron pAdvisor software can be downloaded from [www.satron.com](http://www.satron.com) (free of charge).

**SATRON pAdvisor software** (for Windows XP / Vista / 7 / 8 / 10 / 11)**2. Installation and setup**

- 2.1 Download packed 'pAdvisor\_vxxx\_InstallFiles.zip' file from Satron web page 'www.satron.com'. Extract this file to your hard drive.
- 2.2 Locate the extracted 'setup.exe' file on your hard drive.
- 2.3 To start the setup procedure, run the 'setup.exe' file with adequate user privileges, preferably as an Administrator.
- 2.4 Follow the on screen instructions.
- 2.5 Start pAdvisor:  
- select Windows 'Start' → 'Programs' → 'pAdvisor'

**When starting pAdvisor software for the first time:**

- 2.6 Check that the supply voltage (24VDC) and HART modem are connected to the transmitter.
- 2.7 When pAdvisor software is running click 'Settings / Asetukset'-button in the 'Start Window' and select your HART modem's COM port from the serial port list. Click 'Save and Close' and in the 'Start Window' click 'Start communication!'. When the transmitter answers, this COM port will be set as default port for the HART modem in the future.
- 2.8 See the connections examples; click 'Program info' → 'View calibration connections' and select Example1, -2, -3 or -4).

If the HART communication is not working with the transmitter make sure the needed drivers for your HART modem are installed correctly. Change the HART modem to some other COM port, go to 'Settings / Asetukset'-window again and select this new COM port, click 'Save and Close'-button.

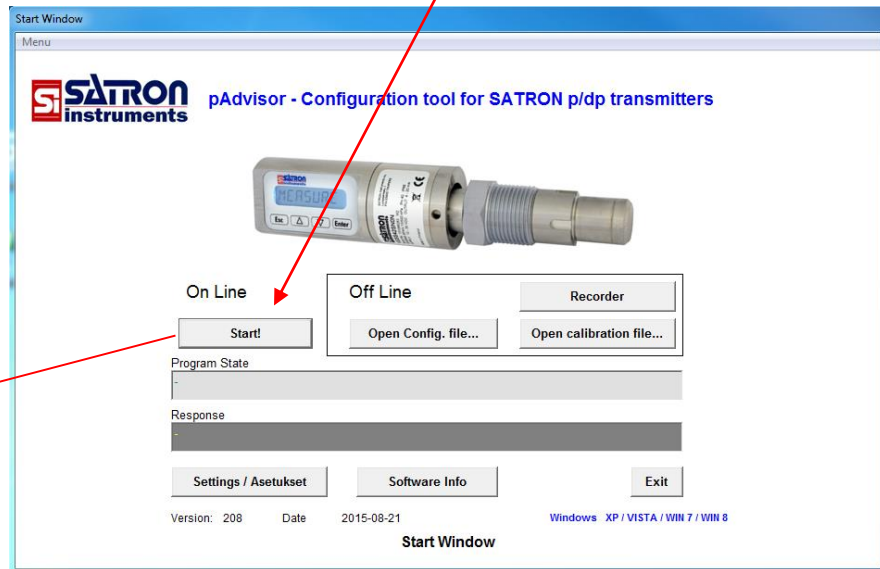
Try to establish a new connection in the pAdvisor 'Start Window', click 'Start communication!'.

Note: minimum 250 ohm load resistance must be connected in the mA loop.

### 3. Basic functions

#### 3.1 Start pAdvisor

Start pAdvisor, browse: 'Start → Programs → pAdvisor'  
-when the software is running, click 'Start'-button



-when 'Start'-button is clicked and HART communication is ok,  
you will see the next view:



### 3.2 Configuration

In the 'Configuration'-window, configuration (range, units, damping, transfer function etc...) can be uploaded from transmitter, edited and downloaded back to the transmitter. After the download is finished, the software reads back the configuration data from the transmitter and the set configuration can be verified.

The configuration can be saved to a file, opened from the file back to pAdvisor software and printed out.

Configuration Tag: ----- Type: VG4S42SH0N No. 12345

Sensor Limits	Lower	Upper	
Min. Span	-1000.00	1000.00	
	40.00	mbar	

Range values: LowerRange: 0.000 UpperRange: 350.000 Unit: mbar

Damp., sec: 1

Alarm state: Lo 3.7 mA

Temp. Unit: C

Write Protect: OFF

Transfer function: Linear

Tag: -----

Description: DEFAULT CONFIG

Message: SMART TRANSMITTER FROM SATRON

Date: 2015 6 29 Set current date

Place: Add + Delete -

User: .

Note: .

Buttons: Write to transmitter, Read from transmitter, Save as..., Open file.., Transmitter Info, Close

Special Setup for Satron transmitters

Burst function settings

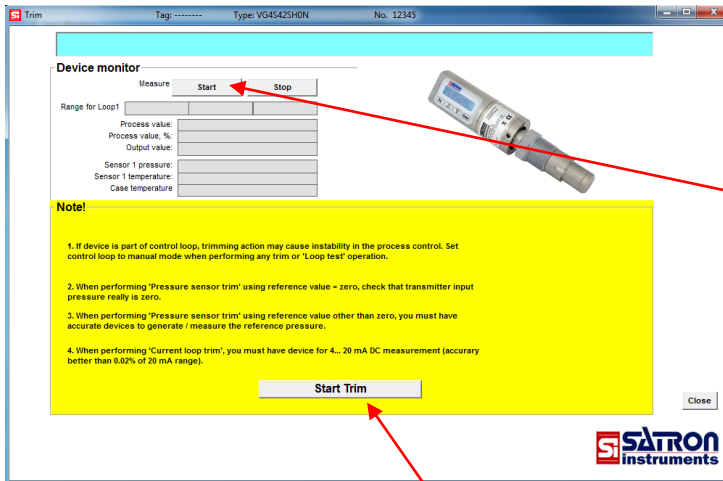
Multidrop settings

Response: \_\_\_\_\_

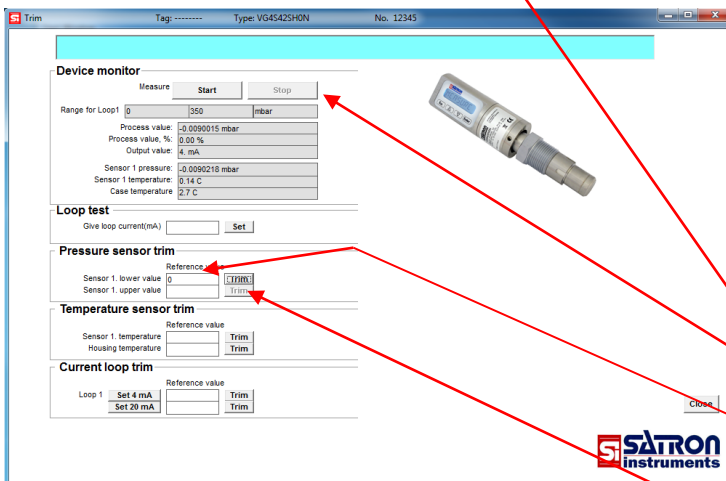
Configuration

### 3.3 Trim, Sensor zero and span trim

The pAdvisor software can be used to perform transmitter's pressure and output current trim procedures with the help of suitable external calibration equipment.



-Click 'Start'-button and check measured values from transmitter



Example1. Sensor zero trim

If true pressure input to transmitter is zero, and you want to set transmitter's measurement value (= process value) to zero, follow these next steps:

- Click 'Start Trim'-button
- If 'Device monitor' is running, stop it, click 'Stop'-button
- Give true pressure ( in this case = 0) to 'Reference value'-textbox on the line 'Sensor 1. lower value'
- Click 'Trim'-button
- Click 'Start'-button and check that the transmitter's pressure value is now zero.

## 4. Special functions

### 4.1 Recorder

In the 'Recorder'-window the process value, mA value and temperature values can be monitored on screen and saved to a file for later analysis.

The screenshot displays the 'Recorder' window for device 'Type VG4542SHON' (No. 12345). The interface includes a control panel with 'Start', 'Pause', 'Continue', and 'Stop' buttons, and a file name input field. A data table shows recorded values for PVmax, PVmin, Tmax, and Tmin. A graph plots 'Scale, %' over time, with a horizontal line at 0% and a yellow highlight at the bottom. The right panel shows '1. Loop value' (0.009), '1. Sensor pressure' (4.00 mA), and '1. Sen. temperature' (0.1C, Case Temp. 2.7C). A table for 'Select variables for drawing' allows selection of variables and their scales. The 'Time Scale' is set to 1 sec. The SATRON instruments logo is in the bottom right.

Variable	Value	Unit
PVmax	-0.009	mbar
PVmin	-0.009	mbar
Tmax	0.1	C
Tmin	0.1	C

Variable	Value	Unit
1. Loop value	0.009	mbar
1. Sensor pressure	4.00	mA
1. Sen. temperature	0.1C	C
Case Temp.	2.7C	C

Variable	Scale - 0%	Scale - 100%	Unit
1. Loop, PV value	0	350	mbar
1. Sensor pressure	0	350	mbar
1. Sen. temperature	0	100	C
1. mA-Loop	4	20	mA
Case Temp.	0	100	C

## 4.2 Calibration

A calibration certificate for Satron p/dp transmitter can be created, printed, saved to a file, and reopened for later analysis in the 'Calibration'-window.

The screenshot shows the 'Calibration' software window. At the top, there's a form for 'Calibration certificate' with fields for ID, Type, Device no., Selection Code, Place, User, Note, Meas. range, Damping, Temp. unit, Transfer function, and Alarm current. To the right, there's a 'Cal. settings' section with a dropdown menu and a 'Display cal. settings' button. Below that, there's a 'Position' section with fields for Description, Message, and Date. A physical Satron transmitter is shown in the center. Below the transmitter, there's a table titled 'Measurements for cal. certification' with columns for Ref. pressure, Meas. PV value, PV deviation, Deviation, and Measure. To the right of the table, there's a 'Sen.temp.meas.' section with fields for Ref. value, Sensor temp., Deviation, and Measure. Below that, there's an 'mA-output measurements' section with buttons for 'Set 4 mA', 'Set 12 mA', and 'Set 20 mA', and fields for Measured mA, Dev., %, and Measure. The Satron Instruments logo is in the bottom right corner.

### Temperature calibration:

-Click 'Sen.temp.meas.'

1. -Input reference temperature
2. -Click '>>'-button

### Pressure calibration:

-Click 'Pressure measurements'

1. -Input reference pressure
2. -Click '>>'-button

Repeat the functions (1... 2)  
on the next row (continue until  
all values are given into the table / or as many as it is needed)

### Current loop calibration:

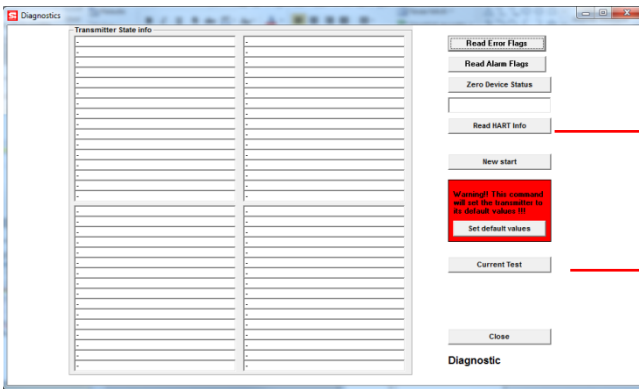
-Click 'mA-output meas..'

1. Click 'Set 4 mA' button
2. Give measured reference mA value
3. Click '>>' button at the end of this row
4. Click 'Set 12 mA' button
5. Give measured reference mA value
6. Click '>>' button at the end of this line
7. Click 'Set 20 mA' button
8. Give measured reference mA value
9. Click '>>' button at the end of this row

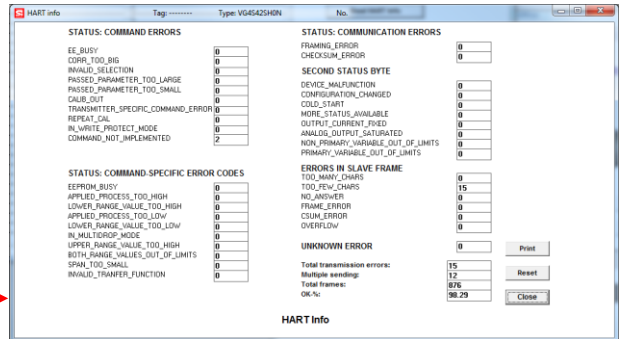


### 4.3 Diagnostic

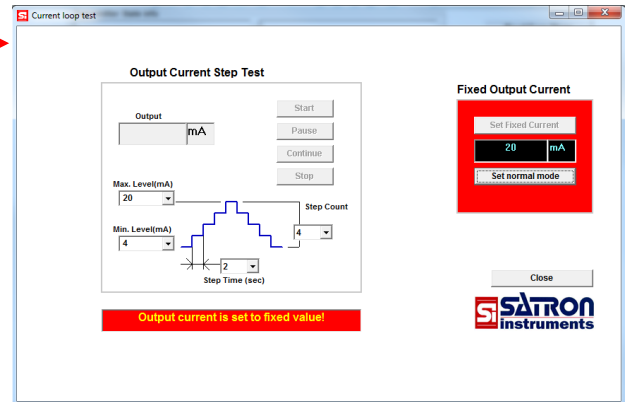
HART communication information and all alarm/error messages can be read from the transmitter in the 'Diagnostic'-window. Transmitter's output current can be tested in the 'Current loop test'-window. (Accessed via 'Diagnostic'-window)



4.3.2 'Transmitter status'-window



#### 4.3.3 'Hart communication status'-window



4.3.1 'Current loop test'-window

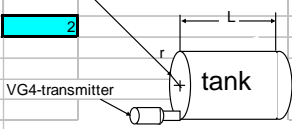
4.4 User Function settings

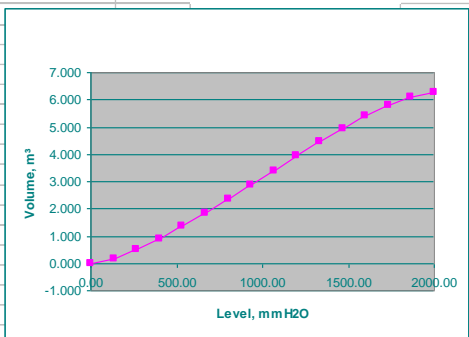
**Example.** Set the transmitter display value and output current to represent horizontal cylindrical tank volume with USER function (Access 'User Function', via 'Configuration'-window).  
(USER transfer function options are USER/Linear or USER/Spline.)

Calculate first these values for transmitter display, based on the pressure values.

radius r =

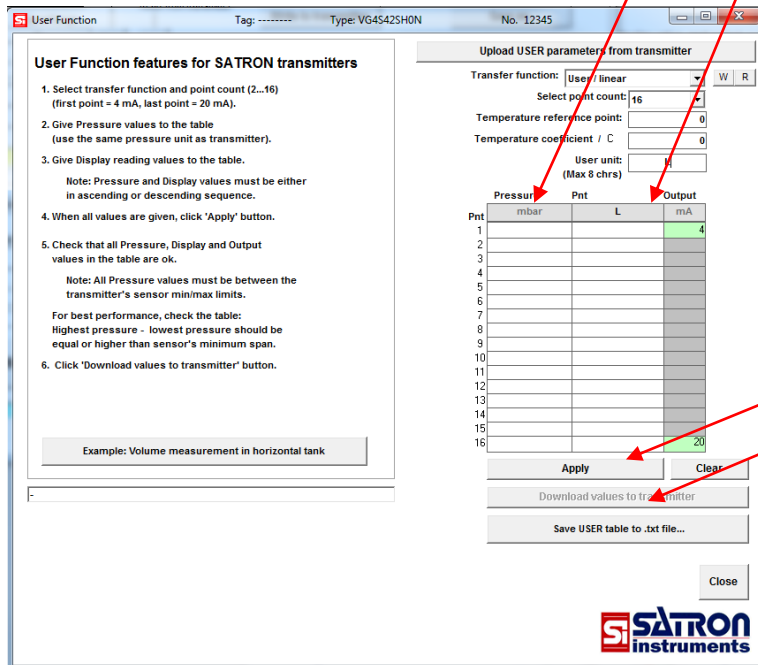
length L =





point	level/m	Pressure mmH2O	Display Volume/m³	lout mA
1	0.00	0.00	0.000	4.00
2	0.133	133.33	0.180	4.46
3	0.27	266.67	0.498	5.27
4	0.40	400.00	0.895	6.28
5	0.53	533.33	1.345	7.43
6	0.67	666.67	1.833	8.67
7	0.80	800.00	2.347	9.98
8	0.93	933.33	2.875	11.32
9	1.07	1066.67	3.408	12.68
10	1.20	1200.00	3.936	14.02
11	1.33	1333.33	4.450	15.33
12	1.47	1466.67	4.938	16.57
13	1.60	1600.00	5.389	17.72
14	1.73	1733.33	5.785	18.73
15	1.87	1866.67	6.103	19.54
16	2.00	2000.00	6.283	20.00

give these values here



**User Function features for SATRON transmitters**

- Select transfer function and point count (2...16) (first point = 4 mA, last point = 20 mA).
- Give Pressure values to the table (use the same pressure unit as transmitter).
- Give Display reading values to the table.  
Note: Pressure and Display values must be either in ascending or descending sequence.
- When all values are given, click 'Apply' button.
- Check that all Pressure, Display and Output values in the table are ok.  
Note: All Pressure values must be between the transmitter's sensor min/max limits.  
For best performance, check the table: Highest pressure - lowest pressure should be equal or higher than sensor's minimum span.
- Click 'Download values to transmitter' button.

Example: Volume measurement in horizontal tank

Upload USER parameters from transmitter

Transfer function: User/Linear W R

Select point count: 16

Temperature reference point: 0

Temperature coefficient / C: 0

User unit: (Max 8 chrs) H

Pnt	Pressure mbar	Pnt	L	Output mA
1				4
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				20

Apply Clear

Download values to transmitter

Save USER table to .txt file...

Close

Click 'Apply' then 'Download values to transmitter'



*We reserve the right for technical modifications  
without prior notice.*

HART® is a registered trademark of HART  
Communication Foundation.