

# Media 6 Differential Pressure Meter



## Configuration with TROVIS-VIEW 4

The screenshot shows the SAMSON TROVIS-VIEW 4 software interface. The main window displays a configuration tree on the left and a data table on the right. The tree is expanded to show the 'Media 6' configuration, which includes sections for Identification, General data, Tank, Characteristic, Medium (Medium 1 to Medium 4), and Maintenance. The data table on the right shows the following information:

Name	Value	Unit	Comment
Media 6			
Identification			
General data			
Tank			
Medium			
Maintenance			
Calibrator and accuracy			

Below the data table, a photograph of the Media 6 differential pressure meter is shown. The meter features a green digital display showing '02' and '4,298', and a white analog gauge with a scale from 0 to 100. The text 'TANK NO.' is visible on the meter's face.

TROVIS-VIEW 4 Software for Media 6

Translation of original instructions

## Operating Instructions

### EB 9527-2 EN

Firmware: TROVIS-VIEW 4/Media 6 V3.10-3.19

Edition February 2016



## Definition of signal words



### **DANGER!**

*Hazardous situations which, if not avoided, will result in death or serious injury*



### **WARNING!**

*Hazardous situations which, if not avoided, could result in death or serious injury*



### **NOTICE**

*Property damage message or malfunction*



### **Note:**

*Additional information*



### **Tip:**

*Recommended action*

<b>1</b>	<b>TROVIS-VIEW 4 software</b> .....	<b>5</b>
1.1	General .....	5
<b>2</b>	<b>Communication with Media 6 Differential Pressure and Flow Meter</b> .....	<b>6</b>
<b>3</b>	<b>User interface</b> .....	<b>7</b>
3.1	Liquid level measurement.....	7
3.1.1	Identification.....	8
3.1.2	General data .....	8
3.1.3	Tank.....	10
3.1.4	Medium .....	14
3.1.5	Maintenance .....	21
3.1.6	Certificates and approvals .....	22
3.1.7	Operation .....	23
3.2	Flow measurement, counting flow rate measurement, differential pressure measurement, level measurement in transportation vehicles .....	25
3.2.1	Flow rate measurement.....	26
3.2.2	Counting flow rate measurement .....	29
3.2.3	Differential pressure measurement .....	31
3.2.4	Level measurement in transportation vehicles.....	33
3.3	Settings at the Media 6 device .....	34
3.3.1	Testing the limit switches and current output.....	34
3.3.2	Zero and span calibration .....	34
3.3.3	Zero point setting through basic calibration.....	34
<b>4</b>	<b>Data exchange</b> .....	<b>35</b>
4.1	Read data from the Media 6 device to TROVIS VIEW 4 .....	35
4.2	Write data from TROVIS VIEW 4 to the Media 6 device.....	36



# 1 TROVIS-VIEW 4 software

These instructions describe the operation and setting of the Media 6 Differential Pressure Meter on the TROVIS-VIEW 4 operator interface.

Refer to Mounting and Operating Instructions ► **EB 9527-3** for a description of the **Media 6 Differential Pressure Meter**.

Refer to the Operating Instructions ► **EB 6661** on how to use the **TROVIS-VIEW 4** software.

The TROVIS-VIEW 4 software allows users to configure and parameterize various smart SAMSON devices (in this case, the Media 6 Differential Pressure Meter) over a common user interface. It consists of the operator interface, communication server, and the device-specific module. It is possible to switch languages during operation (currently, English, German, French, Spanish, Japanese, Russian, Danish available). Working in TROVIS-VIEW is similar to working in Windows Explorer.

In addition to configuration and operation, the TROVIS-VIEW 4 software includes other features, such as documentation of the Media 6 device, for example, editing plant texts, saving and printing configuration data.

Almost the entire configuration of a Media 6 device can be performed using the software. The user level set to 'Maintenance technician' is used to configure the device. This level is set by default and can be changed.

The TROVIS-VIEW 4 software allows operation in offline mode (device not connected to a PC) or in online mode (device connected to a PC). This enables data to be changed in the device immediately, or they can be saved on the computer first and downloaded later to the device on site.

Each smart SAMSON device has its own separate module that contains the device-specific specifications.

## 1.1 General

TROVIS-VIEW 4 and the Media 6 device are supplied with default data for filling level measurement, in cases where no specifications have been made by the customer.

Newly created data can be saved to a file, which can be opened at anytime. A stored TROVIS-VIEW file (\*.tro) contains the configuration data and parameters of one single device and can be transferred to the Media 6 device after it has been connected to the computer.

Settings and readings of the software are described in these instructions.

To download configuration data from the software to the SAMSON memory pen or to upload data from the memory pen, a SAMSON modular adapter must be inserted into the serial interface of the PC or laptop to connect the memory pen. See the Operating Instructions

► **EB 6661** for **TROVIS-VIEW 4 software**.

When the Media 6 device is not connected, the default settings are shown in TROVIS-VIEW 4. A TROVIS-VIEW 4 file (\*.tro) can be loaded and edited by selecting **Open** in the **File** menu.



**Note:**

*New records created in TROVIS-VIEW 4 firmware version 3.00 or higher are **not** compatible with earlier versions (e.g. firmware version 2.30).*

---

## 2 Communication with Media 6 Differential Pressure and Flow Meter

To establish communication between the software and the Media 6 device, the electrical connection of the Media 6 device must be performed as described in the Mounting and Operating Instructions ► **EB 9527-3**.

To establish communication, the serial interface of the computer must be connected to the serial interface port of the Media 6 device using the SAMSON connecting cable. Following this, start TROVIS-VIEW 4 and perform the basic settings. The Media 6 device can be configured step-by-step using the start-up wizard.

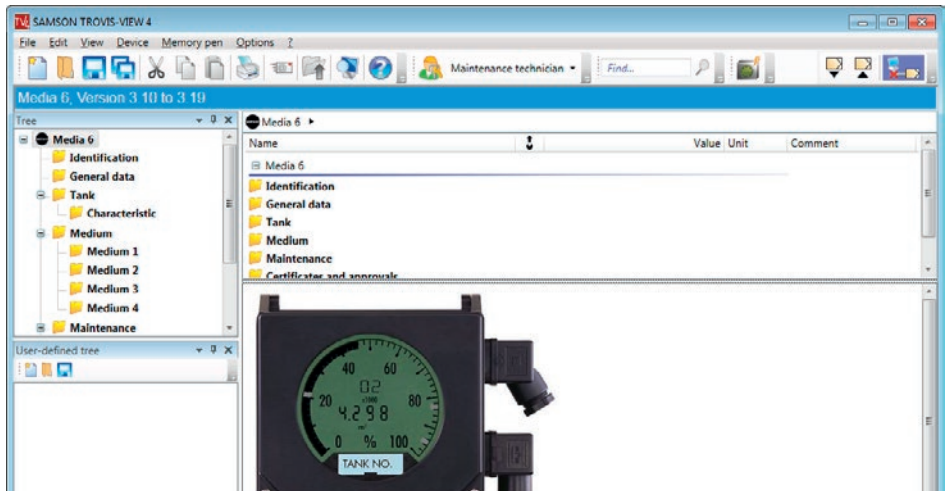
**Write protection switch** on the Media 6 device set to **OFF**.

Refer to the Operating Instructions ► **EB 6661** on how to use the **TROVIS-VIEW 4** software.

### 3 User interface

Start TROVIS-VIEW 4 (Media 6).

The interface appears with a menu bar and tool bar and the tree structure for Media 6, which includes all relevant parameters organized in folders and subfolders.



You only perform the settings needed for communication with a Media 6 device.

- Identification
- General data
- Tank
- Medium
- Maintenance
- Certificates and approvals
- Operation

#### 3.1 Liquid level measurement

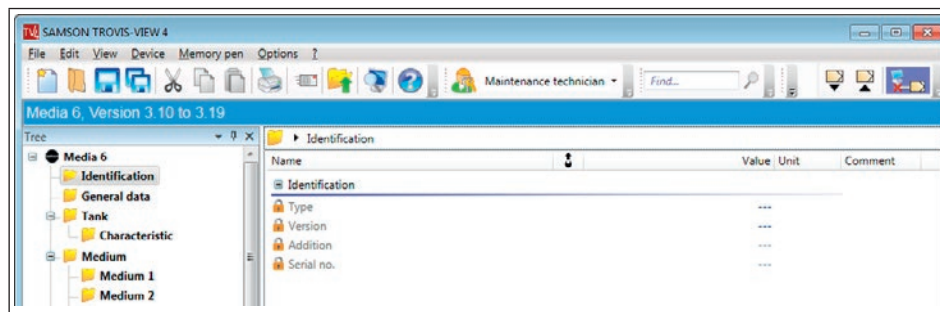
By default, all settings in TROVIS-VIEW 4 are automatically performed in the 'Maintenance technician' user level in **[Filling level mode]**.

In the 'Specialist' user level, [Flow rate mode], [Counting flow rate mode], [Differential pressure mode], [Filling level in tank truck] can also be selected.

### 3.1.1 Identification

Data relevant for unique identification of the Media 6 device are shown. These details cannot be edited.

#### [Identification]



**Type** Media 6 Differential Pressure Meter (Type 5006)

**Version** Firmware version

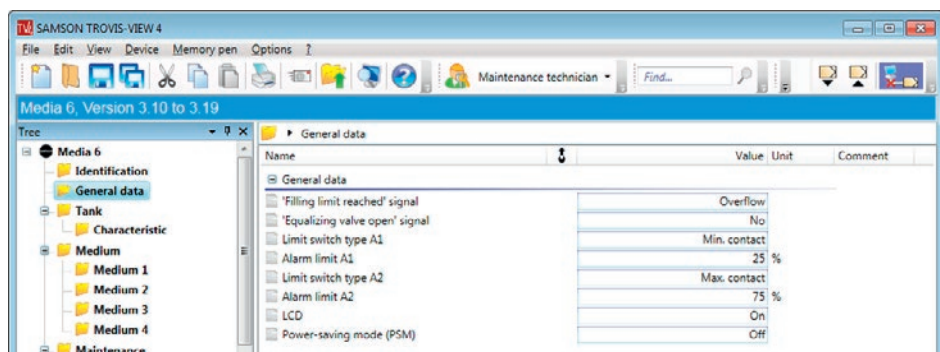
**Addition** Identifier for different versions

**Serial no.** Serial number of the connected Media 6 device

### 3.1.2 General data

They allow the settings relevant for a measuring procedure to be made by selecting options from drop-down lists or by directly entering values.

#### [General data]





**'Filling limit reached' signal**

Select either 'Overflow' or 'Operating filling limit'.

Both values for these options are to be entered in [Medium] depending on the specified tanks.

The bar graph blinks on the display when the adjusted limit is exceeded.

**'Equalizing valve open' signal**

When 'Yes' is selected, a signal is activated when the equalizing valve on the valve block between the (+) and (-) measuring lines (see ► EB 9527-3, Fig. 4) is opened. 'OFF' appears on the display of the device.

**Limit switch type A1**

For limit switch A1: select either 'Min. contact' or 'Max. contact' in the list.

- Min. contact: alarm 1 is activated when the value falls below the limit.
- Max. contact: alarm 1 is activated when the value exceeds the limit.

**Alarm limit A1 in %**

Enter the value in the range between 0 and 100 %.

A blinking bar graph on the display indicates that the adjusted value has been exceeded (with a max. contact) or the value has fallen below the adjusted value (with a min. contact).

**Limit switch type A2**

For limit switch A2: select either 'Min. contact' or 'Max. contact'.

- Min. contact: alarm 2 is activated when the value falls below the limit.
- Max. contact: alarm 2 is activated when the value exceeds the limit.

**Alarm limit A2 in %**

Enter the value in the range between 0 and 100 %.

A blinking bar graph on the display indicates that the adjusted value has been exceeded (with a max. contact) or the value has fallen below the adjusted value (with a min. contact).

**LCD · 'On'/'Off'**

The display can be turned on or off.

**Power-saving mode (PSM) · 'On'/'Off'**

Select 'On' to place the measuring cycle and display into the power saving mode (ESM). The charging state of the battery is indicated in [Status] > [Battery voltage] (see [Status], page 24).

### 3.1.3 Tank

Certain data about the tank shape must be known to calculate tank characteristic. A default set of data with predetermined values is available in the tank database. Load these data and overwrite them with the corresponding tank geometry data and settings.

#### [Tank]

Enter the geometrical data required to calculate the tank and its characteristic.

The screenshot shows the SAMSON TROVIS VIEW 4 software interface. The main window displays the configuration for a tank, with the following sections and data:

- Tree View (Left):**
  - Media 6
    - Identification
    - General data
    - Tank
      - Characteristic
    - Medium
      - Medium 1
      - Medium 2
      - Medium 3
      - Medium 4
    - Maintenance
      - Error history
    - Certificates and approvals
    - Operation
      - Display
      - Status

- Main Configuration Area:**
- Tank:** Identifier: TANK001
- Tank database:** Load data, Save data
- Tank type/shape:** Tank type: Cylinder, upright; Shape of tank bottom: Flat
- Inside tank dimensions:**
  - Existing data: Diameter and length/height
  - Diameter [d]: 2.000 m
  - Length/height [l]: 2.000 m
  - Static column [H]: 2.000 m
  - Total volume [V]: 6.283 m<sup>3</sup>
- Tank measuring line:** Length/height [Hs]: 0.000 m
- Reference volume (MCN = max. capacity nominal, SCN = safe capacity nominal):**
  - Volume at 20 mA corresponds to: Max. tank content (MCN): 20 mA = 100 %
  - Permissible filling limit: 95 % (Rounded to nearest wh...)
  - Permissible height [hperm]: 1.900 m
  - Permissible volume [Vperm]: 5.969 m<sup>3</sup>
- Characteristic:** Characteristic
- User-defined tree (Bottom Left):** Empty
- Schematic Diagram (Bottom Right):**
- Diagram of a tank with diameter  $d_i$ .
- Labels: 20 mA = MCN/R, Gauge pipe, SCN, hperm, H.
- Arrows indicate flow and measurement points.

**[Identifier]**

A maximum of 15 characters can be entered to describe the type of tank or the tank ID. The text appears in upper-case letters.

The tank ID runs across the display of the Media 6 device.

**[Tank database]****⇒ Load data**

You can load and modify existing tank geometrical data from the database.

**⇒ Save data**

Save newly entered or changed tank data to Media database.

**[Tank type/shape]**

**Tank type** · Drop-down list with four entries:

- Cylinder, upright
- Cylinder, horizontal
- Ball
- Characteristic mode

Define tank geometry by selecting the corresponding entry.

**Shape of tank bottom** · Drop-down list with five entries:

- Flat head
- Torispherical bottom
- Semi-ellipsoidal bottom
- Enter r and R
- Enter R ( $r = 0$ )

**[Inside tank dimensions]**

**Existing data** · Drop-down list with three entries

- Diameter and length/height
- Length/height and volume
- Diameter and volume

After entering the data, TROVIS-VIEW 4 automatically calculates the missing tank data and displays them.

**Diameter** [di] in m

Inside tank diameter

**Length L/H** [L] in m

Length or height of the tank, depending its position (horizontal/upright)

### **Static column [H] in m**

Max. possible liquid column. This corresponds to the inside length (horizontal tank) or inside height (upright tank). The value is automatically calculated.

### **Total volume [V] in m<sup>3</sup>**

Corresponds to the geometric tank volume (gross useable tank volume in m<sup>3</sup>). The value is automatically calculated, provided it has not been entered (existing data).

### **[Tank measuring line]**

#### **Length/height [Hs] in m**

Length of measuring line or pipe socket below the tank. Input 0.000 to 5.000 m.

#### **[Reference volume (MCN = max. capacity nominal, SCN = safe capacity nominal)]**

The volume at 20 mA corresponds to the tank MCN or to the gauge pipe marker SCN.

Select from toggle field:

- Max. tank content (MCN)
- Tank content up to overflow/gauge pipe (SCN)

#### **Permissible filling limit in %**

Geometric volume up to the overflow in relation to the geometric tank capacity in percent; e.g. 95 %.

#### **Permissible height [hperm] in m**

Permissible height up to the gauge pipe or overflow.

#### **Permissible volume [Vperm.] in m<sup>3</sup>**

Permissible volume. Corresponds to 'Total volume x [Permissible filling limit/100]'.

---



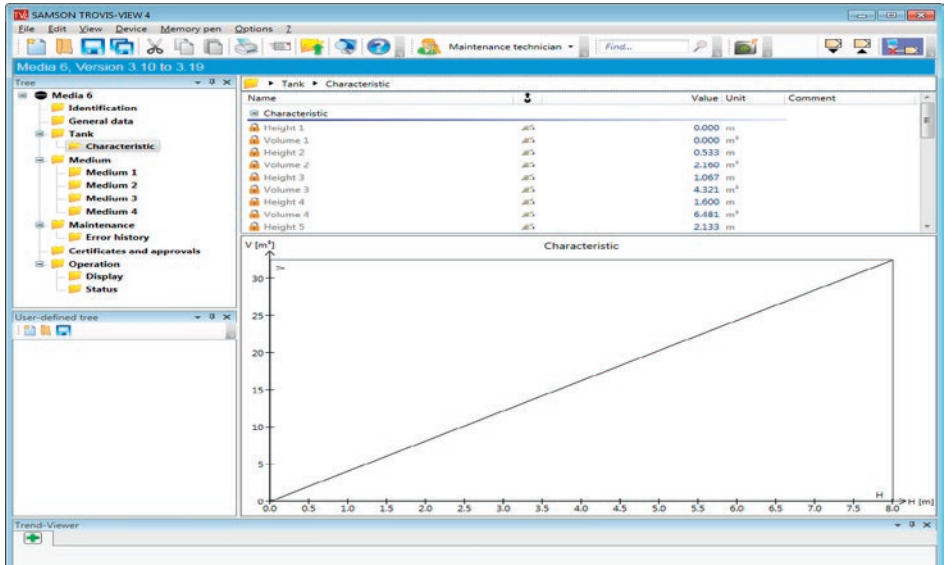
#### **Note:**

*If one of the values for filling limit, height, or volume is changed, the other two values are automatically recalculated.*

---

### **[Characteristic]**

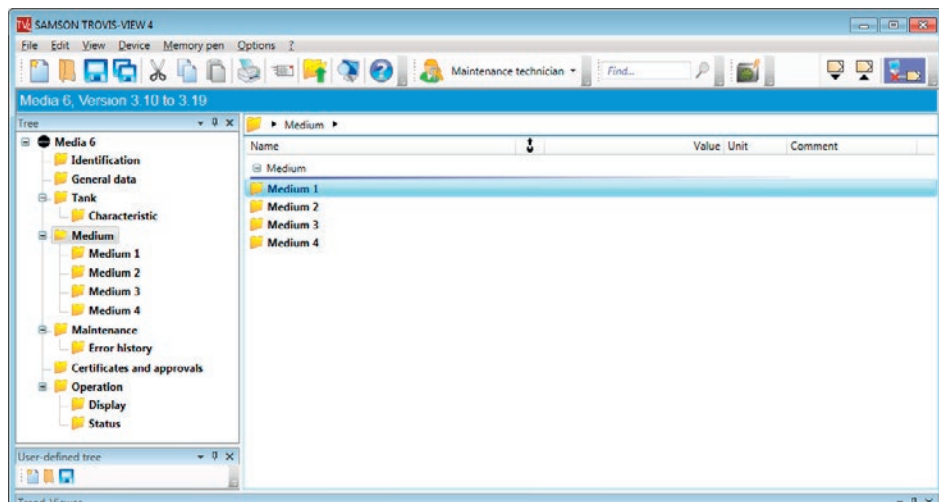
Indicates the tank characteristic, taking into account the tank geometry. The pairs of values consist of the tank volume V in m<sup>3</sup> and the associated tank height H in mm.



## 3.1.4 Medium

[Medium]

The data for a maximum of four media can be entered.



## [Medium 1] to [Medium 4]

The screenshot shows the SAMSON TROVIS-VIEW 4 software interface. The main window displays the configuration for Medium 4, organized into several sections:

- Medium database:** Includes 'Load data' and 'Save data' buttons.
- General medium data:**
  - Medium identifier: CO2
  - Unit: kg
  - Shrink factor: 1.00000
- Tank pressure:**
  - Additional pressure: No
- Density calculations:**
  - Data logging: By medium data
  - Gas column correction: No
- Densities:**
  - Liquid density: 1178.1550 kg/m<sup>3</sup>
  - Standard gas density: 1.8474 kg/m<sup>3</sup>
  - Gas density in tank: 0.0000 kg/m<sup>3</sup>
  - Gas density in low-pressure pipe: 0.0000 kg/m<sup>3</sup>
  - Mixture density: 1095.6842 kg/m<sup>3</sup>
- Operating filling limit, hazard warning:**
  - Operating filling limit: 93 % (Value rounded to nearest...)
- Calculated values:**
  - Max. tank content: [MCN] 38178 kg
  - Tank content up to overflow/gauge pipe: [SCN] 36269 kg
  - Tank content up to 'Operating filling limit': [UCW] 33731 kg
  - Min. differential pressure: [Δp0] 29 mbar
  - Max. differential pressure: [Δp100] 907 mbar
- Filling level table:** (indicated by a blue arrow icon)

The left sidebar shows a tree view with 'Medium 4' selected under the 'Medium' folder. The bottom section shows a 'User-defined tree' which is currently empty.

- Medium database
- General medium data
- Tank pressure
- Density calculations
- Densities
- Operating filling limit, hazard warning
- Calculated values

## [Medium database]

## ⇒ Load data

You can load and modify existing media data from the database.

### ⇒ Save data

Save newly entered or changed tank data to Media database.

### [General medium data]

- Medium identifier
- Unit
- Shrink factor

### Medium identifier

A maximum of 8 characters can be entered to describe the tank content (stored medium). The text appears in upper-case letters on the display of the Media 6 device.

**Unit** · Drop-down list with six entries

- m<sup>3</sup>, %, kg, L, ft<sup>3</sup>, lbs

### Shrink factor

Enter the shrink factor valid at the operating temperature of the tank. This value depends on the tank material, operating temperature, and the process medium.

### [Tank pressure]

- Additional pressure
- Operating pressure
- Unit of 'Operating pressure'

**Additional pressure** · Yes/No

Select 'Yes' to show 'Operating pressure' under PTANK on the display of the Media 6 device.

**Operating pressure** in bar

Enter the actual absolute pressure applied to the tank (usually the air pressure).

**Unit of 'Operating pressure'** · Drop-down list with eight entries

- mbar, bar, kPa, psi, mm H<sub>2</sub>O, cm H<sub>2</sub>O, m H<sub>2</sub>O, in H<sub>2</sub>O

### [Density calculations]

When 'By medium data' is selected

- Data logging
- Gas column correction

**Data logging** · By medium data/By preset pressure



**Medium data**

Enter the gas column correction as well as the liquid density and mixture density (see [Densities]).

Gas column correction · Yes/No

**Yes** · The gas column correction increases the accuracy of the filling level indication. It can only be performed if the gas density in the tank and in the low-pressure pipe are known. Therefore, enter the density after activating the gas column correction (see [Density]).

**No** · No values need to be entered in 'Gas density in the tank' and 'Gas density in the low-pressure pipe'.

When 'By preset pressure' is selected

- Min. differential pressure
- Max. differential pressure
- Final reference value

**By preset pressure**

The minimum and maximum differential pressure as well as final reference value must be entered.

**Minimum differential pressure** in mbar

Pressure at 0 % reading (= 4 mA).

**Maximum differential pressure** in mbar

Pressure at 100 % reading (= 20 mA).

**Final reference value** in m<sup>3</sup>

Value displayed at 100 % tank content.

**[Densities]**

- Liquid density
- Standard gas density
- Gas density in tank
- Gas density in low-pressure pipe

### Liquid density in $\text{m}^3$

Density of medium at 1 bar (abs) and boiling temperature. To improve the accuracy of the indicated filling level, enter the liquid density at operating conditions. In this case, the operating pressure density must be entered and changed manually (see [Operating pressure]). This makes the filling level reading more precise.

### Standard gas density in $\text{m}^3$

Gas density at 1 bar (abs) and 15 °C. The current values for liquid density, gas density in the tank, and gas density in the low-pressure pipe are automatically converted and displayed.

### Gas density in tank and Gas density in low-pressure pipe in $\text{m}^3$

– Details on gas column correction

Gas density in the tank depends on the nominal pressure and assumed temperature in the tank. Gas density in the low-pressure pipe depends on the nominal pressure and assumed temperature in the pipe.



**Note:**

*The gas density in the tank and in the low-pressure pipe are required for gas column correction of the content reading. If no correction is required, set both densities to 0.*

---

### Mixture density in $\text{m}^3$

Mixture density refers to the density when filling the tank. The operating filling limit is derived from this. It is automatically calculated on entering the liquid density.

**[Operating filling limit, hazard warning]**

- Operating filling limit

**Operating filling limit in %**

A blinking bar graph element on the display indicates when the operating filling limit has been reached.

A marking can be fixed in the range between 0 % and 95 %. This is used to calculate the tank content.

The blinking bar graph element serves as guide for the operator filling the tank.

**[Calculated values]**

Reading of the previously entered value and the automatically calculated value. It cannot be edited and is only shown on the software.

- Max. tank content [MCN] · Entered in m<sup>3</sup>
  - Tank content up to overflow/gauge pipe [SCN] · Entered in m<sup>3</sup>
  - Tank content up to 'Operating filling limit' [UCW] · Entered in m<sup>3</sup>
  - Minimum differential pressure [ $\Delta p_0$ ] · Differential pressure in mbar at 0 % filling level
  - Maximum differential pressure [ $\Delta p_{100}$ ] · Differential pressure in mbar at 100 % filling level
- ⇒ Filling level table · Displays a table with filling levels corresponding to the tank data and selected dimension.

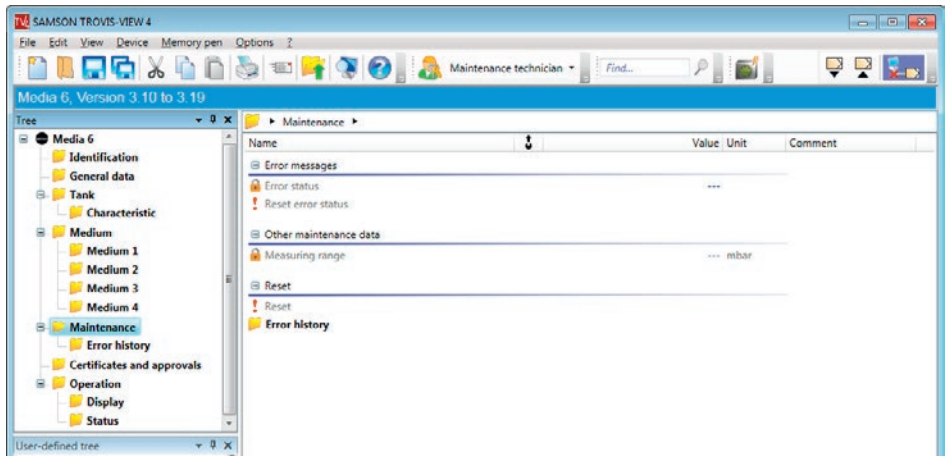
Coordinates	Height [m]	Volume [m <sup>3</sup> ]	Filling volume [m <sup>3</sup> ]	Δp100 [mbar]	i [mA]
1	0.000	0.000	0.000	34	4.00
2	0.533	2.160	1804.330	107	5.12
3	1.067	4.321	3608.660	180	6.25
4	1.600	6.481	5412.989	253	7.37
5	2.133	8.641	7217.319	326	8.49
6	2.667	10.802	9021.649	399	9.61
7	3.200	12.962	10825.979	472	10.74
8	3.733	15.122	12630.308	545	11.86
9	4.267	17.283	14434.638	617	12.98
10	4.800	19.443	16238.968	690	14.11
11	5.333	21.603	18043.298	763	15.23
12	5.867	23.764	19847.628	836	16.35
13	6.400	25.924	21651.957	909	17.47
14	6.933	28.084	23456.287	982	18.60
15	7.467	30.245	25260.617	1055	19.72
SCN	7.600	30.785	25711.700	1073	20.00
16 (MCN)	8.000	32.405	27064.947	1128	20.84

**[Save ...]**

The data can be saved to a file (.txt), e.g. filling\_level\_01.txt, and processed on a computer using other standard software.

## 3.1.5 Maintenance

### [Maintenance]



- Error messages
- Other maintenance data
- Reset
- Error history

### [Error messages]

Information on error messages (e.g. error status, sum of error codes) are shown and can be reset.

### [Other maintenance data]

Measuring range reading of the connected Media 6 device.

### [Reset]

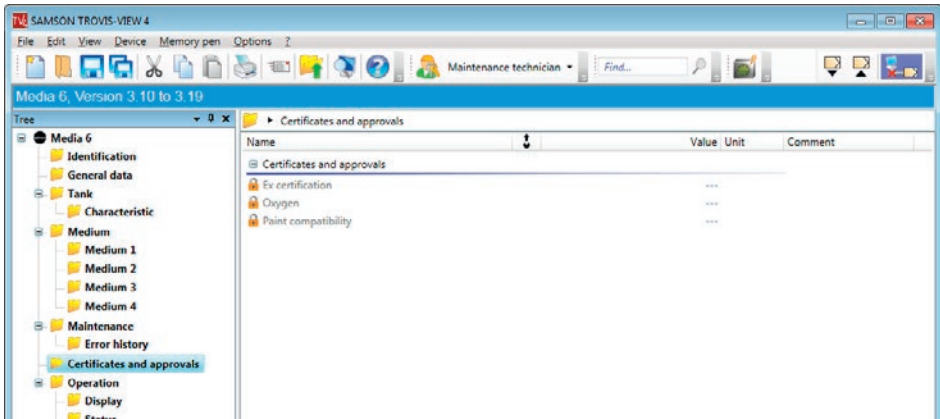
Restart the Media 6 device. This activates changed data.

### [Error history]

The last 20 errors that have occurred are logged and listed here. See error code ► EB 9527-3. The last entry is N. Upon delivery, the value is 1.

## 3.1.6 Certificates and approvals

[Certificates and approvals]



### Status details of the connected Media 6 device

Yes/No reading

- Ex certification
- Oxygen
- Compatibility with paint

Information on the connected Media 6 device concerning certificates and approvals.

### Ex certification

Indicates whether the connected Media 6 device is approved for use in hazardous areas.

### Oxygen

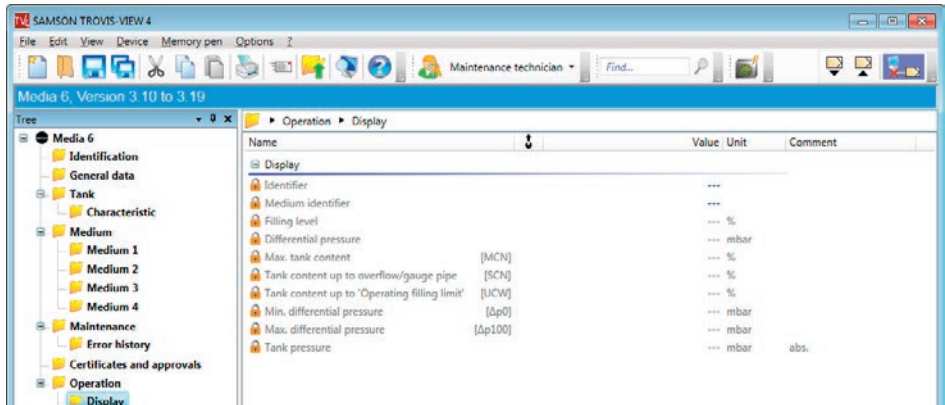
Indicates whether the connected Media 6 device is approved for oxygen service.

### Compatibility with paint

Shows whether the connected Media 6 device is free of substances that impair paint adhesion (silicone free).

## 3.1.7 Operation

### [Operation]



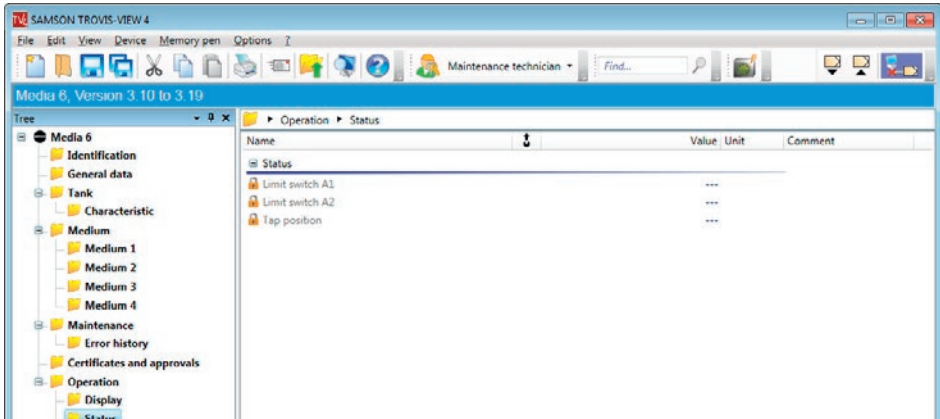
- Display
- Status

### [Display]

Depending on the operating mode selected, a list of all readings appears.

- Identifier · Same as entered in [Tank] > [Identifier].
- Medium identifier · Same as entered in [General medium data] > [Medium identifier].
- Filling level · Current tank content in %
- Differential pressure · Current differential pressure in mbar
- Max. tank content · MCN in %
- Tank content up to overflow/gauge pipe · SCN in %
- Tank content up to 'Operating filling limit' · UCV in %
- Min. differential pressure  $\Delta p_0$  · Differential pressure at 0 % filling level in mbar
- Max. differential pressure  $\Delta p_{100}$  · Differential pressure at 100 % filling level in mbar
- Tank pressure (absolute pressure) · Corresponds to the value entered for [Operating pressure] ([Operating pressure] is only visible if [Additional pressure] = 'Yes')

[Status]



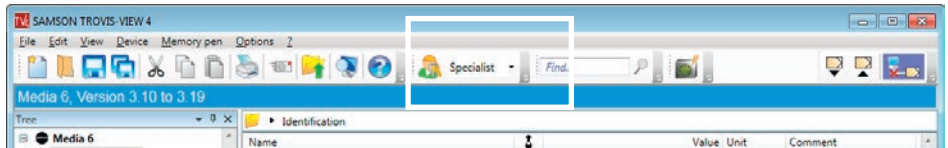
**Status details of the connected Media 6 device**

- Limit switch A1 · State of limit switch A1 (On/Off)
- Limit switch A2 · State of limit switch A2 (On/Off)
- Tap position · State of equalizing valve between the (+) and (–) measuring lines. Only visible if the ['Equalizing valve open' signal] = 'Yes' (see section 3.1.2 on page 8).
- Battery voltage · Charging status reading of battery. Only visible when [Power-saving mode (PSM)] = 'On' (see section 3.1.2 on page 8).

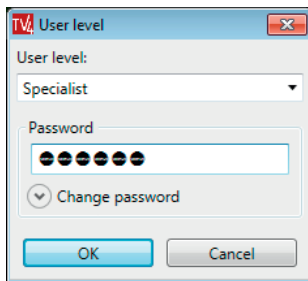


### 3.2 Flow measurement, counting flow rate measurement, differential pressure measurement, level measurement in transportation vehicles

In the 'Specialist' user level, [Flow rate mode], [Counting flow rate mode], [Differential pressure mode], [Filling level in tank truck] can also be selected.



The user level is password-protected: 'samson' for first installation (TROVIS-VIEW 4 3.20 and higher), 'DURCHFLUSS' after update (TROVIS-VIEW 4 before 3.20)



More details in ► [EB 6661](#) for **TROVIS-VIEW 4 software**.

In the [Identification] folder, [**Operating mode**] is additionally listed with a drop-down list of the additional functions [Filling level mode], [Counting flow rate mode], [Differential pressure mode], [Filling level in tank truck].

### 3.2.1 Flow rate measurement

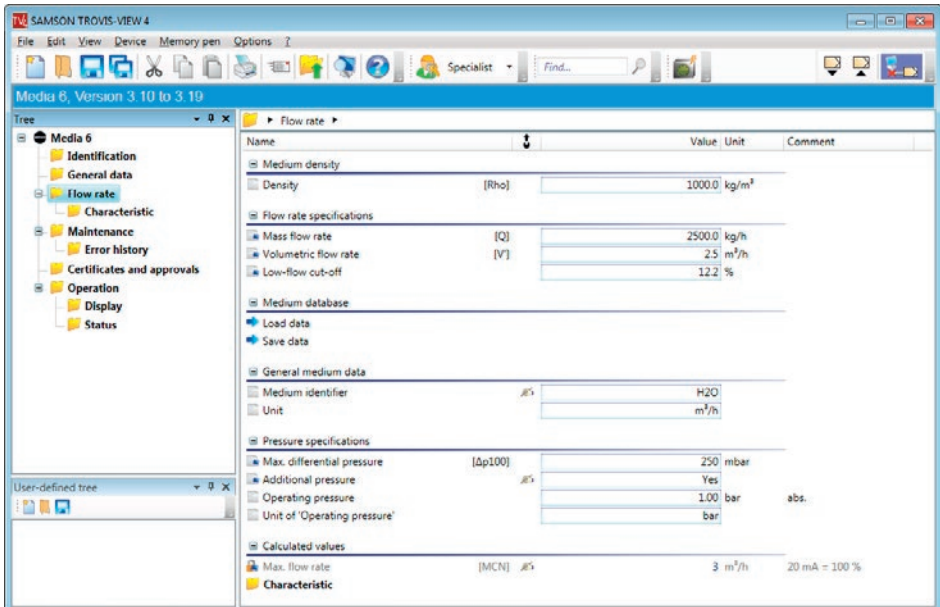
[Identification] > [Operating mode]

Select [Flow rate mode].

[Flow rate mode]

In the [Flow rate] folder, enter the data required for flow rate measurement.

[Flow rate] is visible together with its associated parameters:



[Medium density]

Density [Rho] in kg/m<sup>3</sup>

Enter the medium density for the operating conditions.

[Flow rate specifications]

Mass flow rate [Q] in kg/h or volumetric flow rate [V] in m<sup>3</sup>/h

Enter either the mass flow rate in kg/h or the volumetric flow rate in m<sup>3</sup>/h.

**[Low-flow cut-off]**

At low flow velocities, no reproducible measurements are possible in the lowest measuring range. As a result, low-flow cut-off is active in root-extracting flow mode. Low-flow cut-off acts on the current output and the display. Adjustable in 7 to 20 % range of  $Q = 100\%$ . The flow rate is not registered in the adjusted range as a result.

**[Medium database]**

- Load data
- Save data

**[⇒Load data]**

You can load and modify existing media data from the database.

**[⇒Save data]**

Save newly entered or changed data to the database.

**[General medium data]**

- Medium identifier
- Unit

**Medium identifier**

A maximum of 8 characters can be entered to describe the medium. The text appears in up-per-case letters.

The medium identifier is shown on the display of the Media 6 device.

**Unit** · Drop-down list with ten entries

- %/h, kg/h, m<sup>3</sup>/h, ft<sup>3</sup>/h, lbs/h, %/min, kg/min, m<sup>3</sup>/min, ft<sup>3</sup>/min, lbs/min

**[Pressure specifications]**

- Max. differential pressure
- Additional pressure

**Max. differential pressure** [ $\Delta p_{100}$ ] in mbar

Corresponds to differential pressure in mbar at 100 % flow rate.

**Additional pressure** · Yes/No

When 'Yes' is selected: enter the operating pressure and select the corresponding unit from the drop-down list.

- mbar, bar, kPa, psi, mm/H<sub>2</sub>O, cm/H<sub>2</sub>O, m/H<sub>2</sub>O, in/H<sub>2</sub>O.

The pressure range can be selected within the specified limits. The selected operating pressure must match the entered density at operating conditions. The operating pressure is shown as 'PTANK' on the display of the Media 6 device.

The unit selected in this case relates to the previous 'Pressure' parameter. A drop-down list contains the units: mbar, bar, kPa, psi, mm/H<sub>2</sub>O, cm/H<sub>2</sub>O, m/H<sub>2</sub>O, in/H<sub>2</sub>O.

### [Calculated values]

– Max. flow rate

### **Max. flow rate** [MCN]

The specified value corresponds to the max. possible flow rate. Enter the same unit as in **Unit** (20 mA = 100 %).

### [Characteristic]

Shows the flow characteristic, volume in m<sup>3</sup> above the height in m.

### 3.2.2 Counting flow rate measurement

[Identification] > [Operating mode]

Select [Counting flow rate mode].

[Counting flow rate mode]

In the [Counting flow rate mode] folder, enter the required data.

[Counting flow rate mode] is visible together with its associated parameters:

The screenshot shows the 'Counting flow rate' configuration window in SAMSON TROVIS-VIEW 4. The window title is 'Media 6, Version 3.10 to 3.19'. The left sidebar shows a tree view with 'Media 6' expanded, and 'Counting flow rate' selected. The main area displays a table of parameters with input fields and units.

Name	Value	Unit	Comment
<b>Medium density</b>			
Density	[Rho]	1000.0	kg/m <sup>3</sup>
<b>Flow rate specifications</b>			
Mass flow rate	[Q]	2500.0	kg/h
Volumetric flow rate	[V]	2.5	m <sup>3</sup> /h
Low-flow cut-off		12.2	%
Count		1	m <sup>3</sup>
<b>Medium database</b>			
Load data			
Save data			
<b>General medium data</b>			
Medium identifier	atS	H2O	
Unit		m <sup>3</sup> /h	
<b>Pressure specifications</b>			
Max differential pressure	[Ap100]	250	mbar
Additional pressure	atS	Yes	
Operating pressure		1.00	bar abs.
Unit of 'Operating pressure'		bar	
<b>Calculated values</b>			
Max. flow rate	[MCN] atS	3	m <sup>3</sup> /h 20 mA = 100 %
Max. no. of counts		99999999	
Max. recordable counts		99999999	m <sup>3</sup>
<b>Characteristic</b>			

Besides the parameters entered in [Flow rate], additional data in [Flow rate specifications] and [Calculated values] are required:

[Count]

Select and determine the value of a counting pulse. Enter the value in the range between 0.001 and 1000000.

One count correspond to one pulse of an external counter. Max. possible counting frequency: 120 pulses/minute or 7200 pulses/hour.

### [Calculated values]

- Max. flow rate
- Max. no. of counts
- Max. recordable counts

### [Max. flow rate] [MCN] in m<sup>3</sup>/h

Reading of the maximum recordable flow rate (20 mA = 100 %).

### [Max. no. of counts] Max. 99 999 999 reading

Maximum recordable number of counts. At 100 % flow rate and the adjusted count, the min. interval until counter overflow can be deduced.

### [Max. recordable counts] Max. 99 999 999 reading

Corresponds to the maximum recordable volume, depending on the selected count.

**Example:** Quantity per count 10 m<sup>3</sup>, max. number of counts = 99 999 999 -> Max. recordable counts = 9 999 999 990 m<sup>3</sup>

### 3.2.3 Differential pressure measurement

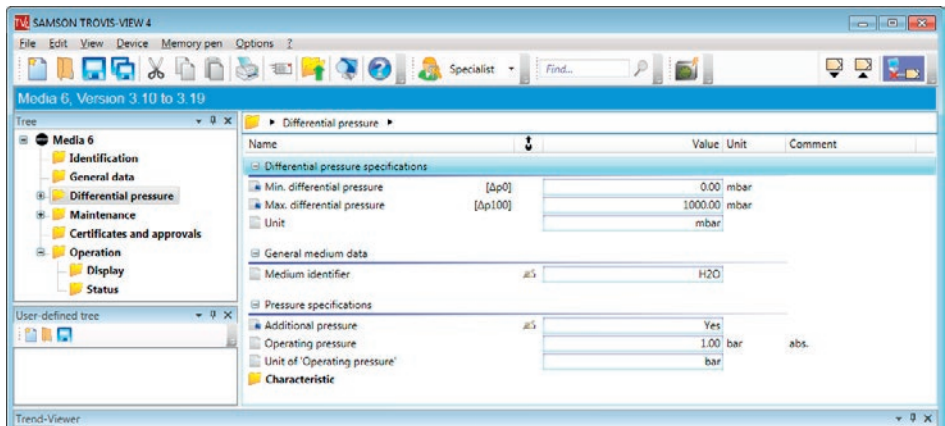
[Identification] > [Operating mode]

Select [Differential pressure mode].

[Differential pressure]

In the [Differential pressure] folder, enter the required data.

[Differential pressure] is visible together with its associated parameters:



[Differential pressure specifications]

- Min. differential pressure
- Max. differential pressure
- Unit

[Min. differential pressure] [ $\Delta p_0$ ] in mbar

Pressure at 0 % reading (= 4 mA).

[Max. differential pressure] [ $\Delta p_{100}$ ] in mbar

Pressure at 100 % reading (= 20 mA).

[Unit] · Drop-down list with eight entries

- mbar, bar, kPa, psi, mm H<sub>2</sub>O, cm H<sub>2</sub>O, m H<sub>2</sub>O, in H<sub>2</sub>O

### [General medium data]

- Medium identifier

#### **Medium identifier**

A maximum of 8 characters can be entered to describe the medium. The text appears in upper-case letters.

The medium identifier is shown on the display of the Media 6 device.

### [Pressure specifications]

- Additional pressure

#### **Additional pressure** · Yes/No

When 'Yes' is selected: enter the operating pressure and select the corresponding unit from the drop-down list.

- mbar, bar, kPa, psi, mm/H<sub>2</sub>O, cm/H<sub>2</sub>O, m/H<sub>2</sub>O, in/H<sub>2</sub>O.

The selected operating pressure must match the entered density at operating conditions. The operating pressure is shown as 'PTANK' on the display of the Media 6 device.

### [Characteristic]

Shows the differential pressure characteristic, volume in m<sup>3</sup> above the height in m.



### 3.2.4 Level measurement in transportation vehicles

[Identification] > [Operating mode]

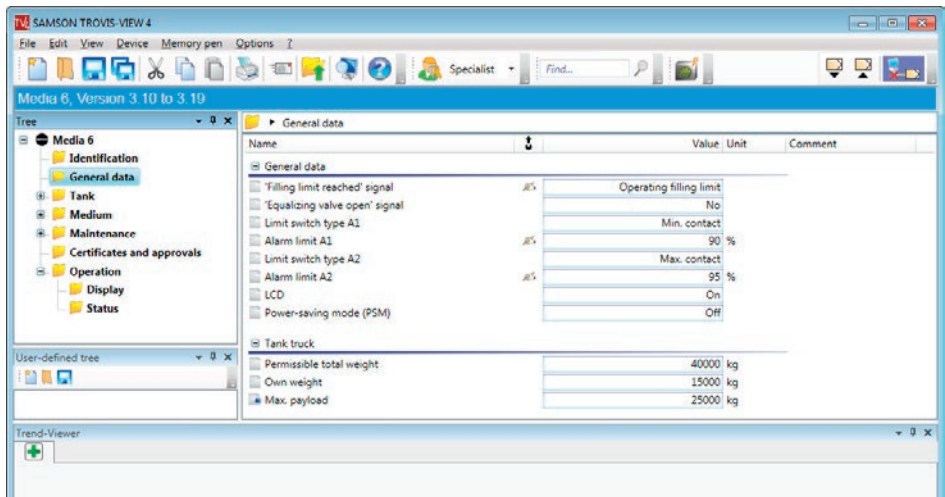
Select the function [Filling level in tank truck].

[Filling level in tank truck]

In the [Filling level in tank truck] folder, enter the required data. See details in section 3.1 on page 7.

In addition to the details, weight details listed in [General data] are required.

[General data]



[Tank truck]

- Permissible total weight
- Own weight
- Max. payload

[Permissible total weight], [Own weight], and [Max. payload] in kg

Enter details written in truck papers.

Based on the permissible total weight and own weight, the maximum payload of the truck is automatically calculated.

## 3.3 Settings at the Media 6 device

### 3.3.1 Testing the limit switches and current output

Menu bar [Device]

#### Test functions

Test the functioning of the limit switches if they are connected with an isolating switch amplifier.

The current output can be set to a defined test value. During the test, the display of the Media 6 device is switched off.

#### [Transmit]

The test is performed.

### 3.3.2 Zero and span calibration

Menu bar [Device]

#### [Calibration]

Zero and span calibration

#### [Run]

Zero and span are calibrated.



**Note:**

To be able to perform the calibration in the TROVIS-VIEW 4 software, refer to ► EB 9527-3 for the test setup of the Media 6 device and the enabling of the write and span protection.

---

### 3.3.3 Zero point setting through basic calibration

After changing the range springs or diaphragm, the Media 6 device must be recalibrated. In this case, an update of TROVIS-VIEW 4 with the "Z-Adj.tro" file is required.



**Note:**

Basic calibration must only be performed after consulting SAMSON since special knowledge is required in this case.


---

Menu bar **[Device]**

**[User level]**

Enter 'Basic calibration'. The user level is password-protected (GRUNDABGLEICH).

## 4 Data exchange

Detailed information can be found in  (Help) on the toolbar in ► EB 9527-3 and ► EB 6661.



**Note:**

*The most recent product documentation is available on the SAMSON website  
► [www.samson.de](http://www.samson.de).*

---

To establish communication, the serial interface of the computer or notebook must be connected to the serial interface port of the Media 6 device using the SAMSON connecting cable.

TROVIS-VIEW 4 must be in the online mode. In this case, communication is established permanently between the Media 6 device and TROVIS-VIEW. All the configuration and operating data are transferred cyclically from the Media 6 device and displayed in TROVIS-VIEW 4. Settings made in TROVIS-VIEW 4 are immediately transferred to the Media 6 device.

The SAMSON memory pen can also be used to exchange data between TROVIS-VIEW 4 and the Media 6 device.

### Save data to the Media 6 device

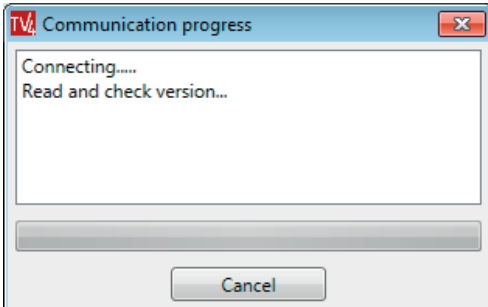
Click on  on the toolbar: data is saved to the Media 6 device.


## 4.1 Read data from the Media 6 device to TROVIS VIEW 4

Menu bar **[Device]**

**[Read]**

All data of the connected Media 6 device are transferred to the software. This allows the data to be read or to create a new set of data.



To read the Media 6 device, click on  in the toolbar.

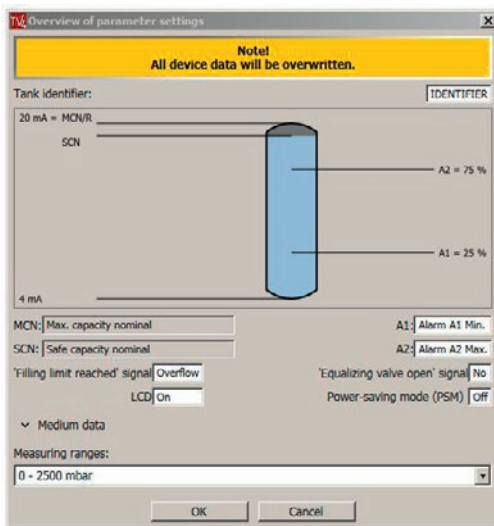
## 4.2 Write data from TROVIS VIEW 4 to the Media 6 device

Deactivate the write protection at the selector switch on the Media 6 device (front left on the housing). Set slider switch 4 to **OFF** (see write protection in ► EB 9527-3).

Menu bar [**Device**]

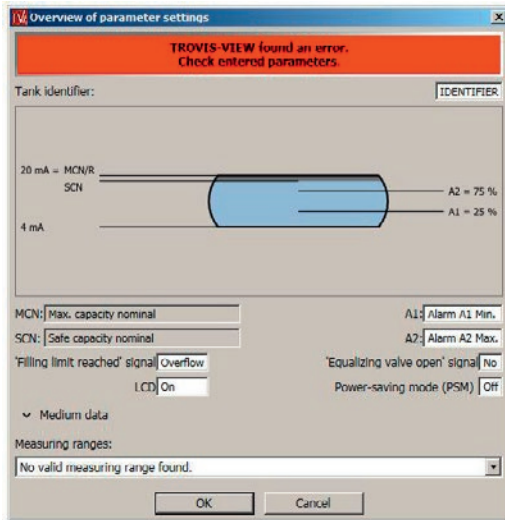
[**Write**]

To write data to the Media 6 device, click on  in the menu bar.



All data are displayed in graphs for checking purposes.

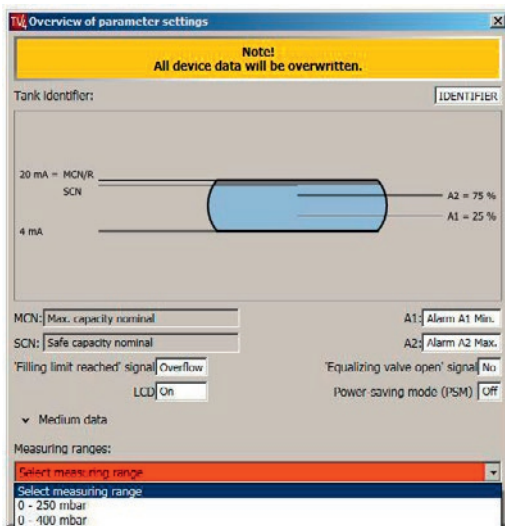
All current data in TROVIS-VIEW 4 are written to the RAM in the Media 6 device.



'No valid measuring range found' is displayed when entered data does not match the available measuring range of the connected Media 6 device.

Recheck entered data and change accordingly. Alternatively, connect a Media 6 device with the matching measuring range. The maximum span adjustment is 1:5.

The SAMSON memory pen can also be used to exchange data between TROVIS-VIEW 4 and the Media 6 device. The memory pen serves as a data carrier and is able to load and store data from the Media 6 device or TROVIS-VIEW 4 in its non-volatile memory.



Before data transmission, the notification message concerning the matching measuring range appears.

When the measuring range does not match, the error code 8 appears in [Maintenance] ('ERROR 8' appears in the display of the Media 6 device) after data transmission.







SAMSON AG · MESS- UND REGELTECHNIK  
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany  
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507  
samson@samson.de · www.samson.de

**EB 9527-2 EN**

2016-08-18 · English