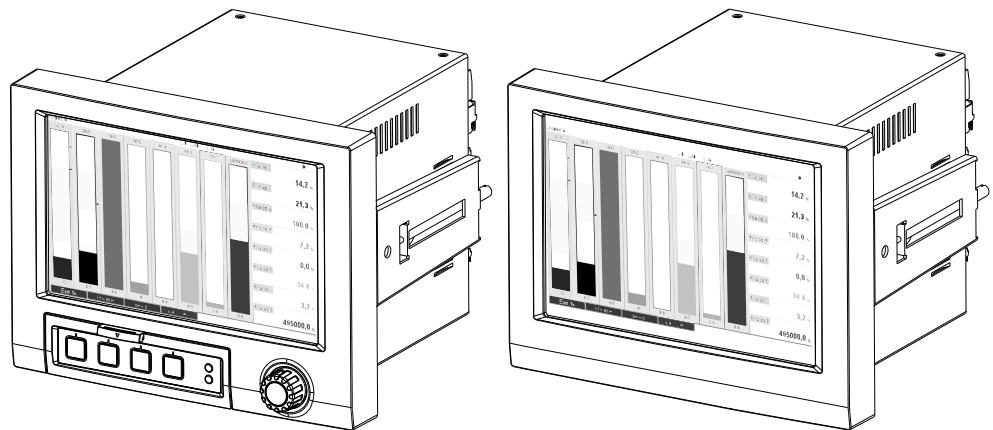


# Additional instructions

## Memograph M, RSG45

### Advanced Data Manager

Option of wastewater + RSB (rain spillway basin)  
Additional functions of water/wastewater software





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# 1 General description of the function

**NOTICE**

This manual constitutes an additional description for a special software option.

These additional instructions are **not** intended as a substitute for the Operating Instructions! Detailed information is provided in the Operating Instructions and the other documentation.

Available for all device versions via:

- Internet: [www.endress.com/deviceviewer](http://www.endress.com/deviceviewer)
- Smart phone/tablet: Endress+Hauser Operations App

The following functions are available in addition to the telealarm software functions:

▪ **Recording the highest and lowest values for the analog channels**

The highest and lowest values of the analog channels are recorded based on x-minute average values (x is configurable: "From the instantaneous values", "From x-min. average values", "From x-hr. average values"). If "From the instantaneous values" is selected, a normal analysis (from the 100 ms values) is generated.

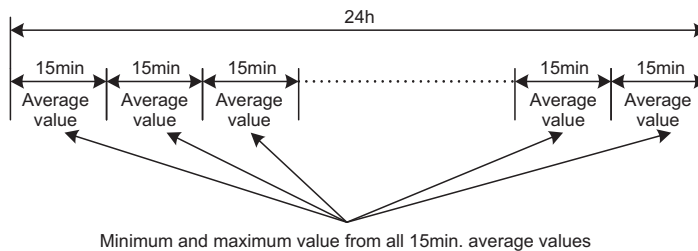


Fig. 1: Recording the highest and lowest values over one day (x = 15 min.)

▪ **Recording the floating highest and lowest values for quantities**

The flow rate from the last hour is recorded every minute for each quantity channel and the daily, weekly, monthly and yearly highest/lowest value determined based on this. The time of the highest/lowest value is also determined and stored. An exact load profile can be created from these values and thus abnormal daily situations can be recorded.

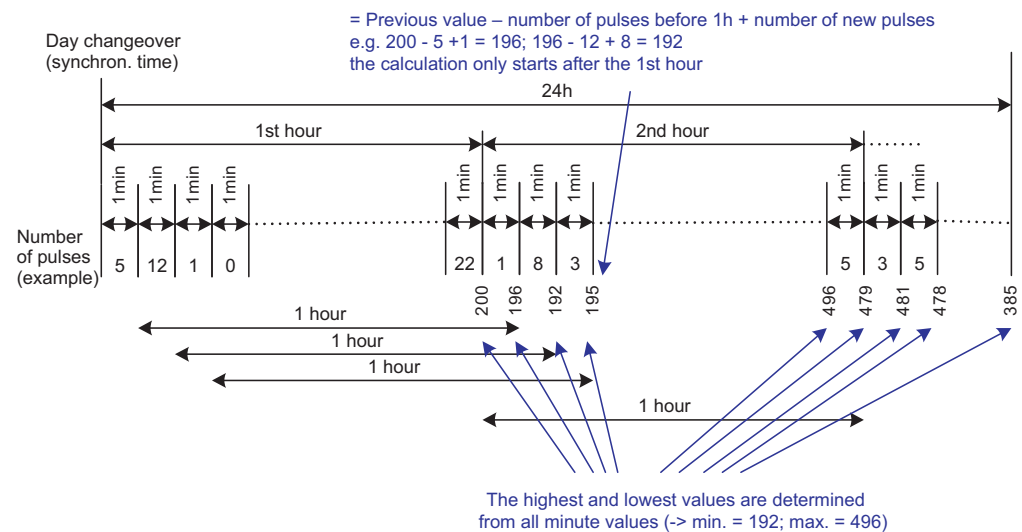


Fig. 2: Recording the floating highest and lowest values for quantities

### ■ Infiltration water analysis

To determine the infiltration water, the device calculates the quantity in a configurable timeframe. Infiltration water is the term used for water that does not really belong in a wastewater channel and does not have to be treated in a sewage treatment plant. A timeframe can be configured in Setup (e.g. from 03:00 to 04:00), during which an additional recording of the quantity takes place to determine the infiltration water, i.e. only the quantity that occurs during this timeframe is determined. This quantity is also displayed in daily, weekly, monthly and yearly analyses. The device can analyze the infiltration water for a maximum of 3 channels.

### ■ Monitoring of rain spillway basins (RSB)

All the relevant values for the reservoir and overflow are determined and saved in the event log for the rain spillway basins (RSB). The reservoir period is the length of time the water level in the basin is higher than the minimum water level.

The set point violation (including date, time, duration, highest value, quantity) is recorded in an event message for upper analog set points (e.g. for overflow or reservoir).

Alarm statistics are created for the basin overflow frequency.

## 1.1 Alarm statistics

The following data are determined through the signal analysis cycles:

### ■ How often was the set point violated (frequency)?

Alternatively, the number of days during the analysis period on which at least one set point violation occurred can be recorded (e.g. required for reservoir frequency of the rain spillway basin).

### ■ How long was the set point violated in total (in operating hours format 0000h00:00)?

The alarm statistics are generated for every active signal analysis. The alarm statistics function is switched off as standard.

#### NOTICE

The alarm statistics function must be activated for monitoring of the rain spillway basins (RSB). See the next section for description.

Alarm statistics are not generated for externally controlled signal analysis for the time the analysis is not active.

The alarm statistics are only generated for "analog" set points (upper, lower and gradient). No statistics are generated for "set points at counter".

#### NOTICE

To determine the frequency, the system only reacts to the moment the set point is exceeded. If the set point is already violated at the time the analysis is started, the frequency value is NOT increased.

The setting in the "Group days" parameter determines whether the number of set point violations or the days with a set point violation are counted.

Example: Set point constantly violated from 08:59:50 to 09:01:10, analysis cycle 1 minute:

Time span	Frequency	Duration
08:59:00 – 08:59:59	1	10 s
09:00:00 – 09:00:59	0	60 s
09:01:00 – 09:01:59	0	10 s

## 2 Device configuration, application setup

### 2.1 General programming guidelines

1. First install and configure the device as described in Sections 1 to 9 of the Operating Instructions. Observe all the safety instructions!
2. Make the additional settings needed for wastewater application (see the next section).
3. Make the additional settings needed for the telealarm (see the additional description).
4. Configure the display, i.e. group the values for displaying and select the display mode. See from Section 10 of the Operating Instructions.

### 2.2 Advanced Setup - Application - Wastewater

Settings for using the device in the wastewater sector.

**NOTICE**

Depending on the selected function, the device's user interface is adapted, so that each time only parameters that are required have to be checked/set.

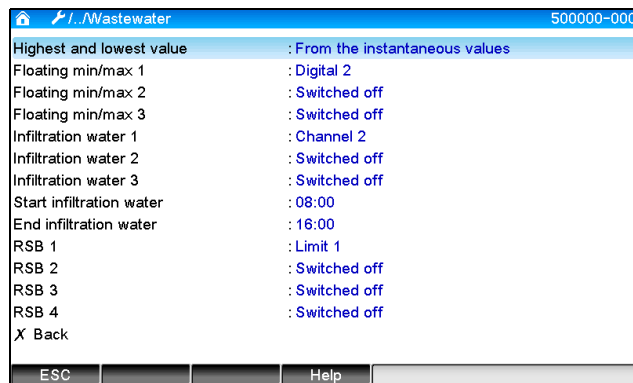


Fig. 3: Application - Wastewater

"Application - Wastewater" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
<b>Highest and lowest value</b>	The highest and lowest values of the analog channels are determined from the current values or from the ¼-hourly average values. <b>Note:</b> The highest and lowest values are determined for all the active analog channels. Signal analysis must be reset manually ("Advanced Setup -> Application -> Signal analysis -> Reset to zero") following a change in this menu so that the highest and lowest values are correctly generated. Picklist: <b>From the instantaneous values</b> , From x min. average values, From x hr. average values	500000/000
<b>Floating min/max 1</b> <b>Floating min/max 2</b> <b>Floating min/max 3</b>	To determine the highest and lowest values for quantities, the quantity of the last 60 minutes is recorded every minute. An exact load profile can be created from these values and thus abnormal daily situations can be recorded. Select the channel for which the floating min/max value should be determined. Picklist: <b>Switched off</b> , Analog input x, Digital input x, Maths x <b>Note:</b> Totalization must be active for an analog channel. The function must be configured to pulse counter for a digital channel. For maths channels, the result must be a counter or integrated.	500001/000 500002/000 500003/000

"Application - Wastewater" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
<b>Infiltration water 1</b> <b>Infiltration water 2</b> <b>Infiltration water 3</b>	To determine the infiltration water, the device calculates the quantity in a configurable timeframe. Infiltration water is the term used for water that does not really belong in a wastewater channel and does not have to be treated in a sewage treatment plant. Select the channel for which the infiltration water should be determined. Picklist: <b>Switched off</b> , Analog input x, Digital input x, Maths x <b>Note:</b> Totalization must be active for an analog channel. The function must be configured to pulse counter, counter or quantity from time for a digital channel. For maths channels, the result must be a counter or integrated.	500004/000 500005/000 500006/000
<b>Start infiltration water</b>	Starting time for recording the volumes for determining infiltration water. Input: HH:MM; factory setting: <b>00:00</b>	500007/000
<b>End infiltration water</b>	End time for recording the volumes for determining infiltration water. Input: HH:MM; factory setting: <b>00:00</b>	500008/000
<b>RSB 1</b> <b>RSB 2</b> <b>RSB 3</b> <b>RSB 4</b>	All the relevant values for the reservoir and overflow are determined and saved in the event log for the rain spillway basins (RSB). Here, select the set point which causes reservoir or overflow to begin if the value is exceeded, and causes reservoir or overflow to end when the value is undershot. Picklist: <b>Switched off</b> , Set point x	500009/000 500010/000 500011/000 500012/000

### 2.3 Advanced setup - Application - Signal analysis (alarm statistics)

Setup in order to get signal analysis for a preset time range/cycle as well as the function to manually reset the signal analysis.

**NOTICE**

Only settings relevant for the wastewater option are described here. For all the other signal analysis functions, see the Operating Instructions.

Depending on the selected function, the device's user interface is adapted, so that each time only parameters that are required have to be checked/set.

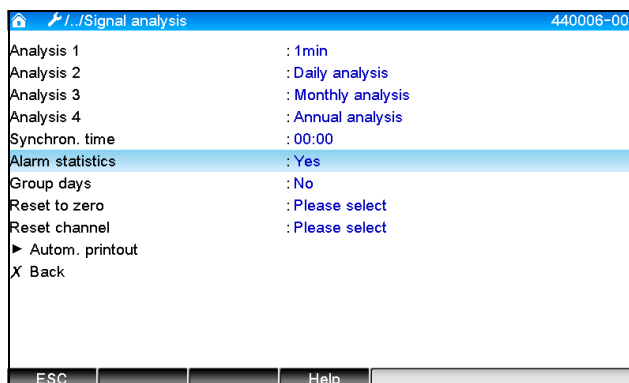


Fig. 4: Application - Signal analysis - Alarm statistics

"System - Signal analysis" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
Alarm statistics	<p>The following data can be determined by means of the signal analysis cycles (e.g. daily analysis):</p> <ul style="list-style-type: none"> <li>■ How often was the set point violated (frequency)</li> <li>■ How long was the set point violated (duration in operating hours format 0000h00:00)</li> </ul> <p>Picklist: <b>no</b>, yes</p> <p><b>NOTICE</b></p> <ul style="list-style-type: none"> <li>▶ The alarm statistics are generated for every active signal analysis. Alarm statistics are not generated for externally controlled signal analysis for the time the analysis is not active.</li> <li>▶ The alarm statistics are only generated for "analog" set points (upper, lower and gradient). No statistics are generated for "set points at counter".</li> <li>▶ Set points can be set for the data of the alarm statistics. These set points can monitor the frequency or duration of set point violation for the analysis duration. Configuration under "Advanced setup -&gt; Application -&gt; Set points -&gt; Set point x -&gt; Channel or type" (see Operating Instructions).</li> <li>▶ "Yes" should be selected here for the "rain spillway basins RSB" option.</li> </ul>	440006/000
Group days (only if "Alarm statistics" - "Yes")	<p>Set up how often the weekly, monthly or yearly analysis is to be calculated.</p> <p><b>"No"</b>: Each individual set point violation is counted.</p> <p><b>"Yes"</b>: The number of days during the analysis period on which at least one set point violation occurred is recorded (e.g. required for reservoir frequency of the rain spillway basin even if this already started on the previous day).</p> <p>Picklist: <b>no</b>, yes</p> <p><b>NOTICE</b></p> <p><b>"Yes" should be selected here for the "rain spillway basins RSB" option.</b></p>	440008/000

**NOTICE**

The modified settings only take effect once the display mode (measured value display) is resumed after configuration. Exit the operating menus by repeatedly pressing the "Back" option. Until this time, the device still works with the previous data.



## 2.4 Example: Recording of reservoir and overflow events at the rain spillway basin

### 2.4.1 Step-by-step: reservoir

1. Set the upper set point (e.g. set point 1) to the level (e.g. universal input 1) under **"Setup -> Advanced setup -> Application -> Set points -> Set point 1"**. The reservoir event begins when this set point is exceeded.
2. Set **"RSB 1"** to this set point under **"Setup -> Advanced setup -> Application -> Wastewater -> RSB 1: set point 1"**

### 2.4.2 Step-by-step: overflow

1. Set the linearization table to the overflow level (e.g. universal input 2) under **"Setup -> Advanced setup -> Inputs -> Universal inputs -> Universal input 2 -> Linearization -> Points"**
2. Activate totalization for the overflow amount of the corresponding channel under **"Setup -> Advanced setup -> Inputs -> Universal inputs -> Universal input 2 -> Totalization"**
3. Set the upper set point (e.g. set point 2) to the overflow amount of the corresponding channel under **"Setup -> Advanced setup -> Application -> Set points -> Set point 2"**. The overflow event begins when this set point is exceeded.
4. Set **"RSB 2"** to this set point under **"Setup -> Advanced setup -> Application -> Wastewater -> RSB 2: set point 2"**

### 2.4.3 Recording the duration and frequency

Activate monthly, annual and alarm statistics under **"Setup -> Advanced setup -> Application -> Signal analysis"**

## 2.5 Use during operation

### 2.5.1 The event log

During operation, the event log can be called up by pressing softkey 1 (user-configurable) or via "Main menu -> Diagnostics -> Event log":

Event logbook		06.02.2015 15:14:52	SD: 1%
440008-000	Group days: No	06.02.2015 15:04:54	
010000-000	Sprache/Language: English	06.02.2015 14:41:51	
440008-000	Tage zusammenfassen: Ja	06.02.2015 14:19:25	
Channel 1	< 100,0 %	06.02.2015 14:08:42	
Channel 1	> 100,0 %	06.02.2015 14:08:42	
<b>1 Details</b>			
Date/time:	06.02.2015 15:04:54		
Text:	440008-000 Group days: No		
	ESC	Go to...	
460001-000	Speicherzyklus: 100ms	06.02.2015 14:07:22	
440008-000	Tage zusammenfassen: Nein	06.02.2015 13:38:43	
Search more recent events			
Search older events			
X Back			
ESC	Go to...		

Fig. 5: Event log

All the set point violations for the reservoir and overflow of the rain spillway basin (RSB) can be viewed here. For this purpose, select the entry in question in the event log and press softkey 3 "Details".

To return to instantaneous value display, press softkey 1 "ESC".

### 2.5.2 Signal analysis

During operation, signal analysis can be called up via "Main menu -> Operation -> Signal analysis":

Monthly analysis		06.02.2015 15:18:52	USB: 0%
02.02.2015 09:25:51 .. 06.02.2015 15:18:52 (9h32:02)			
<b>Channel 1</b>			
Min	: 0,0 %	(06.02.2015 13:40:56)	
Max	: 103,0 %	(06.02.2015 14:08:42)	
Average	: 33,5 %		
<b>Channel 2</b>			
Min	: 0,0 %	(06.02.2015 13:40:56)	
Max	: 100,0 %	(06.02.2015 14:08:36)	
Average	: 48,3 %		
Quantity	: 283874,5		
Total quantity	: 283874,5		
Infiltration water	: 283874,5		
<b>Digital 2</b>			
Quantity	: 2,0		
Total quantity	: 2,0		
Lowest value	: 0,0	(06.02.2015 15:09:00)	
ESC		Screenshot	

Fig. 6: Operation - Signal analysis

In addition to the normal quantities, the highest and lowest values (incl. dimension) can be displayed here for the channels, for which the highest and lowest values are determined. The highest and lowest values are displayed in the completed analyses.

The infiltration water is displayed both in the current intermediate analysis and in the completed analyses.

To return to instantaneous value display, press softkey 1 "ESC".

### 2.5.3 Alarm statistics in signal analysis

During operation, signal analysis with alarm statistics can be called up via "Main menu -> Operation -> Signal analysis":

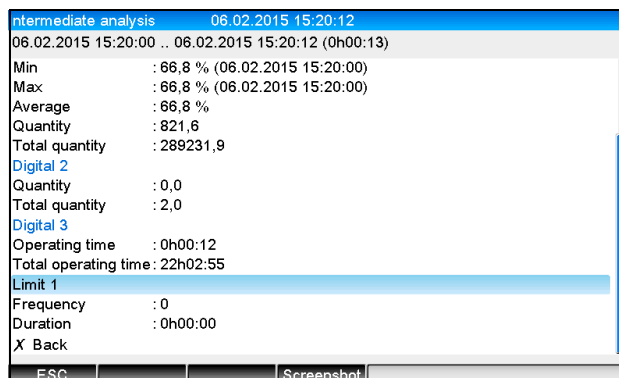


Fig. 7: Signal analysis with alarm statistics

The alarm statistics (frequency/duration) are displayed here in addition to the signal analysis selected (see Operating Instructions).

To return to instantaneous value display, press softkey 1 "ESC".

#### NOTICE

- ▶ The alarm statistics are reset via normal signal analysis "Advanced setup -> Application -> Signal analysis -> Reset to zero".
- ▶ The data of the alarm statistics can also be displayed, printed out and exported with the Field Data Manager (FDM) PC software supplied.

## 3 Error messages and troubleshooting

Plain text on the screen of your device will keep you informed in the event of a fault or incorrect input. The error code is displayed in the Display mode (measured value display) on the top right of the screen.

#### Version with navigator and front interfaces:

In addition, a red LED indicates an error or flashes on a warning or if maintenance is required.

#### NOTICE

Refer to Section 12 "Diagnostics and troubleshooting" of the Operating Instructions for detailed error messages and solutions to problems.

## 4 Technical data

#### NOTICE

The technical data of the Operating Instructions apply for this device option.

[www.addresses.endress.com](http://www.addresses.endress.com)

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