

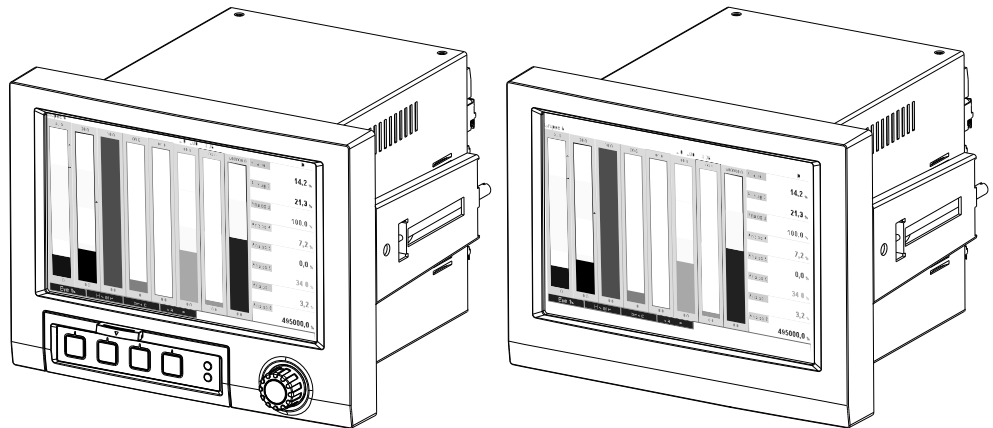
# Additional instructions

## Memograph M, RSG45

### Advanced Data Manager

Telealarm option

Additional telealarm functions for alarm messages





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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! For detailed information, refer to the Operating Instructions and 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

## 1.1 Prerequisites and software history

The "telealarm" option is supported as of version V1.25.0.0 of the Field Data Manager (FDM) PC software. The current version of the PC operating software forms part of the scope of delivery. For installation instructions, see the Operating Instructions.

Overview of device software history:

Device software version/date	Software modifications	Field Data Manager (FDM) PC software version	Operating Instructions/ version
V2.00.00./09.2015	Telealarm option added	V1.25.0 and higher	Operating Instructions: BA01338R/09/01.15 Additional Instructions Telealarm: BA01387R/09/01.15

## 1.2 Description of the telealarm function (message transmission)

When a number of different events occur, the device should send the following:

- SMS (only using GSM modem)
- E-mails (only by Ethernet)
- SMS and e-mail simultaneously (only using Ethernet and GSM modem or GPRS/UMTS modem)

This SMS/message/e-mail contains the following data:

- Date/time of event in the time format configured at the device
- The device name (device tag) entered
- A unique message ID generated by the device (only for SMS (text messages) if the "Confirm message" function is active)
- The message as text

The events can be:

- Set point violations (one message at the start of the set point violation)
- Switching of digital inputs or mathematic channels (for "State" result)

### NOTICE

If two or more events occur at the same time, they are sent one after the other. This can result in a delay in delivering the message (no real-time alarm).

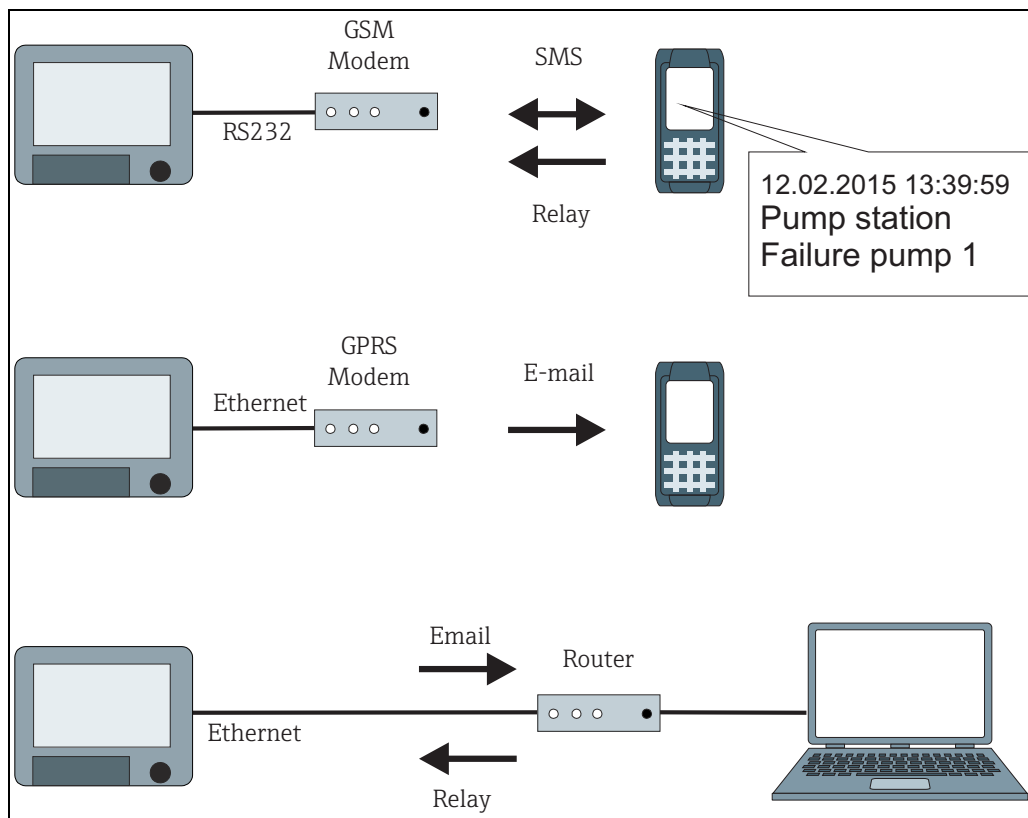


Fig. 1: Different options for sending telealarm messages

## 1.3 Alarm statistics

The following data are determined through the signal analysis cycles:

- How often was the set point violated (frequency)?
- How long was the set point violated in total (in operating hours format 0000h00:00)?

The alarm statistics function is switched off as standard. The alarm statistics are generated for every active signal analysis (same run time).

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, inband/outband and gradient). No statistics are generated for "set points at counter".

### NOTICE

To determine the frequency, the system only reacts to the low --> high flank. If the set point is already violated at the time of analysis, the frequency is NOT increased.

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	11 s

## 1.4 Safety and dangers

### NOTICE

**The device's operating system provides protective measures which can protect the device software against typical threats from the outside.**

The manufacturer does not accept any responsibility for the timely transmission of alarms. External factors such as the network availability of the providers or a disruption in the network (Ethernet) can prevent an alarm from being forwarded.

# 2 Device configuration, application setup

## 2.1 General programming guidelines

1. First install and configure the device as described in the Operating Instructions BA01338R. Observe all the safety instructions!
2. Initialize the modem in the main menu under "Diagnostics/Simulation -> Initialize modem" (see Operating Instructions).
3. Check the network availability, see Section 2.6.6 of this manual.
4. Make the additional settings needed for the telealarm (see the next section).
5. Test the telealarm function, see Section 2.6.8 and see Section 2.6.9 of this manual.
6. Configure the display, for example choose the display mode. See Chapter 11 of the Operating Instructions BA01338R.

## 2.2 Setup - Application - Telealarm

Settings for alarms to be sent via a modem connected to the device or by e-mail.

**NOTICE**

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

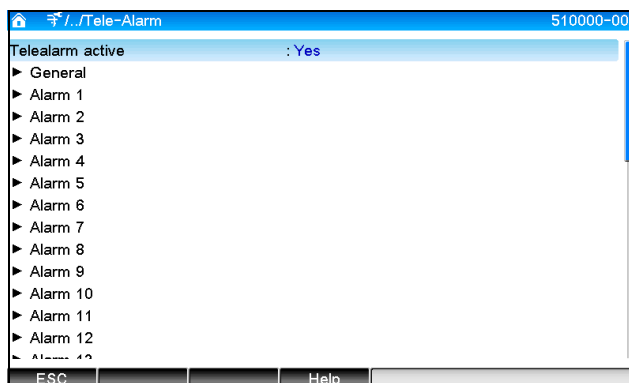


Fig. 2: Expert - Application - Telealarm

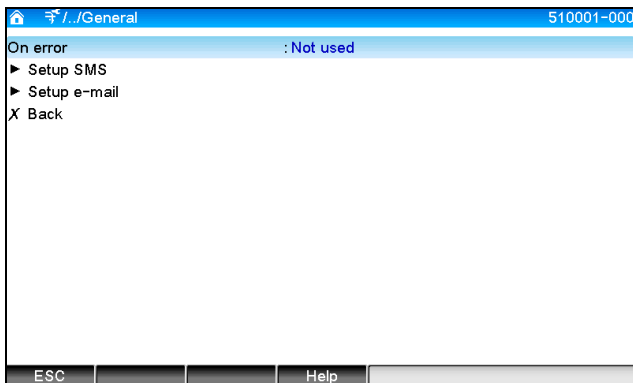
"Application - Telealarm" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
"General" submenu	General settings for telealarm operation.  	
<b>Telealarm active</b>	"No": telealarm function is switched off. "Yes": telealarm function is switched on. Picklist: <b>no</b> , yes	510000-000
<b>On error</b>	Switches a relay if all attempts to send an SMS or e-mail have failed.  Switches a relay as required if none of the SMS or e-mail recipients could be notified. <b>Note:</b> The relay is reset when the message has been successfully sent. Picklist: <b>not used</b> , relay x (xx-xx)	510001-000
<b>"Setup SMS"</b>	Settings required if alarms should be sent via SMS.  <b>Number of trials</b> Number of dial attempts. If no connection is established, the system attempts several times (up to the number of times set up here) to make a connection. User input: 1 to 99; factory setting: <b>3</b>	510010-000

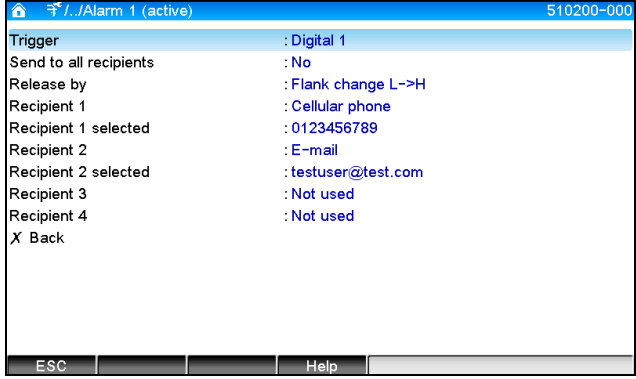
Fig. 3: Expert - Application - Telealarm, "General" submenu

"Application - Telealarm" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
	<p><b>Pause between calls</b> Wait time until next call after an unsuccessful connection attempt. User input: 1 to 999 seconds; factory setting: <b>60 s</b></p>	510011-000
	<p><b>Priority</b> Specify which action should have the highest priority. Here you can specify whether the process of sending an SMS should interrupt measured value read-out currently in progress (priority: send SMS) or whether the system should wait to send the SMS until the read-out process is complete (priority: read out data). Picklist: <b>send SMS</b>, read out data</p>	510012-000
	<p><b>PIN number</b> Generally speaking, the GSM terminal has to be reactivated again with the PIN number following a power failure. Enter the PIN number of your SIM card here. If 0000 is entered, the prompt to enter a PIN is disabled. Text entry: 4-digit; factory setting: <b>0000</b> <b>Note:</b> An invalid PIN number can cause the SIM card to be locked, which means that text messages cannot be received or sent.</p>	510013-000
	<p><b>SMS service no.</b> If the unit is connected to a GSM modem, the SMS message can be transmitted directly using the SMS service number. The number can be obtained from the mobile phone messaging supplier. <b>Note:</b> The service number must be entered with the country code (e.g. +49 for Germany). The service number is generally stored on the SIM card and the user does not have to enter any number. Text entry: max. 22-digit</p>	510014-000
	<p><b>Confirm message</b> Specify whether telealarm messages should be confirmed by SMS. <b>Note:</b> The operating item "Send to all recipients" (see "Alarm x" menu) must be set to "No" to be able to use this function. Picklist: <b>no</b>, yes</p>	510015-000
	<p><b>Confirm timeout</b> Only for "Confirm message" - "Yes" Specify when the recipient of the message has to confirm the alarm by SMS. If the recipient does not confirm the message in time, a message is sent to the next recipient (if defined) User input: 1 to 9999 minutes; factory setting: <b>10 minutes</b></p> <p><b>Note:</b> To be able to acknowledge receipt of the SMS, the recipient has to send the unique message ID he/she received by SMS back to the device.</p> <p>This is done in 2 different ways (depends on cellular phone):</p> <ol style="list-style-type: none"> <li>1. Select "Reply" and enter the ID (e.g. "ID=12345678") manually in the SMS</li> <li>2. Select "Forward" and select the telephone number from the address book.</li> </ol> <p>A valid message ID has to be sent back to the device before the SMS is regarded as having been "sent successfully".</p>	510016-000



<b>"Application - Telealarm" menu items</b>	<b>Configurable parameters</b> (factory settings are highlighted in bold)	<b>Direct access code</b>
	<p><b>Additional call</b> The device can also call the telephone number to which the SMS has already been sent. The call is terminated automatically when the receiver on the other end picks up. The attempt to make a call is aborted after 60 seconds if the receiver on the other end does not pick up. <b>Note:</b> Not every cellular phone/provider supports this function ("Data call" must be supported). <b>Note:</b> The function only makes sense if the recipient has a cellular phone without calling line identification restriction! Picklist: <b>no</b>, yes</p>	510017-000
	<p><b>Check SMS received</b> Specify whether the device should cyclically check whether new text messages (SMS) have been received (remote interrogation/remote control). <b>Note:</b> If this function is active, existing data connections are automatically terminated! This function has to be set to "<b>No</b>" if a GPRS modem is connected! Picklist: <b>no</b>, yes</p>	510018-000
<b>"Setup e-mail (sender)" submenu</b>	<p>Settings that are needed if you want to send alarms by e-mail. <b>Note:</b> e-mails can only be sent by Ethernet!</p>	
	<p><b>SMTP host</b> Enter your SMTP host here. Contact your network administrator or e-mail provider if necessary.</p>	510062-000
	<p><b>Server requires SSL</b> Define whether the e-mail server requires a secure connection (SSL). STARTTLS: uses the same TCP port as unencrypted SMTP (port 25 or 587). SMTPS: Completely encrypted with separate TCP port (465). Contact your network administrator or e-mail service provider if necessary.</p>	510061-000
	<p><b>Port</b> Enter your SMTP port here. Where necessary, contact your network administrator or e-mail provider. The default value changes depending on the settings in "<b>Server requires SSL</b>" User input: max. 4-digit. Factory setting: <b>25</b></p>	510063-000
	<p><b>Sender</b> Enter the e-mail address of the device here (this text appears as the sender of the e-mail). Where necessary, contact your network administrator or e-mail provider. Text entry: max. 60-digit</p>	510064-000
	<p><b>User name</b> Enter the user name of the e-mail account here. Where necessary, contact your network administrator or e-mail provider. Text entry: max. 60-digit</p>	63060/000
	<p><b>Password</b> Enter the authentication password here. Where necessary, contact your network administrator or e-mail provider. Text entry: max. 22-digit</p>	510067-000

"Application - Telealarm" menu items	Configurable parameters (factory settings are highlighted in bold)		Direct access code
	<b>"Phone numbers" submenu</b>	Enter all the telephone numbers to which a message should be sent in the event of an alarm. <b>Note:</b> The assignment to the alarms follows later.	
		<b>Number 1-20</b> Enter a telephone number to which a message should be sent. User input: max. 22-digit. <b>Note:</b> With some providers also e-mails can be sent over SMS. In this case enter the special telephone number with an @-symbol, followed of the number of the e-mail address (1-20 in the submenu "E-mail address"). Example T-mobile: 8000@1	510030-000 to 510049-000
	<b>"E-mail addresses" submenu</b>	Enter all the e-mail addresses to which a message should be sent in the event of an alarm.	
		<b>E-mail address 1-20</b> Enter an e-mail address to which a message should be sent. Enter text in the following format: "x@y.z", min. 5-digit, max. 60-digit.	510080-000 to 510099-000
	<b>"Errors" submenu</b>	Define to whom e-mails should be sent in the event of errors (Fxxx messages).	
		<b>Recipient 1</b> Select to whom the e-mail is to be sent. Picklist: <b>Not used</b> , E-mail-address (all addresses entered in "E-mail addresses")	510120-000
		<b>Recipient 2</b> Select to whom the e-mail is to be sent. Picklist: <b>Not used</b> , E-mail-address (all addresses entered in "E-mail addresses")	510121-000
	<b>"Maintenance required" submenu</b>	Define to whom e-mails should be sent in the event of required maintenance (Mxxx messages).	
		<b>Recipient 1</b> Select to whom the e-mail is to be sent. Picklist: <b>Not used</b> , E-mail-address (all addresses entered in "E-mail addresses")	510130-000
		<b>Recipient 2</b> Select to whom the e-mail is to be sent. Picklist: <b>Not used</b> , E-mail-address (all addresses entered in "E-mail addresses")	510131-000
	<b>"Send e-mail following analysis" submenu</b>	Specify whether an e-mail should be sent following the analysis. The e-mail has an attached CSV file containing the data for the analysis. The format of the CSV file is editable under "Setup -> System -> External memory". <b>Note:</b> The e-mail is not resent if an error occurs (incorrect configuration, e-mail server unavailable etc.).	
		<b>Analysis 1-4</b> Picklist: Yes, No	510140-000 bis 510143-000
<b>Recipient 1-2 selected</b> Select the intended recipient of the analysis. Picklist: <b>Not used</b> , Phone number xx, e-mail address xx		510144-000 bis 510145-000	

"Application - Telealarm" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
<p>"Alarm 1" to "Alarm 35" submenu</p>	<p>Configure the setting for this alarm. Note: The "Alarm x" menus only appear if one e-mail address or telephone number at least has been entered.</p>  <p>Fig. 4: Expert - Application - Telealarm, "Alarm 1" submenu</p>	
<p><b>Trigger</b></p>	<p>Configure the set point or channel that controls the alarm. Picklist: <b>switched off</b>, set point x, digital input x, math x</p> <p><b>Note:</b> Digital input x: only for on/off event; Math x: only for "The result is" = "State"</p>	<p>510200-000 bis 510200-034</p>
<p><b>Send to all recipients</b></p>	<p><b>"No"</b>: once a call has been placed successfully, no additional telephone numbers are called or e-mails sent for the alarm. <b>"Yes"</b>: in the event of a telealarm, all the telephone numbers configured for the alarm are called or e-mails sent.</p>	<p>510201-000 bis 510201-034</p>
<p><b>Release by</b> Only for "Trigger" - "Digital input x" or "Math x"</p>	<p>Alarm output by switching on (L-&gt;H) or switching off (H-&gt;L) the digital input. Picklist: <b>flank change L-&gt;H</b>, flank change H-&gt;L, L-&gt;H and H-&gt;L</p>	<p>510202-000 bis 510202-034</p>
<p><b>Recipient 1</b></p>	<p>Choose to whom a message should be sent (e-mail or mobile communications systems provider). Picklist: <b>not used</b>, e-mail, cellular phone</p> <p>E-mail: the message is sent by e-mail as "plain text". E-mails with attachments are not sent. If there are problems delivering the e-mails, a maximum of 3 attempts to send the e-mail are made, each 5 minutes apart. Subject of the e-mail: &lt;device tag&gt;.</p> <p>Cellular phone: the message is sent to a cellular phone as an SMS. (Option only possible if "GSM terminal" is selected under "General -&gt; Setup SMS -&gt; Modem type:")</p> <p><b>Note:</b> The messages sent and delivery problems are logged in the event log.</p>	<p>510203-000 bis 510203-034</p>
<p><b>Recipient 1 selected</b> Only if "Recipient 1" is selected</p>	<p>Choose who should be notified in the event of an alarm. Picklist: <b>not used</b>, telephone number x, e-mail address x</p> <p><b>Note:</b> Can only be selected if a number or e-mail address has already been entered (see "Application -&gt; Telealarm -&gt; General -&gt; Phone numbers/e-mail addresses")</p>	<p>510204-000 bis 510204-034</p>
<p><b>Recipient 2</b></p>	<p>(See "Recipient 1")</p>	<p>510205-000 bis 510205-034</p>
<p><b>Recipient 2 selected</b> Only if "Recipient 2" is selected</p>	<p>(See "Recipient 1 selected")</p>	<p>510206-000 bis 510206-034</p>

<b>"Application - Telealarm" menu items</b>	<b>Configurable parameters</b> (factory settings are highlighted in bold)		<b>Direct access code</b>
	<b>Recipient 3</b>	(See "Recipient 1")	510207-000 bis 510207-034
	<b>Recipient 3 selected</b> Only if "Recipient 3" is selected	(See "Recipient 1 selected")	510208-000 bis 510208-034
	<b>Recipient 4</b>	(See "Recipient 1")	510209-000 bis 510209-034
	<b>Recipient 4 selected</b> Only if "Recipient 4" is selected	(See "Recipient 1 selected")	510210-000 bis 510210-034

## 2.3 Setup - 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 the settings relevant for the telealarm are described here. For all the other signal analysis functions, see the Operating Instructions.

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

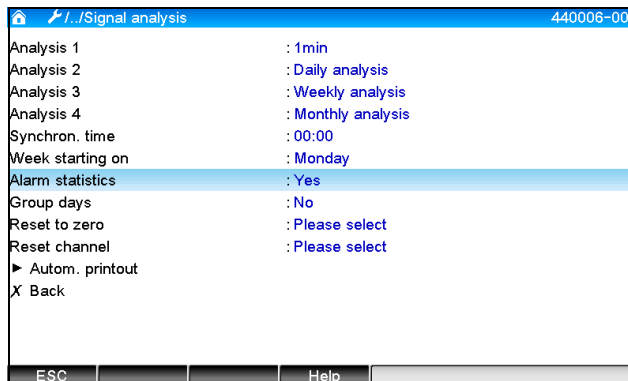


Fig. 5: Setup - System - Signal analysis - Alarm statistics

"Setup - Advanced setup - Application - 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>Note:</b></p> <ul style="list-style-type: none"> <li>The alarm statistics are generated for every active signal analysis (same run time). 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, inband/outband 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 during the analysis period. Configuration under "Setup -&gt; Application -&gt; Set points -&gt; Set point x -&gt; Channel or type" (see Operating Instructions).</li> <li>At the "stormwater overflow basins" option should be selected "yes".</li> </ul>	440006-000
Group days (only for "Alarm statistics" - "yes")	<p>Set-up how often the weekly- monthly- or yearly analysis are to be calculated.</p> <p>"No": each individual alarm is counted.</p> <p>"Yes": the number of days within the analysis cycle in which at least one alarm took place (e.g. Required for the number of overflows in a storm overflow basin).</p> <p>Picklist: <b>No</b>, Yes</p> <p><b>Note:</b> At the "stormwater overflow basins" option should be selected "yes".</p>	440008-000

## 2.4 Setup - Advanced setup- Communication - Ethernet

Setup required if you are using the Ethernet interface of the unit.

### NOTICE

Only the settings relevant for the telealarm are described here. For all the other Ethernet functions, see the Operating Instructions.

"Setup - Advanced setup - Communication - Ethernet" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct Access Code
<b>Domain Name System (DNS)</b>	Please enter the IP address of the DNS server (where necessary, contact your network administrator). Factory settings: <b>000.000.000.000</b> Is needed if you want to use the email servers name instead of the IP address to send emails (e.g. smtp.example.org).	150009-000

## 2.5 Setup - Advanced setup - Outputs - Relay

Relay settings for the telealarm function.

It is possible to control the relays in the device remotely with the "Telealarm" option. An acoustic or optical signal, or a pump, can be switched on and off by controlling the device relays remotely using a cellular phone or PC before someone is present onsite.

### NOTICE

Only the settings relevant for the telealarm are described here. For all the other relay output functions, see the Operating Instructions.

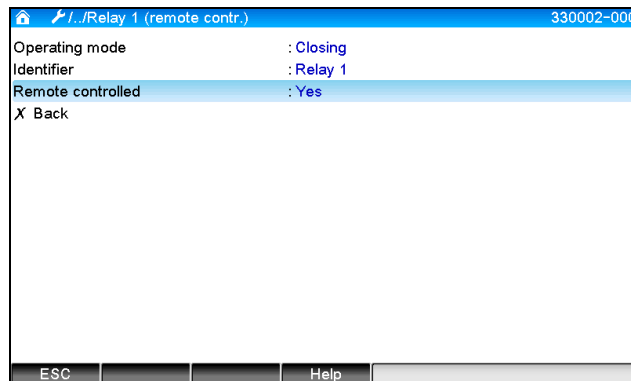


Fig. 6: Setup - Outputs - Relay - Relay x - Remote controlled

"Setup - Advanced setup - Outputs - Relay - Relay x" menu items	Configurable parameters (factory settings are highlighted in bold)	Direct access code
Remote controlled	<p>Specify whether the relay can be controlled remotely (e.g. PC or SMS). Picklist: <b>no</b>, yes</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>■ The relay in question may then not be used for other purposes, such as set point monitoring.</li> <li>■ The names for the relays can be set in the device (see Operating Instructions).</li> <li>■ Relay remote control is logged in the event log.</li> <li>■ If user administration is active, the user who last logged on remains logged on. If no user is logged on, the remote control function does not log any user onto the device. However, the event log records who controlled the relay remotely.</li> <li>■ The last status (ON or OFF) of the relays remains even after a power failure.</li> </ul> <p>Function:</p> <p>By OPC server: The relays of the device can be switched on or switched off with the optional OPC server ("remote controlled"). If the user administration function is enabled, the following user is used for the event log/audit trail: "ID: Remote, Name: OPC".</p> <p>By PROFIBUS/Modbus/PROFINET: The relays of the device can be switched on or switched off by PROFIBUS/Modbus/PROFINET ("remote controlled"). If the user administration function is enabled, the following user is used for the event log/audit trail: "ID: Remote, Name: Fieldbus".</p> <p>By SMS: The relays of the device can be switched on or switched off by SMS ("remote controlled").</p> <p><b>Note:</b> A GSM modem must be connected to the device so that the text messages (SMS) can be received. The device can only be accessed by text message by means of the telephone numbers saved in the device (authentication). Calling line identification restriction for the cellular phone must be disabled for this purpose! If the user administration function is enabled, the following user is used for the event log/audit trail: "ID: SMS, Name: &lt;Phone number&gt;".</p> <p>The user must send the following text message to switch a relay: Open: RELAY&lt;no.&gt;=OFF (example: "RELAY3=OFF" opens relay No. 3) Close: RELAY&lt;no.&gt;=ON (example: "RELAY3=ON" closes relay No. 3) <b>Note:</b> &lt;no&gt; is the relay number (1 to 12); a maximum of 1 relay can be controlled by text message.</p> <p>These commands assume that the "Closing" operating mode is set. If the relay is working in the "Opening" operating mode, the commands have exactly the opposite effect. Spaces within the command are not permitted. The commands are recognized regardless of whether they are upper case or lower case.</p> <p>The sender receives a status message back in the form of a text message.</p>	330002/000 to 330002/011

**NOTICE**

The modified settings do not take effect until you return to display mode (group display) after parameterization. The operating menu is exited by repeatedly selecting the menu item "Back".

## 2.6 Use during operation

### 2.6.1 Text messages in the event of an alarm

If an alarm occurs, an individual message is sent per alarm to the selected recipient. The message contains the following information:

- Date/time (in the format set at the device)
- The device name <device tag> entered
- A unique 10-digit message ID generated by the device (only for text messages if the "Confirm message" function is active)
- A text message, depending on what triggered the message:

Trigger	Contents of SMS or e-mail
<b>Set point violation</b>	The alarm text entered under "Setup -> Advanced setup -> Application -> Set points -> Set point x -> Event text LV on" is sent. If no message has been stored, the device automatically generates its own text (e.g. "Analog 1 > 90%").
<b>Switching digital inputs</b>	The alarm text entered for "L->H" or "H->L" under "Setup -> Advanced setup -> Inputs -> Digital inputs -> Digital input x" is sent. If no message has been stored, the device automatically generates its own text (e.g. "Digital 1 L->H"). <b>Note:</b> The function is only possible if "On/off event" or "Event + operation time" was selected for the digital input.

Example of a complete alarm: "27.02.2015 15:23:16 <device tag> Analog 5 > 50.0 %"

### 2.6.2 Example of forwarding telealarm messages/SMS messages

Procedure for activating the function for forwarding telealarms:

1. Activate the telealarm under "Setup -> Advanced setup -> Application -> Telealarm -> General"
2. Necessary settings under "Setup -> Advanced setup -> Application -> Telealarm -> General -> Setup SMS":  
Select "Yes" to confirm the message  
Configure timeout, e.g. "10 minutes"
3. Create at least 2 telephone numbers under "Setup -> Advanced setup -> Application -> Telealarm -> General -> Phone numbers"
4. Necessary settings under "Setup -> Advanced setup -> Application -> Telealarm -> Alarm x":  
Send to all recipients: "No"  
Recipient x: "Cellular phone". Note: At least 2 recipients must be assigned.

Procedure in the event of an alarm:

1. The device sends the SMS to the first recipient configured (e.g. recipient 1)
2. If this recipient does not send an SMS confirming receipt within the set time ("Confirm timeout" e.g. 10 minutes), the device sends the SMS to the next recipient configured (e.g. recipient 2) ("forwarding")
3. If this recipient now confirms the message within the set time ("Confirm timeout" e.g. 10 minutes), the telealarm message is concluded.
4. If this second recipient does not acknowledge the message in time, the device sends the SMS to the next recipient configured. If no other recipient is configured, an error message is output at the device, an entry is saved in the event log and a relay is switched if "Setup -> Advanced setup -> Application -> Telealarm -> General, on error:" is configured.



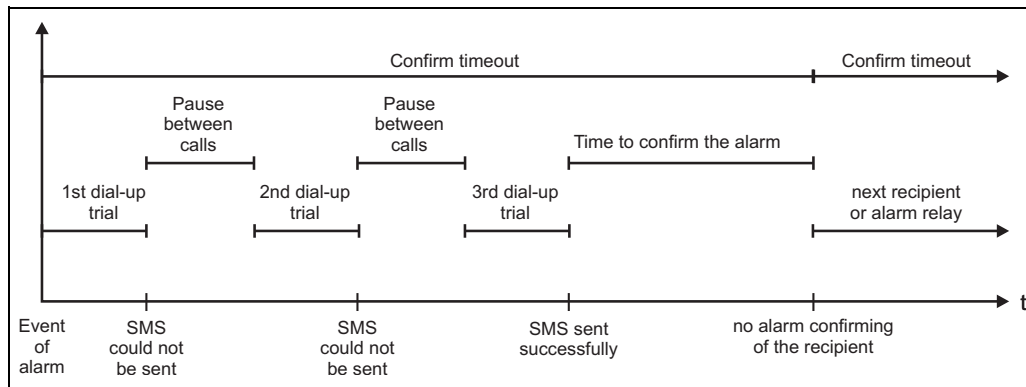


Fig. 7: Pattern of what occurs in the event of an alarm: sending and acknowledging telealarms by SMS.

#### NOTICE

To be able to acknowledge receipt of the SMS, the recipient has to send the unique message ID he/she received by SMS back to the device.

This is done in 2 different ways (depends on cellular phone):

- ▶ Select "Reply" and enter the ID (e.g. "ID=12345678") manually in the SMS
- ▶ Select "Forward" and select the telephone number from the address book.

A valid message ID has to be sent back to the device before the SMS is regarded as having been "sent successfully".

#### CAUTION

If two or more events occur at the same time, they are sent one after the other. This can result in a delay in delivering the message (no real-time alarm).

### 2.6.3 Querying values by cellular phone/SMS

Instantaneous values of individual channels and groups, as well as analyses of the device, can be queried by SMS.

#### NOTICE

The message is always in English.

#### NOTICE

A GSM modem must be connected to the device so that the text messages can be received. The device can only be accessed by text message by means of the telephone numbers saved in the device (authentication). Calling line identification restriction for the cellular phone must be disabled for this purpose! If the user administration function is enabled, the following user is used for the event log/audit trail: "ID: SMS, Name: <Phone number>".

#### NOTICE

Spaces within the command are not permitted. The command is recognized regardless of whether it is upper case or lower case. If the commands are invalid (incorrect format, unknown channels/groups, channel switched off, analysis switched off etc.), an error message in the form of a text message is sent to the sender (apart from when authentication is incorrect). A maximum of 1 instantaneous value or the values of a group can be queried per SMS.

### Querying instantaneous values and analyses of individual channels

The user must send the following text message to query a value by SMS:

GET	<type> channel type:	<ch> channel number:	<mode> type of measured value:
GET	A; Analog channel	1 to 40;	1 Instantaneous value
GET	D; Digital channel	1 to 14;	2 Analysis 1 counter status
GET	M; Math channel	1 to 8;	3 Analysis 2 counter status
GET			4 Analysis 3 counter status
GET			5 Analysis 4 counter status
GET			6 Totalizer

#### Example:

A text message with the text "GETA;8;1" calls up the instantaneous value of analog channel 8.

A text message with the text "GETM;1;6" calls up the totalizer of analysis 1 from mathematics channel 1.

#### Structure of an SMS response:

If OK:

<date/time>

<device tag>

<channel name> = <value> <dim> [( <counter type> )]

In the event of an error:

<date/time>

<device tag>

error message

#### Example of an SMS response:

05.10.2015 15:08:00

<device tag>

tank1 = 20 m

#### Legend:

<date/time> = time when the instantaneous values were measured (in the format set at the device)

<channel name> = channel name

<value> = measured value

<dim> = unit/dimension

<counter type> = type of analysis (optional, i.e. only if counters are read out)

### Querying values of a group

The user must send the following text message to query an instantaneous value of a group by SMS:

GROUP	<no> group number:
GROUP	1 to 10 Group number

At the very maximum, the values of a group can be queried per SMS. Precisely the measured values (instantaneous value/counter) that are displayed in the group are returned.

Special situations: if a measured value is displayed "alternately" (i.e. the instantaneous value and counter are displayed alternately), only the instantaneous value is sent.

An SMS can contain a maximum of 160 characters. If the response is longer than this, the response is split into several text messages.

**Structure of the response:**

If OK:

&lt;date/time&gt;

&lt;device name&gt;

&lt;group name&gt;

For every channel of the group: &lt;no&gt; = &lt;value&gt; &lt;dim&gt;

In event of an error:

&lt;date/time&gt;: error message

**Legend:**

&lt;no&gt;: channel of the group (1 to 8)

&lt;value&gt;: measured value

&lt;dim&gt;: unit/dimension

**2.6.4 The event log/audit trail**

During ongoing operation, the event log can be called up by pressing softkey 1 or by means of "Main menu -> Display/operation -> Event log/audit trail":

Event logbook		02.03.2015 08:43:19
⓪	Power on	02.03.2015 08:40:24
⓪	Power off	27.02.2015 14:39:46
↗	010000-000 Sprache/Language: English	27.02.2015 13:50:39
↗	330002-000 Ferngesteuert: Ja	27.02.2015 13:49:09
↗	010000-000 Sprache/Language: Deutsch	27.02.2015 13:49:02
↗	330002-011 Remote controlled: Yes	27.02.2015 13:48:21
↗	510203-001 Recipient 1: E-mail	27.02.2015 13:32:06
↗	510200-001 Trigger: Limit 1	27.02.2015 13:31:59
↗	510208-000 Recipient 3 selected: 8000187@1	27.02.2015 13:31:31
↗	510207-000 Recipient 3: Cellular phone	27.02.2015 13:31:28
↗	010000-000 Sprache/Language: English	27.02.2015 13:23:02
↗	Auswertung zurückgesetzt!	27.02.2015 13:22:15
▷	Search more recent events	
▷	Search older events	
X	Back	

Fig. 8: Event log/audit trail

The following events can be viewed here:

- Messages sent and delivery errors
- Telealarm function test
- Relay remote control
- Instantaneous value polling by SMS
- If the user administration function is enabled, authentication which has been approved and denied via remote control (with user names)

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".

## 2.6.5 Alarm statistics in signal analysis

During ongoing operation, signal analysis with the alarm statistics can be called up by means of "Main menu -> Extras -> Signal analysis":

intermediate analysis		02.03.2015 09:10:01	
02.03.2015 09:10:00 .. 02.03.2015 09:10:01 (0h00:02)			
<b>Channel 1</b>			
Min	:	38,3 %	(02.03.2015 09:10:00)
Max	:	38,3 %	(02.03.2015 09:10:00)
Average	:	38,3 %	
<b>Channel 2</b>			
Min	:	13,1 %	(02.03.2015 09:10:00)
Max	:	13,1 %	(02.03.2015 09:10:00)
Average	:	13,1 %	
Quantity	:	17,1 m³	
Total quantity	:	3976,0 m³	
<b>Channel 3</b>			
Min	:	109,9 °C	(02.03.2015 09:10:00)
Max	:	109,9 °C	(02.03.2015 09:10:00)
Average	:	109,9 °C	
Limit 1	:		

Fig. 9: Signal analysis with alarm statistics

The alarm statistics 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 "Setup -> System -> Signal analysis -> Reset".

The data of the alarm statistics can also be displayed (in the measured value table), printed out and exported with the PC software supplied.

## 2.6.6 Checking/displaying receipt quality

The device checks the receipt quality (field strength) of the GSM wireless modem connected and displays the current GSM network (provider). The information is displayed under "Main menu -> Diagnostics -> GSM terminal".

### NOTICE

This function is only available if a GSM modem is connected and the modem supports the corresponding commands.

## 2.6.7 Status telealarm

The unit indicates information about the status of the individual alarms. The information is displayed under "Main menu -> Diagnostics -> Status telealarm".

### NOTICE

This function is only available if an alarm under "Setup -> Application -> Tele-Alarm" was switched on and parameterized completely.

## 2.6.8 Test function of the remote-controlled relays

The relays enabled for remote control can be activated manually with the following function: "Main menu -> Diagnostics -> Simulation -> Relay". Select the corresponding relay and change the status (open/closed).

### NOTICE

The change in the status is logged in the event log.

If the user administration function is enabled, the user needs the necessary rights in the user administration function (see Operating Instructions).

### 2.6.9 Test function for sending text message/e-mail

The alarm (text message/e-mails being sent) can be tested with the following function:

"Main menu -> Diagnosis/Simulation -> Simulation -> Test telealarm"

Select one of the alarms set. The device sends a message (SMS or e-mail, depending on the setting) to ALL the recipients assigned (acknowledgment is not taken into account during the test). A neutral text is used as the alarm (alarm <x>: test) so that the recipients know that this is a test. The test is also logged in the event log.

## 3 Error messages and troubleshooting

Your unit informs you of faults or incorrect entries using plain text on the screen. During display operation (measured values display), the error codes are displayed in the upper right-hand corner of the screen.

### Version with navigator and front interfaces:

In addition a red LED signals failures or flashes in the event of warnings or required maintenance.

#### NOTICE

Detailed error messages and troubleshooting can be found in the Operating Instructions.

## 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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