OPTIFLEX 2200 C/F Supplementary Instructions

Guided Radar (TDR) Level Transmitter for storage and process applications

Supplementary Instructions for water resource management (WHG approval)

KROHNE

1.1 Scope of the document

This document only contains configuration and operating information for devices approved for water resource management applications (WHG approval). For more data, refer to the Quick Start, the Handbook and the Supplementary Instructions for Ex applications. These documents are available on the Internet or on the DVD-ROM supplied with device. If you do not have user documentation, please contact the nearest KROHNE office or download them from KROHNE's website, www.krohne.com.

WARNING!
If the device does not have the appropriate options and the correct device settings for WHG applications, the manufacturer does not accept responsibility for tank or channel overfill.

1.2 Revision history

Edition	Date	Description
1	July 6, 2015	First issue.
2	October 25, 2016	Nameplates changed. Voltage range data included.

1.3 Software history

"Firmware revision" and "Hardware revision" agree with NAMUR NE 53. They are a series of numbers used to record the revision status of embedded software (firmware) and electronic equipment assemblies. They give data on the type of changes made and the effect that changes have on compatibility.

Data about the software revision are shown in menu 1.1.0 IDENT.. For more data, refer to the "Operation" chapter in the handbook. If it is not possible to refer to the device menu, record the serial number of the device (given on the device nameplate) and speak to the supplier.

INFORMATION!
Push the [↵] button for 2 seconds to go to menu 1.1.0 IDENT from normal mode.

Firmware revision	Hardware revision	DTM	Documentation
1.08.03	1.00.02	1.3.1 or later	AD WHG OPTIFLEX 2200 R01 + R02

1.4 Device description

This device is a 2-wire level transmitter that uses TDR (Time Domain Reflectometry) / Guided Radar technology. It measures the level and distance of liquids, liquid gases, pastes, powders, slurries and granular products. Measurements are displayed via a DTM (device type manager) for remote communication or an optional integrated display screen with wizard-driven setup and online help functions.

The level transmitter is approved for use in potentially explosive atmospheres when equipped with the appropriate options.

1.5 Standards and approvals

This device is approved for use in water resource management applications when it is equipped with the appropriate options (WHG approval etc.) and has the correct device settings. It is registered under DIBt General Construction Approval number Z-65.16-545 dated 23 March 2015.

The device agrees with the design and test specifications given in "Approval Principles for safety equipment in containers and pipelines – overfill protectors (ZG-ÜS)". This is a document published by DIBt (German Institute for Structural Engineering) and dated July 2012.

§ *LEGAL NOTICE!*
Wasserhaushaltsgesetz (WHG) is the German Act on Managing Water Resources dated 31 July 2009 (Federal Law Gazette, BGBI. I S. 2585). It was revised on 24 February 2012 (Federal Law Gazette, BGBI. I S. 212). The full legal text in German is available on the internet at http://www1.bgbl.de/. This Act follows the provisions of European Directive 2000/60/EC of 23 October 2000 that establish a framework for Community action in the field of water policy. The legal text for this Directive is available on the internet at http://eur-lex.europa.eu/.

WARNING!
Carefully read the DIBt Certificate for WHG Approval, Technical Description, and Annex 1 for the Technical Description.

The documents that follow are given on the DVD-ROM which is supplied with the device:

- DIBt Certificate for WHG Approval
- Technical Description
- Annex 1 for the Technical Description

You can also download the certificate from our internet site.

1.6 Nameplate

Figure 1-1: Device nameplate (device with WHG approval option)
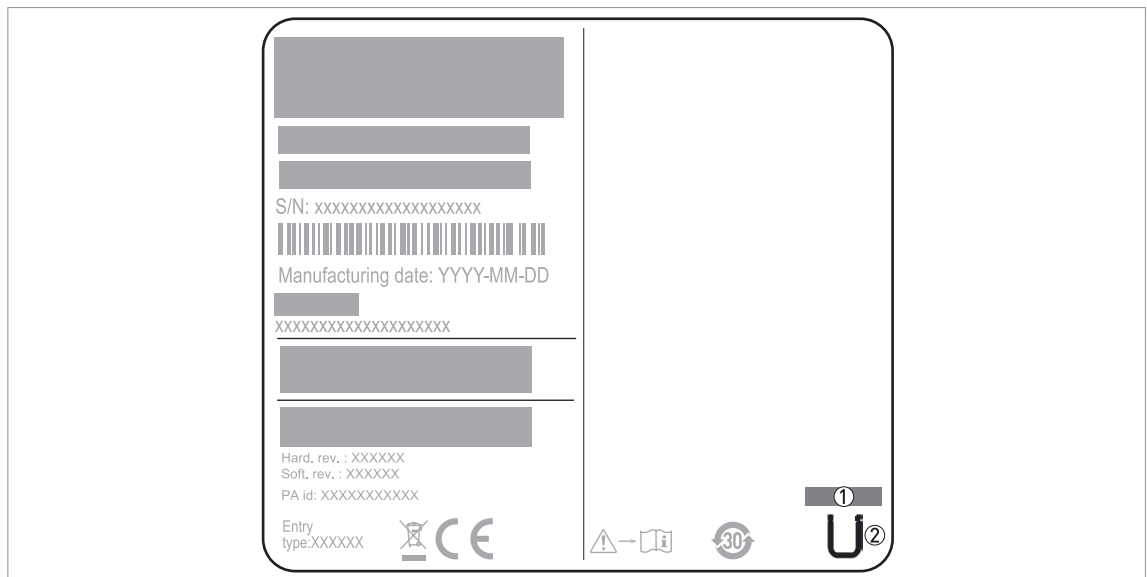
① WHG approval code
② Conformity symbol (Ü marking)

The device must agree with conditions specified in the "Installation" chapter of the Handbook. If the device is also approved for use in potentially explosive atmospheres, refer to the Supplementary Instructions for Ex applications.

3.1 General notes

These data are applicable only to the WHG-approved version of the TDR level transmitter. For all other data, the device must agree with conditions specified in the "Electrical connections" chapter of the Handbook. If the device is also approved for use in potentially explosive atmospheres, refer to the Supplementary Instructions for Ex applications.

3.2 Minimum power supply voltage

Use these graphs to find the minimum power supply voltage for a given current output load.

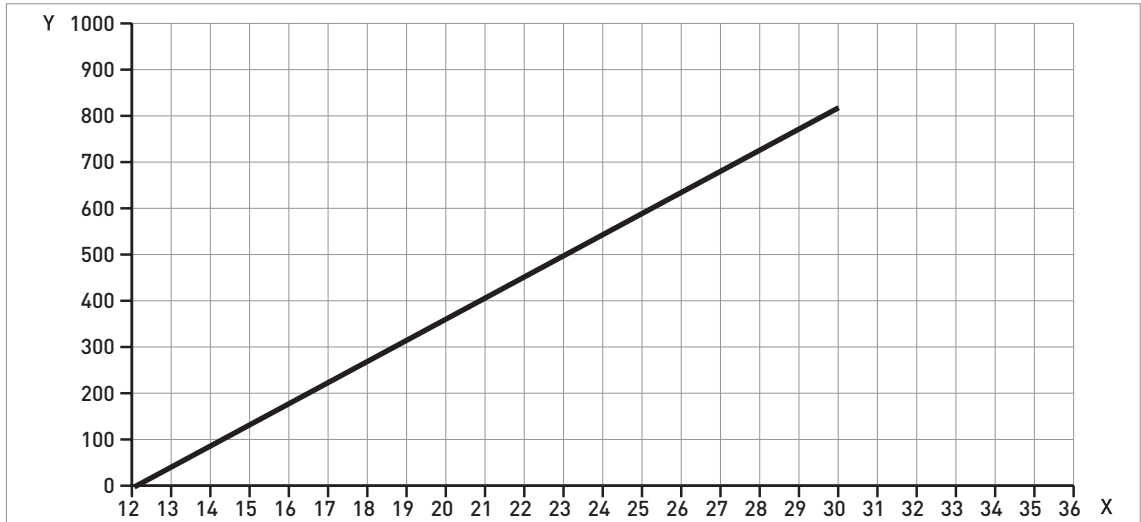### Non-Ex and Hazardous Location approved (Ex i / IS) devices

Figure 3-1: Minimum power supply voltage for an output of 22 mA at the terminal (Non-Ex and Hazardous Location approval (Ex i / IS))

X: Power supply U [VDC]. Min. / Max.: 12...30 VDC.
Y: Current output load R_L [Ω]

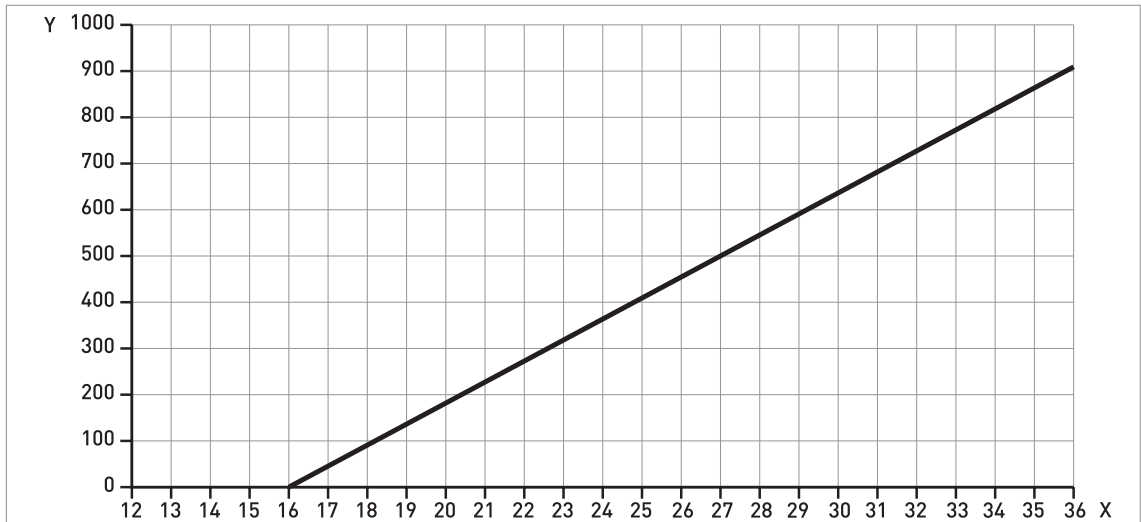### Hazardous Location (Ex d / XP/NI) approved devices

Figure 3-2: Minimum power supply voltage for an output of 22 mA at the terminal (Hazardous Location approval (Ex d / XP/NI))

X: Power supply U [VDC]. Min. / Max.: 16...36 VDC.
Y: Current output load R_L [Ω]

The device must agree with conditions specified in the "Start-up" chapter of the Handbook. If the device is also approved for use in potentially explosive atmospheres, refer to the Supplementary Instructions for Ex applications.

Do a start-up check before you energize the device:

- Does the information given on the nameplate agree with the application?
- Is the device also approved for Ex applications? If the device is approved for Ex applications, do the start-up check given in the "Start-up" chapter in the Supplementary Instructions for Ex applications.

5.1 General notes

For more data about device configuration and operation (function description, error messages etc.), refer to the handbook.

The multi-drop network option is not available for WHG-approved devices.

5.2 Special conditions for the LCD Display option

5.2.1 Device settings (LCD display option)

If the device is in WHG mode, these menu items are not available or not all the parameters are available. For more data about menu items, refer to the "Operation" chapter in the handbook.

2.0.0 Supervisor menu

Menu No.	Function	Description	Available parameters and values

2.1.0 QUICK SETUP

2.1.2	SNAPSHOT	This menu item is not available. "Static & Dynamic" and "Static" Snapshot modes are not available.	—

2.3.0 BASIC PARAM.

2.3.2	BLOC. DIST.	The default value is 250 mm / 9.84¨.	min.:250 mm / 9.84¨ max: 62000 mm / 2441¨
2.3.6	DETECT.DELAY	If the device is in WHG mode, the maximum value for this menu item is Blocking Distance (menu item 2.3.4) - 250 mm / 9.84¨. The default value is 0 mm / 0¨.	min.: 0 mm / 0¨ max.: 2.3.2 BLOC. DIST. - 250 mm / 9.84¨

2.4.0 OUTPUT I

2.4.1	OUTPUT FUNC.	Only "Distance" and "Level" are available.	Distance, Level
2.4.2	RANGE I	"4-20" is not available. The default parameter is "4-20/22E".	4-20/22E, 4-20/3.6E, 3.8-20.5/22E, 3.8-20.5/3.6E
2.4.5	ERROR DELAY	Only "0 S" is available. S=seconds.	0 S

2.5.0 APPLICATION

2.5.2	AUTO Er CALC	This menu item is not available.	NO
2.5.10	MEASUR.MODE	Only "Direct" is available.	Direct
2.5.11	SNAPSHOT MOD.	"Static & Dynamic" and "Static" Snapshot modes are not available.	Dynamic, Disable

2.6.0 COMMUNICATION

2.6.1	HART ADDRESS	This menu item is not available. The device cannot operate in multidrop mode for WHG applications.	0

2.7.0 DISPLAY

2.7.4	PSWD YES/NO	You cannot set this menu item to "NO".	YES

Menu No.	Function	Description	Available parameters and values

2.8.0 CONV. TABLE

| 2.8.1 | INPUT TABLE | This menu item is not available. | — |
| 2.8.2 | DELETE TABLE | This menu item is not available. | — |

5.2.2 How to save settings changed in the supervisor menu (menu 2.0.0)

When you use the LCD display option to change the device configuration, it is necessary to confirm your settings 2 times. Push [↵] to confirm.
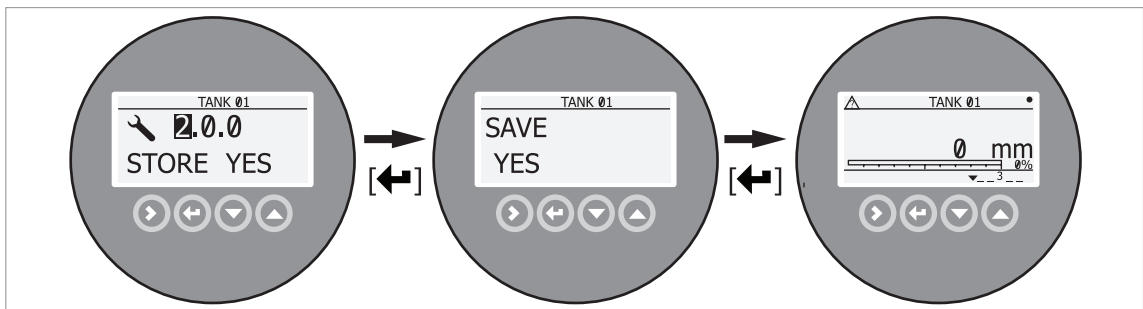

Figure 5-1: Steps to save data (WHG-approved devices)

5.3 Special conditions for PACTware™ (DTM)

5.3.1 General notes

The device has a Device Type Manager (DTM – device driver) for use with the PACTware™ software tool. You can monitor WHG status and change the device configuration from a remote workstation. If the device is in "WHG" mode, this data is shown in PACTware™.
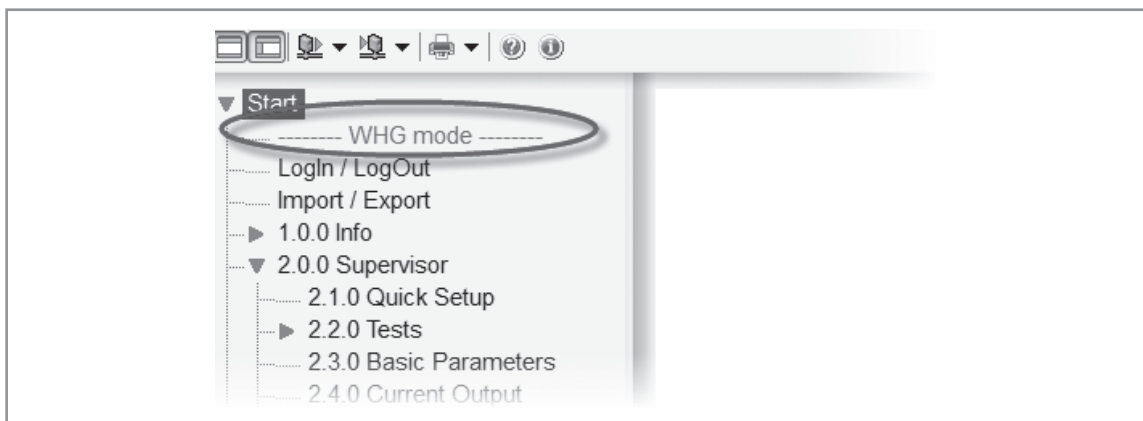

Figure 5-2: WHG mode in PACTware

The DTM has the same menu structure as the LCD display option. If the device is approved for WHG applications, some parameters cannot be changed. For more data, refer to *Device settings (DTM)* on page 12.

5.3.2 DTM installation

⚠ *WARNING!*
You must use DTM version 1.3.1 or later with the WHG-approved device. This software is supplied on the DVD-ROM delivered with the device. It can also be downloaded from the "Download center: Software" web page on the manufacturer's website.

DTM installation procedure

- Download PACTware version 4.1. The software is available on this webpage: http://krohne.com/en/dlc/software/.
- Click on the **Device** button in the main toolbar.
- Extract the files from the ZIP folder "PACTware_4-1_SP3_Full.zip".
- Go to the "PACTware_4_1_SP3_Full" folder and double click on the "setup.exe" file.
- Install PACTware. Follow the procedure in the set-up wizard. If your computer does not have Microsoft .NET Framework, the installation package will also install this software.
- Go to **Field instrument software > 4_DTM - OPTIFLEX_ENG-DE** on the DVD-ROM supplied with the device.
- Install the DTM file for the device (version 1.3.1 or later). Follow the procedure in the set-up wizard.
- ⮕ End of the procedure.

5.3.3 Device settings (DTM)

If the device is in WHG mode, these menu items are not available or not all the parameters are available. For more data about menu items, refer to the "Operation" chapter in the handbook.

2.0.0 Supervisor menu

Menu No.	Function	Description	Available parameters and values

2.1.0 Quick Setup

2.1.1	Commissioning	This menu item is not available.	—
2.1.2	Snapshot	This menu item is not available. "Static & Dynamic" and "Static" Snapshot modes are not available.	—
2.1.4	Conversion Wizard	This menu item is not available.	—

2.3.0 Basic Parameters

| 2.3.2 | Blocking Distance | The default value is 250 mm / 9.84¨. | min.: 250 mm / 9.84¨
max: 62000 mm / 2441¨ |
| 2.3.6 | Detection Delay | If the device is in WHG mode, the maximum value for this menu item is Blocking Distance (menu item 2.3.4) - 250 mm / 9.84¨. The default value is 0 mm / 0¨. | min.:
0 mm / 0¨
max.:
2.3.2 Blocking Distance - 250 mm / 9.84¨ |

2.4.0 Current Ouput

| 2.4.1 | Output Function | Only "Distance" and "Level" are available. | Distance, Level |
| 2.4.2 | Output Range | "4 - 20 mA" is not available. The default parameter is "4 - 20 mA Error=22mA". | 4 - 20 mA Error=22mA, 4 - 20 mA Error=3.6mA, 3.8 - 20.5 mA Error=22mA, 3.8 - 20.5 mA 3.6mA |

Menu No.	Function	Description	Available parameters and values
2.4.5	Output Error Delay	Only "No Delay" is available.	No Delay

2.5.0 Application

2.5.2	Auto Epsilon R Product	This menu item is not available.	NO
2.5.10	Measuring mode	Only "Direct" is available.	Direct
2.5.11	Snapshot Mode	"Static & Dynamic" and "Static" Snapshot modes are not available.	Dynamic, Disable

2.6.0 HART Parameters

—	Polling Address	This menu item is not available. The device cannot operate in multidrop mode for WHG applications.	0

2.7.0 Device setup

2.7.4	Change/Activate Supervisor Password	This menu item is not available. The device has password protection in WHG mode. You cannot use the DTM change the default password. If it is necessary to change the password, disconnect the device from the computer and use the LCD display option to change the password (menu item 2.7.5 PASSWORD).	—

2.8.0 Conversion Table

—	—	This menu is not available.	—

5.3.4 How to save device settings (DTM)

When you change the configuration of a device in WHG mode with the DTM and then store to the device, you must confirm the change. Do the procedure that follows:

Store to the device (procedure for WHG-approved devices)
- Change the device settings.
- Click on the "Apply" button.
- Click on the "Store to device" button.
- ➲   The DTM opens a "Download" window.

- The DTM shows a message: "This device is operating in WHG mode. Any changes may cause the device to operate incorrectly. Do you wish to continue?". Make sure that the new settings are correct.
- If it is necessary to store the changes, click on the "Yes" button.
- ➲   The device stores the new data to the device. Some minutes are necessary to complete this step. End of the procedure.
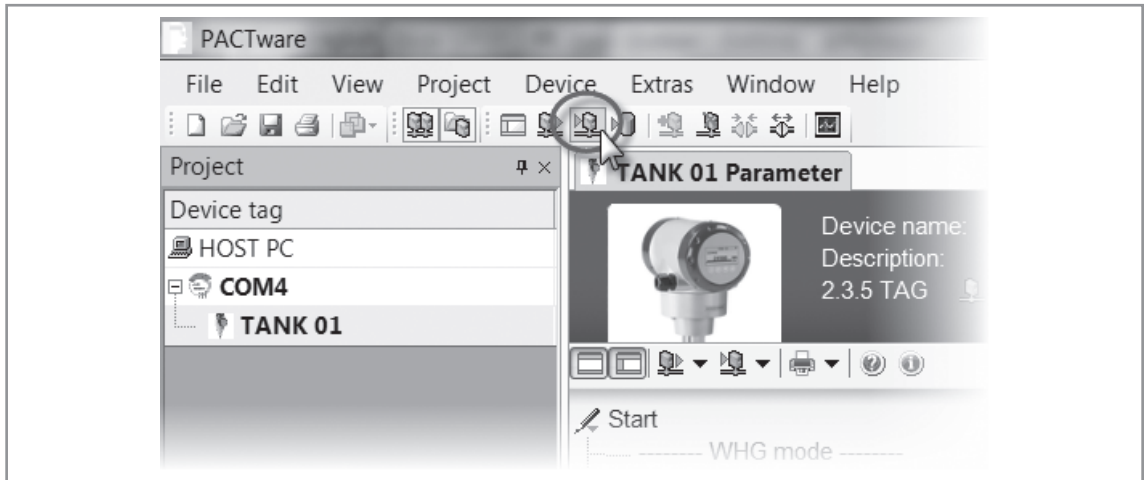
Figure 5-3: "Store to device" button

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