# **DTM User Manual**





# FS24X/FS20X Flame Detector

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## 2 Introduction

The purpose of this document is to support the plant operators with commissioning, operation, configuration and diagnosis of the FS24X/FS20X Rev 1. The FS24X is the latest generation high technology Multi-Spectrum Triple IR (IR/IR/IR/Visible) Fire and Flame detector and the FS20X is the latest generation high technology Multi-Spectrum (UV/Dual IR/VIS) Fire and Flame detector.

The FS24X/FS20X device can be configured and operated by a device type, managed by a DTM (Device Type Manager) that provides an easy to use user interface for accessing device variables, configuration parameters and diagnosis information.

The FS24X/FS20X device should have one optional HART module installed to use HART communication. Please contact Honeywell representatives for the part numbers and availability.

The FS24X/FS20X device type offers the combination of FDT and EDDL technologies and a uniform user interface according to the FDT style guide. It is a full-featured device DTM that carries the standard EDD-Interpreter components to execute the EDD during runtime. Because it is using existing device descriptions, plant operators will experience a familiar operating concept in the DTM.

#### WARNING

For safety reasons this equipment must be operated by qualified personnel only. Read and understand the instruction manual completely before operating or servicing the equipment. For information regarding the FS24X/FS20X device, please check the <u>Tech-</u> <u>nical Manual (see § )</u>

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## **3** Software installation

#### 3.1 Required software / software components

In order to be able to use the FS24X/FS20X HART DTM and to go online with the device you need the following components:

- FDT Frame application (PACTware or some other FDT application supporting FDT 1.2.x)
- HART Communication DTM (it represents the communication hardware needed for connecting the field devices to the automation software): There is a free version of HART Communication DTM available for download from CodeWrights website (www.codewrights.de)
- Honeywell Analytics HART DTM Library
- Microsoft .NET Framework 3.5 (incl. Service Packs)/CRL2
- HART modem (RS232 or USB interfaces of the companies Endress+Hauser, Microflex or MACTek)

#### 3.2 DTM Toolkit downloads

Go to one of FS24X/FS20X website:

- https://www.honeywellanalytics.com/en/products/FS20X-Flame-Detector
- https://www.honeywellanalytics.com/en/products/FS24X-Flame-Detector

Select "Software"

Select "Drivers & Downloads"

Download the toolkit. It will contain the following items:

- PACTware FDT Frame
- HART Communication DTM FDT 1.2
- Most recent version of the Honeywell Analytics DTM Library

#### 3.3 System requirements

#### 3.3.1 System resources

Proper execution of the DTMs requires a standard PC with at least following system resources:

- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor with at least 2 cores
- 1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit)
- Screen Resolution at least 1024x768 pixels
- Free Hard disk space: approx. 2 GB
- Microsoft .NET Framework 3.5 (incl. Service Packs)/CRL2

#### 3.3.2 Operating systems

The DTM will run under the following operating systems:

- Windows 7
- Windows 10
- Windows Server 2012

#### 3.3.3 Hard disk space

The Honeywell Analytics DTM Library HART requires approx. 50 MB hard disk space.

#### 3.4 Installing DTM setup

Please install the Frame Application PACTware (see § Error! Reference source not found.) first, followed by the HART Communication DTM (see § Error! Reference source not found.).

Install Honeywell Analytics HART DTM Library (see § Error! Reference source not found.) as follows:

1. Execute the setup by double-clicking on "Setup.exe" Application On the right-hand side: Extract the installation package to your local disk. Structure and files similar to the following example shall appear:

0009_I.mst	16/12/2019 11:29	MST File	672 KB
Disk1	16/12/2019 11:29	Cabinet File	34 KB
Disk2	16/12/2019 11:29	Cabinet File	9,141 KB
Disk3	16/12/2019 11:29	Cabinet File	411 KB
Disk4	16/12/2019 11:29	Cabinet File	34 KB
Disk5	16/12/2019 11:29	Cabinet File	505 KB
Disk6	16/12/2019 11:29	Cabinet File	705 KB
Disk7	16/12/2019 11:29	Cabinet File	7,733 KB
Disk8	16/12/2019 11:29	Cabinet File	1,827 KB
Disk9	16/12/2019 11:29	Cabinet File	81 KB
Disk10	16/12/2019 11:29	Cabinet File	4,615 KB
Disk11	16/12/2019 11:29	Cabinet File	1,650 KB
Disk12	16/12/2019 11:29	Cabinet File	2,521 KB
Setup	16/12/2019 11:29	Application	212 KB
Setup	16/12/2019 11:29	Windows Installer	894 KB

2. On the Welcome Screen, click "Next":



3. On the next screen, accept the License Agreement and click "Next":

	Software License Agreement	^
IND A.	ICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. Honeywell International Inc. ("Honeywell") hereby grants to Customer a non- exclusive, non-transferable license (the "License") to load and use the software (the "Software") contained in this package in a Honeywell component product. Customer may install and use one copy of the Software, or in its place, any prior version.	~

4. Adjust the installation path to your needs (choose the components to install and the destination directory) by pressing "Browse" or just confirm the default installation path with "Install":

🙀 Honeywell Analytics HART DTM library Setup Wizard	×
Ready to Install Honey The Setup Wizard is ready to begin the installation	well
Honeywell Analytics HART DTM library will be installed to: C:\Program Files (x86)\Honeywell Analytics\DeviceDTM\HART DTM library\	Browse
Click Install to begin the installation. If you want to review or change any of your installation settings, dick Back. Click Cancel to exit the Setup Wizard.	
< Back Install (	Cancel

5. A window indicating the installation progress is displayed:



6. Confirm with "Finish" to close the setup wizard:

Honeywell Analytics HAR	RT DTM library Setup Wizard	×
	The Honeywell Analytics HART DTM library installation has bee completed successfully	'n
	Click the Finish button to exit the Setup Wizard.	
	Please update the DTM catalog.	
	Honeywe	ell
	< Back Finish Cance	el



7. Open your FDT-Frame Application (PACTware) and update the device catalog:

8. Create an updated PACTware DTM catalog by clicking "yes":

PACTware		$\times$
? Crea	te new PACTware de	vice catalog?
	Yes	No



9. After the update you will find the device types listed in your catalog:

## 4 Operation

#### 4.1 Establish connection with the device

After completion of § 2, please follow the steps described below for establishing the connection with your device using a serial HART modem and the CodeWrights HART Communication DTM (setting up a project in another frame or using another communication DTM might differ):

- 1. Open the PACTware frame application and make sure you have updated the "Device catalog" (if not already done yet) as mentioned in § 3.4 Position 7
- 2. Connect the device and the serial HART modem as described in the FS24X/FS20X device manuals (see § for technical details)
- 3. Connect the modem connector to the PC COM port (serial modem) or USB port (USB Modem).
- 4. Right-click on "HOST PC" in the project view on the left-hand side and select "Add device" to add the HART Communication DTM. On the next screen, select the DTM and click "ok":

PA	CTware		-	×
File	Edit View Proje	ect Device Extras Window Help		
100	🗲 🔜 🍙 i 🗗 i 🛐	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Project		<b>4</b> ×		 - 6
Device		10 Channel		De
	Connect			fice c
1				P Device catalog
	Topology Scan	Device for X		9
	Diagnostic Scan	All Devices (1/1 DTMs)		
<b>K</b>	Add device	Enter text to search		
		Device A Protocol Vendor Group Device Version PDT version DTM version		
		CodeWrig not specifi 1.0.54 / 2015-12 1.2.0.0 1.0.54 / 201		
		HART Communication FDT 1.2 DTM		
		OK Cancel		
<		5		
<\⊳	<nona< td=""><td>ME&gt; Administrator</td><td></td><td></td></nona<>	ME> Administrator		

5. Right-click on "HOST PC" in the project view on the left-hand side and select "Parameter":



6. Double-click on the HART Communication DTM and adjust the settings according to your hardware connection (you can find this information in Computer/Properties/Device Manager/Ports/Communications Port) then click "ok":

PACTwar	e								×
	View Project Device								
i 🗋 💕 🖬	🕘   🗗 - 🗐 🔛 🦉		🧕 🎋 🍇 🔳						
Project		<b>4</b> ×	🐍 COM1 Parameter					4 ▷ 3	×
Device tag	0 👤 👬 Channel	Address							Dev
HOST PC									fice o
😴 COM1			Communication interface	HART modem	~				Device catalog
									60
			Serial Interface	COM3 (MACTek VIATOR ) COM3 (MACTek VIATOR )					
			HART protocol	Master	Primary Master ~				
			in all protocol	Preamble	5 V				
				Number of communication	3 ~				
				retries					
			Address scan	Start address	0 ~				
				End address	0 ~				
			_						
			Communication timeout	2 v seconds					
			Multimaster and Burst m	ode support					
						OK	Cancel	Apply	
<		>							
<>> ★ 0	<noname></noname>	Administr	ator						

7. Now "Connect" the HART Communication DTM:



8. Now right-click on the communication DTM and select "Add device":



9. Select the right part number of the HART module installed with your device and click "ok".

Device for					×
All Devices (4/4 DTMs)					
Enter text to search		▼ Find Clear			
Device 🗸	Protocol	Vendor	Group	Devi	FDT version
H XNX Universal Transmitter Rev 1	HART	Honeywell Analytics	Electrochemical analyzer	2.4.2	1.2.0.0
H Optima Plus Rev 1	HART	Honeywell Analytics	Electrochemical analyzer	2.4.2	1.2.0.0
H FSX-A014R (FS24X) Rev 1	HART	Honeywell Analytics	Electrochemical analyzer	2.4.2	1.2.0.0
FSX-A014 (FS24X/FS20X) Rev 0	HART	Honeywell Analytics	Electrochemical analyzer	2.4.2	1.2.0.0
FSX-A014 (FS24X/FS20X):Analytical DD-Vers.: 0x006042 - 0xE180 - 0x00 - 0x01					
			ОК	Ci	ancel

10. Go online by right-clicking on the device DTM and select "Connect" to connect the FS24X/FS20X device:



11. Now your device should be online, and the symbol "Connected" appears:

PACTware									
<u>F</u> ile <u>E</u> dit	<u>V</u> iew	Pro	oject	<u>D</u> evice	E <u>x</u> tras <u>V</u>	Vindow	<u>H</u> elp		
: 🗅 🧉 🚽 🖓 🃭 : 🔛 🖳 🏩 🧏 🗐 🍀 🍀 🔳									
Project # X									
Device tag	0	<u>)</u>	¢۶	Channel	Address	Status	Timestamp status	Device type (DTM)	Device
B HOST PC									
🖻 🚰 СОМЗ	1	· +-				0		💪 HART Communication	HART Communication
🕂 🕂 FSX-A014 🖉 🕂 🖶 H).RTCH 🛛 🔿 🛛 💾 FSX-A014R (FS24X) Rev 1 🛛 FSX-A014R (FS24X) Rev 1									

12. With a click right on the FS24X/FS20X device type in your project a detailed context menu with appear. Browse to Parameter/Online Parameterization and click left on it:

📑 PACTware									
<u>F</u> ile <u>E</u> dit		<u>x</u> tras <u>W</u>	-	Help					
Project						<b>P</b> ×			
Device tag	🚺 🖳 👬 Channel	Address	Status	Timestamp status	Device type (DTM)	Device			
📕 HOST PC									
🗏 🦾 СОМЗ	/ + 🕸		0		4 HART Communication	HART Communication			
	Connect		- <u>P</u>		FSX-A014R (FS24X) Rev 1	FSX-A014R (FS24X) Rev 1			
-									
<u>0</u>									
<u>N</u>	Store to device								
	<u>P</u> arameter		•	<u>Parameterization</u>					
<u>M</u> easured value Simulation				Online <u>p</u> arameterizat	tion				
Diagnosis									
	Print		•						

13. Connection to the device is now used to read data from the device and visualize them:



#### 4.1.1 Possible problems while connecting to device

The following ERROR MESSAGE: "Connection to device could not be established" can be caused by the following:

- Transmitter is not powered
- HART serial interface is not connected
- HART modem and HART Communication DTM are using different serial ports (COM1, COM2, ...). To determine which COM port is the right one:

Click on Windows Start button, then type "Device Manager" and confirm with Enter. In opened "Device Manager", the section "Ports (COM & LPT)" shows a list of the available COM-Ports. The number after "COM" needs to match with the setting that was made in the HART Communication DTM. If a certain USB-Modem is unplugged from the USB-port, its COM-port will disappear from this list.

📇 Device Manager	Second Parameter			X V X
<u>File Action View H</u> elp				
	Communication interface	HART modem		~
	-			
> 🤪 Batteries	Serial Interface	COM3 MACTek VIATOR L	JSB HART Modem)	$\sim$
> 💻 Computer			,	
> _ Disk drives	HART protocol	Master	Primary Master	$\sim$
> 🌆 Display adapters				
> PVD/CD-ROM drives		Preamble	5 ~	
Floppy disk drives		Number of communication retries	3 ~	
> Here Floppy drive controllers		remes		
> 🛺 Human Interface Devices	Address scan	Start address	0 ~	
> 📹 IDE ATA/ATAPI controllers		5		
> 🔤 Keyboards		End address	0 ~	
> III Mice and other pointing devices		0		
> 🛄 Monitors	Communication timeout	2 v seconds		
> 🚅 Network adapters				
V 🛱 Ports (COM & LPT)	Multimaster and Burst m	ode support		
💭 VIATOR USB HART Interfact (COM3)		ode support		
> 🚍 Print queues				
> Processors				
> 📱 Software devices		OK	Cancel	Apply
> 🍇 Storage controllers		UK	Cancer	(iddu)
System devices				

It may be necessary to DISCONNECT the Communication DTM and then CONNECT again to successful establish communications.

- The HART polling address set in the device is not the same as set in the device DTM. For details, see §4.1.2
- The device is connected to a HART Multiplexer and the Multiplexer configuration is not prepared for this device. In most cases, the HART Multiplexer has to be triggered to recognize the device at one of its loops. It does not scan loops the time. Many HART-Multiplexer require the polling address of the device to the 0. For changing the address of your device to 0, see §4.1.2
- The FSX-014

#### 4.1.2 Setting HART polling address

The HART Technology is capable to connect more than one HART device to a single 4-20mA loop. This is called multidrop-mode.

The identification of a HART device is done via its polling address. The valid range is 0-63, while 0 is a special case:

Only for address 0, the loop current will be influenced by measuring and alarm of the device, for any other address it stays at 4mA, independent of measuring or alarm. Influencing the current also requires the device to be the only HART device in the loop.

Device and DTM must be set to the same polling address, and no other device attached to this loop shall use this address. Using an address twice will lead to a broken HART communication for one or more devices.

In many cases multidrop-mode is not in use, and the address is "0". This is the default address of the DTMs.

Note:

The FSX-A014 (FS24X/FS20X) device does only support polling addresses between 0 and 15. Setting any higher address will lead to a broken communication that can't be set back via the DTM anymore.

#### 4.1.2.1 Setting the polling address of a HART device

- Add the HART Commication DTM to your environment, if not already done.
- Set "End address" to a higher value, e.g. "5"
- Adjust the COM-Port settings to get access to your HART-Modem (see §4.1.1)
- Establish a connection to the COM-Port: right click on the HART Communication DTM and choose "Connect". The "two plug"-Icon will change and now the plugs are connected and green.
- Again, right click on the HART Communication DTM an choose "Additional functions/Change device address"
- While opening the view, the HART bus is scanned for devices within the address range between "start address" and "end address": The result may look like this

📞 сомз	# Change device address	
Address	Vendor	Tag
0	<225>	FSX
		Refresh Change Close

Here, a device is found at address "0"

To change the device address, click on change and choose the new address.
 Note: For FSX-A014 (FS24X/FS20X) device, use addresses between 0 and 15

only. See §4.	.1.2	
Change HART address		
	Actual address New address	0 3 ~
	ОК	Cancel

- Confirm with "OK"
- Click on "Refresh" to repeat the scan again and verify your changes.
- Note: For FSX-A014 (FS24X/FS20X) device, any polling address between 1 and 15 (See §4.1.2) will only be discovered if the scan for a device at address 0 is skipped. To do this, disconnect the HART communication DTM (right click at the icon in the topology, Disconnect) and open the Parameterization (double click). Change the values of "Start address" and "End address" to get a range that fits to your needs. E.g. if you want to check if your device has accepted a set to polling address 3, the closest useful address range is from 3 to 3. The widest useful range to scan for an FSX-A014 (FS24X/FS20X) device with a polling address other than 0 is from 1 to 15, as this specific device will not work with higher addresses. Setting the bounds for the scan is described in the following step.
- If you do not find your device anymore, the new address is probably outside the bounds of "Start address" and "End address". These bounds can be changed if the HART Communication DTM is disconnected: Right click on the DTM, choose "Disconnect". Then, open the "Parameterization" of the HART Communication DTM to find "Start address" and "End address". Choose "Apply" to take over your changes.

😔 COM0 Parameter				4 ▷ ×
Communication interface	HART modem		$\sim$	
Serial Interface	COM2 (Kommunikationsans	schluss)	$\sim$	
HART protocol	Master	Primary Master	$\sim$	
	Preamble Number of communication retries	5 ~ 3 ~		
Address scan	Start address End address	0 ~ 0 ~		
Communication timeout	2 v seconds			
Multimaster and Burst m	ode support			
		ОК	Cancel	Apply

• To scan again it is necessary to connect the DTM.

4.1.2.2 Setting the polling address of a HART DTM

- If not already done, add HART Communication DTM and your device DTM to the project.
- To set the device DTM address, the HART Communication DTM needs to be disconnected: Right click on the DTM, choose "Disconnect".

• Again, right click on the Communication DTM and choose "Additional functions/Change DTM address". The List of DTMs attached to this Communication DTM will appear.

Address	Device	Vendor	Tag	
	FSX-A014R (FS24X) Rev 1	<210>	FSX-A014R (FS24X) Rev 1	
				>

Via "Change" the address of the DTM can be adjusted
 Change HART address

HART	Actual address	0
CONMUNICATION PROTOCOL	New address	3 ~
	ОК	Cancel

- Confirm with "OK"
- Via "Refresh" the address of each attached DTM can be read out again.
- To establish a connection to your device, continue with the instructions from §4.1 Position 10.

#### 4.1.3 Device manuals

For more details regarding error messages, please download the technical manuals:

1. FS20X Flame Detector https://www.honeywellanalytics.com/en/products/FS20X-Flame-Detector

2. FS24X Flame Detector

https://www.honeywellanalytics.com/en/products/FS24X-Flame-Detector

## 4.2 Topology scan

#### Note:

The feature described here does not work for the FSX-A014 (FS24X/FS20X) device. The scan result will not lead to an automatic match. A manual assignment is required. Please follow the steps described in §4.1 to manually add the matching device type. If the polling address of the device is not 0, please follow the steps described in §4.1.2.1 to set the address.

Another way to connect the device is to use the function "Topology scan". This function is searching automatically the device and adds it to the project if the match is perfect.

Just follow the instructions as mentioned in § 4.1 from Position 1-6, then continue with the following instructions:

1. Right-click on the communication DTM and select "Topology scan" with a click:

PACTware										- 0	×
	linu	Project Device Extras Windo	u Halo								
Project		4 ×									
Device tag HOST PC COM3			-								
	*	Connect Disconnect					2				
	₽ ₽	Load from device Store to device					~				
		Parameter	1				<				
		Measured value									
		Simulation									
		Diagnosis									
		Display channels									
		Channel •	I	]	DA/	<b>\T</b> .	TM				
		Topology Scan			PAU	• I U	vare				
		Diagnostic Scan									₽×
		Up-/Download-Manager	urce	Error me	sage						
		Print	_								
		Additional functions									
	٩.	Add device									
		Exchange device									
	<u>.</u>	Delete device									
<		Properties HART Communication						Refresh	Save	С	ear
\$₽ ★ 0	<	NONAME> Administrator									

2. The Topology scan window appears. Click on the "Play"-Button in the lower left corner to start the scan. During scan the scanning progress is displayed:

Topology	c	V	
Scan Path	📑 Topology Scan		
\HOST PC\H	Scan Path		
Scan Tree	\HOST PC\HART Communication		
	Scan Tree		
Device tag	Device tag Address Device type (DTN		
	🗲 COM3 🙀 HART Communi	tion	
	Connect device Scan started		
¢ ••	Close Settings		

🔰 Topology Scan						_	$\times$
Scan Path \HOST PC\HART Co	ommui	nication		Issue: Select a D	тм		
Scan Tree				Device Type	Matching % 👻	Support level	
Device tag	Δ	ddress	Device type (DT	FS24X/FS20X Rev 1	17	Specific	
🗏 📞 СОМЗ	~		HART Communic	XNX Universar transmitter Re	v 1 17	Specific	
Unknown I	<b>n</b>	0	Unknown Device	Optima Plus Rev 1	17	Specific	
				More Save assign	nment for all devices (	of same type	
				More Save assign	nment for all devices of Scan info		
					Scan info	Device Type info	
				Semantic ID	Scan info	Device Type info	
				Semantic ID  Manufacturer Identification	Scan info 210	Device Type info	
				Semantic ID Manufacturer Identification Device Type Code	Scan info 210 130	Device Type info 210 53890	
<			>	Semantic ID  Manufacturer Identification Device Type Code Protocol	Scan info 210 130 HART	Device Type info 210 53890	

3. Select the device type that matches best and confirm with "Apply":

4. The device is added to the project and the Topology Scan can be closed:

PACTware			-		
<u>Eile Edit View Project Device Extras Window H</u> elp					
🛛 👦 🖪 🐨 🎁 👘 🗴 📅 👘 👘 👘 👘 👘 👘 👘					
Project # ×					
Device tag	- 0	×			
B HOST PC - Scan Path					
H ES24X1					
Scan Tree					
Device tag Address Device type (DTM					
🕀 C. COM2 🗹 HART Communic					
H FS24X1 V 0 FS24X/FS20X Re					
No issues for selected node					
					_
En <				ņ	×
S Close Settings					
					-
< >>	Refresh	Sav	2	Clear	
Administrator					

5. Now continue with the instructions from 4.1 Position 10.

#### 4.3 **PACT**ware menu structure and items

By right-clicking on the device DTM you will find a menu list. Some menu items are characteristic for DTM and some for frame (in the shown example PACTware):

Connect Disconnect	
Load from device Store to device	
Parameter •	Parameterization
Measured value	Online parameterization
Simulation	
Diagnosis	
Print	
Additional functions	Compare offline
Add device	Compare online
Exchange device	Set value
Delete device	About
Properties FS24X/FS20X Rev 1	

#### 4.3.1 DTM specific menu items

- Measured value (offers real time information about the HART loop current (mA and %), the fire detection status and the device condition.
- Parameter (offers information regarding the complete device parameters which can be set according to your measurement application)
  - Online parameterization
  - Parameterization (which refers to offline parameterization)
- Diagnosis (offers real time information about the device status)
- Additional functions (offers information regarding the DTM, like version number, manufacturer, registration status, etc)
  - About DTM
- Load from device (is used for uploading data set from the device to the offline parameterization). Perform this operation in order to store the device configuration in the Frame Application's project file or database.
- Store to device (is used for downloading the offline parameterization data to the device). Perform this operation in order to download and restore a device configuration from a saved project to the device.

#### 4.3.2 Frame specific menu items

The other items shown in the figure above are frame characteristic items. In the following pages we will describe the DTM characteristic items. For more information regarding the Frame items, please check www.pactware.com or the respective operating manual of your Frame Application.

#### 4.4 Operation

#### WARNING

For safety reasons this equipment must be operated by qualified personnel only. Read and understand the instruction manual completely before operating or servicing the equipment. Inappropriate or incorrect use of an instrument adjusted with PACTware can give rise to application-specific hazards, e.g. vessel overfill or damage to system components through incorrect mounting or setting.

#### 4.4.1 DTM graphical user interface

The graphical user interface of the DTM is composed of different areas and elements listed hereafter:

- A header area containing the General Device Information
- The Navigation Area (area on the left side)
- The Dialog Pane (main area on the right side)
- Cancel button
- The Status Line containing information e.g. the online-state of the DTM



Parameter	Meaning
General device	Contains information like:
information	Model: Name of device
	Tag: Name of device according to firmware
	Logo: Logo of the device manufacturer

	Menu item (which has been opened from menu list):
	F524X1 # Diagnosis
	Model: F524X/F520X Loop current:
	Tag: F524X1 Fire detection status:
Navigation area	The Navigation Area contains folders and subfolders to open the dialog panes of the DTM.
	Open/show the navigation area Hide the navigation area
Dialog pane	On the dialog pane modules, submodules and parameters can be se- lected or configured. Grid controls display table data: The data grid control enables control of multiple columns and rows of varying control types that may be used to capture and track incident properties. Static grid control: The grid data is static Edit grid control: The grid data can be edited using built-in editors IP Grid control: The grid data cell to enter IP address Close/Open (+/-): Grid data view can be opened/closed via (+/-) Drop down grid control: Grid cell contains drop down list Drop down combo (with edit) grid control: Grid cell contains drop down list with edit control.
Cancel button	To cancel your latest changes, click Cancel. The changes will not be saved, or the changed values are not applied on the frame application database. The dialog then closes.
Status line	The Status line displays information about the current state of the DTM. The current activity, e.g. the DTM connection state, is signaled graphically via icons in the status bar: Connected 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2



Table 1. Elements of the DTM graphical interface

#### 4.5 Create a project

Starting point for the adjustment of all types of field devices is the partial or complete imaging of the device network in a PACTware project. This device network can be created automatically or manually and is displayed in the project window.

Even when instruments that are to be parameterized are not yet available or connected, the project can be created manually (offline operation). The DTM installed on the PC is displayed in the device catalog. The DTM usually has the same name as the instrument that can be adjusted with it.

To create a project in the project window, paste in the DTMs from the instrument catalog - one DTM for each used instrument. The entry HOST-PC is the starting point for pasting in the DTMs. The requested DTM can be brought over from the instrument catalog to the project window with a double click or Drag and Drop. In the project window you can change the names of the selected instruments for better differentiation. If the project window or the instrument catalog is not visible, they can be activated in the menu bar under "View".

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-012-	O< <noname></noname>	Administrator
<	>	
=0 <b>=</b> /	FS24X Project v1.0.PW5	Administrator

The given name of the project will appear in the PACTware window:

## 5 Online function of the device type

#### 5.1 Measured value function

The function measured data offers real time information about the HART loop current (mA and %), the fire detection status and the device condition.

1. In order to get started this function just right-click on device name in the project view on the left-hand side and select "Measured value":

📑 FS24X Proj	ect v1	.0.PW5 - PAC	Tware									
File Edit	View	/ Project	Device	Extras	Window	Help						
i 🗋 💕 🛃	<b>3</b>   1	📭 - 🛛 🕵 🖡	0	<u>0</u>	🗐 🧕 🕸	👬 🔤						
Project		<b>中</b> ×										
Device tag												
HOST PC												
FS24X	-											
	- AG	Connect										
	Disconnect											
Doad from device												
	<u>N</u>	Store to dev	vice									
		Parameter				+						
		Measured v	alue									
		Simulation										
		Diagnosis										
		Print				•						
		Additional	functions			+						
	\$	Add device										
		Exchange d	levice									
	<u>_</u>	Delete devi	ce									
		Properties •	<fs24x1></fs24x1>	FS24X/FS	20X Rev 1							

2. The following window will open:

FS24X Project v1.0.PW5	o - PACTware							-		×
File Edit View Pro	oject Device E	xtras Window He	lp							
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Project # ×	F524X1 # N	Measured value							4	⊳ ×
Device tag		Model: FS24X/FS	20X Loop cu	rrent: 🖏	4.000	mA 📕				
B HOST PC		Tag: FS24X1	Fire det	ection status:	Normal, Safe		Ion	HVW	( H	
🗏 📞 СОМЗ	NO)	10g. 102.01	The deb	ceton status.	Normaly Surc					
F524X1	DI B									
	PV:		000 mA							
	PV % mge:	C) 20	000 %							
	Loop current:	C2 4	000 mA							
	Fire detection statu	is: Normal, Safe								
									Close	
	Sconnected	2 2	🛛 🗐 🚉 🛛 🗖 🖉 Usi	er Role: Planning Er	gineer					
	Error monitor									$\mathbf{p}$ $ imes$
	Serial No.	Date	Source	Error message						
	<									>
< >							Refresh	Save	Clear	
Katar State	ect v1.0.PW5	Administrator								

## 5.2 Diagnosis function

FS24X Project v1.0.PW5	- PACTware							_		Х		
<u>File Edit View Pro</u>	oject <u>D</u> evice E <u>x</u>	tras <u>W</u> indow <u>H</u> e	lp									
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Project # ×	FS24X1 # Di								4	⊳×		
Device tag	r —	Model: FS24X/FS	20X Loop cur	rent: 🕻	4.0	00 mA						
HOST PC							Hon	evu	Vell			
🗆 📞 СОМЗ		Tag: FS24X1	Fire dete	ection status:	Normal, Safe					•		
FS24X1												
	Device status: 🧭	Process applied to t	he primary variable is o	utside the operating	limits of the field	d device						
		Process applied to t		e is outside the oper	ating limits of the	field device						
	PV Analog Channel Saturated											
	PV Analog Channel Fixed											
		More status indicate										
		A reset or self test				d and reapplied						
		Field device has ma	-									
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									Close			
	Sconnected	12 Q	🛛 🔹 🗖 Use	er Role: Planning E	ngineer							
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< >>							<u>R</u> efresh	Save	<u>C</u> lear			
🚓 🕕 FS24X Proje	ct v1.0.PW5	Administrator										

## 5.3 Online parameterization function

The online parameterization function can be used to configure your device during operation (online parameterization), but also offline (offline parameterization) if the device is not connected.

The following pages describe the steps to configure an FS24X/FS20X device with the device type. At this time it is assumed that the DTM installation (§ 3.4) and connection with the device (§4.1) was already done.

Note:

In opposite to the FSX-A014R, the configuration of the FSX-A014 device is limited to a change of the polling address. It is not possible to edit any other setting. A change of the polling address is described in §4.1.2.1

1. In order to get started this function just right-click on device name in the project view on the left-hand side and select "Parameter" then "Online parameterization":



2. An overview of all online configurable functions will be displayed:

FS24X Project v1.0.PW5 - PACTware	- 🗆 X
File Edit View Project Device Extras Window Help	
i D 💕 🚽 🕘 🚇 i 😫 🏟 i 🗖 🕸 😫 🔩 🐇 🕷 🔲	
Project # ×	<b>H</b> FS24X1 # Online parameterization
Device tag 🚺 👤 🕸 Channel Address Status mı Device tyr	Model: FS24X/FS20X Loop current: (2 4.000 mA Tag: FS24X1 Fire detection status: Normal, Safe
B HOST PC	Tag: FS24X1 Fire detection status: Normal, Safe
□     COM3     -/     -/     □      ↓     HART       H     FS24X1     ✓     -/     ↓     HARTCH     0     ○     H     FS24X	
	Configure/Setup Process variables Basic setup Detailed setup Review
	Device setup PV: 🔇 4.000 mA
	PV % rnge: 🔇 20.000 %
	Loop current: 4.000 mA
	Fire detection status: Normal, Safe
	DEVICE OK
	Close
S >>	😌 Connected 🛛 🔃 🖳 🔄 🛄 User Role: Planning Engineer
🕀 🖈 🕕 FS24X Project v1.0.PW5 Administrator	

- 5.3.1 First "Tab": Process Variables
  - "PV" is the measuring result of the device. Unit is [mA]

- "PV % rnge" is the percent value representation of "PV", scaled between "PV LRV" (0%) and "PV URV" (100%)
- "Loop current" is the current that floats through the 4-20mA loop.
- "Fire detection status" is the status of the measuring
- Device status Icon can change its colour and text, depending on the device condition

#### 5.3.2 Second "Tab": Basic Setup

- "Tag" is the device tag used by legacy HART 5 Communication for a unique identification. Length: 8 Characters of A-Z, 0-9, [SPACE] and a selection of special characters, e.g. +, -, <,</li>
   >. Default value is "???????"
- "PV Snsr unit" (not writeable) is the engineering unit used by the "PV" value
- "Distributor" (not writeable) References the company that is responsible for the distribution of this Field Device to customers
- "Model" (not writeable) References the type of Field Device, usually an advertised model number, that is unique to a single manufacturer
- "Device ID" (not writeable) Uniquely identifies the Field Device when combined with the Manufacturer Identification and Device Type. Therefore, this variable cannot be modified by the Host user.
- "Cfg chng count" (not writeable) This indicates the number of times the devices configuration or calibration has been changed by a host application or from a local operator interface
- "Date" can be used to set a date, e.g. the date of installation or last inspection
- "Write protect" (not writeable)
- "Descriptor" can be used to set a short text. Length is 16 characters, allowed characters are the same as for "Tag". Default value is "???????????"
- "PV Snsr s/n" (not writeable) is the serial number of the sensor
- "Final Assembly number" can be used as a unique number, to identify the device
- "Universal rev" (not writeable) Revision of the Universal Device Description, that the Field Device conforms to
- "Fld dev rev" (not writeable) Revision of the Field Device Specific Device Description, that the Field Device conforms to
- "Software rev" (not writeable) This revision corresponds to the software or firmware, that is embedded in the Field Device

- "xfer fnctn" (not writeable) Defines the transformation function that will be applied from the Field Device Variable to the Analog Output, and Percent Range. The Transfer Function does not affect the Digital Value representation.
- "PV Damp" (not writeable)

#### 5.3.3 Third "Tab": Detailed Setup

- "PV" (not writeable)
- "PV snsr unit" (not writeable)
- "Max dev vars" (not writeable)
- "PV class" (not writeable)
- "PV LSL" (not writeable)
- "PV USL" (not writeable)
- "PV Min span" (not writeable)
- "PV Damp" (not writeable)
- "PV URV" (not writeable)
- "PV LRV" (not writeable)
- "PV xfer fnctn" (not writeable)
- "PV % rnge" (not writeable)
- "Loop current" (not writeable)
- "AO Alrm typ" (not writeable)
- "Channel flags" (not writeable)
- "Loop current mode" can be used to enable/disable the relation between current and measuring result. Default value is "Disabled". It can be changed to "Enabled".
- "Poll addr" writes the HART polling address. Note: To avoid problems with double address usage, please use the HART communication DTM to set HART polling addresses. See §4.1.2
- "Num req preams" (not writeable)
- "Num resp preams" (not writeable)
- "Distributor" (not writeable) References the company that is responsible for the distribution of this Field Device to customers
- "Model" (not writeable) References the type of Field Device, usually an advertised model number, that is unique to a single manufacturer
- "Device ID" (not writeable) Uniquely identifies the Field Device when combined with the Manufacturer Identification and Device Type. Therefore, this variable cannot be modified by the Host user.
- "Cfg chng count" (not writeable) This indicates the number of times the devices configuration or calibration has been changed by a host application or from a local operator interface
- "Tag" is the device tag used by legacy HART 5 Communication for a unique identification.

Length: 8 Characters of A-Z, 0-9, [SPACE] and a selection of special characters, e.g. +, -, <, >. Default value is "???????"

- "Long tag" is the tag used by HART Communication for a unique identification.
   Functions exactly like Tag except the size is larger (max of 32 ISO Latin 1 characters). Default value is "????????????"
- "Date" can be used to set a date, e.g. the date of installation or last inspection
- "PV Snsr s/n" (not writeable) is the serial number of the sensor
- "Final Assembly number" can be used as a unique number, to identify the device
- "Universal rev" (not writeable)
- "Fld dev rev" (not writeable)
- "Software rev" (not writeable)

#### 5.3.4 Fourth "Tab": Review

The review menu shows all parameters of "Process variables", "Basic Setup" and "Detailed Setup" in a plain list and protects them from being changed while viewed. This can be used to check if all settings are done.

## 6 Offline parameterization function

In offline mode, the project can be prepared, created and stored without connected instruments. Later, in online mode these data can be transmitted to the instruments ready for operation. Offline mode does not need any connection to the device.

The following pages describe the steps to offline parameterize an FS24X/FS20X device with the DTM. At this time, it is presupposed that the DTM installation (§ 3.4) was already done.

In order to get started this function just right-click on device name in the project view on the left-hand side and select "Parameter" then "Parameterization":

FS24X Project	v1.0.PW5 - PACTware								-		$\times$
File Edit V	iew Project Device	Extras Win	dow H	elp							
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Project				<b>4</b> ×							
Device tag	0 🖳 👯 Channel	Address	Status m	Device typ							
B HOST PC	+ *		0	📞 HART (				-			
FS24X1	1 + KD HARTCH	0	ŏ _	FS24X				╧┽╱┝╧			
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					Error monitor						<b>4</b> ×
					Serial No.	Date	Source	Error message			
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≪ <b>×</b> ● E	524X Project v1.0.PW5	Administrat	tor								

Offline configuration is the ability to manipulate device parameters without the presence of a physically connected device (commissioning, device exchange, device data set archiving). Offline parameters are stored by the FDT frame.

The offline parameterization provides a selection of features which can be found also in the online parameterization:

FS24X1 Pa	ramet	erization		4 ▷ ×
	Mode		S24X/FS20X S24X1 Honeyv	vell
10	Tag:	FS	524X1	
AO Alrm typ:		None		
Channel flags:		_	g Output Channel	
Tag:		FS24X1		
Long tag:			MODULE FS24X,FS18X,1	
Distributor:		Honeywell		
Model:		FS24X/FS		
Devid:			1193046	
Manufacturer:		Honeywel		
Max dev vars:		40.000	1	
Date:		16/12/202		
Write protect:		None		
Descriptor:		TEST C		
Message:		FIRE SENT	TRY CORPORATION.B	
PV Snsr s/n:			1184274	=
Final asmbly num:			630123	
Universal rev:			7	
Fld dev rev:			1	
Software rev:			10	
Poll addr:			0	
Num req preams:			5	
Num resp preams:			5	
PV Snsr unit:		mA	$\checkmark$	
PV Class:		Current	$\checkmark$	
PV LSL:			1.000	mA
PV USL:			20.000	mA
PV Min span:			1.000	mA
PV Damp:			0.000	s
PV URV:	?		20.000	mA
PV LRV:	?		1.000	mA
PV rnge unit:		mA		
Loop current mode		Disabled		
Device status:		Proces	is applied to the primary variable is outside the operating limits of the field device	
		_	is applied to the non-primary variable is outside the operating limits of the field device	
		_	alog Channel Saturated	
			alog Channel Fixed :tatus indicated but inaccessible	
			tatus indicated but inaccessible t or self test of the field device has occurred, or power has been removed and reapplie	d
			ification has been made to the configuration of the field device	
		_	evice has malfunctioned due to a hardware error or failure	
				Class
				Close

#### 6.1 Load from device

WARNING

You may lose the current offline configuration parameters.

"Load from device" loads device parameters from the currently connected device to the Offline parameterization window of the DTM:



After clicking "Load from device" icon, an "Upload" screen will be shown and the upload progress bar. After the progress bar is through with loading, you can click on the "Edit device parameter" icon.

📑 PACTware						
File Edit	View Project	Device Extras	Window	Help		
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Project					<del>,</del> P	١×
Device tag	0 👤 🐝	Channel Edit device	parameter	Timestamp status	Device type (DTM)	
📕 HOST PC						
🖻 🧲 СОМЗ	/ + 😎		0		💪 HART Communicatio	n

#### 6.2 Store to device

"Store to device" sends the device parameters from the "Offline parameterization" window of the current DTM to the currently connected device. Ensure the offline parameters are appropriate values before sending:



## 7 Print

"Print" is a frame specific function which offers the possibility to print the online/offline parameter set.

In order to print the parameter list just right-click on device name in the project view on the left-hand side and select "Print" then "Online parameterization" or "Parameterization":



* tyr       FS24X1 # Print Preview         * tyr       PACTware <sup>™</sup> RT       Pact ware <sup>™</sup> 24       Print Settings		
Common Parameter View:	Parameter Attributes Unit State Upper and lower ranges Description Unit List	
Settings Page Layout	OK OK	Cancel ) Range Unit List v

Define the items which shall be printed via "Settings...":

Also the page layout can be adjusted via "Page Layout...":

Paper Options Page Size: Letter ~	Margins (millimeters) Left: 19.05 Right: 19.05
Portrait Landscape     Print Background Colors and Images     Enable Shrink-to-Fit	Hight:     19.05       Top:     19.05       Bottom:     19.05
Headers and Footers Header: -Empty-	Footer: Custom
-Empty-	<ul> <li>-Empty-</li> </ul>
	✓ Date in short format ✓
Change font	
	OK Cancel

Before p	rinting or	saving the	file on y	our com	outer, the	print	preview	will be d	isplay	/ed:

FS24X Project v	1.0.PW5 - PACTware								-		×
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Project		<b>4</b> ×	FS24X1 Print	Preview							$\triangleleft \ \triangleright \ \mathbf{X}$
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	/ + =⊅= HARTCH	• •						6			
			FS24X/FS20	X Rev 1				1			
			Configure/S	ietup							
											-
			Device descri	ption	1						
			Device	FS24X/FS	20X Rev 1						
			Vendor	Honeywell	Analytics						
			Version	rsion 2.4.20.112 / 2019-12-16							
			Description	escription							
			Classification								
											-
			Device Param	eters	** •		<b>C</b> + +	<b>D</b>			-
			Name		Value		State	Description	Range	Unit List	
			Configure/Se	•							_
			Configure/Se	-							_
			Device setup								_
			Process varia	ıbles				-			
			PV		4.000 [ mA ]						
			PV % mge		20.000 [ % ]						
			Loop current		4.000 [ mA ]						
			Fire detection	status	Normal, Safe						$\sim$
										_	
<		>	S <u>e</u> ttings	P	age Layout	Print Preview		1	Save	<u>P</u> rint	
🔩 \star 🕕 FS2	4X Project v1.0.PW5	Administrator									Act

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