

Automation

Industrial

# Operating Instructions for the *excom*<sup>®</sup> DTM

### Installation

#### Unpack the DTM.

#### □ Start the Setup program.

The *excom*<sup>®</sup> DTM has a modular design and so each *excom*<sup>®</sup> module is assigned a separate DTM. **"Complete"** should therefore be selected during the installation in order to later access all modules.

#### Enter a PROFIBUS address required for *excom*<sup>®</sup> between 0 and 126.

The installation is always carried out in demo mode. The PROFIBUS address (0...126) is fixed in demo mode and cannot be changed for later project configurations. The fixed address can only be changed as required once licensing is completed (carried out later in the frame application).

### **Creating a project**

The following procedure illustrates how to access *excom*<sup>®</sup> with the help of the DTM technology in the PACT*ware*<sup>™</sup> frame application.

### Start the PACT ware<sup>™</sup> frame application (Fig. 1).

In this application the device catalogue may have to be updated in order to accept newly installed DTMs. An empty project window appears in which the host PC represents the hardware platform of the PACT*ware*<sup>™</sup> application (see Fig. 1).

### □ Add the communication DTM

to the current project (Fig. 2). Position the DTMs required for the network structure in this empty project. In this example, the CP5511 communication processor from Siemens is used to access PROFIBUS. The communication DTM required for this is supplied by Trebing+Himstedt. Select the communication DTM with the mouse and drag it onto the higherlevel element in the project window (in this case the host PC) using drag and drop (see Fig. 2).

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		AIH41Ex 8H	excom Communi	Turck	Analog inp
		AD40Ex	excom Communi	Turck	Analog out
		ADH40Ex	excom Communi	Turck	Analog ou
		AOH40Ex 1H	excom Communi	Turck	Analog ou
		AOH40Ex 4H	excom Communi	Turck	Analog ou
		AOH40Ex 8H	excom Communi	Turck	Analog out
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		DM80Ex	excom Communi	Turck	DTM spec
		DM80Ex 8	excom Communi	Turck	Digital inpu
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Fig. 2 Adding the communication DTM to the current project



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**Set the bus parameters** (Fig. 3)

For fault-free communication, the bus parameters of the hardware (CP5511) used must be set on the communication DTM. Call up the Parameters menu by right-clicking the communication DTM. It must be ensured that the bus address of the CP5511 is not already in use in the PROFIBUS network. The baud rate and the transfer times used-on the Class I PROFIBUS master (master of the PLC) must also be set here. If the DP Standard profile is selected, the parameters of the bus times are automatically calculated and cannot be edited. To edit the parameters, select the profile **User-Defined**.

#### □ Add excom® (Fig. 4)

*excom*<sup>®</sup> can then be added to the communication DTM by drag and drop or via the context menu of the DTM (right-clicking the DTM in the project window). Select first of all the DTM entry **"excom DP"**, which provides access to PROFIBUS and the interface to the *excom*<sup>®</sup> modules.

#### □ Add the modules

From the list of *excom*<sup>®</sup> modules, now add the modules used with PACT*ware*<sup>™</sup> to the project. In this way, it is not necessary to configure **all** the modules of an *excom*<sup>®</sup> station. However, ensure during configuration that the selected modules match those that were also configured by the Class I master exactly. If, for example, an **"AIH40Ex 4H"** was configured in the Class I master, an **"AIH40 1H"** should not be configured in the PACT*ware*<sup>™</sup> project. **Please note:** For parameterization in the PLC the mode 2 GSD file must be used.

#### HART® communication

Analog modules of type AIH... and AOH... contain a HART<sup>®</sup> controller that opens a separate communication with the connected HART<sup>®</sup> instrumentation. The associated DTMs support this feature and offer a communication channel for it. They are therefore device and communication DTMs in one. In this way, you can configure the device DTMs of the field devices on the excom<sup>®</sup> periphery using drag and drop, and also use them for other functions. The project tree including the HART<sup>®</sup> instrumentation is shown in Fig. 5.

	Local     C EPI
EPI address	PRASKE0002
Channel	Channel 0 (CP5511 card 0)
Bus parameter	
Address	
Address Baudrate	1.5 MBit/s

Bus parameter	
Bus parameter	
Tsl	300
Min Tsdr	11
Max Tsdr	150
Τtr	23735
Tqui	0
Tset	1
Gap	10
Retry limit	1
HSA	126
ок (	Cancel
	Cancer

#### Fig. 3 Setting the bus parameters

Device	Vendor
📶 excom DP	Turck
<b>w</b> ND840	Metso Automation
😻 VEGA D90 Profibus	VEGA Grieshaber KG
🛷 VEGA D91 Profibus	VEGA Grieshaber KG
🛷 VEGA D94 Profibus	VEGA Grieshaber KG
🛷 VEGA D95 Profibus	VEGA Grieshaber KG
😻 VEGA D96 Profibus	VEGA Grieshaber KG
🛷 VEGA D97 Profibus	VEGA Grieshaber KG
🐳 VEGA Service Profibus	VEGA Grieshaber KG
🐌 VEGABAR 40 Profibus	VEGA Grieshaber KG
GSD File for Profibus DP (EN 50170	Show all devices     OK Cancel

Fig. 4 List of the installed PROFIBUS DTMs

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#### Using the excom® DTMs

The context menu (right-click the DTM in the project window) provides information on the functions available. Different options are possible depending on the connection status (connected/not connected). When not connected, all settings are carried out that are not directly linked with the hardware, e.g. offline parameters. The offline parameters of the *excom*<sup>®</sup> DTMs are used in PACT*ware*<sup>®</sup> for setting the DTM access of the associated module, e.g. selecting which HART<sup>®</sup> secondary variables are to be read or the direction of the channels of the DM80Ex (input/output module).

When connected, the DTM is linked directly to the hardware. There is first of all a logical connection between the DTM and the module. In this state, the DTM allows access to process data, diagnostics and device data as well as the manipulation of process data for simulation tasks.

The following figures show the basic structure and operation of all DTMs (see Fig. 6 to Fig. 10):



Fig. 5 Project tree including HART<sup>®</sup> instrumentation.

	Analog		HART	AIH40Ex: slot number
hannel 1: Input Range	420 mA 💌	Filter	off	Ine monitoring and failsafe strategy S short detection Failsafe value 3.6 mA
channel 2: Input Range	420 mA 💌	Filter	off	line monitoring and failsafe strategy ✓ short detection ✓ open line detection failsafe value 3.6 mA ▼
shannel 3: Input Range	420 mA 💌	Filter	off	ine monitoring and failsafe strategy if short detection if open line detection failsafe value 3.6 mA
hannel 4: Input Range	420 mA 💌	Filter	off	line monitoring and failsafe strategy ✓ short detection ✓ open line detection failsafe value 3.6 mA ▼
				Ok Cancel Apply Help

#### Fig. 6 Parameter entry

analog     HART     elot number       channel 1:     Forcing activated IV     Process value     24.7     2 ×	_10
State       Forcing activated       Process value       24.7       2       0       25       50       75       100         channel 2:       State       Force invalid       Process value       25.0       2       0       25       0       25       50       75       100         channel 3:       State       Force invalid       Process value       25.0       2       0       25       50       75       100         channel 3:       State       Force invalid       Process value       25.0       2       0       25       50       75       100         channel 4:       State       Force invalid       Process value       25.0       2       0       25       50       75       100         channel 4:       State       Force invalid       Process value       25.0       2       2       0       25       50       75       100         channel 4:       State       Force invalid       Process value       25.0       2       0       25       50       75       100         Channel 4:       State       Force invalid       Force value       25.0       2       50       75       100         Channel 4: <th></th>	
channel 2:     State     Forcing activated     Process value     25.0     25     0     25     0     25     75     100       channel 3:     State     Force invalid     Process value     25.0     25     0     25     0     25     0     25     75     100       channel 4:     State     Force invalid     Process value     25.0     25     0     25     50     75     100       channel 4:     State     Force invalid     Process value     25.0     25     0     25     0     75     100       channel 4:     OK     Force invalid     Force value     25.0     25     0     25     0     75     100	
State       Forcing activated       Process value       250       25       0       25       50       75       100         Channel 3:       State       Force invalid       Process value       250       25       0       25       50       75       100         Channel 3:       State       Force invalid       Process value       250       25       0       25       50       75       100         Channel 4:       State       Force invalid       Process value       250       25       0       25       50       75       100         Channel 4:       State       Force invalid       Process value       250       25       0       25       50       75       100         Channel 4:       Force invalid       Force value       25.0       25       0       25       50       75       100         OK       Force invalid       Force value       25.0       25       0       25       50       75       100	1:
Dk     Force invalid     Force value     25.0     25     0     25     0       channel 3: State     Forcing activated     Process value     25.0     X     25     0     25     50     75     100       Channel 4: State     Forcing activated     Process value     25.0     X     25     0     25     50     75     100       Channel 4: Dic     Force invalid     Force value     25.0     X     25     0     25     0     75     100	
channel 3:	
Bitale     Forcing activated     Process value     25.0 <td>1:</td>	1:
OK     Force invalid     Force value     25.0     25     0     25     0     75     100       channel 4:     State     Forcing activated     Process value     25.0     2     2     0     25     50     75     100       OK     Force invalid     Force value     25.0     2     2     0     25     50     75     100	
channel 4:         Process value         25.0         2.5         0         2.5         100           State         Forcing activated         Process value         25.0         2.5         2.5         7.5         100           DK         Force invalid         Force value         25.0         2.5         0         2.5         7.5         100	
State     Forcing activated     Process value     25.0     2 v       DK     Force invalid     Force value     25.0     2 v	1
DK Force invalid Force value 25.0 25 0 25 50 75 100	
StopOose	1:
Stop	
Stop Close	
Stop	
	Help
	JRCI

Fig. 7 Simulation



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<03,-/->AIH40Ex 4H I	dentifikation			_0
Device			0Ex 4H	
Manufacturer:				
Charge number:	000ACGOH - 0332		-	
Order number:	6884001		initiation in the second secon	
Device information			01 02 03 04	
Description:	Analog input, active, HART			
Channels:	4 channels single ended			
Ranges:	0/420 mA		22+145+	
Revision Levels				
Hardware/Software:	012246901J / 1.81			
		-	_	
		Last upda	ate:	21.06.200
Reread			Close	Help
				TURCK

Fig. 8 Identification



Fig. 9 Diagnostics

<3,-/->AIH40Ex 4H # Measured value		and the second	_ 🗆 ×
analog	HART	slot number	03
State OK	27.0 % 💌		
		-25 0 25 50 75 100	125
channel 2:			
State OK	-25.0 % 💌		
		-25 0 25 50 75 100	125
		-23 0 23 30 73 100	125
channel 3:	25.0		
State OK	-25.0 🗶 💌		
		-25 0 25 50 75 100	125
channel 4:			
State OK	-25.0 % 💌		
		-25 0 25 50 75 100	125
Stop		Close	Help
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Fig. 10 Measured value representation