

INSTRUCTION MANUAL

DTM - HART SERIES 2000 and 2000-SAN







For optimal use read the recommendations and warnings in this manual, these instructions should be studied carefully.

Manufactured by:
KLAY-INSTRUMENTS B.V.

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1. INTRODUCTION

This instruction manual is a guide for installing and using the intelligent pressure and level transmitter Series 2000 and 2000-SAN HART DTM. This DTM is developed to make configuration changes of the Series 2000 HART transmitters easy. This DTM can be used with almost every FDT-container. The DTM can also be used to change the configuration of the submersible level transmitter: Hydrobar-I-Cable.

2. INSTALLATION

To install the Klay DTM Klay Series 2000 on your system, you have to download the installation file. This file can be downloaded from the Klay Instruments website: www.klay.nl under section downloads.

To start the installation always extract *Klay Series 2000 HART_1.0.1.zip*.

Select Klay Series 2000 HART.exe * (You must have administrator rights, do not use the .msi file)

*Minimal software requirements: Windows 7 (32 or 64 bit) or higher, for older versions please contact Klay Instruments.



2.1 ... Framework 3.5

The Klay DTM requires .NET Framework 3.5 from Microsoft. If the framework is already installed the setup will continue.

When the framework is not installed the following message appear:

Windows⁷ users can download the .NET Framework package from the following location: https://www.microsoft.com/nl-nl/download/details.aspx?id=21



Windows 10 and 8 users can enable the .NET Framework by selecting

the start menu and type requires in the search box. The following window appears and the .NET Framework 3.5 can be enabled.

Turn V	Vindows features on or off			6
To turn	a fasture on i calact its shack how. To turn a fast		off cloar	i+
check b	ox. A filled box means that only part of the feat	ure	is turned	on.
• 🗆	NET Framework 3.5 (includes .NET 2.0 and 3	3.0)		-
	.NET Framework 4.6 Advanced Services			
	Active Directory Lightweight Directory Servio	ces		
	Containers			
•	Device Lockdown			- 1
•	Hyper-V			
	Internet Explorer 11			
•	Internet Information Services			
	Internet Information Services Hostable Web	Core	e	
•	Legacy Components			
	Media Features			
* 🗹				

3 DTM

The following pages describes the DTM configuration.

3.1 DEVICE DATA (STATIC)

This menu shows data about the transmitter. This data is read-only and cannot be changed. The data contains information about: The manufacturer, type of transmitter, serial number, revision and others.

Version:1.0.1			
line Parameterize	Device Data (Static)		
Device Identification	Manufacturer	Software Revision	
-Device Data (Static)	Klay Instruments +	10	
Device Data	Device Type	Hardware Revision	
Device Input	Klay 2000 Pressure/Level -	2	
Process Value Scale	HART Device ID	Physical Signalling	
Device Output	2625537	Bell 202 current	
Output	Distributor	Final Assembly Number 2200 Page 5944	
Linearization	Klay Instruments +	0	
Measured Values	Universal Revision	Sensor Type	
-Device	5	2000 Range 1 -	
Transmitter Construction	Device Revision	PV Snsr s/n	
HART	1	801001	

3.2 DEVICE DATA

This menu contains data like TAG, Descriptor, message and date. This data can be changed.

🎗 Klay Series 2000 HART # Param	Klay Series 2000 HART # Parameterize		
Klay Series 2000 E Pressure and level Version:1.0.1	ART ransmitter	I K KLAY-INSTRUMENTS	
i → Online Parameterize	Device Data		
-Device Identification	Tag		
-Device Data (Static)	KLAY		
Device Data	Descriptor		
-Device Input	16 CHARACTERS		
Process Value Scale	Message		
-Device Output	32 CHARACTERS		
Output	Date		
Linearization	1/1/1900		
Measured Values			
₽-Device			
Human Interface			
1 Transmitter Construction			
HART			

3.3 DEVICE INPUT: TEMPERATURE

In this menu it is possible to change the unit of measured temperatures. It also shows the measured sensor and ambient temperatures. These values are refreshed every 10 seconds.



3.4 PROCESS VALUE SCALE

This menu can be used to change the measuring range without test pressure. The maximum and minimum values of measuring range and the sensor limits are shown. The actual range is adjustable with the Lower Range Value (**PV LRV**) and Upper Range Value (**PV URV**). The Sensor value is refreshed every 10 seconds. The engineering unit can be changed with **PV Snsr Unit**.

With the buttons **Adjust Zero (4 mA)** and **Adjust Span (20 mA)**, the Zero and Span can be adjusted Without test pressure. After pressing one of these buttons, follow the displayed instructions. With the buttons **Set Mounting Position Correction** and **Reset Mounting Position Correction** the mounting position can be corrected or reset to factory setting, follow the displayed instructions.

🏦 Klay Series 2000 HART # Param	eterize		4 Þ >
Klay Series 2000 F Pressure and level Version:1.0.1	IART transmitter		KLAY-INSTRUMENTS
-Online Parameterize	Process Value Scale		
-Device Identification	Upper Sensor Limit		
Device Data (Static)	1176.801 mbar	A first Zan (4 m A)	
Device Data	Lower Sensor Limit	Adjust Zero (4 mA)	
Temperature	-1176.801 mbar		
Process Value Scale	Maximum Span	Adjust Span (20 mA)	
-Device Output	1176.801 mbar		
Output	Minimum Span	Set Mounting Position Correction	
Linearization	78.45337 mbar		
-Device	PV Snsr Unit	Reset Mounting Position Correction	
Human Interface	mbar 👻		
-Transmitter Construction	PVLRV		
HART	Di LIDIT		
	999.9863 mbar		
	Sensor Value		
	0.09806671 mbar		

3.5 DEVICE OUTPUT: OUTPUT

In this menu the damping of the output and the mA output (4-20 mA or 20-4 mA) can be configured. If necessary the output can be trimmed with the button **D/A Trim**.

🏦 Klay Series 2000 HART # Param	2 Klay Series 2000 HART # Parameterize		
Klay Series 2000 F Pressure and level Version:1.0.1) HART el transmitter	KLAY-INSTRUMENTS	
-Online Parameterize	Output		
Device Identification	PV Damp		
···Device Data (Static)	0.0 seconds		
Device Data	Reverse Output		
Temperature	4-20 mA •		
Process Value Scale	Loop Test		
Linearization Measured Values	D/A Trim		
Device			
Human Interface			
Transmitter Construction	a		
-HAKI			

3.6 DEVICE OUTPUT: LINEARIZATION

In this menu it is possible to configure a linearization. Four options are available: **Normal 4-20 mA**, **Cylindrical tank**, **V. Tank (cone)** and **V. Tank (Sphere)**. For each option specific parameters will be asked to fill in. Also the density of medium can be configured.

🤽 Klay Series 2000 HART # Offlin	e Parameterize	4 ≬ 🗙
Klay Series 2000 I Pressure and level Version:1.0.1	IART transmitter	KLAY-INSTRUMENTS
-Offline Parameterize	Linearization	
-Device Identification -Device Data (Static) -Device Data -Device Input -Temperature -Process Value Scale	Transfer Function Normal 4-20 mA Vormal 4-20 mA Obtained tank V tank (ophere) V tank (ophere)	
Device Output -Output -Device -Human Interface -Transmitter Construction -HART		

3.7 MEASURED VALUE

In this menu the actual readings are displayed. The actual readings are refreshed every 10 seconds.



3.8 DEVICE: HUMAN INTERFACE

In this menu the output on the display of the transmitter can be configured. The following options are possible for the display readout: 4-20 mA, Units, Percent, Process temperature, Hectoliter and Cubic liter. Hectoliter and Cubic liter are only available when linearization is enabled. The transmitter can be protected against configuration of parameters using HART communication (**Write protection**) or local configuration (**Local write protect**). Both protections can be configured separately.

🏦 Klay Series 2000 HART # Param	eterize	4 Þ 🗙
Klay Series 2000 H Pressure and level t Version:1.0.1	ART ransmitter	E KLAY-INSTRUMENTS
-Online Parameterize	Human Interface	
-Device Identification	Display Readout	
-Device Data (Static)	4-20 mA •	
Device Data	Write Protection	
Device Input	Not Write Protected	
Process Value Scale	Local Write Protect	
-Device Output	Not Write Protected	
Output		
Linearization		
Measured Values		
=-Device		
Transmitter Construction		
HART		

3.9 TRANSMITTER CONSTRUCTION

This menu shows additional construction information of the transmitter.

🏦 Klay Series 2000 HART # Para	neterize	4 b x
Klay Series 2000 Pressure and level Version:1.0.1	HART transmitter	IIK KLAY-INSTRUMENTS
-Online Parameterize	Transmitter Construction	
Device Identification	Diaphragm Material	
Device Data (Static)	Not Available	
Device Data	O Ring Material	
Device Input	Not Available	
Process Value Scale		
-Device Output		
Output		
Linearization		
Measured Values		
=-Device		
Transmitter Construction		
HART		

3.10 HART

This menu contains HART related data.

2 Klay Series 2000 HART # Parameterize		
Klay Series 2000 F Pressure and level Version:1.0.1	IART transmitter	KLAY-INSTRUMENTS
-Online Parameterize	HART	
Device Identification Device Identification Device Data (Static) Device Data Device Input Temperature Process Value Scale Device Output Linearization Measured Values Device Fuluman Interface Transmitter Construction HART	Num Request Preambles 6 Universal Revision 5 Device Revision 1	