

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:



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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-instruments.com 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 . The 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: _____

Windows 7 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 references in the search box. The following window appears and the .NET Framework 3.5 can be enabled.

Turn V	Vindows features on or off			•
	a feature on, select its check box. To turn ox. A filled box means that only part of th			
± 🗌	.NET Framework 3.5 (includes .NET 2.0	and 3.0)		,
· .	.NET Framework 4.6 Advanced Service	s		
	Active Directory Lightweight Directory	Services		
	Containers			
•	Device Lockdown			- 1
•	Hyper-V			
	Internet Explorer 11			
	Internet Information Services			
	Internet Information Services Hostable	Web Core	2	
•	Legacy Components			
•	Media Features			
	Microsoft Message Queue (MSMQ) Se			

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.

Pressure and level tr Version:1.0.1	ansmitter		KLAY-INSTRUMENT
Online 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	
Linearization	Klay Instruments -	0	
-Measured Values	Universal Revision	Sensor Type	
-Device -Human Interface	5	2000 Range 1	
	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	ART	4 Þ
-Online Parameterize	Device Data	
-Device Identification	Tag	
Device Data (Static)	KLAY	
Device Data	Descriptor	
Device Input	16 CHARACTERS	
Temperature Process Value Scale	Message	
-Device Output	32 CHARACTERS	
-Output	Date	
Linearization	1/1/1900 15	
Measured Values		
B-Device		
Human Interface		
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.

Klay Series 2000 H Pressure and level v Version:1.0.1		EK KLAY-INSTRUMENTS
Online Parameterize	Temperature Temperature Sensor Temperature 25.a °C Housing Temperature 26.6 °C	

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 F Pressure and level			KLAY-INSTRUM
Version:1.0.1	Process Value Scale		
Device Identification	Upper Sensor Limit		
-Device Data (Static)	1176.801 mbar		
Device Data	Lower Sensor Limit	Adjust Zero (4 mA)	
Device Input	-1176.801 mbar		
Temperature	Maximum Span	Adjust Span (20 mA)	
Process Value Scale Device Output	1176.801 mbar		
Output	Minimum Span	Set Mounting Position Correction	
Linearization	78.45337 mbar		
Measured Values	PV Snar Unit	Reset Mounting Position	
Device	mbar •	Correction	
-Human Interface	PVLRV		
L. Transmitter Construction	0 mbar		
	999.9863 mbar		
	999.9803 moar		

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 # Parameterize				
Klay Series 2000 F Pressure and level Version:1.0.1				
-Online Parameterize	Output			
Device Identification	PV Damp			
··· Device Data (Static)	0.0 seconds			
Device Data	Reverse Output 4-20 mA			
Temperature Process Value Scale Device Output	Loop Test			
-Output				
Measured Values	D/A Trim			
⇔Device Human Interface				

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 # Offline Parameterize		4 b 🗙
Klay Series 2000 Pressure and level Version:1.0.1		KLAY-INSTRUMENTS
-Offline Parameterize	Linearization	
Device Identification Device Data (Static) Device Data Device Data Device Input Process Value Scale Device Output Output Output Human Interface Harman Interface HART	Transfer Function Normal 4-20 mA Ostramal 4-20 mA Cylindrical tank V. tank (cone) V. tank (upbere)	

3.7 MEASURED VALUE

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

Klay Series 2000 F Pressure and level Version:1.0.1				EK KLAY-INSTRUMENTS
-Online Parameterize	Measured Values			
Device Identification Device Data (State) Device Data (State) Device Input Temperature Proces: Value Scale Device Output Linearization Measured Value Device Transmitter Construction HART	Sentor Value 3.004-5 58.007 1.176.001 9% of Range 0.0 %	Sensor Temperature	Housing Temperature	

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.

北 Klay Series 2000 HART # Parameterize		4 b x
Klay Series 2000 E Pressure and level Version:1.0.1		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		
L.Linearization		
Measured Values		
-Device		
Transmitter Construction		
HART		

3.9 TRANSMITTER CONSTRUCTION

This menu shows additional construction information of the transmitter.

Klay Series 2000 HART * Parameterize Klay Series 2000 HART Presure and level transmitter Vresure inditivel Version: 1.0.1		4 • : KLAY-INSTRUMENTS
Online Parameterize Online Parameterize Orice Identification Orice Data (Static) Orice Data (Static) Orice Input Orice Input Orice Input Output Ou	Transmitter Construction Diaphragm Material Net Available O Ring Material Net Available	

3.10 HART

This menu contains HART related data.

🏦 Klay Series 2000 HART # Param	😤 Klay Series 2000 HART # Parameterize				
Klay Series 2000 H Pressure and level t Version:1.0.1		KLAY-INSTRUMENTS			
-Online Parameterize	HART				
Device Identification	Num Request Preambles				
Device Data (Static)	6				
Device Data	Universal Revision				
-Device Input	5				
··· Temperature ··· Process Value Scale	Device Revision				
-Device Output	1				
Output					
Linearization					
Measured Values					
ⁱ ⊟-Device					
Human Interface Transmitter Construction					
HART					