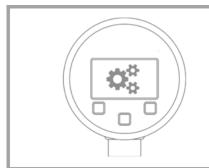
Operation manual for DAQ software



READ THOROUGHLY BEFORE USING THE DEVICE **KEEP IT FOR FURTHER USAGE**

ID: BA DAQ E | Version: 04.2019.0

1. Requirement:

- Minimum system requirements:
 - 1.0 GHz processor
 - Windows 7 (x86 or x64) 50 MB free space on the hard disk
 - 1280 x 1024 screen resolution
- Microsoft© .Net 3.5 framework

Parametrization of precision digital gauge DM01 series as well as reading of stored data.

This product requires actual driver for communication cable "FTDI TTL-232R-5V-AJ". This is available for download at http://www.ftdichip.com/Drivers/VCP.htm. (direct installation with Windows Update Service.) Administrator rights are required to install drivers and configuration tool. A safe directory (for example, C: \ Program Files or C: \ Program Files (x86)) is recommended for installation). Automatic installation, if the PCsystem is connected to the Internet.

3. DAQ software installation:

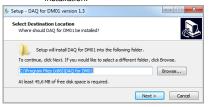
double-click the setup file »DAQ for DM setup« (depending on the version) and instructions on the desktop.

DAQ for DM01 v1.3 setup	17.04.2019 18:49	11.0
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choose a language »German« or »Eng confirm the selection with »OK« or click »C stop installation.

Setup-Sp	orache auswählen				
\$	Wählen Sie die Sprache aus, die während der Installation benutzt werden soll:				
	English English 🗸				
	OK Abbrechen				

after selecting the language and confirming with »OK« next step »Select Destination Location« is displayed. A target directory »C: \ Program Files (x86) \ DAQ for DM01« is defined. The destination directory can be changed by clicking on »Browse«. Click »Next«, after choosing location, to go to the part step « Cancel« to exit the installation Confirm next step or »Cancel« to exit the installation. Confirm cancellation with »Yes« or click »No« to continue the installation.



after clicking »Next« the step »Select Start Menu Folder« is displayed, a Start menu folder must be set. The system defines a selection »DAQ for DM01«. You can change the system mapping by clicking »Browse« and setting destination folder. With »OK« you confirm the selection and with »Cancel« the selection is terminated. After defining folder, click »Next« to continue installation or »Cancel« to abort (confirm the cancellation with »Yes« or »No« to continue).

,	
🏂 Setup - DAQ for DM01 version 1.3	X-
Select Start Menu Folder Where should Setup place the program's shortcuts	2
Setup will create the program's shortcuts	
To continue, click Next. If you would like to select a	a different folder, dick Browse.
DAQ for DM01	Browse
	Next > Cancel
step »Select Additior specify whether a de	, you will be taken to the nal Tasks«. In this area, you sktop icon should be creat nt a desktop symbol, delet

want to start DAQ software after install process and then »Finish«. The installation is done and the program is started, if selected. If not: The program must be started via the desktop shortcut or via "all

programs

P 9	•
🏂 Setup - DAQ for DM01 vers	sion 1.3
Installing Please wait while Setup ins	stalls DAQ for DM01 on your computer.
Extracting files C:\Program Files (x86)\DA	Q for DM01\DevExpress.XtraBars.v12.2.dll
	Cancel
🏂 Setup - DAQ for DM01 ver	sion 1.3
	Completing the DAQ for DM01 Setup Wizard
	The application may be launched by selecting the installed shortcuts.
	Click Finish to exit Setup.
	Launch DAQ for DM01
	Finish

NOTE: after installation and before DAQ use, please make sure that the device DM 01 (ensure power supply with batteries) is connected to the PC via USB cable!

4. Data logger DAQ: The software is used to start, read out and configure the logger of precision digital gauge DM01 series. The logger data is displayed and can be downloaded as a .bin or .csv file

4.1. Featur	res:
-	File: program exit.
-	Info: Information about program name,
	software version and issue date.

File Info Exit	onfiguration Table Diagram	
🧼 DAQ		
File Info	Info 📉	
Communication		
Interface	Software: DAQ	Entries available on logger
Port name:	Version: 1.3 - 17.04.2019	Read entries
Baud rate:		Start En
Or	ОК	

5. Communication: DAO

- Shiq				
File Info				
Communication Configu	ration Table Diagram			
Interface				
Port name:	COM6 -			
Baud rate:	38400			
Open	Close			
Device And Module Info	ormation			
Firmware:	4.5			
Serial Number Device:	2019			
Serial Number Module:	10573107			
Date Of Production:	22.03.2019			
Pressure Range:	0,001000,00 hPa			
Pressure Kind:	gauge			
Temperature Range:	0,050,0 ℃			
Stored Items Count:	0			
Settings				
Language eng	lish 👻			
Synch. Date Date/Time ▼ F	PC-synchronization			

rface Port name: COM port (e. g.: COM6) is o the PC device manager after installation of FTDI driver. Please select a port created on your computer. For multiple COM ports, the right assignment is required by the user. Without port assignment there is no communication between computer and DM01-device.

5.2.6. Pressure Type: The physical measurement method of pressure of pressure sensor module is shown (e.g.: gauge / absolute)

5.2.7. Temperature Range: The min, and max, temperature range of pressure sensor module is displayed. The temperature range 0 ... 50 ° C is the same for all pressure sensors (modules) Depending on the unit setting, temperature can be displayed in °C, K or °F

5.2.8. Stored Items Count: Information, how many values are stored in the datalogger. A maximum of 600798 readings can be stored (e. g.: min: 0 / max: 600798).

5.2.9. Settings:

Language: The program presentation of DAQ can be set in two languages German or English.

6. Synch. Date / Time: PC- synchronization, this feature provides a date and time synchronization between system setting on the computer and the data logger (display.) After tick is set, the current time and current date will transfer from the computer to the data logger as soon as the "Write" function in the configuration area is executed.

Synch. Date Date/Time	PC-synchronization
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7. Entries available on logger:

7.1.1. Read entries: The measured values stored in the data logger are read after using "Read entries" button and displayed in the lower area, sorted by date.

Read entries Stop Serial number (modul) Range **7.1.2. Stop:** The function "Download (.bin)" or "Export (.csv)" can be stopped after activation by click on action field "Stop".

The already loaded amount of data is displayed. Entries available on logger

Stop Read entries End Start Download (.bin) Export (.csv)

7.1.3. Table: The listed records have the following columns:

Start: start of the measured value acquisition date DD.MM.YYYY and time hh:mm:ss

End: end of data acquisition date DD.MM.YYYY and time hh:mm:ss

Count: quantity of readings min. 0 and max. 600798 recorded in

one measurement interval. Serial number (module): a serial number of the pressure

transmitter (e. g.: 10583207) Range: Nominal pressure range of the pressure sensor. Value and unit (e. g.: 0.0000 ... 1.0000 bar). The sorting of the values ascending, or descending is possible.

End Count Serial number (modul) Range Start

7.1.4. Download (.bin): Select a file by a tick in table area "Start". Only one file can be selected. Click the "Download (.bin)" button. Define destination directory and confirm with "Save The file is transferred. The progress is displayed on the bar. A file with extension (.bin) is stored.

The download can be aborted by clicking the "Stop" action field in top or bottom area. The download time is about 0.03 seconds per value

7.1.5. Export (.csv): Select a file by a tick in table area "Start". Only one file can be selected. Click the "Export (.csv)" button. Define destination directory and confirm with "Save". The file is transferred. The progress is displayed on the bar. A file with extension (.csv) is stored. Editing with e.g. MS Office® (Excel®) is possible. The download can be aborted by clicking the "Stop" action field in top or bottom area. The download time is about 0.03 seconds per value

En	tries stored on PC				
	Browse C:\Users\A	ppData\Local\BD_DAQ	Save		
	Start	End 🔺	Count	Serial number (modul)	Range

Show Stop Delete

7.1.6. Delete: The data that was read out or downloaded or saved as a CSV file can be deleted. Select a file from the upper or lower table, set the tick in the "Start" table area. Only one file can be selected. Click on the "Delete" button. A warning can be selected. Click of the Defete button. A warning message "All saved values are deleted! Do you really want to delete the values?" With "Ves" you confirm deleting the file with "No" the process is aborted. The data in the datalogger or on the storage medium, depending on the selection, and the table entry are deleted.

7.1.7. Entries stored on the PC: The data can be selected by using the Browse function. Select the destination directory in the "Search Folder" area and confirm with "OK". Click on the file and confirm with "OK". It is possible to create a new directory. Click nd name the folder wi

Start			E	ind	nd			Count		
1	6.04.2019	12:14	1:00	16.04.20	19 1	2:14:17		18		
Show	,	Ş	Stop		[)elete				
mmunication	Configuration	Table	Diagram	Communic	ation	Configuration	Table	Diagram		
erial Number N	Aodule : 105731	107		Serial Nu	mber N	Aodule : 105731	107			
Timestamp				10	r-	Pressure				
16.04.2019	12:14:00			•	I -	- Temperature				
16.04.2019	12:14:01									
16.04.2019	12:14:02			0,9		1				
16.04.2019	12:14:03				0,	9				
16.04.2019	12:14:04					1				
16.04.2019	12:14:05				0,8	5				

8. Configuration:

C

The datalogger (display) can be configured via tab "Configuration". The data set on the datalogger can be read out or the setting can be changed via software and be written to the datalogger

ommunication Configura	tion	Table	Diagra	m	
Settings					
Date:	26.	04.2019		- 10:49	A V
Pressure Unit:	PSI				•
Temperature Unit:	°C				•
Language:	Θ ε	english	0) geman	
Measurement Rate:	01	l/s	2/s) 50/s	
Auto Off Time:	off	Ó	1	i i	5 min
Data Logger:	Off				•
Interval:	1		Se	cond	•
Day time:	00:0	0			-
Delete Logged Items:	No				•
Function Left Button:	Res	et Zero			•
Function Right Button:	Set	Zero			•
Backlight On Time:	off,	· · ·	1 1		, 120 s
Backlight Brightness:	0%	1 1	Ó.	1 1 1 1	100%
Damping:	off	1 1	1 1	т. т. т. т. 	, 10,s
Read				Write	

8.1. Settings: An area with possible configuration properties only for DM01 Device (Display).

8.1.1. Date (date / time): The date and time synchronization from PC to DM01 takes place automatically after clicking the »Write« action field and when in Communication area PCsynchronization is set!

8.1.2. Pressure Unit: Possible units are [bar], [PSI], [mbar], [mH2O], [inchHG], [cmHG], [mmHG], [hPa], [kPa], [MPa], [kg/cm2], [inchH2O], [mmH2O] or [user]. Select a unit. Click on the "Write" button. The unit is transferred. Check display. The conversion is done automatically

Pressur

e Unit:	PSI	-
	bar	
	PSI	
	mbar	
	mH2O	
	inchHG	
	cmHG	
	mmHG	
	hPa	
	kPa	
	MPa	
	kg/cm2	
	inchH2O	
	mmH2O	
	user	

8.1.3. Temperature Unit: Possible units are [°C], [°F], [K]. Select a unit click on the button "Write". The unit is transferred. Check the display. The conversion is done automatically.

Temperature Unit:	°C	-
	°C	
	°F K	
		-

8.1.4. Language: Select a language English or German (depending on the default setting) and click the "Write" button. The language is transferred to device. Check display.

Language:	english	oeman	

8.1.5. Measurement Rate: Possible settings: 1 / s (one value per second), 2 / s (two values per second) or 50 / s (50 values per second). Select a sample rate. Click the "Write" button. The transmission is carried. Check display.

specify whether a desktop icon should be created or	
not. If you don't want a desktop symbol, delete the	
marking. If you click »Back«, a backward menu step	544 1.4.4
will be executed, if you click on »Cancel«, you can	5.1.1. Inter
cancel the installation after confirming with »Yes«	assigned to
and with »No« the installation will continue	driver. Plea

next can

	i DAQ	
M01 vX.X	File Info	Info
follow the	Communication	
5 KB	Interface Port name:	Software: DAQ
lish« and Cancel« to	Baud rate:	Version: 1.3 - 17.04
Jancer« 10		

Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing DAQ for DM01, then click Next. Additional shortcuts:
✓ Create a desktop shortcut
< Back Next > Cancel

and with »No«, the

5 Setup - DAQ for DM01 version 1.3

after clicking »Next«, you will get to the next step, »Ready to Install«. The overview shows destination folder and start menu folder. A change is not possible. Click »Install« to start the software installation, »Back« to return to the menu or »Cancel« to abort the installation.

DM01 on your computer.	a l
	C
r click Back if you want to re	view or
	*
	-
	Þ
	r dick Back if you want to re

after you click »Install« the software will be installed The progress is indicated by installation bars. At the end of the installation, click »Launch DAQ ... « if you

5.1.2. Baud rate: The value 38400 bit/s is fixed by the manufacturer and cannot be changed by the user.

5.1.3. Open: »Open« starts communication between computer and DM01 and the device-specific features will be displayed. If a pressure sensor (module) is not connected, data from last connected sensor will be showed.

5.1.4. Close: Communication between computer and DM01 stops. Device-specific data are not present. Module information and entries shown in the software are empty and inactive.

5.2. Device And Module Information:

5.2.1. Firmware: The current firmware of the display device is displayed (e. g.: 4.5).

5.2.2. Serial Number Device (display): The serial number of the connected display is displayed in the field (e. g.: 10504131).

5.2.3. Serial Number Module (pressure sensor): The serial number of the connected pressure sensor (module) is displayed (e.g.: 10572107)

5.2.4. Date Of Production: The date on which the pressure sensor (module) was manufactured (e. g.: 22.03.2019).

5.2.5. Pressure range: The min. and max. nominal pressure of the pressure sensor (module) with associated unit are displayed (e. g.: 0,00 ... 1000,00 hPa).

wil

i be created.			
Entries stored on I	PC		
Browse	E:\DAQ V1.2		
Ordner sucher			
Þ 퉲 1	Intel		
D 🕹	ODT		
Þ 🆺 I	Program Files		
Þ 🆺 I	ProgramDataTechSmith 🗉		
Þ 🆺 I	Programme (x86)		
searchplugins			
	System Volume Information		
DVD-RW-Laufwerk (D:)			
Neuen Ordne	er erstellen OK Abbrechen		

7.1.8. Show: The Display function provides a representation of the measured values in the register Table and Diagram. Select a bin file (only one possible) and then click on the area »Show« The measured values are displayed in the tab "Table" and "Diagram". To see the values, click "Table" or "Diagram".

Measurement Rate: 1/s 2/s 50/s

8.1.6. Auto Off Time: Switching off the display can be set by the slider between off, 1 minute, 2 minutes, 3 minutes and 5 minutes. Select a position. Click the "Write" button. The transmission is carried. Check display.

Auto Off Time:	off	I.	1	I	5 min

8.1.7. Data Logger: Activate or deactivate the datalogger. Selection Off (deactivated), Linear (recording values will be stopped at 600798), Loop (recording values will be an endless loop and overwrite stored values after value 600798). Single (one value will be recorded after pressing button "Single"; you have to program "Left button" or "Right button" to the feature "Single"). Select a position and activate it by "Write" button. Check display.

Data Logger:	Off	-
	Off Linear	
	Loop Single	

8.1.8. Interval: Setting ranges 1 - 99, Millisecond, Second, Minute, Hour and Day. Set a combination. Click the "Write" button. The transmission is carried. Check display.

Interval:	99	Second	-
		Second	
	00:00	Minunte	
		Hour	
	No	Day	
		Millisecond	

8.1.9. Day time: For the interval setting Day, a time for the measurement is set. Preset the data logger interval to Day and number of days 1-99, set the time hh: mm, click the "Write" button. The transmission is carried. Check display.

Interval:	1	* *	Day	•
Day time:	03:00			÷.

8.1.10. Delete Logged Items: All measured values recorded with the datalogger can be deleted. Select "Yes" and click "Write". Attention! all measured values will be deleted. Restoring the data is not possible! All logged values 1-600798 have been deleted. The display shows 0/600798. Check display. If logged values should not be deleted, select "No" and click "Write".

Delete Logged Items:	No		
	No		Ì
	Yes		

8.1.11. Function Left Button: Button configuration of left button. Configuration of possible functions: [Minimum], [Maximum], [Light], [Set Zero], [Reset Zero], [Single] or [Off]. Select an attitude, click on »Write«. Check display.

Function Left Button:	Reset Zero	•
	Minimum	
	Maximum	
	Light	
	Set Zero	
	Reset Zero	
	Single	
	Off	

8.1.12. Function Right Button: Button configuration of right button. Configuration of possible functions: [Minimum], [Maximum], [Light], [Set Zero], [Reset Zero], [Single] or [Off]. Select an attitude, click on »Write«. Check display.

Function Right Button:	Set Zero	•
Backlight On Time:	Minimum Maximum	
Backlight Brightness:	Light Set Zero Reset Zero Single	
	Off	

8.1.13. Backlight On Time: The backlight illumination can be set in ten-second increments between [10 s] and [120 s] or disabled by selecting [off]. Set a time setting or [off], click on »Write«. Check display.

in 10% increments between [0%] and [100%]. Set a brightness setting, click on »Write«. Check display.

 Backlight Brightness:
 0%
 100%

8.1.15. Damping: Damping can be set in one-second
increments between [1 s] and [10 s] seconds or disabled by

selecting [Off]. Set a damping setting, click on »Write«. Check display.

8.2. Read/Write

8.2.1. Read: The settings of the data logger DM01 will be read out (only a read function)

8.2.2. Write: All settings made in the "Configuration" register are transferred to the DM01 data logger after you click on »Write«.



8.3. Zero of pressure range (Display)

8.3.1. Set Zero: Set the displayed pressure to zero. By clicking on the button »Set Zero«, the displayed value will immediately set to zero. The zero point is set automatically. Check the display. The display shows "Z".

8.3.2. Reset Zero: By clicking the reset button "Reset Zero", the displayed value in the display will be reset to the current measured value. "Z" will be errased. Check the display.

Set Zero		
Set Zero	Reset Zero	

8.3.3. User Unit: The user-defined unit [user] can only be programmed using the software DAQ, all pressure-related parameters will be converted automatically.

8.3.4. First: select the [user] option in the »Settings« area.

				J	
Communication	Configuration	Table	Diagram		
Settings					
Pressure Unit:	us	er			•
835 Cantion	(max 8 chai	actore	• Enter the	name of th	no uni

9. Table: To create and display the table, select a series of measurements in the Configuration "Entries stored on PC" area (only one measurement series possible) by selecting a check mark to the left of the selection. Then click on "Show" and then on register "Table". The values are displayed in shape of tables. The displayed values can be generated as a PDF file (Save .pdf).

Γ	Sta	art	End	Count	Serial number (modul)	Range
,	•	28.03.2019 13:16:15	28.03.2019 13:16:52	1445	10573107	0,00001,0000 bar

The table contains the following information: Serial Number Module (pressure module). Timestamp (DD.MM. YYYYY and hh: mm: ss) date and time at which the measured value was recorded or logged. Pressure, nominal pressure measured on the day and the time and related temperature, measured on the day and the time.

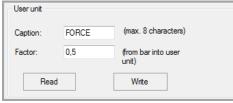
-	munication Configuration	Table Diagram					1
en	ial Number Module : 105731	07	Set check to	show custom	text in chart hea	der	
	Timestamp	Pressure	Temperature 4	Extra information			
•	28.03.2019 13:16:15	-0,00023	23,58				
	28.03.2019 13:16:24	-0,00015	8 23,58	Notes:	Pressure	-	
	28.03.2019 13:16:24	-0,00023	23,58		measurement on the		
	28.03.2019 13:16:24	-0,00018	23,58		water pipe.	V	V
	28.03.2019 13:16:24	-0,00020	23,58				
	28.03.2019 13:16:24	-0,00013	33 23,58				
	28.03.2019 13:16:24	-0,00025	5 23,58	Test point:	at the valve II		
	28.03.2019 13:16:24	-0,00013	23,58	User name:	Mustermann		
	28.03.2019 13:16:24	-0,00018	23,58				
	28.03.2019 13:16:24	-0,00020	23,58	Pressure range:	0,00001,0000 bar	V	1
	28.03.2019 13:16:24	-0,00001	23,58	Test date:	28.03.2019		
	28.03.2019 13:16:24	-0,00023	23,58	show in chart		_	
	28.03.2019 13:16:24	-0,0008	23,58	snow in chart	snow	r as list	V
	28.03.2019 13:16:24	-0,00013	23,58		Save .pdf	7	
	28.03.2019 13:16:24	-0,00023	23,58				

28.03.2019 13:16:15 -0,000231 23,58

10. Diagram: The diagram is generated automatically. In this area, users can not make changes. In the register "Table" settings for "chart header" and "chart annotation" can be made by setting a tick in the information area (Extra information). The pressure values will be shown in "blue" and the temperature in "red". But you can change it on your own by pressing right button of computer mouse. Possible style features: Color, line style and line thickness. Click "Save as..." for creating .pdf-, .jpg-, .bmp- or .png- file, choose a folder on PC and confirm with »Save«. The chart will be created.

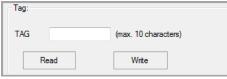
	e : 10573107								
1),95	Pressure Temperature	Pressure range: 0,00001,0000 bar Measured at: at the valve II							- 2
0,9		Created by: Mustermann Measured on: 28.03.2019 Remark:							- 2
0,85		Pressure measurement on the water pipe		v ww v	 	A 1A	 	 	- 2
0,8	Pressure	► Blue - Blue							- 2
0,75	Temperature Save as	> Solid -							_
0,7	Show date		Solid	•					- 2
),65	Show time grid								
0,6									-
0,55									- 1
0,5									-
),45									-
0,4									- :
),35									
0,3									
),25									- 8
0,2									- 0
),15									

8.3.5. Caption (max. 8 characters): Enter the name of the unit, up to 8 characters (letters, numbers, ...) possible, e. g.: FORCE.
8.3.6. Factor (from bar into user unit): Enter the conversion factor, e. g.: 0,5. By clicking the button "Write". The transmission is carried. Check the display. The conversion from unit [bar] to [user] takes place automatically.

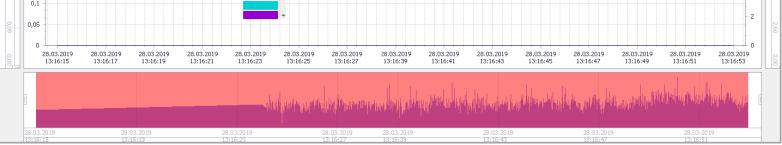


8.3.7. Read: By clicking on "Read" current values / settings are read from the datalogger.

8.3.8. Tag (max. 10 characters): Create the TAG-number for measuring point. Write a TAG- Name or TAG-number, maximum 10 characters possible. Click on "Write". The transmission is carried. Check the display.



 $\pmb{8.3.9.}$ $\pmb{Read:}$ By clicking on "Read" current values / settings are read from the datalogger.



Scaling : You can scale X- and Y-axis on your own, by moving the slider marks (two for each axis).

