Operation manual for DAQ software

e C $\mathbf{Q}_{\mathbf{Q}}$

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

ID: BA_DAQ_E_SRO | 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.

2. Comment:

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 DM01 vX.X setup« (depending on the version) and follow the instructions on the desktop.

DAQ	for DM01 v1.3 setup	17.04.2019 18:49	11.015 KB
-		uage »German« ection with »OK« or	
Setup-S	prache auswählen	×	
\$	Wählen Sie die Sprach Installation benutzt w	e aus, die während der erden soll:	
	English English		1
		OK Abbrechen	j
-	after selecting	the language and	d 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 next step or »Cancel« to exit the installation. Confirm cancellation with »Yes« or click »No« to continue the installation.



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).

Select Start Menu Folder Where should Setup place the program's short	tcuts?
Setup will create the program's shorter To continue, dick Next. If you would like to set	
	Browse

next can cify 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 will be executed, if you click on »Cancel«, you can cancel the installation after confirming with »Yes«

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". ✤ Setup - DAQ for DM01 version 1.3



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. Features File: program exit.

Info: Information about program name, software version and issue date

🏂 DAQ		
File	Info	

logge

🏂 DAQ					
File Info					
Communication Configur	ration Table Diagram				
Interface					
Port name:	COM6 -				
Baud rate:	38400				
Open	Close				
Device And Module Info	mation				
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 °C				
Stored Items Count:	0				
Settings					
Language engl	ish 👻				
Sunch Date	'C-synchronization				

5.1.1. Interface Port name: COM port (e. g.: COM6) is assigned to 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.

Entries available on logge Read entries Count Serial number (modul) Range End 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

Read entries	St
Start	End

7.1.3. Table: The listed records have the following columns: Start: start of the measured value acquisition

Export (.csv)

date DD.MM.YYYY and time hh:mm:ss

End: end of data acquisition

Download (.bin)

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

ransmitter (e. g.: 10.883207) 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.



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.

Ent	ries stored on PC						
	Browse	C:\Users\A	ppData\Loca	al/BD_DAQ	Save		
	Start		End		Count	Serial number (modul)	Range
	16 04 2019	12.14.00	16.04.2019	12:14:17	18	10573107	0.00001.0000 ba

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 message "All saved values are deleted! Do you really want to delete the values?" With "Yes" 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.

Entries stored on the PC: The data can be selected by 7.1.7.

Start Er			End		Count			
• 🗸 :	16.04.2019	12:14	k:00 1	16.04.2019 12:14:17			18	
Show		S	itop		[Delete]	
Communication	Configuration	Table	Diagram	Communic	ation	Configuration	Table	Diagram
Serial Number	Module : 105731	07		Serial Nur	nber I	Nodule : 105731	07	
Timestamp					r-	Pressure		
16.04.2019	12:14:00			•	I -	- Temperature		
16.04.2019	12:14:01							
16.04.2019	12:14:02			9,0				
16.04.2019	12:14:03			-	0,	9		
16.04.2019	12:14:04							
16.04.2019	16.04.2019 12:14:05		0,85					

8. Configuration:

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.

Communication	Configuratio	n Table	Diagram		
Settings					
Date:		26.04.2019		10:49	×
Pressure Unit:		PSI			•
Temperature U	nit:	°C			•
Language:		english	0	german	
Measurement F	Rate: () 1/s	2/s) 50/s	
Auto Off Time:	c		I	i i	5 min
Data Logger:		Off			•
Interval:		1	Seco	nd	•
Day time:	C	00:00			*
Delete Logged	Items:	No			-
Function Left B	lutton:	Reset Zero			•
Function Right	Button:	Set Zero			•
Backlight On T	ìme: o	,	1 1 1		, 120 s
Backlight Brigh	tness:	0%	<u> </u>	1 1 1	100%
Damping:	c	off, , ,	1 1 1	1 1 1	, 10,s
I	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], [mHG], [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

essure 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 conve ion is done automati

Terror I to 1		
Temperature Unit:	℃	-
	10	
	тс.	
	°F	
	K	
		-

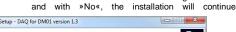
8.1.4. Language: Select a language English or German (depending on the default setting) and click the "Write" button. The language is transferred to device. Check display.

0	english	0	oeman

Language

8.1.5. Measurement Rate: Possible settings: 1 / s (one value

File Info	Info		- 2	×	
Communication Interface Port name: Baud rate:		are: DAQ in: 1.3 - 17.0	4.2019		ies available Read entri Start
Or			OK		
Communic	ation:				
🌢 DAQ					
File I	nfo				
Communic	ation	Confiau	ation	Table	Diagr



Select Additional Tasks		
Which additional tasks should be p	- formed 1	
which additional tasks should be p	eriormeur	
Select the additional tasks you wou DM01. then click Next.	uld like Setup to perform w	hile installing DAQ for
Additional shortcuts:		
Additional shortcuts:	< Back	Next > Cancel

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.

Ready to Install		
Setup is now ready to begin installing D	DAQ for DM01 on your computer.	6
Click Install to continue with the installa change any settings.	ation, or click Back if you want to review or	
Destination location: C:\Program Files (x86)\DAQ for D	M01	*
Start Menu folder: DAQ for DM01		
Additional tasks: Additional shortcuts: Create a desktop shortcut		
		Ŧ
<	+	

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 use

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).

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 on "Create new folder" and name the folder with "OK" the folder will be created.



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".

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.

leasurement 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,

Interval:	99 🌩	Second	•		rt 🗹 28.03.2019 13:	16:15
	00:00	Second Minunte		The ta	ble contains the	e followir
	No	Hour Day Millisecond			ire, nominal pre	essure m
8.1.9. Day time: For the					NAC (NSIR)	Con
neasurement is set. F number of days 1-99, s nutton. The transmissi	set the time hh:	mm, click the			mmunication erial Number	in many
Interval:	1 		•		Timestamp	
Day time:		Day				
	03:00		÷	•	28.03.201	
.1.10. Delete Logged vith the datalogger ca	in be deleted. S	elect "Yes" an	d click	-	28.03.201	
Write". Attention! all r	e! All logged va	lues 1-600798	have been	-	28.03.201	10120240
eleted. The display s alues should not be c				-	28.03.201	9 13:1
Delete Logged Items:	No		•		28.03.201	9 13:1
	No Yes				28.03.201	9 13:1
.1.11. Function Left					28.03.201	9 13:1
outton. Configuration of Maximum], [Light], [So Select an attitude, clic	et Zero], [Reset	t Zero], [Single			28.03.201	9 13:1
Function Left Button:		леск израу.			28.03.201	9 13:1
Den Ponori.	Reset Zero Minimum				28.03.201	9 13:1
	Maximum Light Set Zero				28.03.201	9 13:1
	Reset Zero Single				28.03.201	9 13:1
.1.12. Function Right	Off	on configuratio	p of right		28.03.201	
outton. Configuration	of possible func	tions: [Minimu	m],		28.03.201	
Maximum], [Light], [Select an attitude, clic						
Function Right Button:	Set Zero				28.03.201	9 15;1
					+	
Backlight On Time:	Minimum Maximum				Information ar	
Backlight On Time: Backlight Brightness:	Minimum Maximum Light Set Zero			Notes: Test p	Text information	on max. he meas
-	Minimum Maximum Light Set Zero Reset Zero Single		•	Notes: Test pe User n	Text information	on max. he meas the edito
Backlight Brightness:	Minimum Maximum Light Set Zero Reset Zero Single Off Time: The bac			Notes: Test po User n Pressu Test da	Text information bint: Name of the ame: name of the are range: Nom ate: The date is	on max. he meas the edito inal pres s usually
Backlight Brightness: 3.1.13. Backlight On set in ten-second incre tisabled by selecting [Minimum Maximum Light Set Zero Reset Zero Single Off Time: The bacc ements betweei (off). Set a time	n [10 s] and [1:	20 s] or	Notes: Test pr User n Pressu Test da Create	Text informatic bint: Name of the ame: name of the irre range: Nom ate: The date is PDF file: Clic	on max. the meas the edito inal pres s usually k "Save
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Backlight Brightness: 3.1.13. Backlight On set in ten-second incre- disabled by selecting [Write«. Check displa Backlight On Time: 3.1.14. Backlight Bright n 10% increments between setting, click on »Write Backlight Brightness: 3.1.15. Damping: Darn ncrements between [1] selecting [Off].	Minimum Maximum Light Set Zero Reset Zero Single Off Time: The back ements between (off]. Set a time y. off ghtness: The b tween [0%] and ex. Check displation ex. Check displation off and and and a single	n [10 s] and [1: setting or [off] rightness can I [100%]. Set a ay. et in one-seco seconds or disa	20 s] or , click on <u>120 s</u> be adjusted brightness <u>100%</u> nd abled by	Notes: Test pr User n Pressu Create Rei 28.	Text informatio pint: Name of the ame: name of the arrer range: Norm ate: The date is e PDF file: Clice asured at eated by: I mark: Pre 03.2019 13 agram: The dia	on max. the measure the editor inal press s usually k "Save : at the Muster SSURE :16:15 agram is
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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.

Communication	Configuration	Table	Diagram
Settings			

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).

Serial number (modul) Range End Count 28.03.2019 13:16:15 28.03.2019 13:16:52 1445 10573107 0,0000..1,0000 bar

e 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.

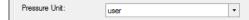
Serial Number Module : 10573107 Timestamp Pressure 28.03.2019 13:16:15 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24 28.03.2019 13:16:24	Se Temperat -0,000231 -0,000158 -0,000231 -0,000182 -0,000255 -0,000133 -0,000133 -0,000132 -0,000132 -0,000134 -0,000231	ture 23,58 23,58 23,58 23,58 23,58 23,58 23,58 23,58 23,58 23,58 23,58 23,58	Extra information Notes: Test point: User name: Pressure range:	Pressure measurement on the water pipe. at the valve II Mustemann 0,00001,0000 bar		
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gram: 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 ion 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 : 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.

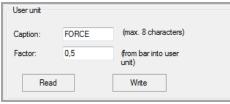
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23,58

	: 10573107					 				 			
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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.

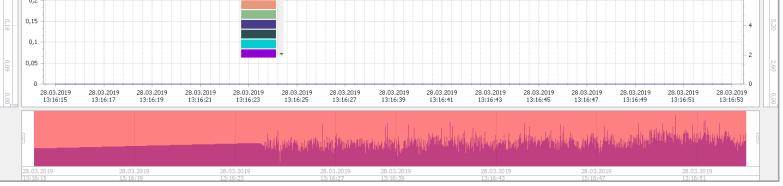


8.3.7. Read: By clicking on "Read" current values / settings are read from the datalogge

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.



8.3.9. 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).

