

FORCE MEASUREMENT SOLUTIONS.



15-216 Revision C 9330 Operating Manual



Introduction

- 24-bit resolution
- 3750 Hz update rate
- Peak and valley capture
- Log to SD card at 1000Hz
- USB Port with software
- Analog output
- Rechargeable battery
- 20 Hour battery life/300 hour standby
- Stores up to 6 sensor calibrations
- Powers up to 4x 350 ohm sensors
- 7 digit display

Description

Model 9330 is a bipolar display, logging, amplifier that can be used in portable or desktop applications. This instrument has an integrated bridge completion for 120 Ohm, 350 Ohm and 1000 Ohm strain gauges as well active sensors with 0...10V output signal. The measuring rate can be set up to 3750 Hz. Data can be save to an SD Card at a rate of 1000 Hz or directly to the PC and 3750 Hz. This device also stores up to 6 sensor calibrations.

Options

- IP65 Environmental Protection
- SD Card Class 10



FORCE MEASUREMENT SOLUTIONS.

Table of Contents

Specifications	5
Dimensions	6
Diagram	6
Connection of Bridges	7
Pin Assignment	8
Connection and Commissioning	8
Menu Options	9
Sensor Config	10
Logger Config	11
Options	11
Data Acquisition	12
Set Scaling	12
Save Settings	13
Load Settings	13
Strain Analysis	14
Logger Menu	15
Measuring Amplifier Menu	17
Description of Buttons	19
Number Setting	19
Description of LEDs	19
Maximum, Minimum, and Mean Value	20
Recording Measured Data to File	20
USB Operation	21
Power Supply per USB Connection	22
USB Driver	22
BlueDAQ Software Installation	22
COM Ports	25
Adding a Channel	26
Distance Offset	
Measurement and Recording	31
BlueDAQ Menus	34

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SPECIFICATIONS

ACCURACY - (MAX ERROR)			
Nonlinearity - %FS	+/- 0.02		
	TEMPERA	TURE	
Effect on Zero – %FS/ºC		+/- 0.01	
Effect on Output – %/ºC		+/- 0.001	
Operating Pange	٥C	-0 to +50	
Operating Kange	٩F	+32 to 122	
Storago Dango	٥C	-20 to +70	
Storage Kange	٥F	-4 to +158	
	ELECTRI	CAL	
Input-mV/V		+/-3.5	
Excitation Voltage – VDC		2.5 or 5	
Internal Resolution – bit		24	
Conversion rate – Hz		3750	
Logging rate to SD card – Hz		1000	
Filters		Selectable	
Electrical Connection		15-pin DSUB	
Supply – VDC		7-27	
	MECHAN	ICAL	
	mm	165.1 x 108.0 x 31.8	
	in	6.50 x 4.25 x 1.25	
Paaklit Diaplay	mm	9 HIGH, 16 character	
Backlit Display	in	0.35 HIGH, 16 character	
Weight	g	610	
weight	lbs	1.34	
Protection	IP51 / IP65		



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Dimensions



Diagram





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*** Note - Refer to Pin Assignment table ***

Connection of Bridges



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		•	· · · · · · · · · · · · · · · · · · ·
1	Screen		
2	GNDA	Ground analog input	
7	Tare	Zero-setting input / Trigger input	*
9	UE	Analog input	*
10	UA	Analog output	
6	+US	Positive bridge Excitation	: <u>-</u>]9
5	-Us	Negative bridge Excitation (GND)	
8	+UD	Positive Signal differential input	
15	-UD	Negative Signal differential input	
13	+UF	Positive Excitation Sense (for four wire sensors the +Sense connections must be jumpered to +EXCITATION)	Pin 14 must be bridged with Pin 15 to connect half and quarter bridges.
12	-UF	Negative Excitation Sense (for four wire sensors the -Sense connection must be jumpered to -EXCITATION)	Quarter bridge are connected in three-wire connection to Pin 5, Pin 8 and QB (3 and/or 11 or 4).
14	НВ	Half Bridge selector	•
11	QB120 Ohm	Bridge Completition Resistor 120 ohm	*
3	QB350 Ohm	Additional quarter bridge 350 ohm	
4	QB1000 Ohm	Additional quarter bridge 1000 ohm	

Pin Assignment

Connection and Commissioning

To switch on, press the MODE button until the display is illuminated.

The device contains a battery that is charged by connecting the power adapter supplied. The "ON" LED flashes while charging.

To switch off, hold the MODE button (outside the menu) down and confirm the following message "Power off? (OK)" by pressing the OK button.

Please use SDHC Memory Cards, class 6 or class 10, does not support UHS 2.













Logger Config.



Options





Data Acquisition



Set Scaling





Save Settings



Load Settings





Strain Analysis





Logger Menu

The logger menu has the following functions:

- View and set data recording mode on the SD memory card,
- Select USB connection mode,
- Select display illumination characteristics,
- Display battery life,
- Set date and time,
- Select additional functions e.g. display and recording of maximum, minimum and average
- measured values.

The Logger menu can be reached by pressing the MODE button from the measured value display or via the last entry of the measuring amplifier main menu.

Menu Entry Level 1	Menu Entry Level 2	Menu Entry Level 3
Logging ON, OFF,	→Set Log: ON – Permanent recording of	
onOK	measured data on the SD card	
	→Set Log: OFF No Recording	
	Set Log: onOK - Recording of measured data on	
	the SD	
	card as long as the OK button (at measured value	
	displayed) is pressed	
USBmode: Comm,	→USBmode: SDcard The device is a Mass	
SDcard, none	Storage	
	Device when connected to the USB port, which	
	provides	
	access to the data on the SD card. Simultaneous	
	If	
	this mode is activated, recording is switched off.	
	→USBmode: Comm The device is in serial USB	
	mode.	
	Our communication programs (e.g. GSVcontrol,	
	GSVmulti) can then be used. A standard driver is	
	loaded	
	when connected for the first time.	
	→USBmode: none USB is switched off.	
Bat: level bar or	→USB power: ON, OFF	→Set: USBpwr ON
Charge (with	If power supply is via USB port is enabled, the	→Set USBpwr OFF
Percentage display)	GSV-	Switch power supply
	2MSD-DI can be supplied by the USB bus if it is	via USB on or off
	connected to a PC and configured as an USB	
	device. If the device is switched off, the battery	
	i can be charged.	



	1			
Light ON, Auto	→Set: Light ON Display is po illuminated			
	→Set: Light Auto Display is i			
	buttons are			
	pressed and in the menu and	d goes out after 5		
	this preserves the battery.			
date / time	→Date TT Mon JJJJ		→Setting the date	
	→Time HH:MM:SS		→Setting the time	
		→(see description of numeric settings below)		
Val.mode normal,	→SetMode: normal: Only dis	splays the current		
MaxMin	measured			
	values			
	→SetMode: MaxMin:The ma	aximum, minimum or		
	mean			
	value can be displayed in the	e display and all three		
	are recorded to file.			
Menu Entry Level 1	Menu Entry Level 2	Menu Entry Level 3	Menu Entry Level 4	
Logging Options	→Row elements	→With date: Yes/No	→With [] Yes/No	
		→With time: Yes/No	i.e. switching to the	
		→With unit: Yes/No	setting not yet selected	
	→File options	→Number of lines	→Setting the max. number of lines in a file	
		→Length of time	→Setting the max. duration of the file	
	→Directory	→Every month		
		→Every day		

Notes

If a setting is in brackets in Level 1, this means that this setting has been selected but is not currently active. This is the case if the conditions for this operating mode are not met.

Example:

Logging (on): SD card is not inserted or write-protected or full or defective. USBmode: (SDcard): USB cable is not connected or no SD card is inserted



Measuring Amplifier Menu

The measuring amplifier menu is used to set the parameters of the measuring amplifier, for example:

- Sensor scaling factor •
- Unit •
- User-definable offset •
- Parameter memory •

The measuring amplifier main menu can be reached by pressing the MENU button from the measured value display.

Menu Entry Level 1	Menu Entry Level 2	Menu Entry Level 3
Sensor config.	→unit	Select unit
	→Sensor capacity	Numeric setting of the physical nominal value of the sensor
	→Rated output	Numeric setting of the electrical characteristic value of the sensor
Strain analysis	→Set gage factor	→Numeric setting of the K-factor between 0.2 and 2583
	→Set bridge type	→Full bridge: Full bridge circuit with 4 individual DMS, all in longitudinal direction
		→Half bridge: Half bridge circuit with 2 individual DMS, both in longitudinal direction
		→Quarter bridge: Quarter bridge circuit with one DMS
		→PR.full bridge: Full bridge circuit with 4 individual DMS, 2 in longitudinal direction and 2 in cross direction
		→PR.half bridge: Half bridge circuit with 2 individual DMS, one in longitudinal direction and one in cross direction
Load settings	 →default: Manufacturer's settings i.e. restoring GSV-2 parameters to default settings →user 1: Userconfigurable data set no.1 i.e. 	
	loading the parameters that were	

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	previously filed as user 1 with save settings. →and so on, until →user 6: like user 1, but No 6	
Save settings	Saves the current configuration under user 1 to user 6	
Set scaling	Numerical value between 0.19999999	
Data acquisition	→Data frequency	Numerical value: Num. Of values per second Numerical value: Data period of acquired values
	→Data period	Note: the last confirmed with OK value is adopted. Please confirm data period for slow measurements, data rate for fast measurements.
Options	→Set channel (Set channel)	Numerical value 0 or 1
	→Set threshold (Set threshold)	 →On-threshold Numerical value of the switch-on threshold →Off-threshold Numerical value of the switch-off threshold
	→Offset value	→Value that is added to each measured value
	→Language	→German or English (Menu language setting)
Logaer config.	See logger menu.	

Notes

- Changing the unit does not change the measured value scaling!
- Modification of the sensor measurement range or the characteristic value changes the scaling of the measured value.
- Modification of the DMS parameter of the strain analysis changes the scaling of the measured value and the unit.
- Access to the measuring amplifier menu will be blocked if communication is taking place via • the serial interface. In this case, the following is displayed: "Menu blocked"
- 1. Press the Menu button to go back one level.
- 2. Press the OK button to confirm an entry or to go to the next level.
- 3. If a setting is selected with the OK button, the following message will appear "OK to confirm", which you can confirm by pressing OK to approve the setting - or cancel by pressing the MENU button.

Description of the Buttons

Button	Function
MODE	To switch on and off or access the Logger menu
MENU	To access the measuring amplifier menu, to go one menu level higher or to cancel an
(LEFT)	entry.
	For numeric settings: to move the cursor left.
UP	To move around the menu within the same level: switching to the next entry.
	For measured value mode=MaxMin: to switch from one measured value display to the
	next one up.
	For numeric settings: to increase number and/or setting above the cursor.
DOWN	To move around the menu within the same level: switching to the previous entry.
	For measured value mode=MaxMin: To switch from one measured value display to the
	next one down.
	For numeric settings: to decrease number and/or setting above the cursor.
OK	To confirm the entry or move down one level.
(RIGHT)	For measured value display and recording mode "with OK": to record measured values
	to file.
	For numeric settings: to move the cursor right.
SHORT	To connect the +Ud and -Ud inputs (short-circuit of sensor signal)
ZERO	To trigger an automatic zero adjustment.

Number Setting

- To set a numerical value and the date or time, move the cursor right by pressing OK and left • by pressing MENU. The digit (and/or the month) above the cursor flashes and can be increased or decreased using the UP / DOWN buttons.
- For the setting to take effect, the OK button must be held down until the whole number flashes. •
- Then release the OK button, and the following message will appear "OK to confirm". Confirm • this by pressing OK. To cancel the numeric setting, hold down the MENU button.

Description of LEDs

LED	Meaning
ON	Permanently on: Device on, no charging. Flashing slowly: Device off, battery charging.
	Flashing faster: Device on, battery charging.
CARD	USB mass storage device active.
COM	USB serial communication mode active.
LOG	Measured data recording to SD card active. Do not remove card!
ERR	An error has occurred. Flashes permanently after switching on: the battery was empty,
	for approximately 3 seconds: the battery is empty please connect power adapter to
	charge. Flashes alternately with LOG: an error occurred whilst attempting to record
	measured data e.g. the SD card may be write protected, full, incompatible or defective.



Maximum, Minimum, and Mean Value

The maximum, minimum and mean value mode can be activated in the logger menu under Val. mode. In this operating mode you can switch between these values and the current value in the display using the UP and DOWN buttons. These values are written in every line in the measured value file; in the order:

Current value, maximum, minimum and mean value. If activated, a header is written in the file, the second line of which designates the corresponding column:

Scaling: +3,5000 Data frequency: 10,000 Hz

Date, Time	Value	Max	Min	Mean	Unit
13/05/03,15:38:31.99960	-0.0004	-0.0004	-3.0084	-0.0468	mV/V

The header is only written when *Recording options* \rightarrow *File options* \rightarrow *Header: Yes* is selected in the menu. In this operating mode, the maximum measured data rate for file recording is 1000 measured values/s.

The following actions reset the determination of the maximum, minimum and mean value,

- i.e. then re-determined with the subsequent measured values:
 - By switching on the device
 - By activating max./min./mean value mode
 - By zero setting
 - By starting permanent file recording
 - By ending manual file recording, i.e. by releasing the OK button

Recording Measured Data to File

If data recording is active, the 9330 creates directories on the SD card, which contain the measured data files.

The directory name is created from the current date, depending on the directory mode setting. A new directory is created every month in the initial state, with the name: **G20JJ_MM**, for example in November 2012 this would be "**G2012_11**".

The name of the files within it are then formed based on the day and time, i.e.: **DDHHMMSS.TXT**. For example, if a file is created on 14.11.2012 at 14:41:39, then the directory name is as above and the file name: **14144139.TXT**

The files are written in ASCII text format. Each measured value creates a line that is terminated with <LF> and <CR>. Depending on the line settings, each line begins with the time stamp consisting of date, time and fractions of seconds, then the measured value and the unit. The default setting for lines is as follows (first line of the example above):

- 12/11/14,14:41:39.27669 -0.0011 mV/V
- 12/11/14,14:41:39.37669 -0.0011 mV/V



The date format satisfies the big-endian convention, i.e. **JJ/MM/DD**

Date and time are separated by comma. The time format is **HH:MM:SS.bbbbb**

Whereby the 5-digit fractions of seconds bbbbb, interpreted as a whole number, indicate 10 μ s steps. In the example above, the data rate of the measuring amplifier is set to 10 measured values/seconds ((37669 - 27669) * 10 μ s = 100ms = 1/10 s).

Time stamp and measured value are separated with the tab character ('/t'). Measured value and unit are separated with a space.

The default setting for the maximum number of lines (i.e. displayed measured values) in a file is 32,000. As soon as this number is reached, a new file is opened.

In the "onOK" recording mode, whereby recording are only made by pressing the OK button, the data sets (continuous lines during a recording) are written in the same file. After terminating a data set, i.e. by releasing the OK button, the maximum number of lines is tested. If this is larger than or equal to 32000, a new file is opened. Therefore the number of lines can also be larger than 32000 in this mode.

In this mode at least one line, i.e. one measured value, is written per data set. If you always want exactly one measured value per data set, it is recommended that the data rate of the measuring amplifier is set to a low value e.g. 1 measured value/second using communication software (e.g. 9330 control). By pressing OK, the device waits until a value is measured at records this value.

USB Operation

The USB operating mode can be selected in the logger menu at any time (see above), regardless of whether the condition(s) for this operating mode are currently met or not - see note above. In the latter case, the setting will be displayed in brackets in menu Level 1, and with an unchecked box instead of a checked box in menu Level 2.

If a USB operating mode is currently active (i.e. the USB cable is connected to a PC) and the other is selected, the current operating mode is switched off and the new mode is activated after 5 seconds. If the host PC is equipped with speakers, you will hear the corresponding acoustic signal.

If the USB operating mode "SDcard" is selected and one of the recording modes is selected at the same time, the recording will be switched off. In this Mass Storage mode, files on the SD card can be read, written, deleted or formatted.



Power Supply per USB Connection

If the USB power supply "USB Power" is activated in the logger menu, the device can also be powered via the USB port if it is connected to a host PC and fully configured. The battery is emptied barely or not at all when switched on. When the device is switched off, the battery can be charged by the host PC. In this state, the device is then an SD card reader, irrespective of the set USB mode.1 A USB charging device cannot be used at this time.

USB Driver

The USB Mass Storage mode does not need a driver for Windows systems from Windows XP - once the USB cable is connected a window will appear (depending on operating system settings), where you can access the files; or you can reach the 9330 drive via "My computer" or with the Windows explorer.

BlueDAQ Software Installation

- Please follow these instructions carefully. DO NOT connect the amplifier to the PC until instructed to do so. The BlueDAQ PC software is included on a USB Flash Drive with the amplifier or can be downloaded from <u>www.interfaceforce.com</u>
- Install the software by double-clicking the "setup.exe" file located in the BlueDAQ folder. You may
 need to "Extract" the contents of the folder first if you downloaded it from the website. Follow the
 instructions for installation. Once the software completes installation you **MUST** restart your
 computer.
- 3. Attach the amplifier to the PC using the supplied USB A-B cable. BSC4, BSC8 and BX8 drivers were installed with the BlueDAQ software and Windows will automatically load them. BSC8D/BX8 must be powered ON using supplied power cable and power switch. 9330 drivers must be installed as described below.
- 4. When the device is connected in **Communication mode** for the first time, Windows will ask for a driver directory. The installation process is described below. The driver is located on the USB Flash drive supplied with the 9330. The Flash drive **MUST** be connected to the PC or the files copied to the PC before connecting the 9330 to the PC.
- 5. Enable USB Communication mode. To do this, click the MODE button of the measuring amplifier and select USBmode: Comm in the logger menu.



 Now you can connect your 9330 to the PC via USB cable. Once connected the driver installation window appears. Select "Install software from a list or specific source (advanced users)" and Click "Next >".



FIGURE 1 - FOUND NEW HARDWARE WIZARD

- 7. Click "Search for the best driver in these locations"
- 8. Check the option "Include this location in the search:" and then click "Browse". Select the folder: 9330 Com Driver from the supplied USB drive and Click "Continue >".



FIGURE 2 - NEW HARDWARE WIZARD



9. In the dialogue window "Hardware installation" click "Continue installation".



FIGURE 3 - HARDWARE INSTALLATION

10. The driver was installed successfully. Click "Finish".

Found New Hardware Wizard			
	Click Enish to close the wizard		
	< Back Finish Cancel		

FIGURE 4 - HARDWARE INSTALL FINISH



COM Ports

Once windows is finished installing the device navigate to Device Manager and check for a new USB Serial Port (COMX) where X is the assigned port number. Remember this number. In the examples below it is COM28

🚽 Device Manager	x
<u>File Action View H</u> elp	
Human Interface Devices	*
De ATA/ATAPI controllers	
Imaging devices	
⊳	
Mice and other pointing devices	_
⊳	
Network adapters	
Ports (COM & LPT)	
GSV-2MSD-DI USB communication (COM28)	=
Processors	
Sound, video and game controllers	
⊳ ₁	
🖕 🚽 Universal Serial Bus controllers	
	+

FIGURE 5 - EXAMPLE OF 9330 COMPORT



Adding a Channel

Run BlueDAQ from the start menu. After the program launches click "ADD CHANNEL"

guration	Recorder Yt	Recorder XY			
				6 11	
	Add Channel	Remove this	s channel	Dev2_6	Actual Channel 6
					Serial Number 26720737
	Load Settings				DeviceNo: 2
	Save Settings				Number of Channels 6
					BSC8 Input 6
	Open Session				
			Set Zero		
	Save Session		Continue.	Range:	Unit:
			Scaling	2	mV/V •
	Open file monitor		Data frequency	10 Hz	
	Crossial Courses		Input Type	Bridge-input	
	Special Sensor				
Canadaria					
Status			Massuring		
Six-axis	sensor disabled		weasuring	value 0.9	//6/3 mv/v

FIGURE 6 - ADD CHANNEL

- 1. In the Add Channel dialog box
 - 1.1. Click Devicetype drop-down and select BSC4, BSC8, BX8, or BSC2 (9330)
 - 1.2. Click the Device dropdown box and select the device, select the COM Port (See Device Manager if unknown) and open the correct amount of input channels (First = 1 and Last = total # of channels for device). For Model 9330, you will not be allowed to change the number of channels.
 - 1.3. Click Connect



FIGURE 7 - ADD CHANNEL MENU



2. BSC8 has a slightly different add channel box. Select Dev1 instead of Com port. Please remember to open the needed amount of input channels.

M Add Channel		
Devicetype	Communication Interface NIDAQ (USB)	Input Channel
BSC8 /16	BSC8 Device	Open all input channels InputNo of BSC8 First 1 Last 1 x
Plot Colour	Connect	Cancel

FIGURE 8 - EXAMPLE BSC8 DEVICE

3. Each channel must now be scaled using the "SCALING" dialog box. Each channel must be scaled independently. If the BSC8 was purchased with Interface load cells and a System Setup and Scaling then the scaling values will be taken from the "Load Cell / BSC8 Digital Bridge Amplifier Calibration Certificate"

Change Display Scaling			×			
Sensor settings		Amplifier settings				
Physical full scale	x	Input Range	=			
Electrical full scale output 2 mV/V		Input Type Counter				
Scaling: 2 mV/V						
Calculate OK / Set Cancel						

FIGURE 9 - EXAMPLE OF SCALING

4.

- 4.1. Physical full scale is typically the capacity of the sensor.
- 4.2. Electrical full scale output is the output of the sensor at the Physical full scale.
- 4.3. Input Range is always 2 mV/V and should not be changed.



5. Example scaling using Load Cell / BSC8 Digital Bridge Amplifier Calibration Certificate"

					ADVAN	
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L	oad Cell / BS	C8 Digital	Bridge Ar	nplifier Ca	alibration Certif	ficate
The sensitivity of	the following instru	ument was pro	ogrammed or a	adjusted usin	g a reference mV/V	source.
Customer Address				S.O.: P.O.:		
	Interface, Inc.	Model:	BSC8D-C12		Serial: R25614	9
Calibration condi mV/V Standard:	tions: Temper Interface Model C Calibration Due:	ature (° F): X-0610 #: Cal Due:	74 704E 09-Jun-15	R.H. (%): NIST Trace: Uncertainty of	32 656414 of Standard: 0.001%	6 RDG
Excitation	5 VDC					
	Mode <u>Simulated</u> Compression	Standard (mV/V) 2.0001	Measured An <u>Net Reading</u> 102.833	nplifier		
	The above sensiti which, when inter line sensitivity of t	vity of the Am connected, wi he Amplifier a	plifier is intend ill produce the and best fit line	led for use wi outputs listed (SEB) output	ith the following trans I below, based on st ts of the transducer.	sducer raight
Transducer Mfg: TransducerAmplifier	Interface Interconnection polarity	Model: (Normal [CT Ca	LBS-100-864 able] / Reversed [CC Cable]):	Serial: T667819	
	Mode Compression	Transducer Output (mV/V) 1.94492	Reference Force (lbf) 100		Net Reading at Reference Force 99.995	
	Channel:	1				
Important: Zero c adjustments must	r offset adjustment not be disturbed.	s may be alte	ered by the use	er without affe	cting this calibration	. Span or gain
Calibration by:	Tin Nguyen				Date:20-Fe	eb-15
Results relate wts 071213	to above serial numbers	s only. Do not rej	produce this repor	t except in full or	with Interface, Inc. written Page 1 o	n approval. f 1

FIGURE 10 - CALIBRATION DATA SHEET – AMPLIFIER CALIBRATION CERTIFICATE

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FIGURE 11 - SCALING USING CALIBRATION CERTIFICATE



6 Example scaling a channel using model WMC-100 load cell with 100 lbf capacity and 1.9587 mV/V output. After entering the values into the dialog box you must click "Calculate" and then



FIGURE 12 - EXAMPLE OF CALIBRATION FOR A WMC-100 LOAD CELL

Distance Offset

1. To change the distance of the origin, this setting may be access in the sensor option

Add Sensor S e n s o	or s Number of sensors stored in device					
Remove Enabled Sensor displayed Sensor type Storing location Six-axis V Device: BX8 SerNo 16256002 Index in memory 0 Sensor Serial No 16104614						
Channel assignment						
Component 1:1: Com 7_1 assigned to 6ax 1	X-direction 70 m Unit					
Component 2: 2: Com 7_2assigned to 6ax 1 🗸	Z-direction 0 m Meters					
Component 3: 3: Com 7_3assigned to 6ax 1 🗸						
Component 4:4: Com 7_4assigned to 6ax 1	Maximum Values (read only)					
Component 5: 5: Com 7_5assigned to 6ax 1 🗸 🗸	Force X 10000 N Torque X 1000 Nm					
Component 6:6: Com 7_6assigned to 6ax 1 🛛 🗸	Force Y 10000 N Torque Y 1000 Nm					
Auto-Rename Channels	Force Z 20000 N Torque Z 2000 Nm					

- 2. Select the corresponding direction and the distance.
- 3. Can be set in meters or millimeters.



Measurement and Recording

1. Click Set All Zero before measuring



FIGURE 13 - ZERO VALUES

2. Click YES

'nτ	Warning	\times
	Since Six/Three-axis is enabled, Set Zero will be performed on all input channels, including one or more that are not open. Do you wish to proceed? If not, Set Zero won't be done.	
	YES NO	

FIGURE 14 – PROCEED WITH ZERO RESET



3. Click OK to Start Measuring



FIGURE 15 - SUCCESSFUL ZERO

4. Click Start Measuring



FIGURE 16 - MEASUREMENT



5. Recording Options are available.



FIGURE 17 - MEASUREMENT INITIATED

6. Recorder Tab, measurements of all Axis.



FIGURE 18 - VALUES MEASURED

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ue Display shows	/alues in each Axis.			
■ BlueDAQ version 1.39				
File View Action Device Channel S	nsor Options Help			
Configuration Recorder Y Multi-axis sensor enabled.	Value Display			
	ForceX	ForceY		
	4.64 N	-21.61 N		
	ForceZ	TorqueX		
	-53.42 N	3.0693 Nm		
	orqueY	TorqueZ		
	-0.7359 Nm	-0.8538 Nm		

FIGURE 19 - VALUE DISPLAY SCREEN, EXAMPLE SHOWN FOR A 6-AXIS LOAD CELL

BlueDAQ Menus

File

7.





1. Open Session allows you to open a previous session and start where you left off.



FIGURE 21 - OPEN SESSION

2. Save Session allows you to save your session

Please select session file to sav	e		\times
$\leftarrow \rightarrow$ \checkmark \uparrow \blacksquare \rightarrow This PC	> Desktop >	✓ ひ Search Desktop	٩
Organize 👻 New folder			?
A Na	ime	Date modified Type	
📃 Desktop 🛷 📃	6-Axis Matrix	12/20/2016 8:56 AM File folder	
👆 Downloads 🖈	Application Notes	12/20/2016 8:58 AM File folder	
🛱 Documents 🖈	Archive	2/2/2017 12:17 PM File folder	
E Distures	BlueDAQ	2/2/2017 3:00 PM File folder	
	BX8 Driver Install	12/20/2016 8:57 AM File folder	
 o-Axis Matrix bin BlueDAQ Music OneDrive This PC 	55	2/12/2017 11:39 AM File folder	\$
File name:	Session	User Config File (*.ucf)	~

FIGURE 22 - SAVE SESSION



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3. Open File Monitor allows you to open previous monitor file.

Pelase select measurement file X					
	his PC > Desktop >	✓ ひ Search Desktop	م		
Organize 🔻 New fold	er	E	=		
A Quick access	Name	Date modified	Туре		
📃 Desktop 🛛 🖈	6-Axis Matrix	12/20/2016 8:56 AM	File folder		
🚽 Downloads 🖈	Application Notes	12/20/2016 8:58 AM	File folder		
🛱 Documents 🖈	Archive	2/2/2017 12:17 PM	File folder		
	BlueDAQ	2/2/2017 3:00 PM	File folder		
	BX8 Driver Install	12/20/2016 8:57 AM	File folder		
6-Axis Matrix	ss 🔜	2/12/2017 11:40 AM	File folder		
_ bin	10_01_17-15_34_22	1/10/2017 3:34 PM	TDMS File		
BlueDAQ					
b Music					
🐔 OneDrive					
💻 This PC					
~	<		`````````````````````````````````````		
File n	ame: <mark>filename</mark>	✓ TDMS or TXT m	easurement file $ \sim $		
		ОК	Cancel		

FIGURE 23 - OPEN FILE MONITOR


4. Configure Recording

- 4.1. Save Memory Data, allows you to save data of the recorded value.
 - A. All available values
 - B. Number of values
 - C. Available Last Time
 - D. Data Available

hτ	Configure Recording		\times
	Save Memory Data	Recording Options Advanced	1
	_	Save History data	
		All available values	
		Number of values Image: Constraint of values HH MM Available Last Time Image: Constraint of values	
		Data Available	
		Time length of available data 00:00:53.6	
	Select Path 8 %P	PersonalFolder%\filename.tdms	

FIGURE 55 - SAVE MEMORY DATA



4.2. Recording Options

- A. Manually allows you to choose the run and stop time of recording.
- B. Automatically will choose the run and stop time.

Start Recording	Finish Recording
Manually Automatically	Manually Automatically
Start Trigger Type	End condition type Time / Number of values Signal Trigger
• Value exeeds threshold	End condition time/number
 ○ Value drops below threshold ○ Value change delta threshold ○ Digital I/O Threshold value ○ 0 N Trigger Channel ForceX 	Number of Values Image: Constraint of the second secon
Event number	Recording Interval Mean values
Record single event (file) Record several events (files)	Record every value HH MM SS One Value per time interval 00 1 00 1 00

FIGURE 24 - RECORDING OPTIONS



4.3. Advanced

A. Allows you to choose the timestamp, record hidden channels and create a second file with filters.

	Configure Recording				×
	Save Memory Data	Recording Options dden Channels estamp calculation late dt from Final time evice data rate user defined dt: sulting dt culated	Advanced	Create second file with filtered values Filter criterion Maximum Minimum Number of Values around trigger 1 Channel to apply criterion ForceX	
	Select Path & %P	ersonalFolder%\filenam	e.tdms		
		ОК		Cancel	
F	IGURE 25 - ADV	ANCED			

View



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1. Configuration

1.1.1.Allows configurations of Axis to be viewed.

- 2. Yt Recorder
- 2.1. Shows only the Yt Axis
- 3. XY Recorder
- 3.1. Shows only the XY Axis

4. Value Display

4.1. Shows all Axis and values

BlueDAQ version 1.39	- 🗆 ×
le View Action Device Channel Sensor Options Help Configuration Recorder Yt Value Display	
Multi-axis sensor enabled.	
ForceX	ForceY
4.64 N	-21.61 N
ForceZ	TorqueX
-53.42 N	3.0693 Nm
TorqueY	TorqueZ
-0.7359 Nm	-0.8538 Nm

FIGURE 27 - VALUE DISPLAY, EXAMPLE OF 6-AXIS LOAD CELL DISPLAY



5. Add Graph Window

Add Plot		Remove Plot	Number of Plots 0	Actual Plot 20
Select	channel for actual p	lot	Standard	Selected Channel of actual plot
	Please select	∇	O RAW data	<none></none>
Diagram Type	X axis plot		X axis Channel Type	
Diagram Type Yt XY VTT PCD	X axis plot Please sele	ect ⊽	X axis Channel Type Standard RAW data	Name of Graph Window Graph Window 1

FIGURE 28 - ADD GRAPH WINDOW

5.1. Add Plot

A. Allows you to add an Axis to the graph.

Please select 1: ForceX			
2: ForceY		Number of Plots 0 Actual Plo	ot 🖉 0
3: ForceZ		Channel Type	Ť
4: TorqueX		Selected Channel of ac	tual plot
J 6: TorqueZ		<pre></pre>	
Diagram Type • Yt	X axis plot Please select \bigtriangledown	X axis Channel Type Standard Graph Window 1 Graph Window 1	bw
Diagram Type • Yt • XY	X axis plot Please select \bigtriangledown	X axis Channel Type Standard RAW data	5W
Diagram Type • Yt • XY • FFT-PSD	X axis plot Please select <none></none>	X axis Channel Type Standard RAW data	w
Diagram Type • Yt • XY • FFT-PSD	X axis plot Please select <none> OK</none>	X axis Channel Type Standard RAW data Cancel	w

FIGURE 29 - ADD PLOT

- 6. Sort Graph windows
- 6.1. Sort between graphs



Action

File	View	Action	Device	Channel	Sensor	Options	Help
Co	nfigura	Start	Measurin	g Yt	F4		Recorde
	ingara	Start	Measurin	g XY	F5		necordi
	- 1	Stop	Measurin	g	F6		
	100.0	Сору	values to	clipboard	F12		
		Арре	nd values	to clipboa	rd F11		
	75.00	Set A	ll Zero		Ctrl+/	4	

FIGURE 30 - ACTION

- 1. Start Measuring Yt Measures only the Yt axis.
- 2. Start Measuring XY Measures only the XY Axis.
- 3. Stop Measuring Stops measurement.
- 4. Copy Values to clipboard Copies the last data measured.
- 5. Append values to clipboard Add values to be copied.
- 6. Set All Zero Sets all Values to Zero.



FIGURE 31 - SET ALL ZERO



Device

File	View	Action	Device	Channel	Sensor	Optio	ns	Help
Сог	nfigura	tion	Load	Settings	Ctrl	+L		Recorde
	I	Multi-axi	Frequ	Jency	Ctrl	+c +F		
	100.0	0	Adva	nced Settin	ıgs			

- FIGURE 32 DEVICE
- 1. Load Settings
 - 1.1. Load Settings from a Custom or Previous Setting

Load Settings	×
Parameter	records in device
User 1	User 4
User 2	User 5
User 3	User 6
Last session	Default
Load from File	Cancel

FIGURE 33 - LOAD SETTINGS



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$\leftarrow \rightarrow \vee \uparrow$. This is a set of the	is PC > Desktop > 6-Axis Matrix >	✓ C Search 6-Axis M	atrix ,
Organize 👻 New folde	r		= • 🔳 🕐
A Quick access	Name	Date modified	Туре
📃 Desktop 🛛 🖈	14302589	12/20/2016 8:56 AM	File folder
🕹 Downloads 🖈	R202213	12/20/2016 8:56 AM	File folder
🚆 Documents 🖈	R202834	12/20/2016 8:56 AM	File folder
📰 Pictures 🛛 🖈			
6-Axis Matrix			
🔒 bin			
BlueDAQ			
SS SS			
le OneDrive			
This PC			
~	<		
File na	me: BX8_16356041	✓ User Config File	e (*.ucf) 🛛 🗸

FIGURE 34 - LOAD FROM FILE

- 2. Save Settings Save current settings.
- 3. Frequency Frequency rate of each record value per second.
 - 3.1. Using low settings such as 1Hz or 0.1Hz may provide a stable reading, but slower refresh rate.

Minimum 1	Maximum 6000
Enter Data rate: 10	Values per second x 8 channels
ОК	Cancel

FIGURE 35 - FREQUENCY



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4. Advanced Settings

ter	Digital I/O	Value Mode	Interface	Administration
-		Value Mode	interface	
hich filter	1			
Digi	tal FIR 🔍 🗸			
tor Tuno				
lov	nass 📼			
Cut-off fr	equency [Hz]			
2.5				
Filter C	rder			
2				
Store to a	device Apply t	o all		
se Filter	input cl	hannels		
O Enak				
Dical	Data Freqe	ency		
UISa	ilea Il			

4.1. Filter

FIGURE 36 - FILTER

4.1.1. Input Channel – Digital Filters are individually configurable for each of the 8 analog input channels. Select input channel here. Do this first, if the filter is not yet configured.

Input Channel	Configured filter(s)	
×) 6	None	
		FIGURE 37 - INPUT CHANNEL



4.1.2.	Which	Filter
T.I.	*****	1 IIIOI



- A. Analog is the frontend low-pass filter
- B. FIR is a Finite-Impulse-Response digital Low pass filter
- C. IIR is an Infinite-Impulse-Response digital filter with selectable type.
- 4.1.3. Filter Type Can only set if "Which filter" is set to IIR.

Filter T	уре		
	Low pass	∇	
<u>.</u>			FIGURE 40 - FILTER TYPE

- A. Low Pass frequencies above Cut-off are damped.
- B. High Pass, frequencies below Cut-off are damped.
- C. Band Pass, frequencies below Lower Cut-off and above Upper Cut-off are damped.
- D. Band Stop, frequencies between Lower and Upper Cut-off are damped.



4.1.4. Cut-off frequency (Hz)

Cut-off frequency in Hz, where the signal is damped by -3dB. Lower Cut-off with Band Α. pass and Band stop type.



FIGURE 41 - CUT OFF FREQUENCY

- 4.1.5. Filter Order
 - Settable for FIR Filter only Α.
 - Higher order leads to steeper damping characteristics, but slower step response. Β.
 - C. Lower cut-off frequency is possible with higher order, higher cut-off with lower order.

Filter Order	
↓ 0 Set Automatically	
	Fig

- 4.1.6. Frequency response
 - Calculate filter and show results in frequency domain of sine waves at the input of Α. different frequencies if successful.
 - Β. Especially with IIR High pass. Band pass and Band stop, observe the graph carefully for instability: A stable freq. response of an IIR filter is generally continuous and should never exceed 0dB.



FIGURE 43 - FREQUENCY RESPONSE

URE 42 - FILTER ORDER



- 4.1.7. Step response
 - A. Show filter output signal in time domain of standard step from 0 to nominal value at the input at time=0.
 - B. Useful for determining settling time, e.g. for high-order FIR filter.



FIGURE 44 - STEP RESPONSE



4.1.8. Store to device

A. Calculate filter and store all necessary information in the device if the calculation is successful. The same settings will be stored for all 8 inputs if "Apply to all input channels" is checked.



4.1.9. Use Filter

- A. Enable or disable this filter. Even if disabled, all other filter settings will remain stored in device (if no error occurred), if they are already stored.
- B. This filter will be enabled/disabled for all 8 inputs channels if "Apply to all channels" is checked.

Use Filter				
EnabledDisabled				
J	FIGUR	E 46	- Use	E FILT



4.2. Digital I/O

Filter	Digital I/O Analog Out Value Mo	de Administration	
	I/O number Terminal name / Pin-N 1 1.1 I/O type GP Input Triggered value sending Mode Actual values	Actual Level High (5V) Digital I/O No. 1 is a general purpose input.	DIO level 1 2 3 4 5 6 7
	Threshold compared with: Actual value Threshold switch Mode Hysteresis switch (normal) Window comparator	Upper Threshold 0 Lower Threshold 0	8 9 10 11 12 13
	Line Inverted		14 15 0
	 Not inverted Inverted 		
	Default output level • Low (0V) • High (5V)	Apply to all DIOs	

FIGURE 47 - DIGITAL I/O

4.3. I/O number

4.3.1. Devices can have up to 16 digital I/O lines. Enter number of digital I/O here.



- 4.3.2. I/O type
 - A. GP Input "General Purpose" Input
 - B. Tare Single Zero out.
 - C. Tare All Zero all.
 - D. Reset Max/Min



- E. Trigger Send value
 - i. Actual Values
 - ii. Maximum Values
- iii. Minimum Values
- iv. Mean Values
- F. GP Output "General Purpose" Output
- G. Threshold Switch
- 4.3.3. Threshold switch Mode Only Activated if Threshold Switch is selected in I/O type.
 - A. Hysteresis switch (normal) Digital output becomes active if measuring value of corresponding channel is above ON-threshold. It becomes inactive if measuring value of corresponding channel is blow OFF-threshold.
 - B. Window comparator Digital output becomes active if measuring value of corresponding channel is between upper and lower threshold, otherwise inactive.
- 4.3.4. Line Inverted
 - A. Not inverted Active level is logical high = 5V. Inactive logical low is 0V.
 - B. Inverted Active level is logical low 0V. Inactive logical high is 5V.
- 4.3.5. Default output level Level which digital I/O will output by default. That applies to all DIO output types after power-on, before a set output condition occurs.
 - A. E.g. set output level command if GP output type.
- 4.4. Analog Out

There is no tab for this function for Model 9330. The amplifier has a fixed gain settings and is not adjustable for specific load cell output signals. Because of this, the amplifier output will typically 0.5V per mV/V of load cell output.



Value Mode



FIGURE 49 - VALUE MODE

4.4.1. Acquire maximum and minimum – Max/Min value determination enabled. This is a precondition for other max/min settings, also for some threshold and value-trigger modes.



FIGURE 50 - ACQUIRE MAX AND MIN

4.4.2. Maximum values are maximum of absolute values MAX(|vals|) – Only active if "Acquire maximum and minimum" is checked. Replaces the maximum value register with that



maximum of the absolute values, so that both positive maximum and negative maximum values are determined.



FIGURE 51 - MAX VALUES ARE MAXIMUM OF ABSOLUTE VALUES

Value transmission – Which values are in the value frame: All channels are either actual 4.4.3. values, maximum values or minimum values.

Value transmission	
Transmit actual values	
O Transmit maximum values	
O Transmit minimum values	
	FIGURE 52 - VALUE TRANSMISSION

4.4.4. Number of Channels in Frame – Number of input channel values in the measuring data frame. With smaller numbers, higher data frequencies are possible.

Measuring values / F	rame size
Number of Channels in	n Frame
8	

FIGURE 53 - MEASURING VALUES / FRAME SIZE

Frame / Value Type - Data type of measuring values in the value-frame that device 4.4.5. transmits.



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- 4.4.6. Value frame transmission
 - A. Values transmitted permanently After power-on, the device transmits measuring values continuously.
 - B. Values NOT transmitted permanently After power-on, the device transmits measuring values on request.



- 4.4.7. Volatile state
 - A. Start transmission of measuring values, if permanent value transmission is off. State not stored in non-volatile memory.
 - B. Stop Transmission of measuring values, if permanent value transmission is on. State not stored in non-volatile memory.



FIGURE 56 - VOLATILE STATE



4.4.8. Noise suppression

- Α. Noise-cut enabled – If measuring values are between Noise-cut threshold and (Noise-cut threshold), they will be set to 0.000000000, so that the noise around zero will be suppressed. Set checkbox to enable this feature.
- Β. Input Channel = 0: Apply all channels – Input channel to be used with Noise-cut. Set to 0: Use the same threshold for all inputs.
- C. Noise-cut threshold – If measuring values are between Noise-cut threshold and (Noisecut threshold), they will be set to 0.000000000, so that the noise around zero will be suppressed.

Noise suppression		
Noise-cut enabled		
0 Input Channel =0: Apply all channels		
Noise-cut threshold		
Measuring values between Noise-cut threshold and -(Noise-cut threshold) will be set to zero.		

FIGURE 57 - NOISE SUPPRESSION

4.4.9. Auto-Zero enabled - Every (Time interval) seconds, an automatic set-zero routine will be performed.

Auto-Zero	
Auto Zero enabled Time interval 0 s Related threshold	
J 0 Auto zero Info	
-	FIGURE 58 - AUTO-ZERO

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4.5. Administration

r Digital I/O Analog Out Valu	e Mode Administration		
Write Protection nhibit parameter changing Writes are allowed Device is write-protected	Displayed name of user data record Data record No.	Menu language of device English German	Device working hours Total device working hours 403.817 h User device working hours 403.817 h
nnected interface has write-access	To change: Type new name (13 chars max.) and click Store to device No data record assigned to actual sensor parameters Assign Info	Fault Memory Open Dialogue	Reset user device working hours
	Data record No, used and assigned as backup for sensor parameters		
	Store Record name to device		

FIGURE 59 - ADMINISTRATION

- 4.5.1. Write Protection
 - A. Inhibit parameter changing If the device is write-protected, the device parameters are secured from unintentional changing. To disable write-protection, a device-depended password must be entered.



FIGURE 60 - WRITE PROTECTION

- 4.6. Displayed name of user data record
- 4.6.1. Data record No. Six different parameter records can be saved and restored; in the main window with "Save Settings" and "Load Settings". User-defined names for each data



record can be viewed and changed here. Parameter record number (1 to 6) can be set by this, to view and change its name.

A. Displayed name – Name of the parameter record.

Displayed name of user data record	
Data record No.	
T Reset to Default	
Displayed name	
To change: Type new name (13 chars max.)	
and click Store to device	
No data record assigned	
to actual sensor parameters	
Assign	
Info	FIGURE 61 - DISPLAYED NAME OF USER DATA
RECORD	
Menu language of device	

- 4.6.2. Menu la A. English
 - B. German





4.6.3. Fault memory – Some devices are capable of storing faults that are related to external connections. E.g. broken sensor cable or value saturated.



FIGURE 63 - FAULT MEMORY

4.6.4. Device working hours – Some devices count their working hours. This displays the absolute working hours, which can't be reset.

Device working hours	
Total device working hours 478.233 h	
User device working hours 478.233 h	
Reset user device working hours	
Clear	FIGURE 64 - DEVICE WORKING H

Channel



FIGURE 65 - CHANNEL



1	۱.	Ac	ld	n	ew	I

Add C	hannel		
	Devicetype	Communication Interface	Input Channel
I	BX8	COMP v 9 Bits/s 115200	Open all input channels Input No. of BX8 First 1 ♀ Last 1 ♀
	Plot Colour	Connect	Cancel

FIGURE 66 - ADD NEW

1.1. Devicetype



FIGURE 67 – DEVICETYPE



1.2. Communication Interface

1.2.1. Bits/s – Communication Bitrate. If you aren't sure which Bitrate is appropriate to your device, leave this at 115200.

Communication Interface	
Serial / USB / BT 🛛 🤝	
COMport Number	
СОМ9 🤝 9	
Bits/s	
	FIGURE 68 - COMMUNICATION INTERFACE
Communication Interface	
Serial / USB / BT COM1 COM9 9 Bits/s 115200	
	FIGURE 69 - COMMUNICATION INTERFACE COM

1.3. Connect and Cancel



FIGURE 70 - CONNECT AND CANCEL



2. Channel Scaling



FIGURE 71 - CHANNEL SCALING

Sensor

BlueDAQ version 1.39

File	View	Action	Device	Channel	Sensor	Options	Help
Со	nfigura	tion		Recorder	Multi	-axis	ord
					Roset	te Strain te Stress	
	100.0	0			Strain Calib	n gage rate	

FIGURE 72 – SENSOR MENU



- 1. Multi-axis Refer to step 5.
- 2. Rosette Strain Arrangement of two or more strain gauges.
- 3. Rosette Stress

Add Rosette	Ros Remove Numt	e t t e (45° angle) er of Rosettes	Actual Rosette:
Channel	assignment	Rosette	Strain gauge
Component Ea:	Please select	Gage factor a	All sam
Component Eb:	Please select	Gage factor b	2
Component Ec:	Please select	Gage factor c	2
Parameters of roset Modulus of Elastic 1	the material, where the te is applied to ity Poisson's ra I/mm ²	tio Set sci	ensitivity 2 aling factor

FIGURE 73 - ROSETTE STRESS



4. Add Rosette / Remove



5. Number of Rosettes – Number of included rosette strain gauges which are configured already.



6. Actual Rosette – If you have configured more than one rosette strain gauge, here you can switch between the different rosette stain gauge settings.



7. Component Ea: - The Rosette-Strain gauge consists of three single strain gauges which are arranged at an angle of 45° to each other. Choose here for the physical channel of your measuring amplifier where the single strain gauge Epsilon A is connected to. The resulting angle value of Phi refers to the longitudinal axis of this single strain gauge.



FIGURE 77 - COMPONENT EA



- 8. Parameters of the material, where the rosette is applied to
- 8.1. Modulus of Elasticity Enter the elastic modulus of the material, whose stress shall be determined in Newtown per square millimeters. The elastic modulus of an object is defined as the slope of its stress-strain curve in the elastic deformation region of the material to be measured. Since this parameter is very significant for the stress calculation, it should be entered as exact as possible. Please multiply the values in lb/in² with 0.0068971125763 to get the modulus in N/mm².
- 8.2. Poisson's ratio Enter the Poisson's ratio of the material whose stress shall be determined. The Poisson's ratio is the ratio when a sample object is stretched of the contraction or transverse strain (perpendicular to the applied load), to the extension or axial strain. Since this parameter is a little less significant for the stress calculation, an approximate value may be entered.

Parameters of the material, where the rosette is applied to			
Modulus of Ela	sticity	Poisson's ratio	
<u>x</u>) 1	N/mm²	0	

FIGURE 78 - PARAMETERS OF THE MATERIAL

8.3. Gage factor – Enter the gage factor for the single strain gauge. The gauge factor is the ratio of relative change in an electrical resistance to the mechanical strain epsilon. If all three gauge factors are equal, enter the value and then press "All Same".

Rosette Strain gauge	
Gage factor a 2	All same
Gage factor b 2	
Gage factor c $\frac{2}{7}$ 2	

FIGURE 79 - ROSETTE STRAIN GAUGE



8.4. Amplifier's input properties

- 8.4.1.Input Sensitivity Change this value if it doesn't match the input sensitivity of the measuring amplifier where the strain ages are connected to. Normally the value shown is the correct value, some GSV-2 or GSV-4 measuring amplifiers do communicate the correct value to the program. Together with the gauge factor, this value will be used to calculate the correct scaling factor automatically after the OK button is pressed. NOTE: The strain gauges must be wired in a quarter bridge configuration in order to calculate the scaling factor correctly.
- 8.4.2.Set Scaling factor Uncheck this checkbox if you are sure that the scaling factors of the channels where the three strain gauges are connected to are already correct. If checked, the new scaling factor will be calculated automatically according to the gauge factors and the input sensitivity settings. NOTE: the strain gauges must be wired in a quarter bridge configuration in order to calculate the new scaling.

Amplifier's input properties
Input Sensitivity
<u>/</u> 2
Set scaling factor

FIGURE 80 - AMPLIFIER'S INPUT PROPERTIES



9. TEDS – Transducer Electronic Data Sheet

10. Strain gage



FIGURE 81 - STRAIN GAGE

11. Calibrate



FIGURE 82 - CALIBRATE



Options

1.	Hardware

Select Opt	tions	×
Hardware	Preferences Default Settings	
	Allow Set Zero Always allow Always allow Allow depending on input type not allowed with temperature input) Never allow If allowed depending on input type: Also prohibit voltage input	Master / Slave synchronization, if available Image: Synchronization Image: Synchold Synchold Synchol
	ОК	Cancel

FIGURE 83 - HARDWARE





Select Options		×
Hardware Preferences Defau	It Settings	
At Start Measuring: Ask for recording the measuring data	When closing the program Ask for saving the session, if session data has changed	When changing to XY-diagram: Ask for selection of X-channel
If not, do you always want to record the data? O Yes O No	If not, do you always want to save the session? • Yes No	✓ Warn if devices datarates are different
	OK Cancel	

FIGURE 84 - PREFERENCES

3. Default Settings

Select Options	\times
Hardware Preferences Default Settings	
Yt / XY recorder: Reset Graph Scaling Reset	
Reset all program settings to default values Reset	
OK Cancel	

FIGURE 85 - DEFAULT SETTINGS

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Help

	File	View	Action	Device	Channel	Sensor	Options	Help		
	Co	nfigura	tion		Recorder	Yt		She	ow Context Help	ł
							L	Cre	eate Settings Archive	
		100.0						Ab	out	
1		100.0	0							

FIGURE 86 - HELP

1. Show Context Help



FIGURE 87 - SHOW CONTEXT HELP

2. A box will appear on the corner with a definition of each function.

									- 0	×
ons	Help								Context Help	
	✓ Show	Context Help	alue Display						7 411	
	Create	e Settings Archive							ZeroAll	
	About								Tares all open	
	About						ForceX		channels to 0.	
							ForceY	1		
							ForceZ	Z - 2		
							TorqueX	Á		- 1





3. Create Settings Archive



FIGURE 89 - CREATE SETTINGS ARCHIVE

4. About lets you know the BlueDAQ version number.



FIGURE 90 – ABOUT



Technical Data

Accuracy Class					
Analog	0.1%				
Digital	0.05%				
Inputs					
Measurement Range	±1mV/V				
	(JP1 on 1 with 5V sensor supply)				
	±2mV/V or ±3.5 per software)				
	±3.5mv/V per software)				
	(JP1 on 2 with 2.5V sensor supply)				
Connectible full bridge	4 x 350 Ohm				
Bridge supply voltage	2.5V/5V				
Input Impedance	>20MOhm (300pF)				
Common mode rejection					
DC	>120 dB				
100Hz	>100 dB				
Analog Input 1					
Input voltage range	0 - 10V				
Input resistance	56 kOhm				
Accuracy					
Linearity deviation	<0.02% of unit				
Influence of temperature on the zero	Measurement range 1mV/V: <0.4 type 0.2% of unit				
point per 10K	Measurement range 2mV/V: <0.2 type 0.1% of unit				
Influence of temperature on the mea	surement sensitivity per 10K referring to the				
measured value					
Analog output	<0.1; type 0.05%				
Display / digital	<0.1; type 0.005%				
Resolution					
Peak Value	>30000 parts				
RMS	>150000 parts				
Output					
Analog Output Filter					
-3dB cut-off frequency, Bessel,	3.5; 260; 1700 Hz (can be switched using software)				
2. order					
Digital Output Filter					
3dB cut-off frequency	0.06-1700 Hz				
Digital output measuring	0-3750 Hz				
rate					
Analog Output	+0.5V per mV/V of load cell input (fixed gain)				
Source resistance	47 Ohm				

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Control cables	High level: 3.4V (active high)
Automatic zero-point adjustment	Low Level: <1.4V
Control cables	High level: 3.4V (active high)
Automatic zero-point adjustment	Low Level: <1.4V
Supply	
Supply voltage	
Nominal range	7 - 27VDC
Operating range	6 - 30VDC
Power Input	2 (charge battery: max. 11VA)
Battery	31.2 Wh
Operating time with battery	
Normal operation	Max. 20 Hours
Standby	Max 300 Days
Duration of battery charging	
Supply voltage 10-27V	Max. 6 Hours
Supply with USB (standby operation)	Max. 27 Hours
Interface	
USB Version	2.0 Fullspeed
Device classes	Mass Storage Device, Communication Device Class
Memory card	SD (1.x), SDHC, class6 or 10, (not UHS-1 and not UHS-2)
File system	FAT16, FAT32
Functions, user menu (selection)	
Parameter memory	Last setting (automatic)
	Manufacturer's settings
	6 parameter sets
Other functions	- programmable amplification
	- programmable adjustment of the digital final value
	- activation of the zero-point adjustment
Temperature range	
Nominal temeperature range	0 to 50 C
Storage temperature range	-20 to 70 C
Dimensions	
LxHxT	164 x 105 x 32
Weight	610g
Protection class	IP51 / IP65

Absolute limit values

(all voltages based on supply chassis) Differential input:: -12 to +12V Sense inputs: -12 to +12V Control cables: -30 to +30V


Warranty

All Telemetry products from Interface Inc., ('Interface') are warranted against defective material and workmanship for a period of (1) one year from the date of dispatch. If the 'Interface' product you purchase appears to have a defect in material or workmanship or fails during normal use within the period, please contact your Distributor, who will assist you in resolving the problem. If it is necessary to return the product to 'Interface' please include a note stating name, company, address, phone number and a detailed description of the problem. Also, please indicate if it is a warranty repair. The sender is responsible for shipping charges, freight insurance and proper packaging to prevent breakage in transit. 'Interface' warranty does not apply to defects resulting from action of the buyer such as mishandling, improper interfacing, operation outside of design limits, improper repair or unauthorized modification. No other warranties are expressed or implied. 'Interface' specifically disclaims any implied warranties of merchantability or fitness for a specific purpose. The remedies outlined above are the buyer's only remedies. 'Interface' will not be liable for direct, indirect, special, incidental or consequential damages whether based on the contract, tort or other legal theory. Any corrective maintenance required after the warranty period should be performed by 'Interface' approved personnel only.

Revision History		
Author	Revision	Release Date
КВ	A	-
PB	В	07/11/2018
KB	С	04/14/2023