



Magnetostrictive Linear Position Sensors

# **PROGRAMMING & CONFIGURATION**

GBS SSI via Bluetooth®



The Measurable Difference

These instructions describe the installation and configuration of the MTS GBS SSI sensor using the "GBS SSI Bluetooth® Configurator". The Bluetooth® connection (Bluetooth® 2.1) is used to make settings during the installation and service mode.

### NOTICE

It is still possible to program the sensor via cable connection.

# System requirements

- Operating system Windows 7
- .NET Framework from version 4.5.1 or higher

# **1. SOFTWARE & DRIVER INSTALLATION**

#### □ Step 1: Bluetooth<sup>®</sup> USB adapter installation

□ Step 2: Sensor installation

□ Step 3: Choose SPP profile

In this step, you will install the CSR Harmony Bluetooth® stack. Run the installation as an administrator. First remove any previously installed Bluetooth® stack versions. Insert the CSR Bluetooth® adaptor into the USB port. Follow the instructions given in the operating manual of the Bluetooth® stack and the information displayed on the screen. The standard settings for the CSR Harmony are:

Discovery Mode: Discovery On SCMS-T: Deactivated Device: Desktop / Laptop

After successful installation, the Bluetooth<sup>®</sup> symbol will be displayed in the notification area of the task bar (fig. 1).



Fig. 1: CSR Bluetooth® Stack is installed

## NOTICE

To successfully establish a connection between sensor and receiving system (computer), the maximum operating distance between sensor and receiver is 5 m and the maximum ambient temperature is 75 °C. Establishing a connection between sensor and receiver is not possible at higher temperatures and established Bluetooth<sup>®</sup> connections are cut automatically when the temperature is exceeded.

☑ Step 1: Bluetooth<sup>®</sup> USB adapter installation

 $\Box$  Step 2: Sensor installation

□ Step 3: Choose SPP profile

#### NOTICE

Note that the procedures in step 2 must be completed within 15 seconds of sensor switch-on. If the time window is exceeded, the sensor must be switched on again.

1. Ensure that the sensor has been switched on shortly before starting the procedure and that it can be discovered. The sensor is in the "discovery mode" only during the first 15 seconds. Subsequently, the output is enabled and the sensor cannot be detected any more. In the notification area, right-click on the Bluetooth<sup>®</sup> symbol. Select "Add Bluetooth Device" and then "All" (fig. 2).



Fig. 2: Sensor installation

2. Window "Add Bluetooth Device" opens. All discoverable Bluetooth<sup>®</sup> devices located within the operating range are displayed. The name of the sensor for the wireless connection comprises "MTS" and the sensor serial number. Select the MTS unit you want to connect to and click "Next" (fig. 3). After that click "Finish" (fig. 4).

Add Bluetooth Device	
Select a device to connect with this computer	
Others	
Lean't find my device	Search Again
	Next Cancel

Fig. 3: Add Bluetooth® device



Fig. 4: Connection was successful

✓ Step 1: Bluetooth<sup>®</sup> USB adapter installation
 ✓ Step 2: Sensor installation

□ Step 3: Choose SPP profile

#### NOTICE

Note that the procedures described in 2 and 3 below must be completed within 15 seconds of sensor switch-on. If the time window is exceeded, the sensor must be switched on again.

1. To create the SPP profile open "My Bluetooth Devices" via Windows explorer, or right-click the Bluetooth<sup>®</sup> symbol in the notification area and select "Show Bluetooth Devices".

2. Re-start the sensor. Right-click the MTS sensor and select "Service Refresh" (fig. 5).

dd Device 🔻 Bluetod	th Settings Remove Device	
MTS 14290153	Open Services	
	Service Refresh	
	Remove Device	
	Properties	

Fig. 5: Open Services

3. Right-click "Serial Port Profile" and select "Create Port". Alternatively you can double-click "Serial Port Profile" to create a virtual COM (fig. 6).

S S + Computer → My Bluetooth Devices → MTS14290153
Serial Port Profile Create Port
. 6: Create COM Port

Service Action	×
COM port created successfully.	
In the future, do not show me this dialog box	ОК

Fig. 7: Installation of Bluetooth® SPP driver was successful

# 2. SOFTWARE CONFIGURATION

#### □ Step 1: Install GBS SSI Bluetooth® Configurator

□ Step 2: Start sensor
 □ Step 3: Start GBS SSI Bluetooth<sup>®</sup> Configurator

Double click "Setup GBS SSI BT Configurator.exe". Click "Run as administrator".

lew folder						II • 🔳
Name	^		Date modified	Туре	Size	
🔄 Setup 🛛	BS SSI BT Configurator	.exe	11.09.2014 16:06	Application	2.258 KB	
			Open			
		6	Run as administrator	\$		
			Troubleshoot compatibil	ity		

Fig. 8: Run the installation as administrator

☑ Step 1: Install GBS SSI Bluetooth® Configurator

 $\Box$  Step 2: Start sensor

□ Step 3: Start GBS SSI Bluetooth<sup>®</sup> Configurator

Restart the sensor.

☑ Step 1: Install GBS SSI Bluetooth® Configurator ☑ Step 2: Start sensor

□ Step 3: Start GBS SSI Bluetooth® Configurator

The GBS application software should start automatically. If you receive a COM[X] Unavailable error (fig.9), select a different COM (fig. 10). Then re-start the sensor.

LOM Port: COM6 U	lavalible:		
Could n Most lik	ot open COM Port: COM6 ely it is already in use, has beer	n removed, or is unavai	lable.
			OK

Fig. 9: COM Port is not available



Fig. 10: Choose the rigth COM Port

When the COM port is set correctly, a message displays at the bottom right of the monitor. CSR Harmony indicates that the sensor is attempting to establish a connection to your computer. Click the Bluetooth<sup>®</sup> symbol twice (do not double-click) to allow the connection (fig. 11).





#### 3 GBS SSI Blu File 6 MTS Temposoni<mark>cs®</mark> SENSORS Magnetostrictive linear Po ormation SSI Settings 625137002 SERIALNUMBER: 14290150 2782.55 m/s GRADIENT Binar 25 bits 5 um CYCLETIME: 164 µs Grav LENGTH 300 mm No Filter Reverse 6 v 1.0

# 3. GBS SSI Bluetooth® Configurator

Fig. 12: GBS SSI Bluetooth® Configurator user interface

- Sensor Information contains the invariable sensor parameters, which are read in automatically when connecting the sensor.
- 2 In the **Device Settings** menu the configurable parameters (SSI Settings, Error Settings) of the sensor can be set.
- 3 The Measurement menu shows the current position of the magnet.
- 4 The Save button saves any parameter changes you have made. After that the GBS SSI Bluetooth<sup>®</sup> Configurator restarts for the changes to take effect. The function Measurement will then be available again.
- The button Disconnect breaks the Bluetooth<sup>®</sup> connection to the sensor and closes the GBS SSI Bluetooth<sup>®</sup> Configurator.
- By clicking the **Report** tab, a report document is generated to provide sensor information.
- The File menu allows the following settings:
  - 1. **Open**: uploads device settings from a .xml file to the sensor. Press the **Save** button to complete the upload.
  - 2. Save as: saves the current device settings as a .xml file.
  - 3. Restore Factory Settings: restores and saves the sensor's factory settings
  - 4. **Close**: closes the software application without saving any parameters.

### **Device Settings**

The following parameters can be modified:

#### SSI Settings (fig. 12)

Binary / Gray
24 bits / 25 bits
5 μm / 10 μm / 20 μm / 50 μm / 100 μm
Asynchron / Synchron
Forward / Reverse
No Filter / Filter Grad 2 / Filter Grad 4 / Filter Grad

Error Settings (fig. 13) Error Counter: 1 Error Value: 0

The "Error Counter" and "Error Value" settings determine, how often an error has to occur (Error Counter) so that a certain error value is shown. The standard settings for the "Error Counter" is "1" and for the "Error Value" it is "0". Both parameters are changeable.

āne:	GBS SSI Blueto	oth® Configurator		
	File Re	port		
	Temp	osonics®	)	MTS
	Magnetostrict	ive linear Position Se	nsors	SENSORS
	Sensor In	formation	Device Settings Measurement	
	GBS0300MD	842S1B1103	SSI Settings Error Settings	
1	FIRMWARE:	625137002		
	SERIALNUMBER:	14290150	Free Data	
	GRADIENT:	2782.55 m/s	Error Data	
	CYCLETIME:	164 µs	Error Counter	
	LENGTH:	300 mm	1	
	Bluetooth®:	Enable	Error Value	
Ī	Disc	onnect	Save	
			www.mtssensors.com	Version: 1.0.

Fig. 13: Error Settings

#### Measurement

After pressing the "Start Read" button (fig. 14) the current position of the magnet is shown (fig. 15). The "View" button provides a graphic display of the magnet's positions (fig. 16).



Fig. 14: Start Read button

8

_	CRC CCL RIVER			
01112	GB2 221 Bluet	cooth® Configurator		
	File R	leport		
				MTS
	Temp	osonics	INT S	
				SENSORS
	Magnetostric	tive linear Position 5	nsors	SENSORS
	Sensor	oformation	Device Settings Measure	urement
	Sensor II	normation	Device Settings Ivieasi	
	GBS0300M	D842S1B1103		
	FIRMWARE:	625137002	Position:	Line Chart
10	SERIALNUMBE	R: 14290150		
	GRADIENT:	2782.55 m/s	214100	
10	CYCLETIME:	165 µs	214160	View
	LENGTH:	300 mm		view
11	Bluetooth®:	Enable		
			Stop Read	
	<			
	Disc	connect		
			www.mtssensors.co	m Version: 1.0.

Fig. 15: Current magnet position



Fig. 16: Graphic display of the magnet's position

Notes	



### **Document Part Number:**

GERMANY

551649 Revision A (EU.EN) 07/2014

# **OCATIONS**

#### **GmbH & Co. KG** Auf dem Schüffel 9 58513 Lüdenscheid, Germany Tel. + 49 2351 9587-0 Fax + 49 2351 56491

**MTS Sensor Technologie** 

Iel. +4923519587-0 Fax +49235156491 info.de@mtssensors.com www.mtssensors.com

#### USA

MTS Systems Corporation Sensors Division 3001 Sheldon Drive Cary, N.C. 27513, USA Tel. +1 919 677-0100 Fax +1 919 677-0200 info.us@mtssensors.com www.mtssensors.com

#### JAPAN

MTS Sensors Technology Corp. 737 Aihara-machi, Machida-shi, Tokyo 194-0211, Japan Tel. +81 42 775-3838 Fax + 81 42 775-5512 info.jp@mtssensors.com www.mtssensors.com

#### FRANCE MTS Systems SAS

Zone EUROPARC Bâtiment EXA 16 16/18, rue Eugène Dupuis 94046 Creteil, France Tel. + 33 1 58 4390-28 Fax + 33 1 58 4390-03 info.fr@mtssensors.com www.mtssensors.com

#### ITALY

MTS Systems Srl.Sensor Division Via Diaz,4 25050 Provaglio d'Iseo (BS), Italy Tel. + 39 030 988 3819 Fax + 39 030 982 3359 info.it@mtssensors.com www.mtssensors.com

#### CHINA

MTS Sensors Room 504, Huajing Commercial Center, No. 188, North Cinzhou Road 200233 Shanghai, China Tel. +86 21 6485 5800 Fax +86 21 6495 6329 info.cn@mtssensors.com www.mtssensors.com EGAL NOTICES

ISO 9001 CERTIFIED



MTS and Temposonics<sup>®</sup> are registered trademarks of MTS Systems Corporation. All other trademarks are the property of their respective owners. Printed in Germany. Copyright © 2014 MTS Sensor Technologie GmbH & Co. KG. Alterations reserved. All rights reserved in all media. No license of any intellectual property rights is granted. The information is subject to change without notice and replaces all data sheets previously supplied. The availability of components on the market is subject to considerable fluctuation and to accelerated technical progress. Therefore we reserve the right to alter certain components or other circumstances related to your application do not allow a change in components, a continuous supply with unaltered components must be agreed by specific contract.