



a product of the company Bozzio AG

Universal Evaluator Manual

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BOZZIO

Aarbergstrasse 5
2560 Nidau
Switzerland



Hauptsponsor



Schweizer
Paraplegiker
Stiftung

Sponsoren



STI
Stiftung für technologische Innovation
Fondation pour l'innovation technologique
Foundation for technological innovation



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Technik und Informatik

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1 General

This document describes the joysteer® system.

The handling and installation is to take place by trained personnel **exclusively**, whereby all points need to be carried out as described.

This document describes all **non**-vehicle specific installation steps. Refer to the corresponding vehicle specific manuals for details.

This document applies to the joysteer® system generation 2.0.

The main change from generation 1.0 to generation 2.0 is as following:



Display module

joysteer® generation 2.0



Alarm module

joysteer® generation 1.0

2 Disclaimer

Bozzio AG refuses their product liability if one or more of the following facts are given:

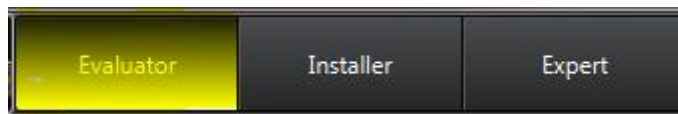
- Driving the system by users who do not possess an appropriate driving licence
Exception: driving accompanied by an authorized driving instructor
- Driving with accompanying driving instructor without installation of an Instructor switch
- Installation/ maintenance/ repairs by companies not trained by Bozzio AG
- Installation/ maintenance/ repairs by personnel not trained by Bozzio AG
- Installation/ maintenance/ repairs not according to the manuals
- Installation/ maintenance/ repairs of components/ modules, which are not mentioned in the part list
- Installation/ maintenance/ repairs of any MMI (Man Machine Interface), which has not been released by Bozzio AG in written form
- Usage of parameter-sets which do not correspond to the “rules” of the Servicemanager
- Any modifications to the cable harness

Important:

- By opening the modules any warranty of the manufacturer is omitted
(Exception: EnergyAlarm module).

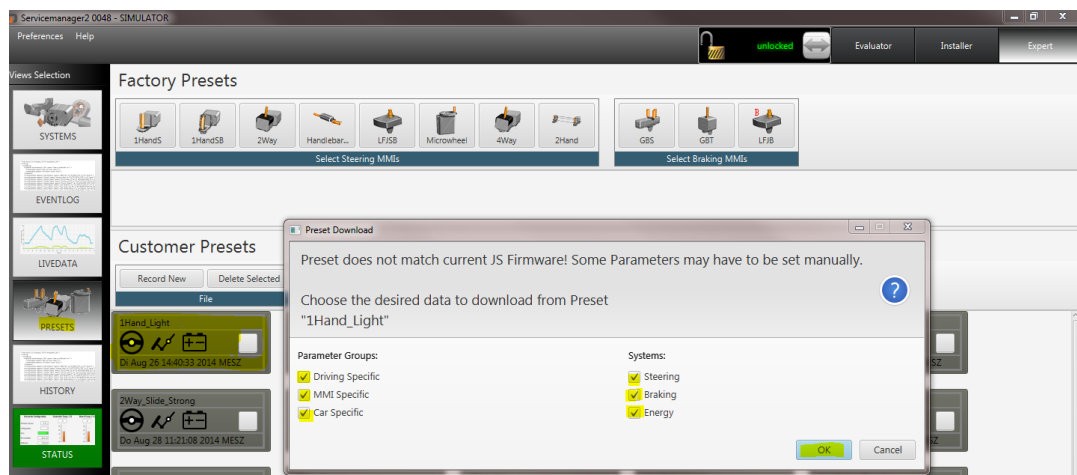
3 User Tab for Evaluator

In order to reduce the adjustment parameters for Evaluators and Instructors, the Servicemanager has a special user tab for this purpose. Just switch the Servicemanager to the user 'Evaluator'.



4 Change MMI and load a customer preset

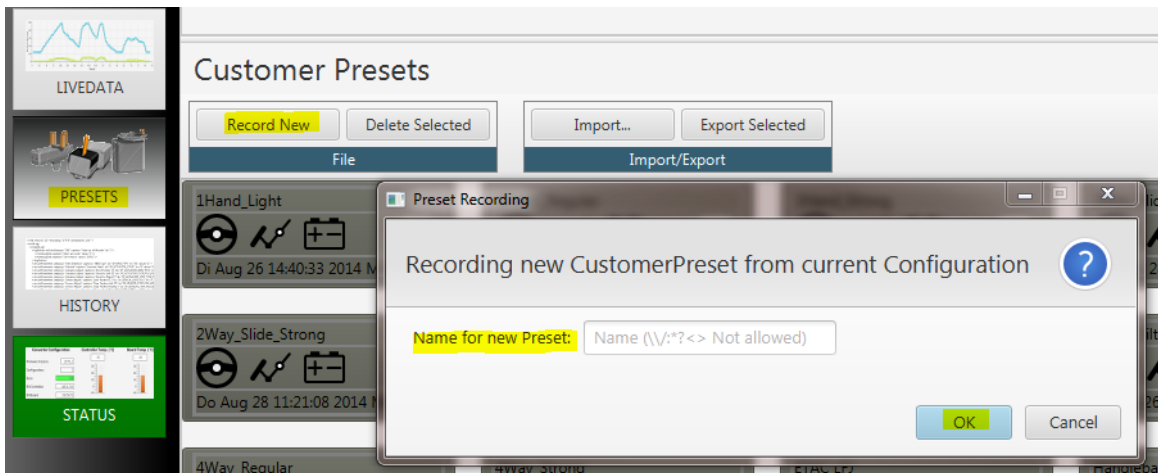
- Switch off the joysteer system.
- Mount the braking MMI in the car and connect the 4 gas/brake sensors to the instructor plug or plugs X51-X54.
- Mount the steering MMI in the car and connect it to plug X10 (Handlebar, LFJ or steering sensor module SSM).
- Restart the system and do NOT initialize it yet!
- Connect the Servicemanager, go to the menu 'Presets' and unlock it.
- Select the corresponding customer preset and load it.
 - LFJ (Low Force Joystick): After you loaded the right preset, you need to restart the system again.
- Now Initialize the system
 - Handlebar: Before you can use the gas from the handlebar, you need to press the OEM pedal first to activate the gas.



5 Create a new customer preset

- Go to the menu 'Presets' and unlock it.
- Press 'Record New'
- Enter the name for this new customer preset.

Note: if you have several different settings for this customer, write also specific details in the name of the preset (like: Johnson_4WJ_strong).



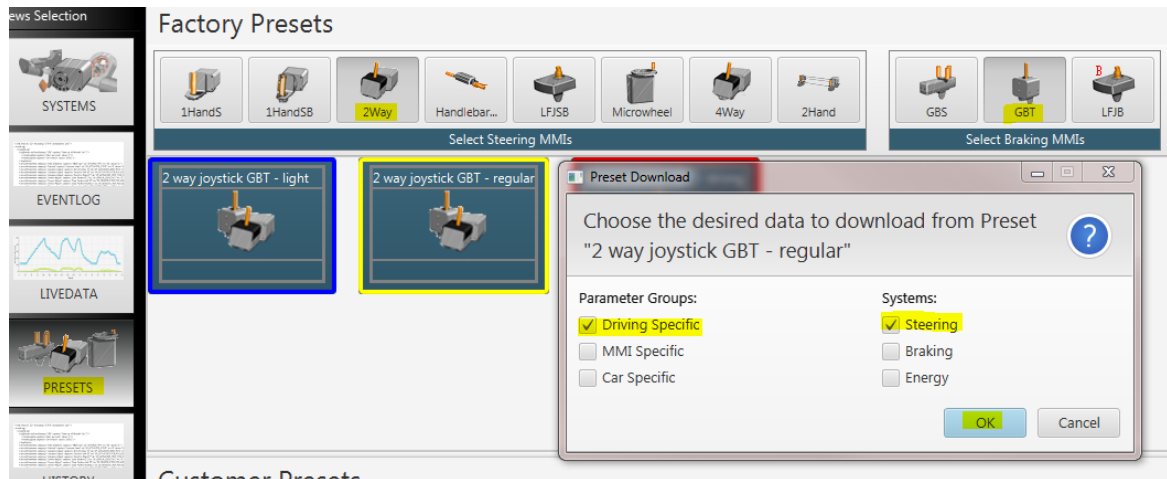
6 Import / Export or delete customer presets

- Go to the menu 'Presets' and unlock it.
- For export, select the files you like export to a folder (like on a USB drive). Then press 'Export Selected' and choose the path.
- To delete them, select the files you like delete. Then press 'delete'.
- To import a new file from somebody else, press on 'Import... ' and choose the file you like. Make sure that you choose the correct file format



7 Change the Force Feedback to light, regular or strong

- Be sure that you have already a running preset on the system.
- Go to the menu 'Presets' and unlock it.
- Select the combination of MMIs you have installed (one for steering and one for braking).
- Choose between light, regular or strong.
- Select **ONLY** the Driving Specific checkmarks and press OK.



8 Change some key settings of the MMI

You are able to define or adjust the following settings with this Servicemanager program:

- The "Zero position" of your joystick or micro-wheel
- The number of rotations with the micro-wheel or the joystick travel by setting the "Left end stop" and "Right end stop" position
 - Go to the Systems section of the Servicemanager
 - Go to the "Sensor adjust" section under Steering

Attention! Make sure you are not in "Actuator adjust". These values should not be modified by an instructor.
 - Set first the "zero position" and then the end stops
- The same can be done for the Gas-Brake MMI by setting the "Zero position", the "Max gas position" and the "Max Brake position"
 - Go to the Systems section of the Servicemanager
 - Go to the "MMI adjust" section under Gas-/brake
 - Set first the "Zero position" and then the "Max positions"
- The speed of return to the zero position (retraction) of an MMI can also be adjusted, we advise to do this - if needed - with the help of your certified workshop.

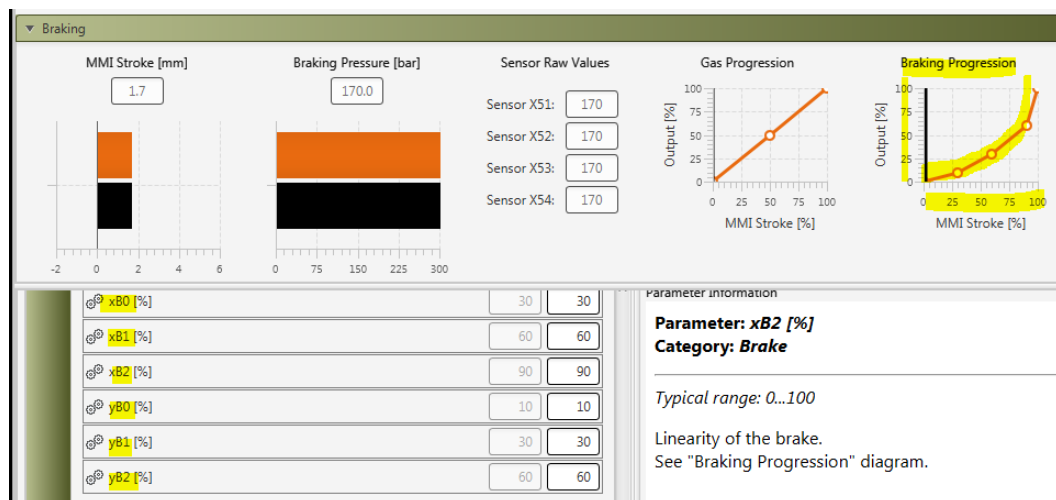
9 Fine tuning

9.1 Fine tuning – steering

- Adjust the Force Feedback when the customer presets are not satisfactory.
 - Start with one of the three customer presets as a base (light, regular or strong).
 - For a **stronger Force feedback increase the parameter ‘Force Feedback’**
 - For a **weaker Force feedback decrease the parameter ‘Force Feedback’**
- Adjust the Steering linearity when the customer presets are not satisfactory.
 - For a **more linear steering increase the ‘V dependency – Steering linearity’** V-min and V-max (for lower and higher speed). The max value is 8192.
 - For a **more progressive steering decrease the ‘V dependency – Steering linearity’** V-min and V-max (for lower and higher speed). The Min value is 1024.

9.2 Fine tuning – gas and brake

- Adjust the Brake curve when the customer presets are not satisfactory.
 - Adjust the values xB0/yB0, xB1/yB1 and xB2/yB2. The values work like in a normal XY diagram. The changes you can directly see in the diagram ‘Braking Progression’



- Set a limit on the max gas output.
 - If a driver uses the joysteer System the first time, it can be useful to limit the gas output to a certain percentage.
 - Set the amount of Gas in percent for the parameter ‘Gas limitation’. Standard is 100%.



10 Test driving with simulations of Errors

It is required that the complete system is tested with several test drives with and without the end customer.

Ensure you do this in a closed off area with sufficient space.

10.1 End Stop Force verification

The dynamic Force Feedback must be set in such a way, that the end customer always has enough force to reach the Force Feedback. This must be verified by setting the parameter “actuator torque limit” to zero and letting the end customer move the MMI to the left and right end stops. While doing that the MMI Output in the Service Manager must reach the value of the set “Force Feedback”.

If the end customer is not able to reach the end stops, then the parameter “Force feedback” must be reduced until the end customer is passing this test.

Once the test is passed, the parameter “actuator torque limit” must be set back to the initial value of 212.

- Set the Parameter “SAM Range” according to the indications in the Service Manager.
- Set the Parameter “SAM Dynamics” according to the indications in the Service Manager.
- Increase the values of the Sensor parameters (P Torque and Retraction) until the desired driving performance is given

10.2 Simulation of the fall-away of Force Feedback

The system contains a dynamic Force Feedback which, in case of a failure, can fall away. The end user has to be sure to be able to control the car at any time, even when the Force Feedback is falling away.

Ensure you do this in a closed off area with sufficient space.

In order to do so, a test drive with a simulation has to be done. Use the service manager and set the parameter “Force Feedback” to a value of zero.

Once the customer feels safe driving at low speed in closed off areas, the local high-speed limit has to be tested too. This is to assure best driving performance and ability at high speed.

10.3 Simulation of speed variation Error 217

Simulation of “speed variation Error E217”, which freezes the latest correct steering angle of the actuator. First, the parameter “Vmax” has to be set to 40 km/h. Then, while driving 40km/h the Error 217 can be provoked by changing the parameter “velocity scale” to Zero. The Error message appears, and the end user must be able to manage this driving behaviour.

After the test, all above mentioned parameters must be set back to its original values.