



a product of the company Bozzio AG

Universal Commissioning Manual

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BOZZIO

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Hauptsponsor



Schweizer
Paraplegiker
Stiftung

Sponsoren



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



Berner Fachhochschule
Technik und Informatik

KTI/CTI
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UNIVERSITÀ PER LA PROMOSIONE DEL INNOVATIONE
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THE INNOVATION PROMOSION AGENCY

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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

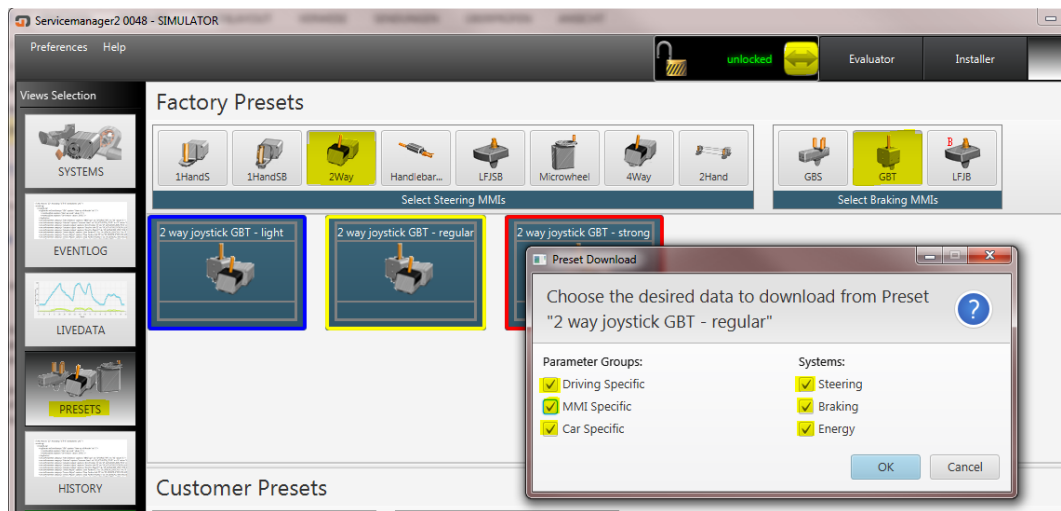
Important:

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

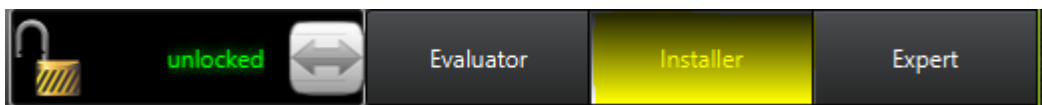
3 Commissioning a new car

When you install a joysteer system in a new car, you have to do following steps.

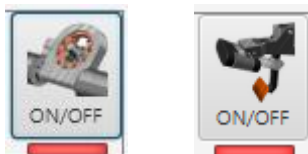
- Install the joysteer system and MMI.
- Check if the braking- and steering motor are loose and not mechanically blocked (they should move without using too much force).
- Start up the system and connect the Servicemanager.
- Load the factory Preset for your MMI.
 - Unlock the software
 - Go to the menu 'Presets' and select the MMI you use (one for steering and one for braking).
 - Choose between light, regular or strong.
 - Select **ALL** checkmarks and press OK.



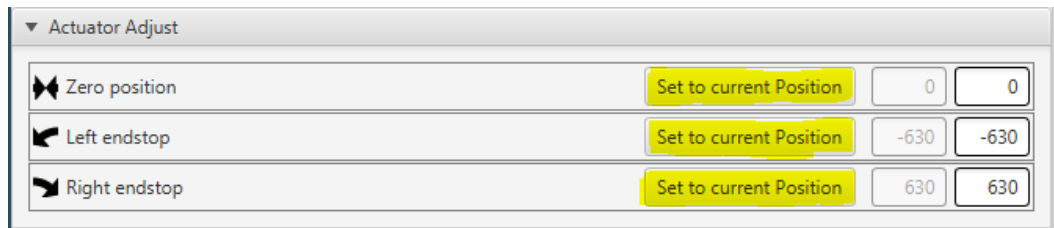
- Change to the user tab 'Installer'.



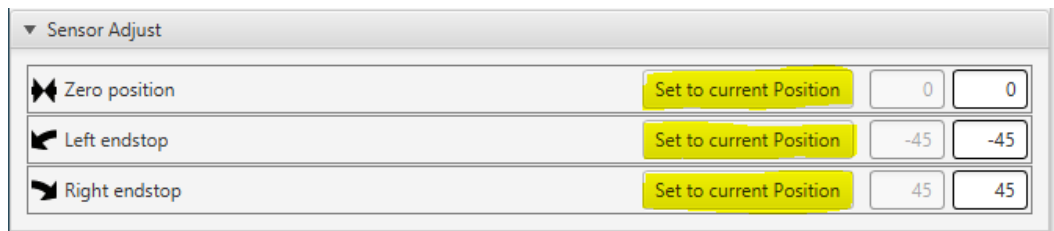
- Go to the menu 'Systems'.
- Switch OFF the braking and steering motor.



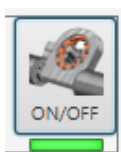
- Calibrate the Steering wheel (Actuator adjust).
 - Move the steering wheel to his centre and press 'Zero Position – set to current position'
 - Move the steering wheel to the left lock and press 'Left endstop – set to current position'
 - Move the steering wheel to the right lock and press 'Right endstop – set to current position'



- Calibrate the MMI (Sensor adjust).
 - Move the MMI to his centre and press 'Zero Position – set to current position'
 - Move the MMI to his left position and press 'Left endstop – set to current position'
 - Move the MMI to his right position and press 'Right endstop – set to current position'

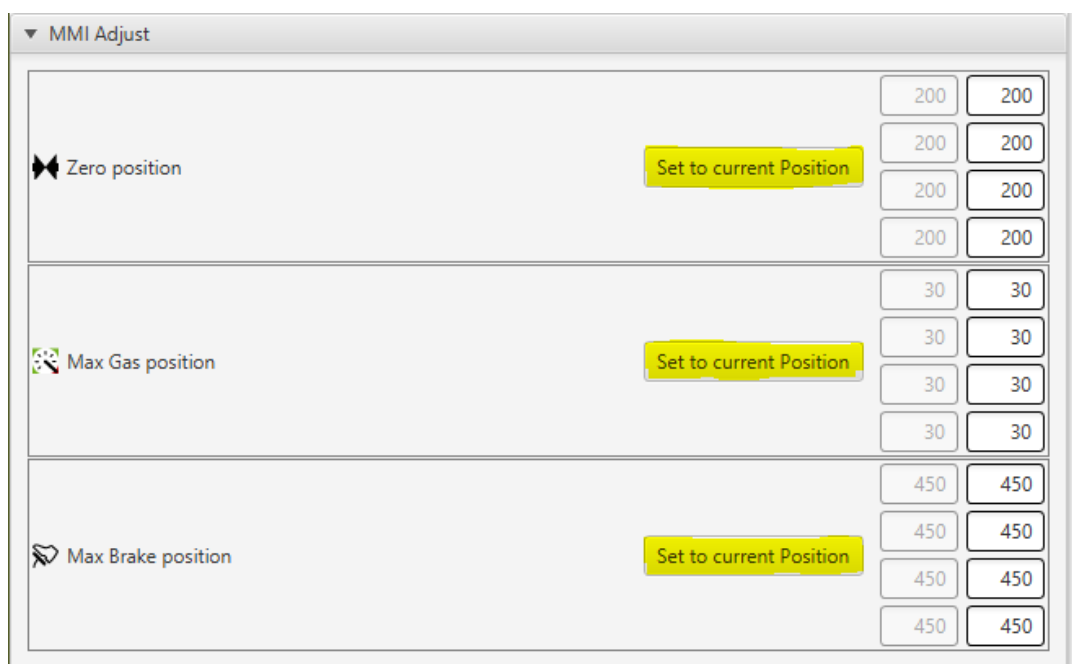


- Switch ON the steering motor.



- Calibrate the Actuator and Sensor offset.
 - Actuator offset: Start with 200 and increase it (in steps of +50), until you feel a vibrating of the Steering wheel (when you touch the OEM wheel with your hands). When it starts to vibrate, decrease the value 20%.
 - Sensor offset: With a low value, the steering will have some free play. With a higher value, the steering will be more direct. Try to find the correct value that makes you feel comfortable. Attention: there is always some vibration in the zero position. This is normal.
- Set the JPAS settings to his default values. The right settings will be set later in this manual.
 - JPAS = Off
 - Gain = 2

- Max Force = 200
- Offset = 600
- Calibrate the MMI for gas and brake.
 - Put the Gas-/Brake MMI in his Zero position and press 'Zero position – Set to current position'
 - Put the Gas-/Brake MMI in his max gas position and press 'Max Gas position – Set to current position'.
 - **Note:** For a Handlebar the Gas positions must be set manually on -400.
 - Put the Gas-/Brake MMI in his max brake position and press 'max Brake position – Set to current position'
 - The max brake values are always bigger than max gas. Check if this is correct.

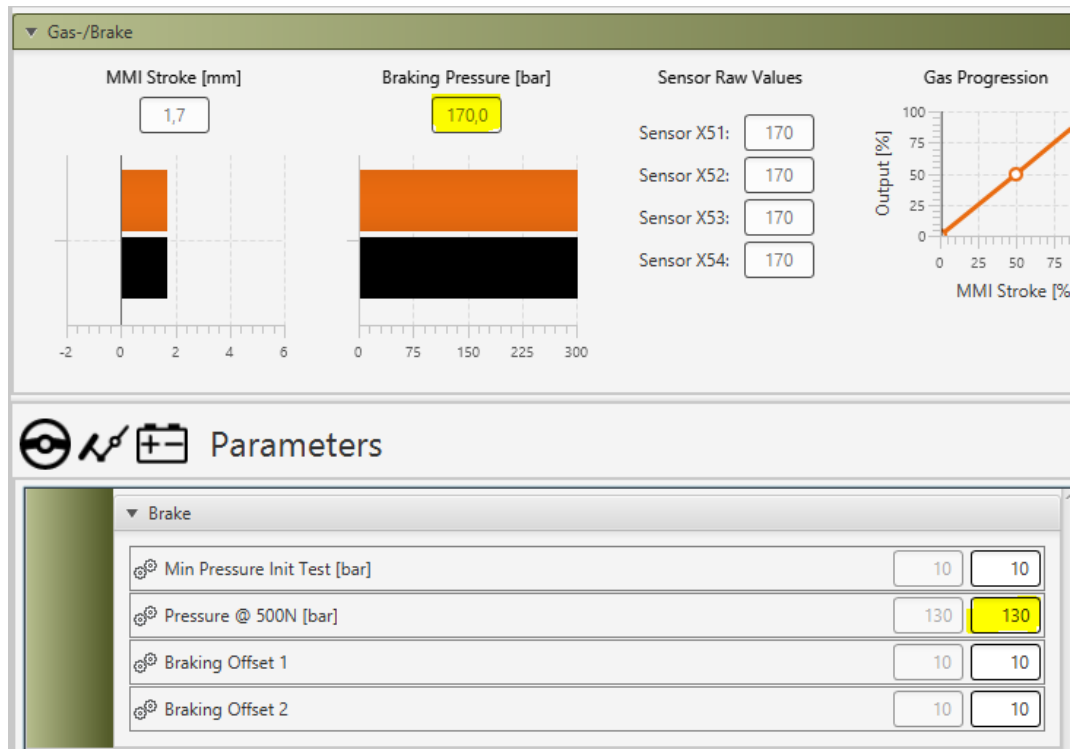


- Switch ON the braking motor.



- 'Braking offset 1 and 2' can be both set on 10.
- 'Min pressure Init Test' should be set on 10. Only in case your car has not enough brake pressure on the start-up, you can decrease this value to 9 or 8.
- Calibrate 'Pressure at 500N'
 - Push the OEM Brake pedal with your feet with 500N or 50Kg (full brake).
 - Read the actual brake pressure in the upper screen and enter this value.

- Brake with the MMI and check if you reach the same pressure again. If not, increase the value.

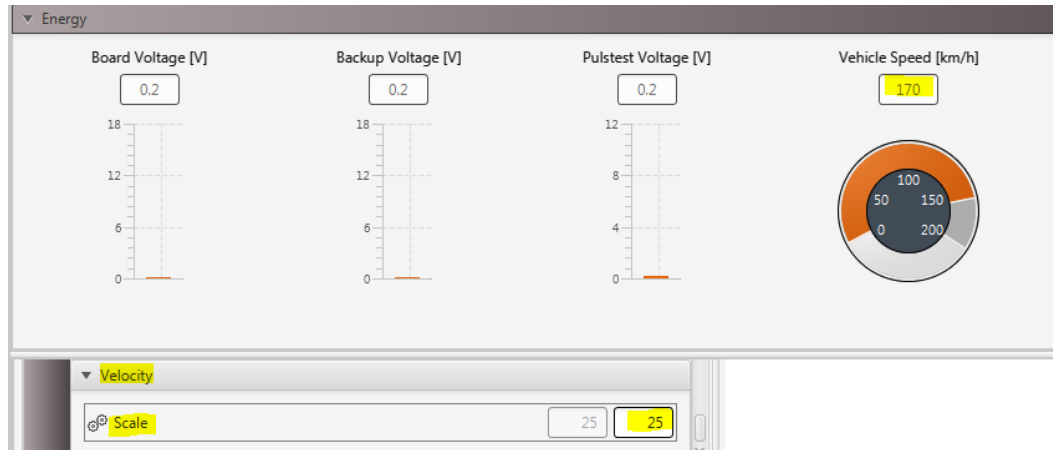


- Shut down the system and switch the 'Conventional Drive' ON. Then restart the system.
- The System is now in Conventional drive with JPAS OFF (Steering motor have no power).
- Switch on the JPAS mode in the Servicemanager to setup the JPAS parameters.
 - The Steering motors are now switch on and support the conventional steering.
 - Calibrate the JPAS Offset.
 - Start with 400, increase it in steps of +50 and try to steer with the steering wheel. Try to find the value before the steering wheel starts to moves by its own. Set the value just below this level.
 - Calibrate the JPAS Gain.
 - When you move the steering wheel, it should automatically stop turning as soon you stop moving it. Try different gains (1-4) until you feel comfortable.
 - Try the JPAS steering on the road to confirm your settings.

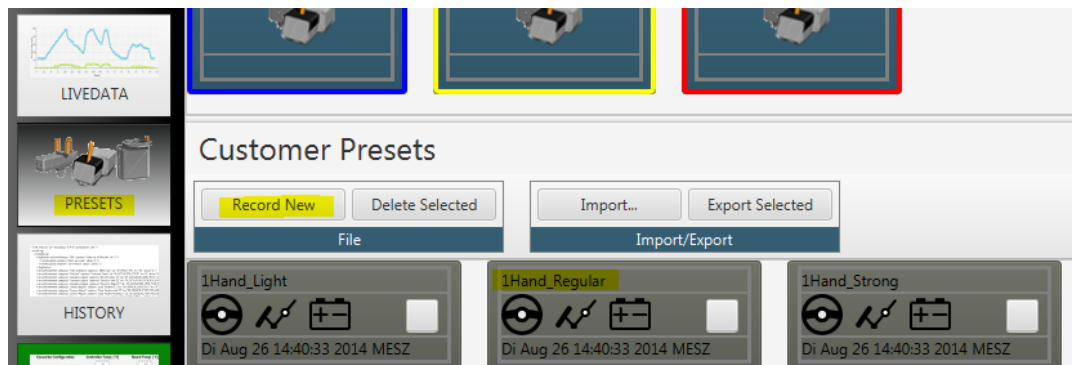


- Make a test drive on a straight road to calibrate the velocity.

- Read the Vehicle Speed from the joysteer and compare it with the speed of the car.
- If the speed in the joysteer is too low, decrease the parameter 'Scale'.
- If the speed in the joysteer is too high, increase the parameter 'Scale'.
- Repeat this until both velocity match each other.



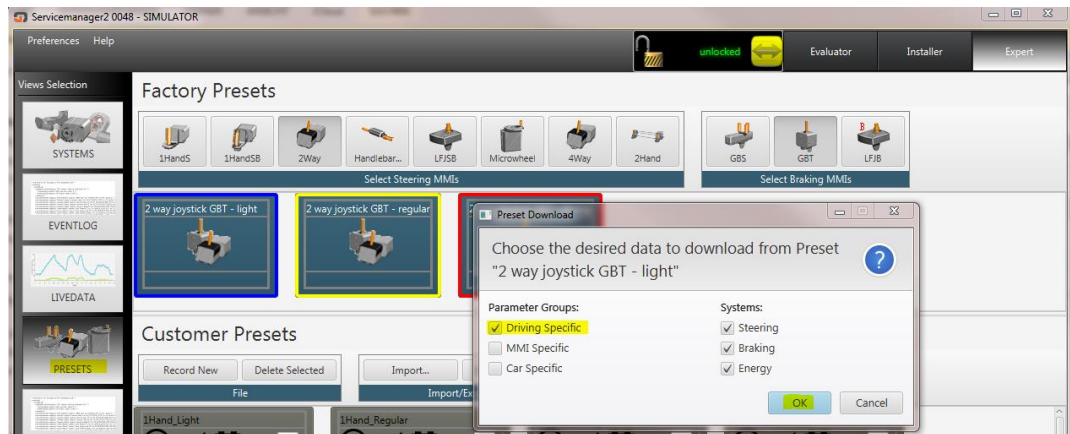
- Safe all settings in a customer preset.
 - Go to the menu 'Presets' and press 'record New'
 - Enter the name for the preset.



4 Fine tuning

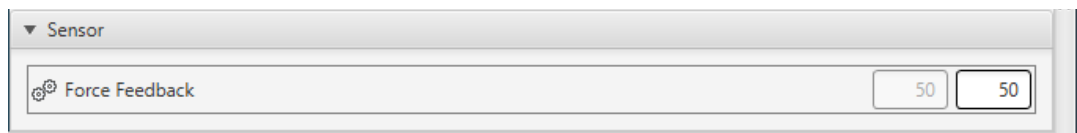
Change the Force feedback to Light, Regular or Strong

- Load the factory Preset for your MMI.
 - Unlock the software
 - Go to the menu 'Presets' and select the MMI you use (one for steering and one for braking).
 - Choose between light, regular or strong.
 - Select **ONLY** the Driving Specific checkmarks and press OK.



4.1 Fine tuning – steering

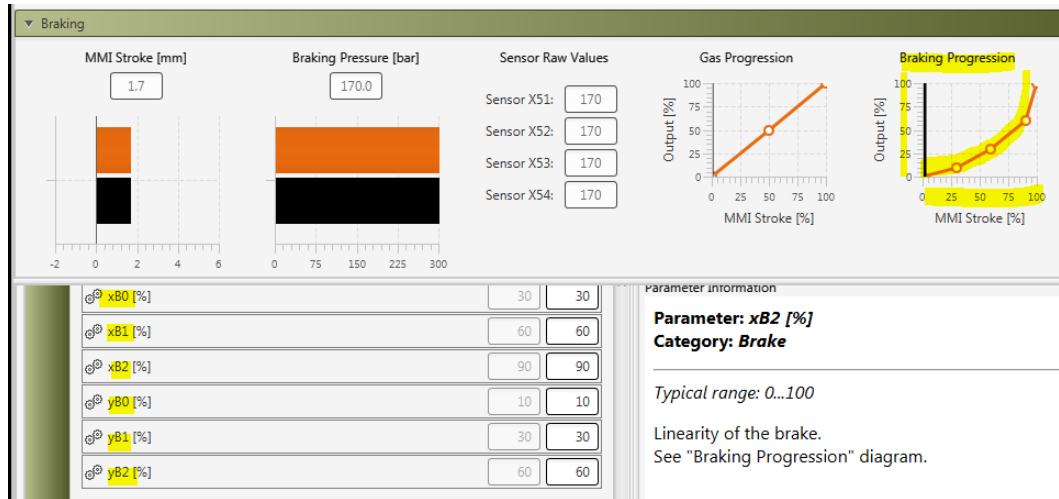
- Adjust the Force Feedback when the customer presets are not satisfactory.
 - Start with one of the three customer presets as a base (light, regular or strong).
 - For a **stronger Force feedback increase the parameter 'Force Feedback'**.
 - For a **weaker Force feedback decrease the parameter 'Force Feedback'**.



- Adjust the Retraction (back to Zero) when the customer presets are not satisfactory.
 - For a stronger retraction increase the 'Sensor Max retraction' and the 'Sensor P Retraction' for V-min and V-max (for lower and higher speed). The P Retraction should be about 25% of the max Retraction.
 - For a weaker retraction decrease the 'Sensor Max retraction' and the 'Sensor P Retraction' for V-min and V-max (for lower and higher speed). The P Retraction should be about 25% of the max Retraction.
- 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.

4.2 Fine tuning – braking

- 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 'Brake Progression'



- Adjust the gas curve when the customer presets are not satisfactory.
 - Adjust the values xG1/yG1. The values work like in a normal XY diagram. The changes you can directly see in the diagram 'Gas Progression'. Hint: you can adjust the gas curve also in the SmartGas.
- Adjust the aggressiveness of the brake when the customer presets are not satisfactory.
 - Adjust the P Factor of the brake. A lower value makes a less aggressive brake. Use values between 5 to 15.