



A Bosch Company



STW195

USER GUIDE

Table of Contents

- ▶ **OVERVIEW2**
- ▶ **SOFTWARE.....2**
- ▶ **LABELS2**
- ▶ **CONTROL LAYOUT3**
- ▶ **DASH MANAGER CONFIGURATION4**
 - STW 195 specific configuration requirements 4
 - SLM 4
- ▶ **DISPLAY CREATOR CONFIGURATION4**
 - Display configuration..... 4
 - STW 195 specific configuration requirements 4
- ▶ **CAN5**
 - Receiving..... 5
 - Maths functionality..... 5
 - Diagnostic Details: 6

► OVERVIEW

The STW 195 uses the C125 colour display. Most of the configuration will be the same as the other colour displays.

This user guide will outline the specific configuration details for the STW 195 Steering Wheel. This document will assume the user has experience using MoTeC Dash Manager and Display Creator software.

This document refers to:

- Dash Manager as **DM**.
- Display Creator as **DC**.
- Quick release as **QR**

► SOFTWARE

For STW 195 configuration the following minimum versions (or later) must be used:

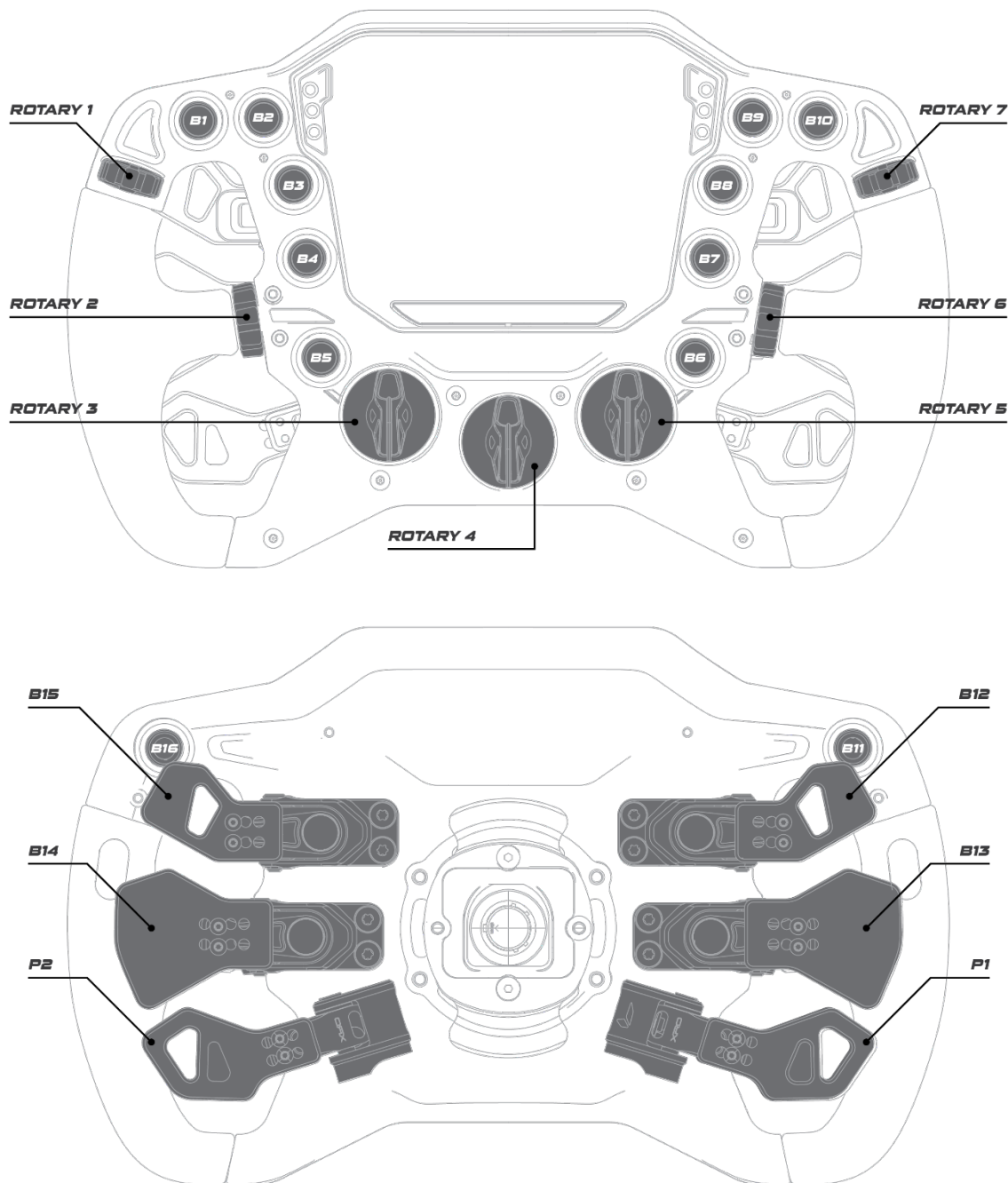
- Dash Manager **6.51.12.0**
- Display Creator **6.5.1.0205**

► LABELS



► CONTROL LAYOUT

The two images below show the numbering of the controls.



NOTE:

- Button 4 is the dedicated PTT radio control. This button physically connects pins 18/19 together allowing the radio to be operated even if the Steering Wheel is powered down.
- Pins 14/15 are shorted together internally. This can be used as part of a High Voltage InterLock (HVIL) loop to ensure the Steering Wheel is fully engaged.

► DASH MANAGER CONFIGURATION

STW 195 specific configuration requirements

CAN Configuration

CAN1 – Connected to the vehicle bus.

CAN2 – Connected to the internal IO board and connected to the QR, reserved for IO board firmware updates.

CAN1

CAN 1 is the connection to the vehicle, any messaging to/from the steering wheel from the vehicle should be configured here.

Optionally the “**Relay to Display Creator**” button can be ticked to pass CAN messages directly to Display Creator if they are for display purposes only.

CAN2

The Relay to Display Creator must **NOT** be ticked, and the rate must be set to 1M.

The default configuration has templates to read the information from the internal IO board. This includes the button and rotary switches, voltages and diagnostics.

SLM

The steering wheel has 16 shift lights. The top 10 are configured in SLM1 and the 6 on the side are configured in SLM2.

NOTE: When the wheel is used as part of an FIA sanctioned event using the FIA race control system the 6 LED’s must be used to show the required flag statuses.

► DISPLAY CREATOR CONFIGURATION

Display configuration

The display configuration (Functions > Display) passes the required internal channels to DC.

This may include the button information, diagnostics and other channels created internally in DM.

This does not need to include channels received on CAN1, the relay passes those messages directly to DC.

NOTE: If the relay to Display Creator button has been ticked.

The display configuration creates a dbc file that must be loaded into DC. The default configuration has all of the button and rotary channels already configured in this setup.

STW 195 specific configuration requirements

Device Selection

In DC the correct device must be selected so that the configuration can be sent to the Steering Wheel.

Under Settings>Hardware>Change select Steering Wheel from the dropdown.

► CAN

Receiving

There is a new feature in DC that allows selection of the CAN bus the messages are received on. CAN1 and CAN2 are the external CAN buses, and the Display Bus is an internal bus.

Display Bus – this is where the button and any internal channel information is received. The dbc file created from DM may be loaded so that the button and diagnostic information is available in DC. Failing to load the dbc file will result in CAN timeout being shown on the display. If the display setup in DM is changed the new dbc file must be loaded into DC.

The DM config file can be changed in any way, as long as the display setup remains unchanged, without having to update DC. Only a change to the display setup will require an update to DC.

All CAN traffic available on the vehicle CAN bus connected to CAN 1 is available in DC if the “Relay to Display Creator” button is ticked in DM. You can simply load a dbc file to read any channel from the bus.

CAN 2 is not used

Maths functionality

To transmit the result of maths functions a PC activation is required. This is locked to the PC. A request file is generated by going to Help > Activate Features

Diagnostic Details:**CAN Diagnostics**

B1-B16 Powerup Diag – normally 0, value of 1 is transmitted if the button is pressed on power up.

R1-R7 – normal range 1-12, value of 15 is transmitted if any error is detected.

R1-R7 Voltage – raw voltage, value of 0mV will be transmitted if any error is detected.

P1-P2 Voltage – normal range 500mV to 4500mV, value of 5000mV will be transmitted if any error is detected.

CAN 1/2 Diagnostics:

0	OK
1	Bus Off
2	Error Passive
3	Warning Status
4	RAM Access Failure
5	Rx overrun
6	Rx Fifo Overflow
7	Protocol Error

Internal 3_3 and 5V Diagnostics:

0	Ok
1	Voltage outside allowable range

Internal Left/Right LED Diagnostics:

0	OK
1	Overtemperature
2	Any open or short-circuit detected

Internal_Temp_Diag - At least one internal temperature sensor is above the warning threshold

Vbatt_Diag – Steering Wheel supply voltage is outside the specified range [9-17V]

Digital Signal Diagnostic

Speed Input 1 on the C125N reads a PWM signal from the IO board as a backup diagnostic. The supplied configuration shows how it needs to be configured.

PWM OUT Duty Cycle (%)	Description
25%	PCB Boot-Up
50%	PCB Working Correctly
75%	PCB has at least one Diagnostic Active

IO Board Diagnostics:

0	Unknown
1	PCB Boot-Up
2	PCB Working Correctly
3	PCB Diag Active

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