



BMW Customer Manual

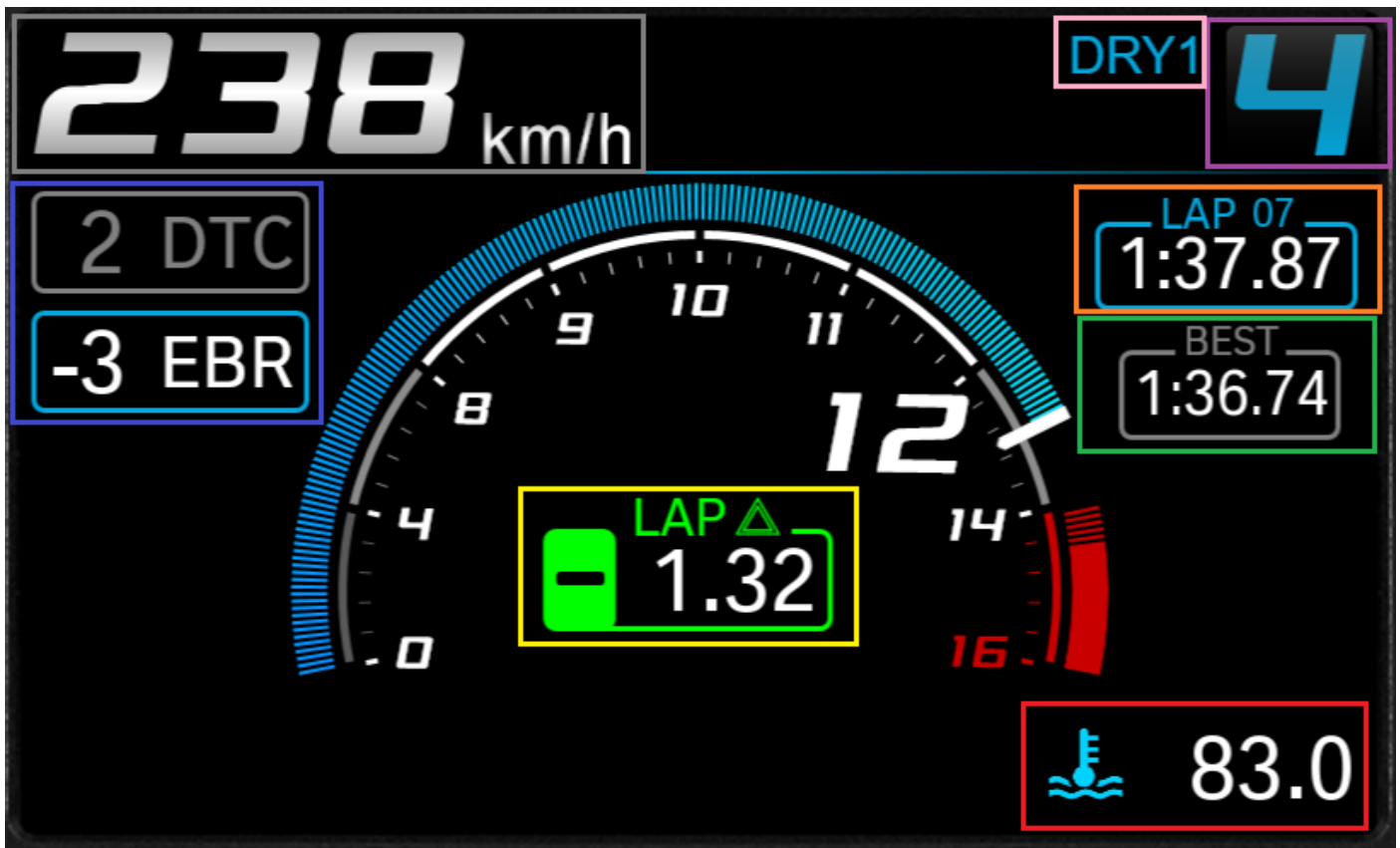
MoTeC C125

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Screen description

Rider page



Vehicle speed (can be disabled)

Vehicle mode (RAIN, INT, DRY1, DRY2)

Last lap time and lap number (counter is reset by activated Pit-Limiter)

Best lap time (updated by new best lap or manual)

Lap time Gain/Loss (green if faster than BEST, red if slower than BEST)

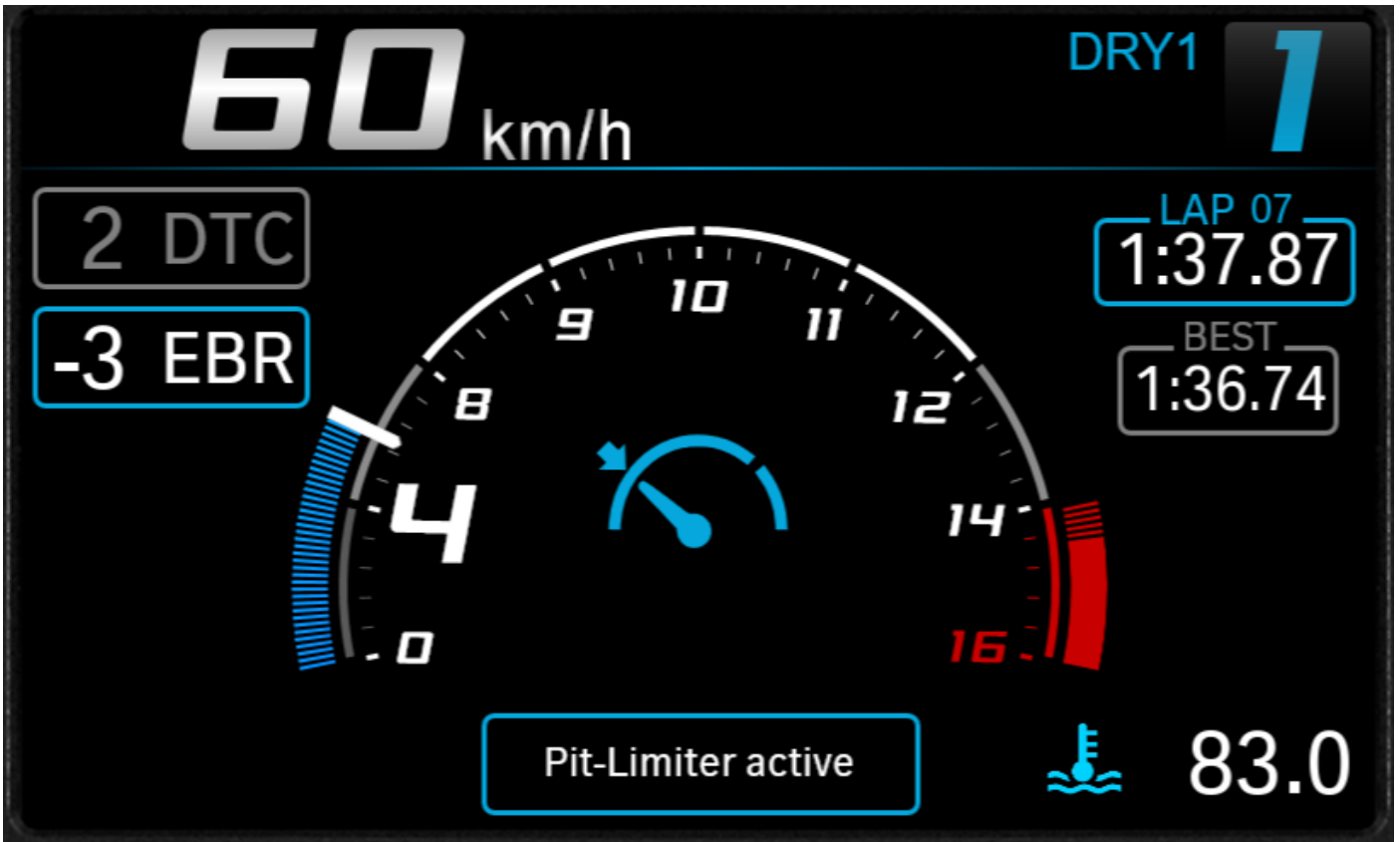
Coolant temperature (orange icon if temperature is low, red icon if temperature is high)

Engine-Braking and Traction-Control level (selected function shows blue frame and white text)

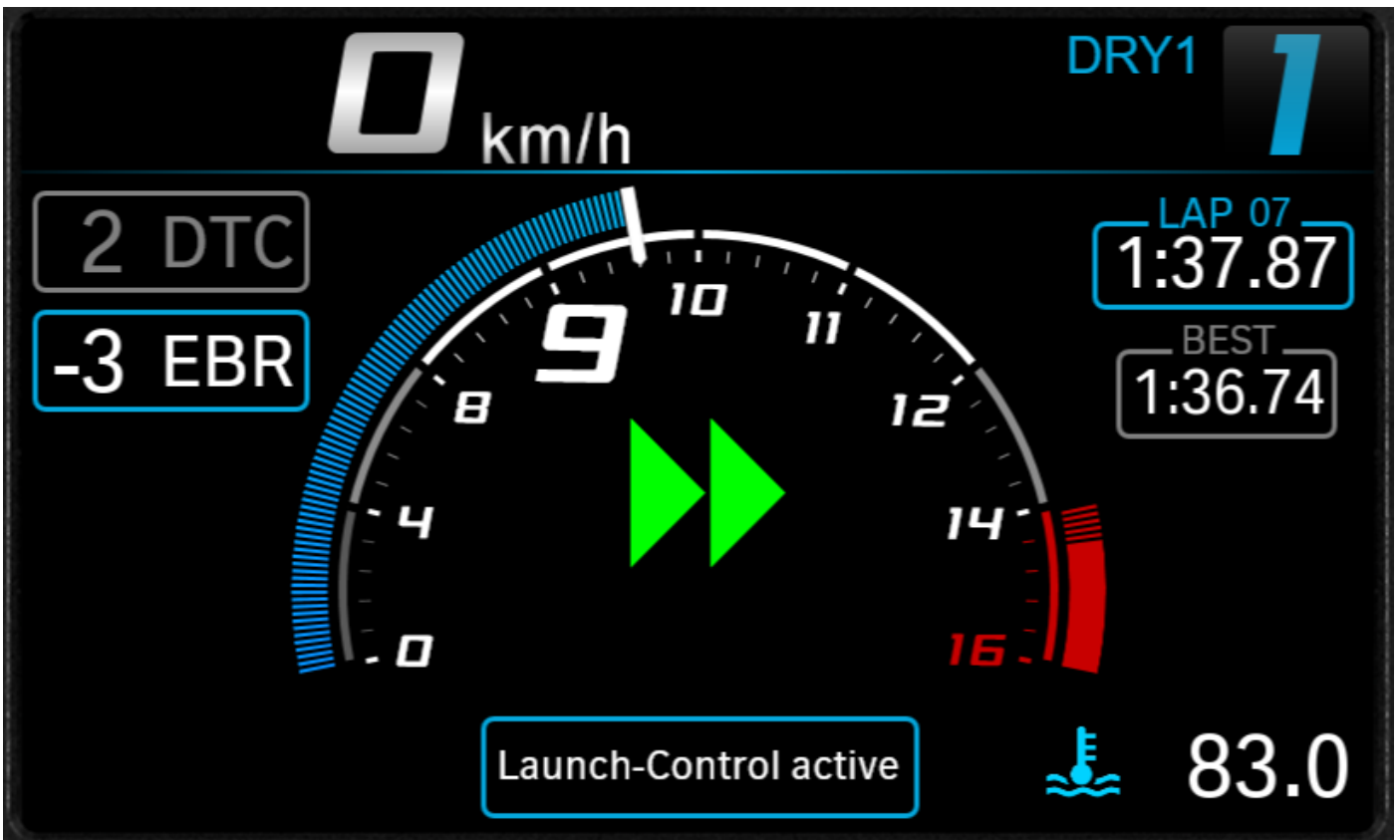
Gear (flashes during gearbox adaptation)

Depending on activated functions or active rider warnings, the screen content may change.

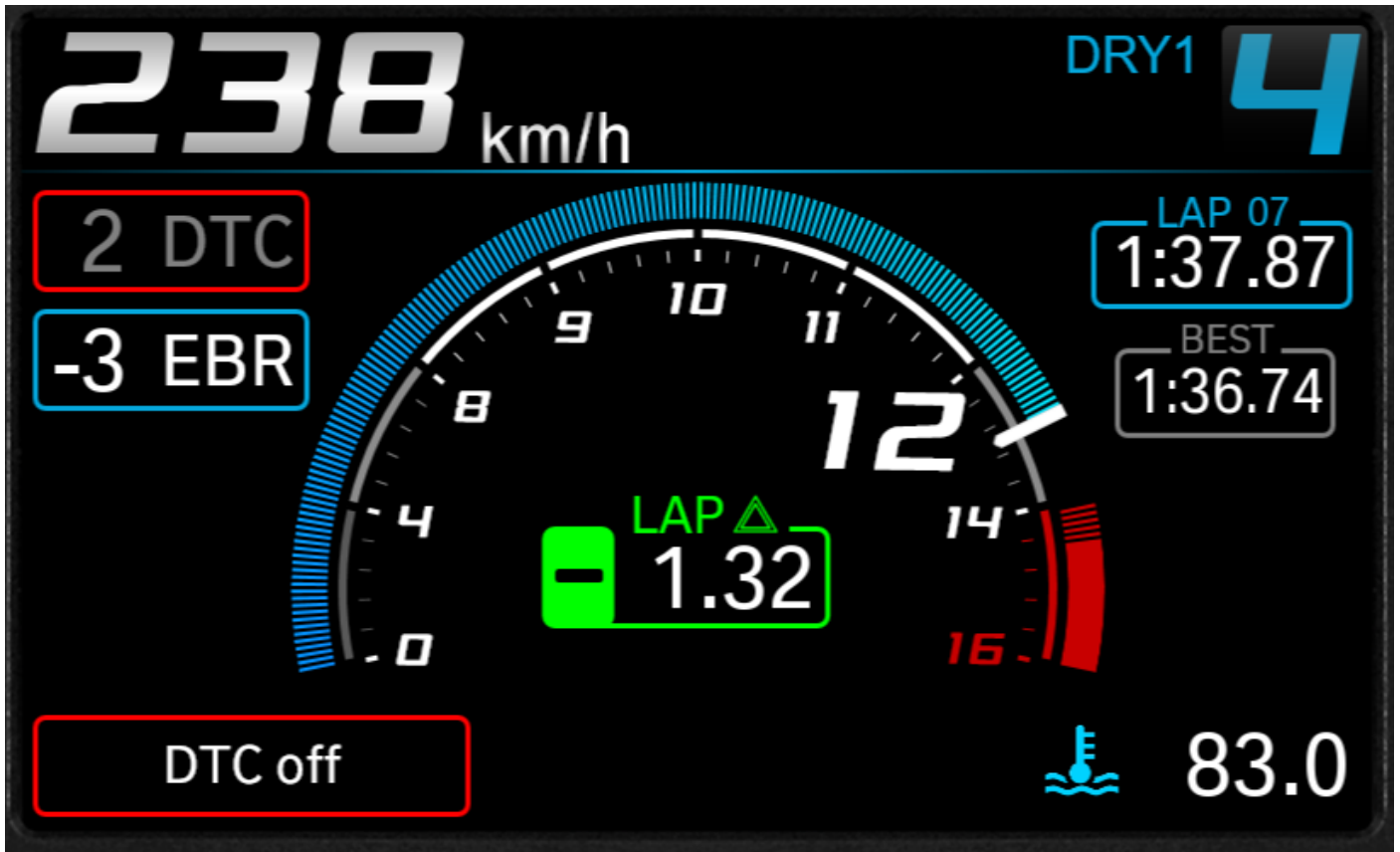
Pit-Limiter active (blue LEDs flash):



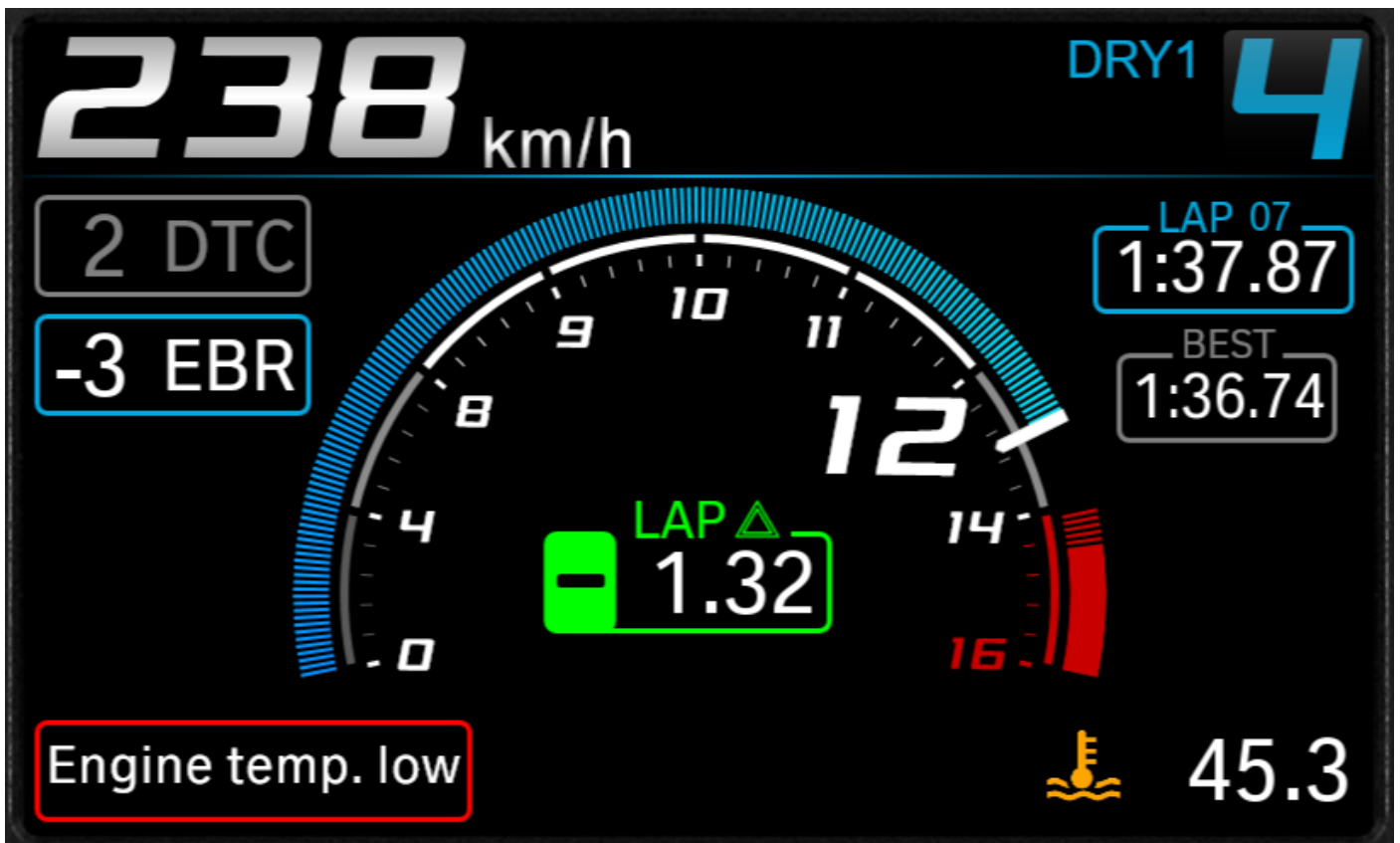
Launch-Control active (green LEDs flash):



Traction-Control disabled:




Coolant temperature low:




Mechanics page

The mechanics page shows all sensor values to enable a quick check for the mechanics:

 36.0		DRY1		N	
Voltage	13.8	RPM	2232	Intake Temp.	23.0
Grip	0.0	Throttle1	8.3	Throttle2	8.3
Speed F	0.0	Speed R	0.0	Fuel Level	0.00
Lambda1	0.89	Lambda2	0.91	Fuel Press.	4.5
Shift1	2.50	Shift2	1.25	Drum	290.0
Susp. F	0.3	Susp. R	2.3	Steer	0.0
Brake F	0.0	Brake R	0.0	Lean	0.2

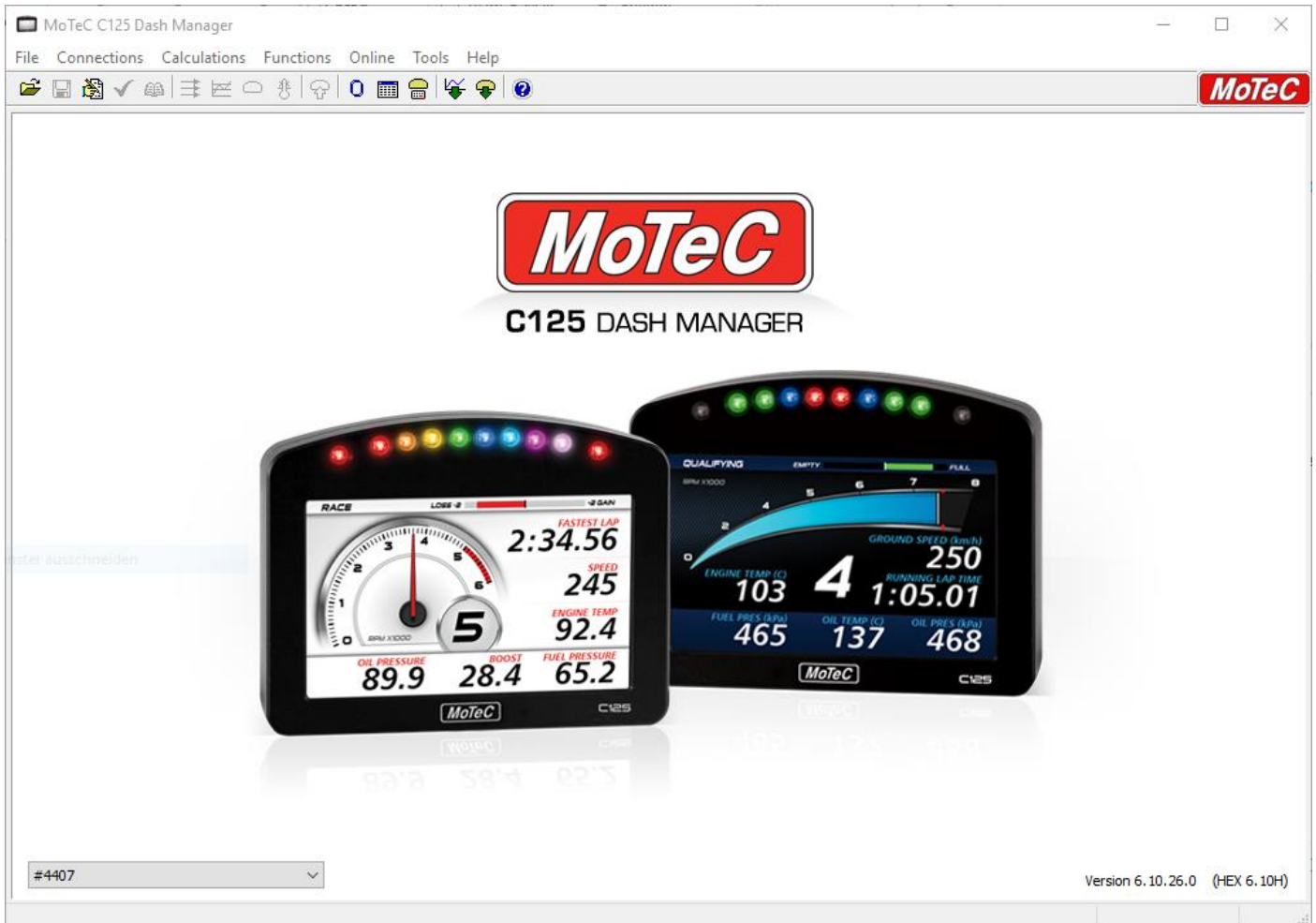
If the ECU detects any error, the mechanics page shows the number of errors as well as the related sensor group:

	36.0	1 Errors active		DRY1	N
Voltage	13.8	RPM	2232	Intake Temp.	23.0
Grip	0.0	Throttle1	8.3	Throttle2	8.3
Speed F	0.0	Speed R	0.0	Fuel Level	0.00
Lambda1	0.89	Lambda2	0.91	Fuel Press.	0.2
Shift1	2.50	Shift2	1.25	Drum	290.0
Susp. F	0.3	Susp. R	2.3	Steer	0.0
Brake F	0.0	Brake R	0.0	Lean	0.2

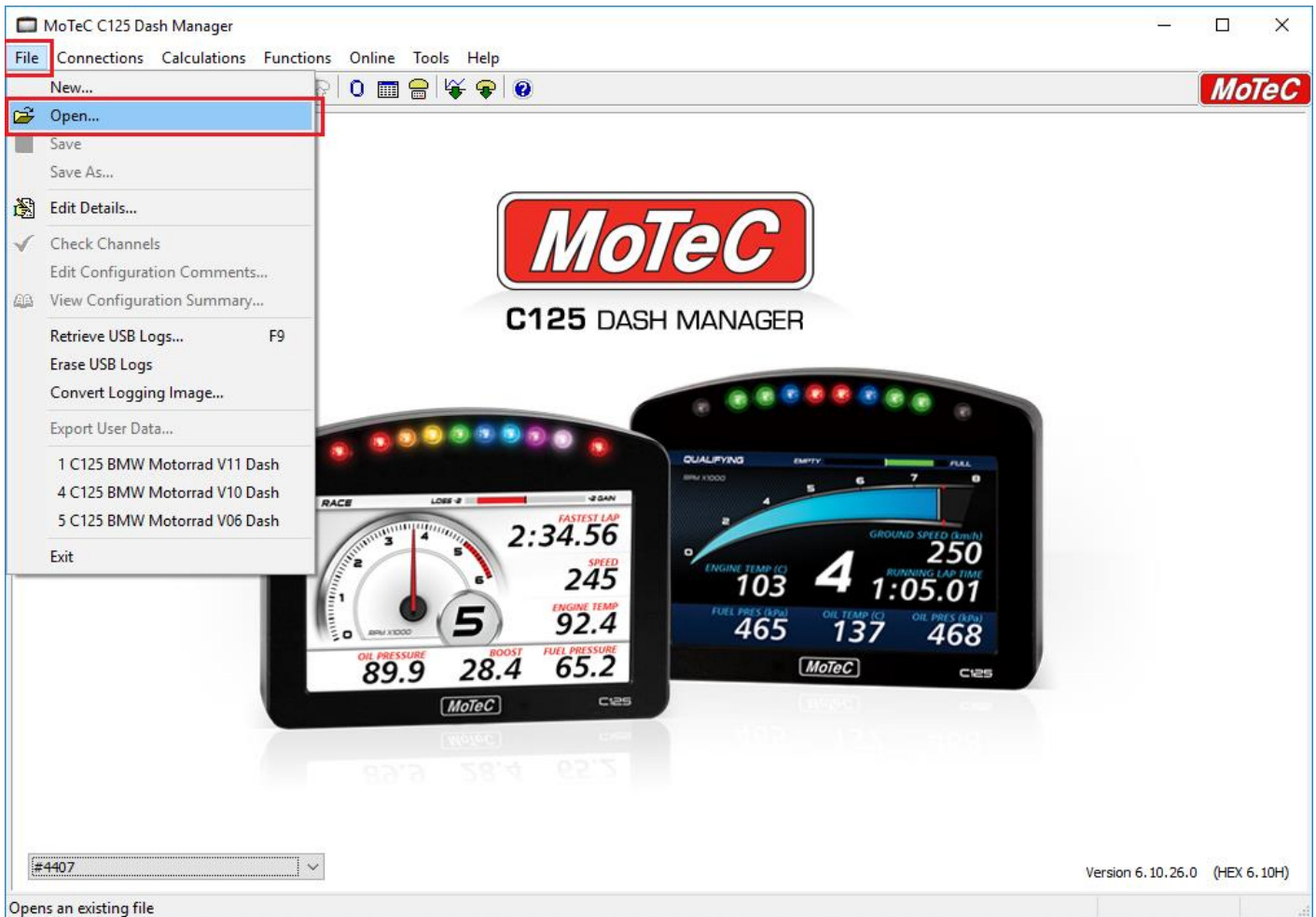
The chapter for the [Error flag description](#) shows the allocation of error flags to the related group.

Load Configuration

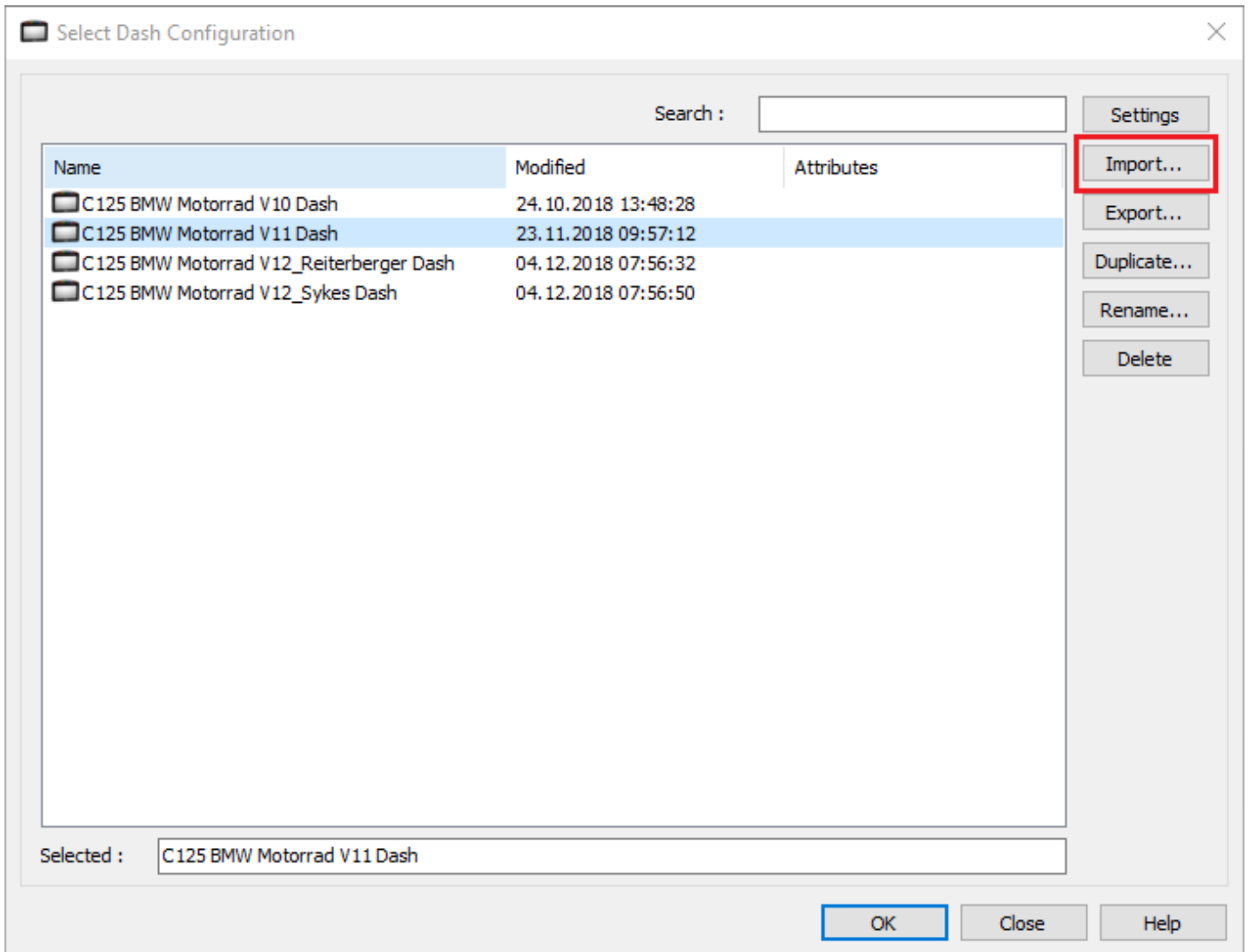
Open MoTeC C125 Dash Manager:



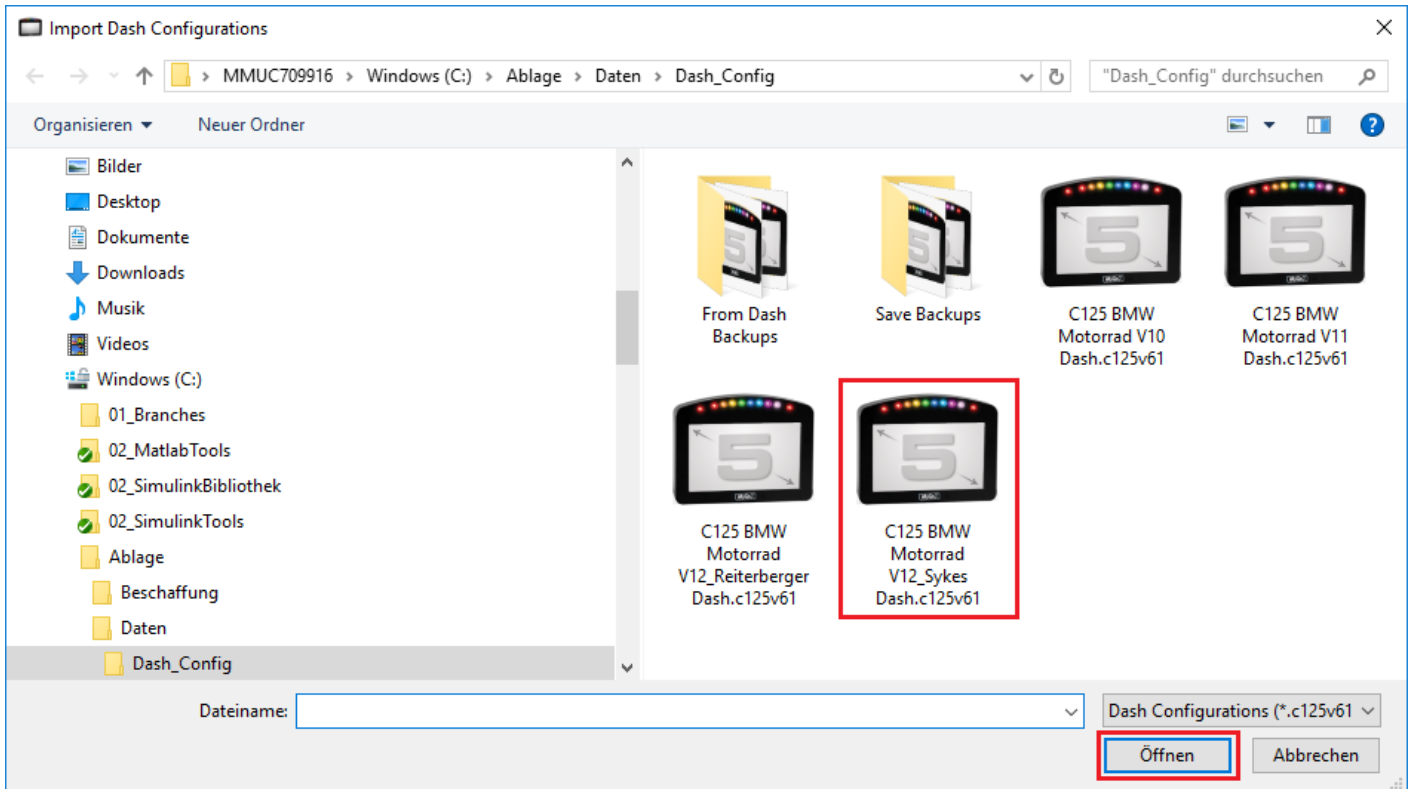
Select **File** and **Open...**:



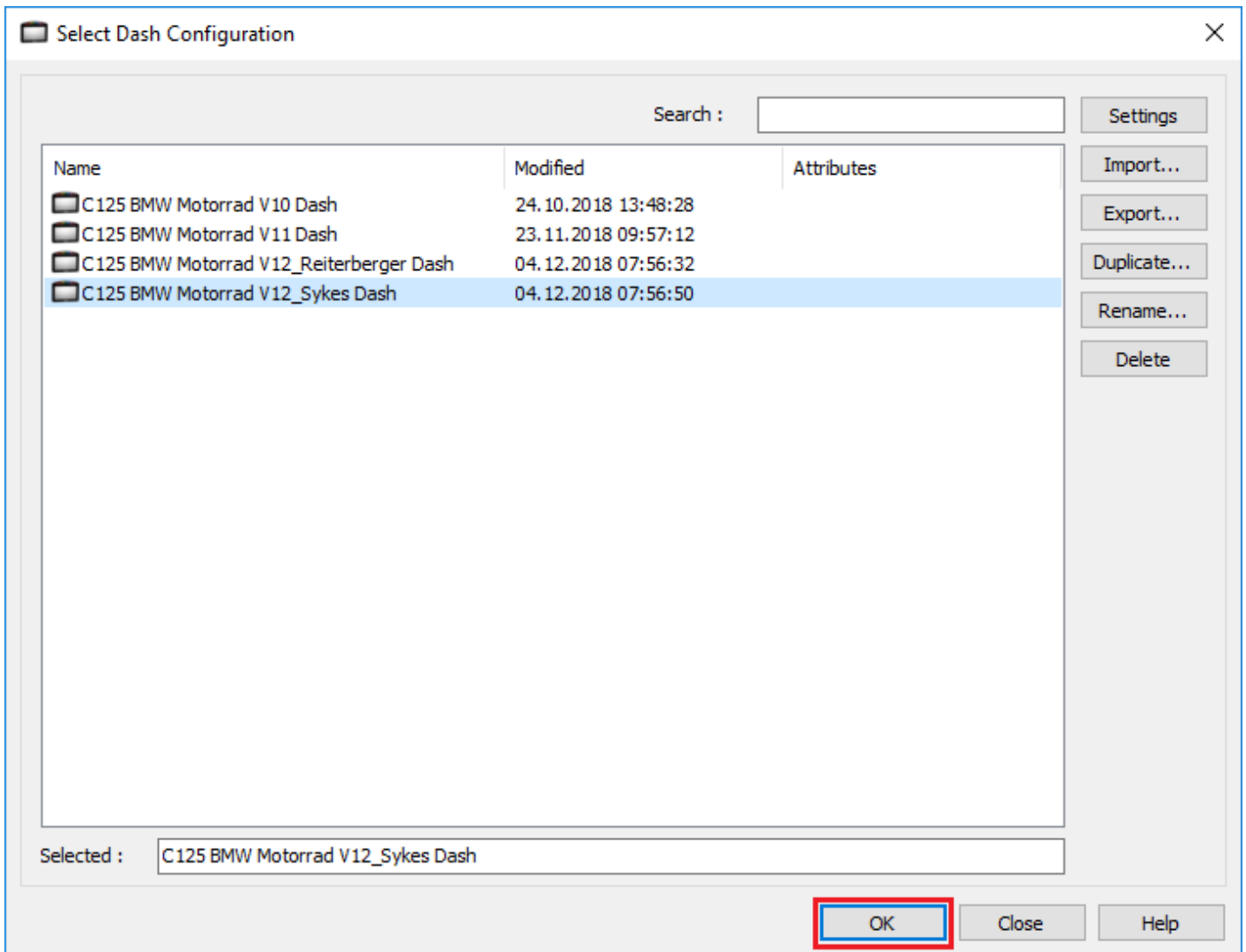
Select **Import...**:



Open the provided configuration:

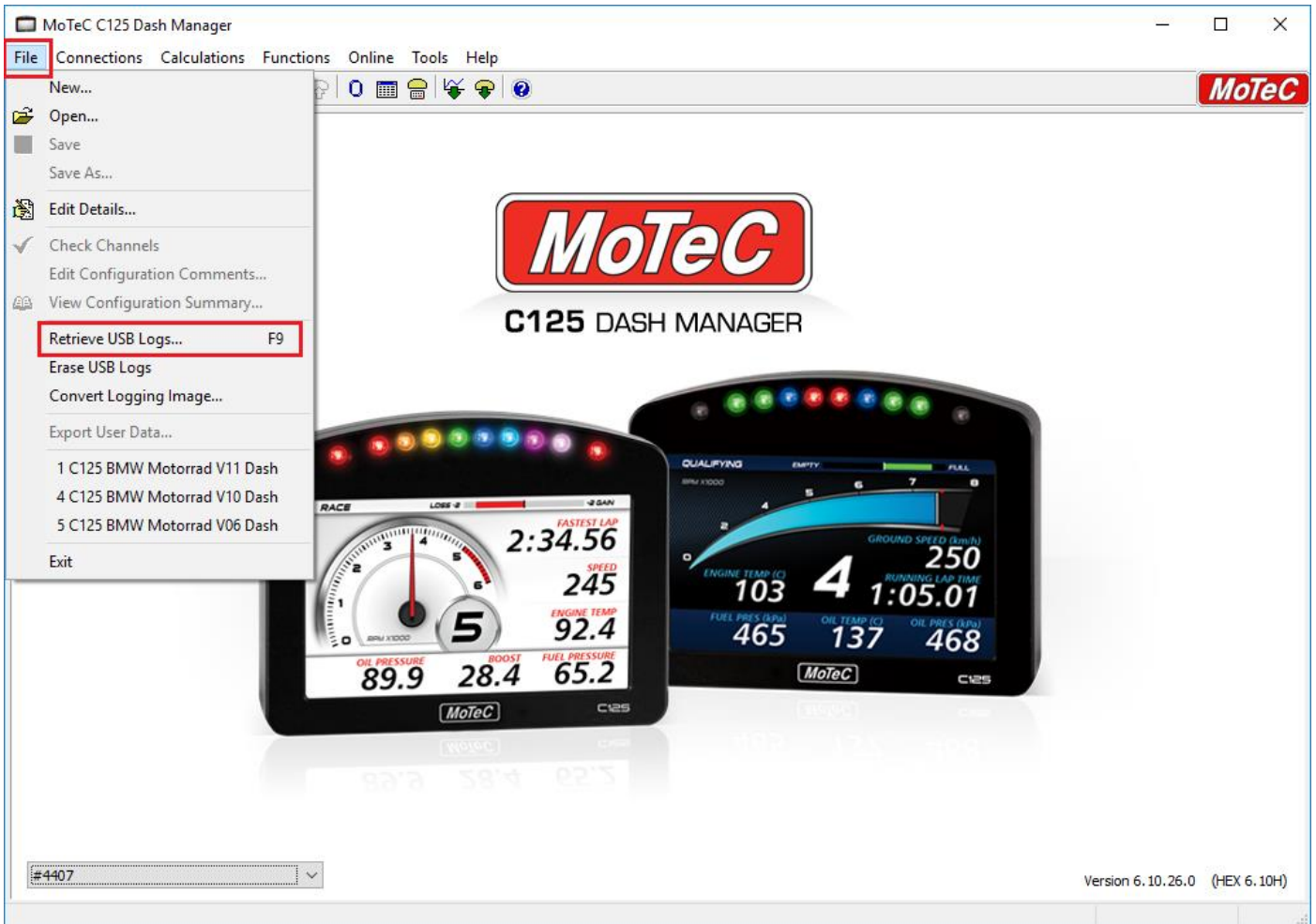


Now open the imported configuration:

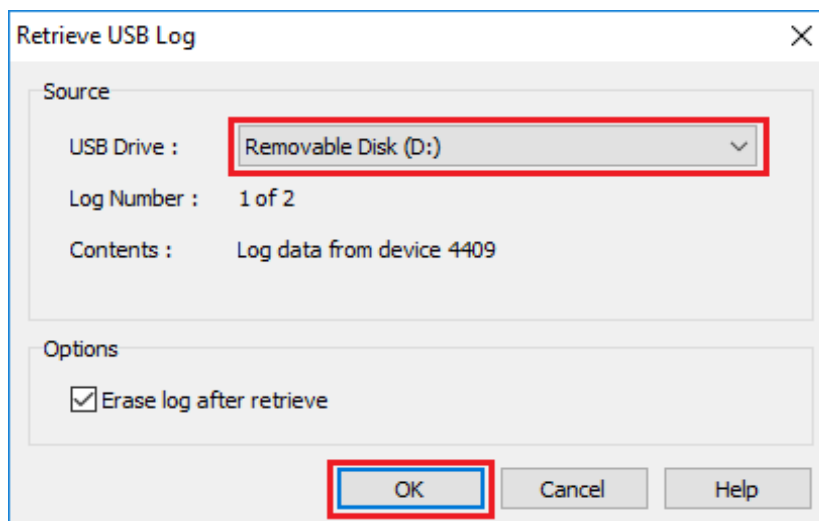


Download data from USB-Stick

Connect USB-Stick to your computer. Select **File** and **Retrieve USB Logs...** or press **F9**:



Select correct USB-Stick if more than one are connected and click **OK**:



The data download will start and the logging data detail screen will appear. Type in all necessary information.

✕

Please confirm the following details are correct for the logged data

Event

Event Name :

Session :

Short Comment :

Long Comment :

Used Dataset:
00006COB_000_001_255_MCR-8828_PS-1_gemischt_Miramas_9neun

Venue

Current Venue :

Coordinates : 44,3440293 11,7163993

Log Filename : C:\MoTeC\Logged Data\20181204-0440900.ld

Vehicle

Vehicle ID :

Description : Tom Sykes Race Bike

Dash Serial : 4409

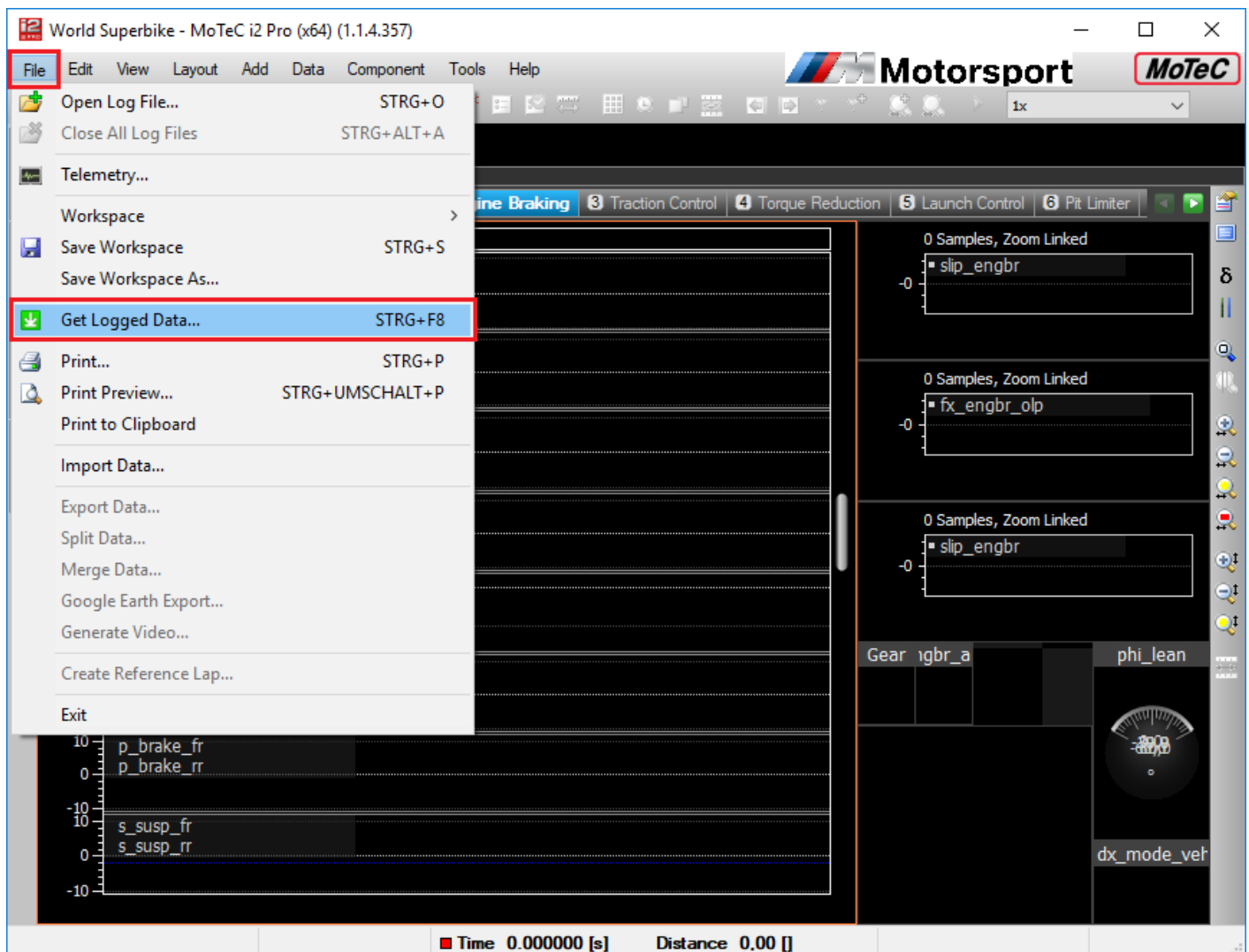
Driver :

Restore logging data

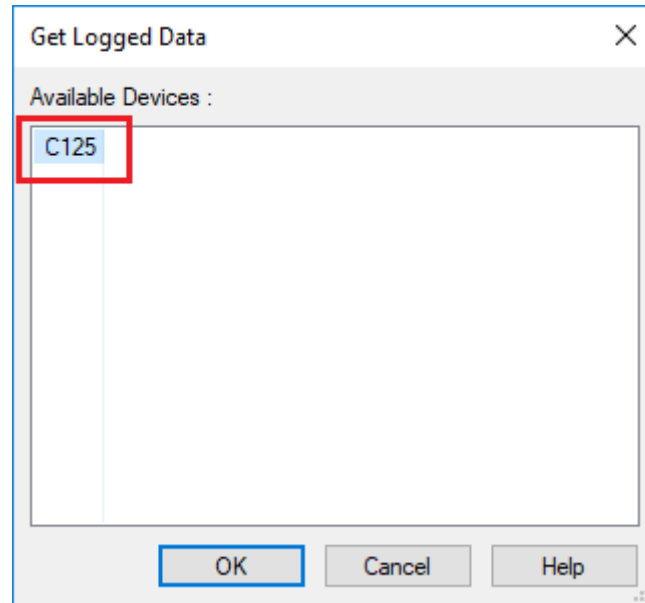
This chapter describes how data can be restored if no USB-Stick was connected or the USB-Stick got lost due to a crash.

The data is always stored on the USB-Stick memory as well as on the internal memory. The internal memory provides space for approximately one hour of recording and is operating in first-in first-out mode which means, as soon as the internal memory is full, the oldest data is overwritten. Other than on the USB-Stick, only one log file is created on the internal memory. So it is reasonable to clear the internal memory before an event or if a session has been finished without need to restore data. How to clear the internal memory is described at the end of this chapter.

To retrieve the data from the internal memory, open i2 and connect the C125 device to your computer. Now select **File** and **Get Logged Data...**:



If the device is connected correctly, it will be shown in the following window:

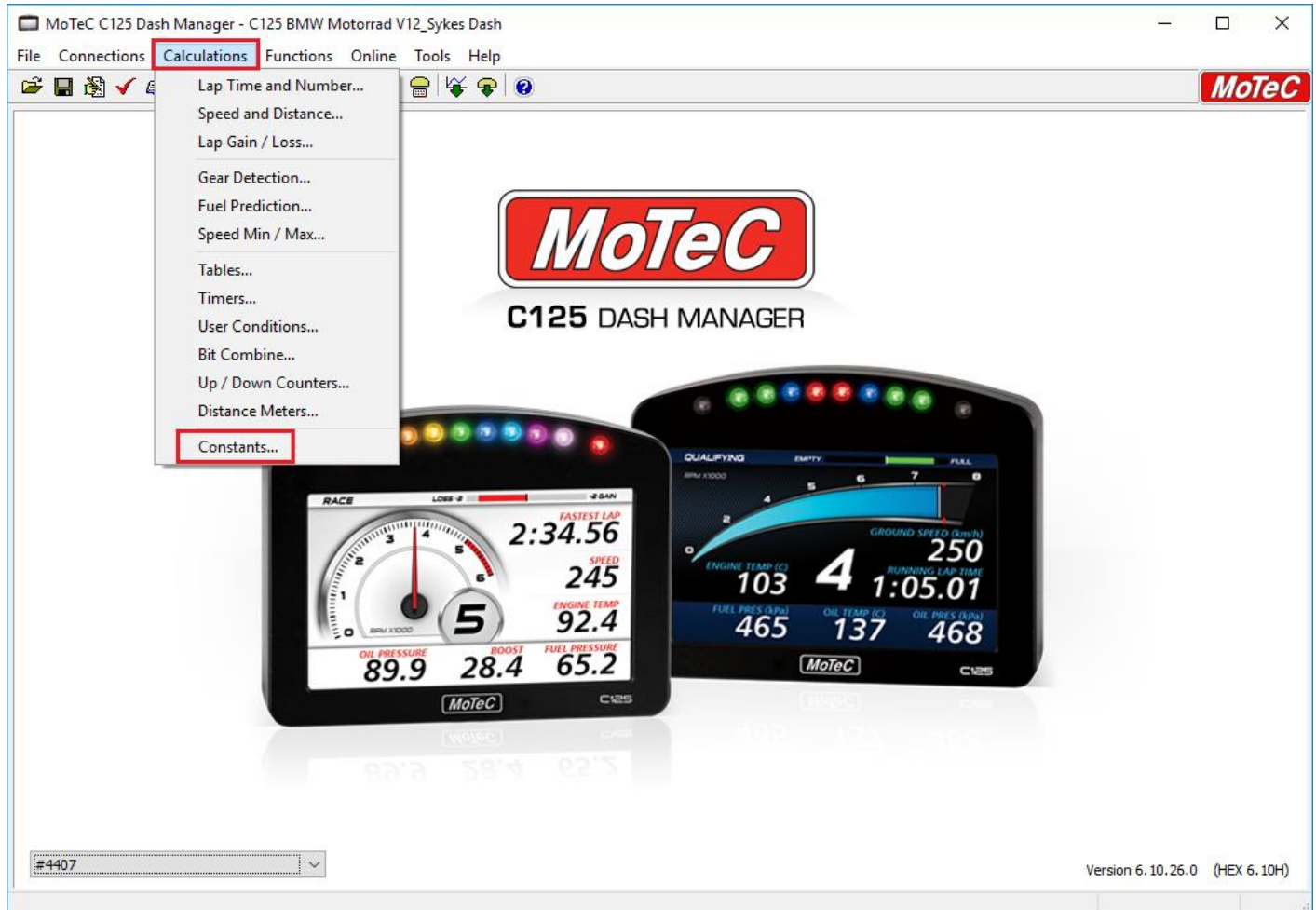


Now the data will be downloaded. After the download, you can confirm to clear the logging memory. Just like with the data download from a USB-Stick, you can enter all necessary information in the Get Logged Data window.

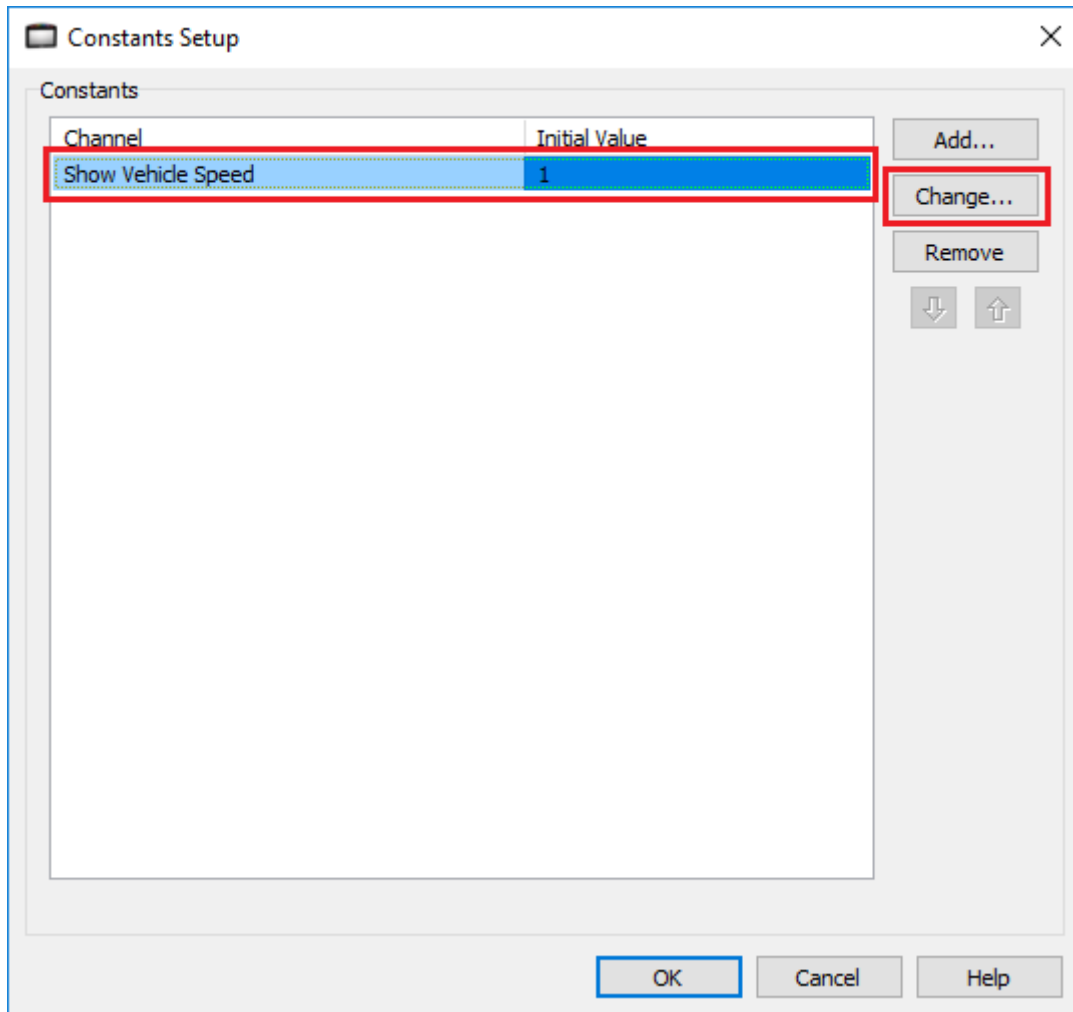
BMW specific C125 setup

Show vehicle speed option

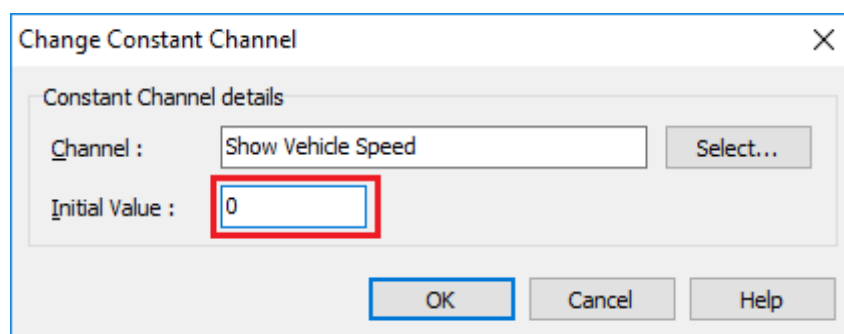
Some riders prefer for the vehicle speed not to be shown on the dashboard. Therefore select **Calculations** and **Constants...**:



Now double click **Show Vehicle Speed** or select and click **Change...**:



Set the option **Initial Value** to **0**:

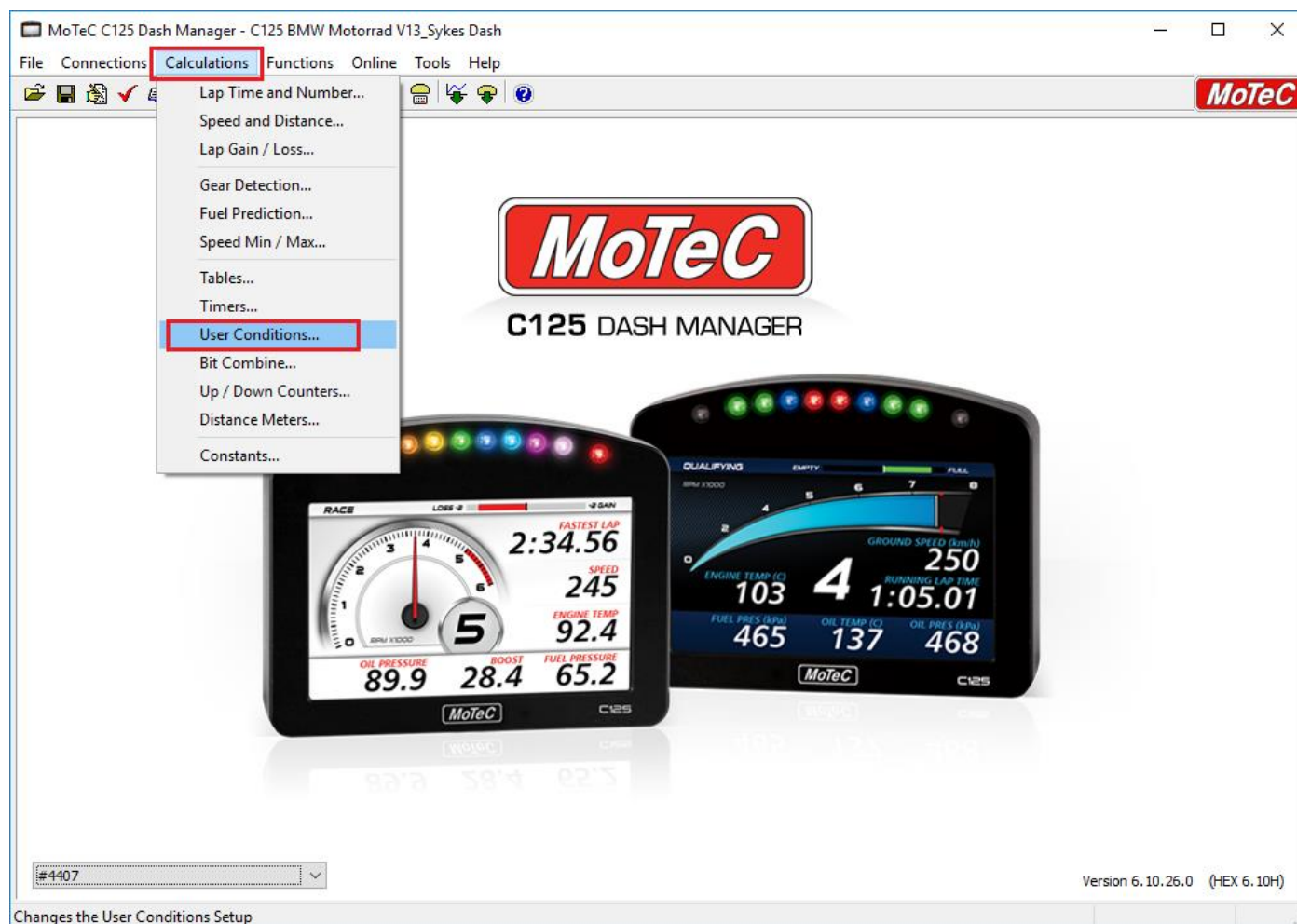


Now no vehicle speed will be shown on the dashboard.

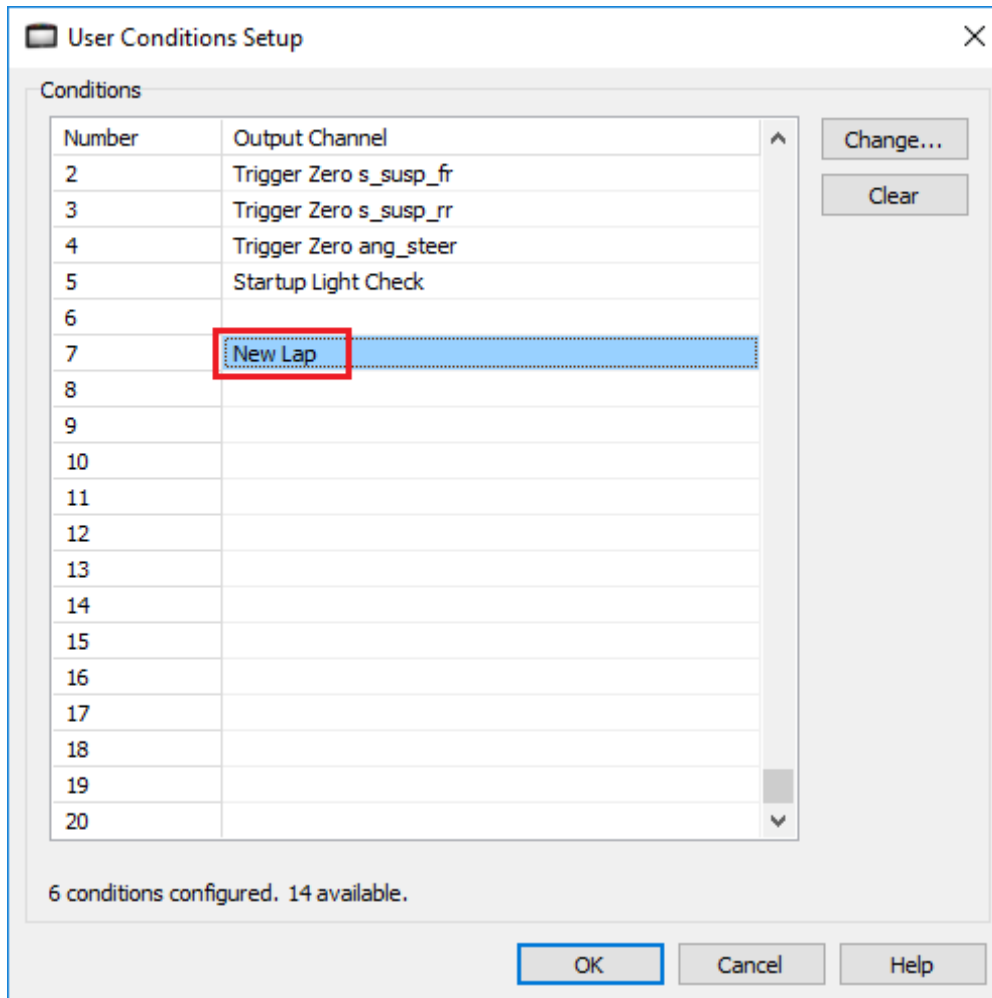
Lap time timeout

As soon as the bike crosses the Start/Finish-Line, the lap time is shown (and magnified) in the screen area that usually shows the laptime Gain/Loss. Depending on the track layout it may be necessary to change the timeout, how long that value should be shown. E.g. in case there's a turn right after the Start/Finish-Line, it may be necessary to increase this timeout, until the rider reaches the subsequent straight and thus, has time to actually read the last lap time.

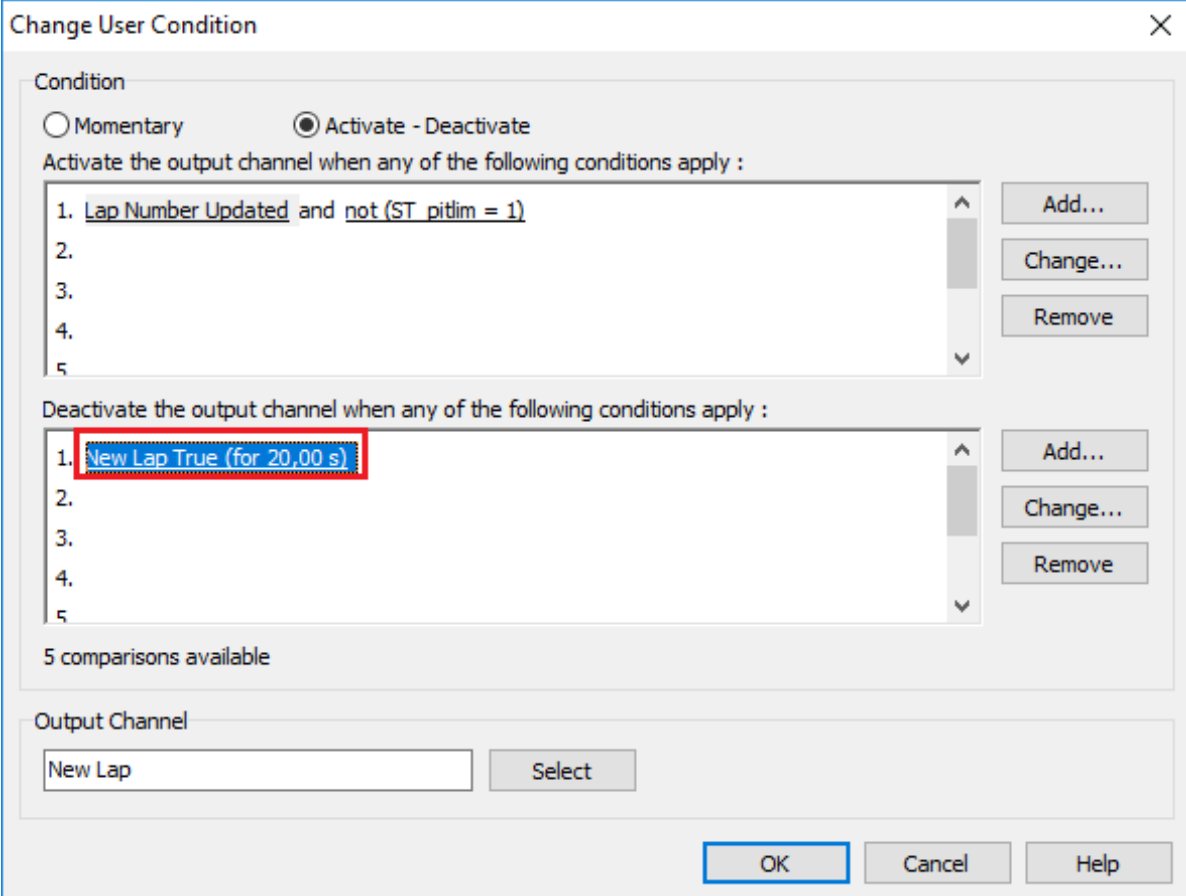
To change the timeout select **Calculations** and **User Conditions....**:



Now double click on **New Lap**:



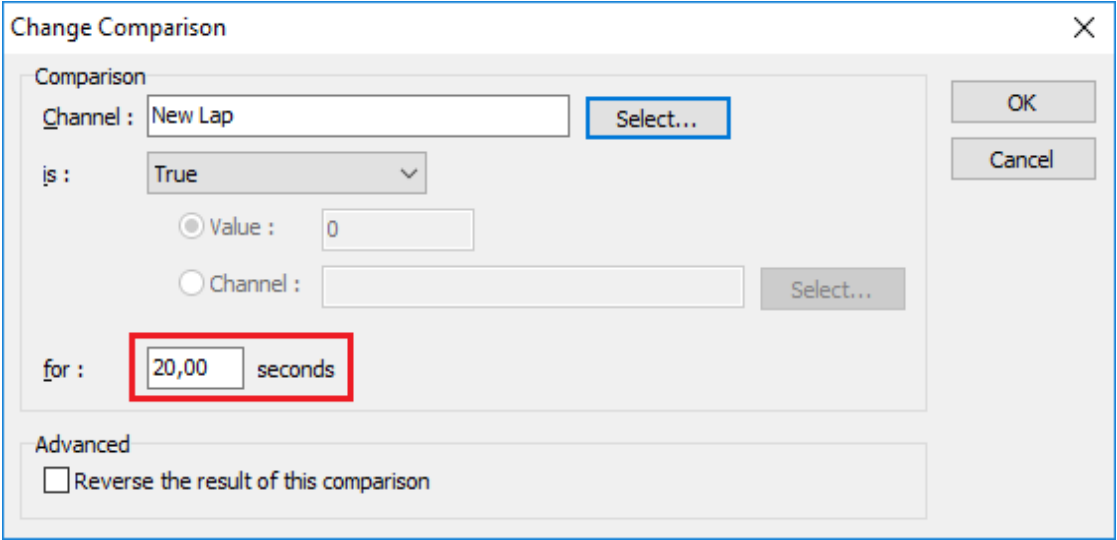
Now double click on **New Lap True (for xx,xx s)**:



The dialog box is titled "Change User Condition" and has a close button (X) in the top right corner. It is divided into several sections:

- Condition:** Contains two radio buttons: "Momentary" (unselected) and "Activate - Deactivate" (selected). Below them is the text "Activate the output channel when any of the following conditions apply :".
- Active Conditions List:** A list box containing five items. The first item is "1. Lap Number Updated and not (ST pitim = 1)". To the right of this list are three buttons: "Add...", "Change...", and "Remove".
- Deactivation Conditions List:** A list box containing five items. The first item is "1. New Lap True (for 20,00 s)", which is highlighted with a red box. To the right of this list are three buttons: "Add...", "Change...", and "Remove".
- Availability:** Below the deactivation list, it says "5 comparisons available".
- Output Channel:** A text box containing "New Lap" and a "Select" button.
- Buttons:** At the bottom right, there are three buttons: "OK", "Cancel", and "Help".

Change the value for the timeout and confirm:



The dialog box is titled "Change Comparison" and has a close button (X) in the top right corner. It contains the following fields and controls:

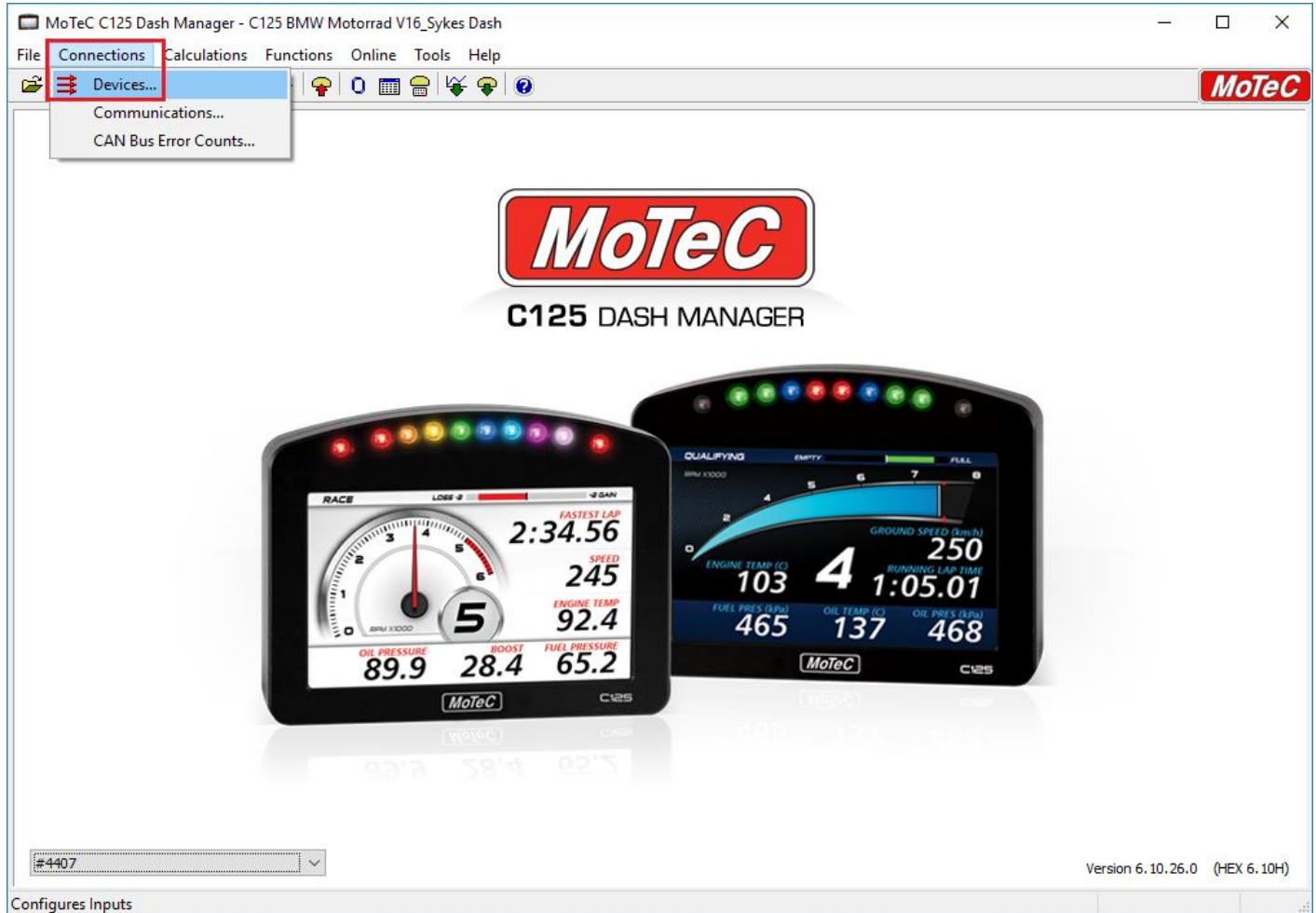
- Comparison:** A section with a "Channel" text box containing "New Lap" and a "Select..." button.
- js:** A dropdown menu currently set to "True".
- Value:** A radio button selected next to a text box containing "0".
- Channel:** A radio button unselected next to an empty text box and a "Select..." button.
- for:** A text box containing "20,00" followed by the word "seconds". This entire text is enclosed in a red box.
- Advanced:** A section with a checkbox labeled "Reverse the result of this comparison", which is currently unchecked.
- Buttons:** "OK" and "Cancel" buttons are located on the right side.

Now a new lap time will be shown for the selected time.

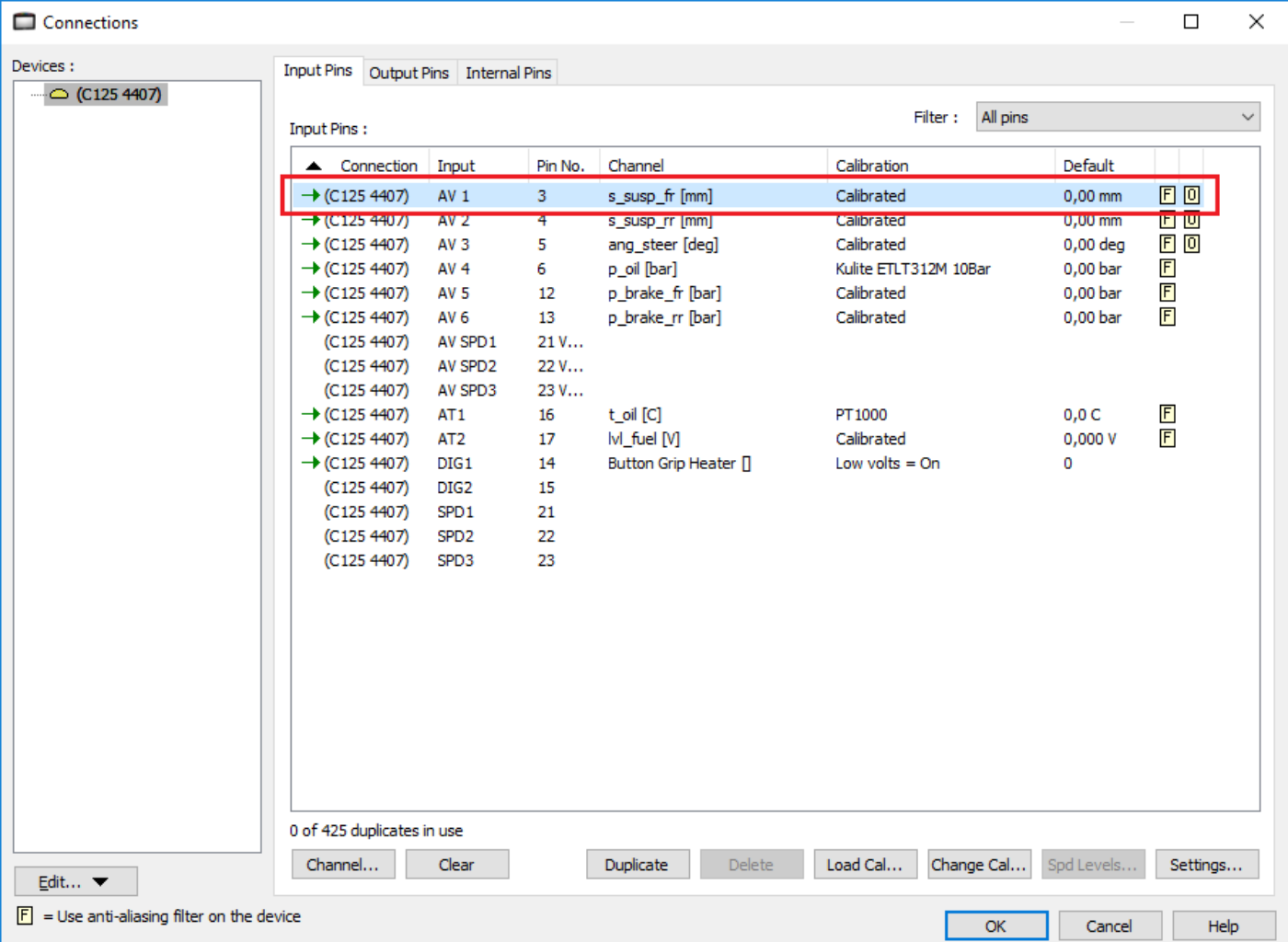
Additional sensor setup

It is possible to connect suspension travel sensors and brake pressure sensors to the C125. Depending on the supplier of the sensor and the maximum range, the channel must be set up.

To set up a suspension travel sensor for example, select **Connections** and **Devices...**:



The following window shows all used inputs. To change the calibration for a suspension travel sensor, double click the correct Input/Channel or select and click **Change Cal...**:



The screenshot shows the 'Connections' window with the 'Input Pins' tab selected. The 'Input Pins' table is as follows:

Connection	Input	Pin No.	Channel	Calibration	Default		
→ (C125 4407)	AV 1	3	s_susp_fr [mm]	Calibrated	0,00 mm	F	0
→ (C125 4407)	AV 2	4	s_susp_rr [mm]	Calibrated	0,00 mm	F	0
→ (C125 4407)	AV 3	5	ang_steer [deg]	Calibrated	0,00 deg	F	0
→ (C125 4407)	AV 4	6	p_oil [bar]	Kulite ETLT312M 10Bar	0,00 bar	F	
→ (C125 4407)	AV 5	12	p_brake_fr [bar]	Calibrated	0,00 bar	F	
→ (C125 4407)	AV 6	13	p_brake_rr [bar]	Calibrated	0,00 bar	F	
(C125 4407)	AV SPD1	21 V...					
(C125 4407)	AV SPD2	22 V...					
(C125 4407)	AV SPD3	23 V...					
→ (C125 4407)	AT1	16	t_oil [C]	PT1000	0,0 C	F	
→ (C125 4407)	AT2	17	lv_fuel [V]	Calibrated	0,000 V	F	
→ (C125 4407)	DIG1	14	Button Grip Heater []	Low volts = On	0		
(C125 4407)	DIG2	15					
(C125 4407)	SPD1	21					
(C125 4407)	SPD2	22					
(C125 4407)	SPD3	23					

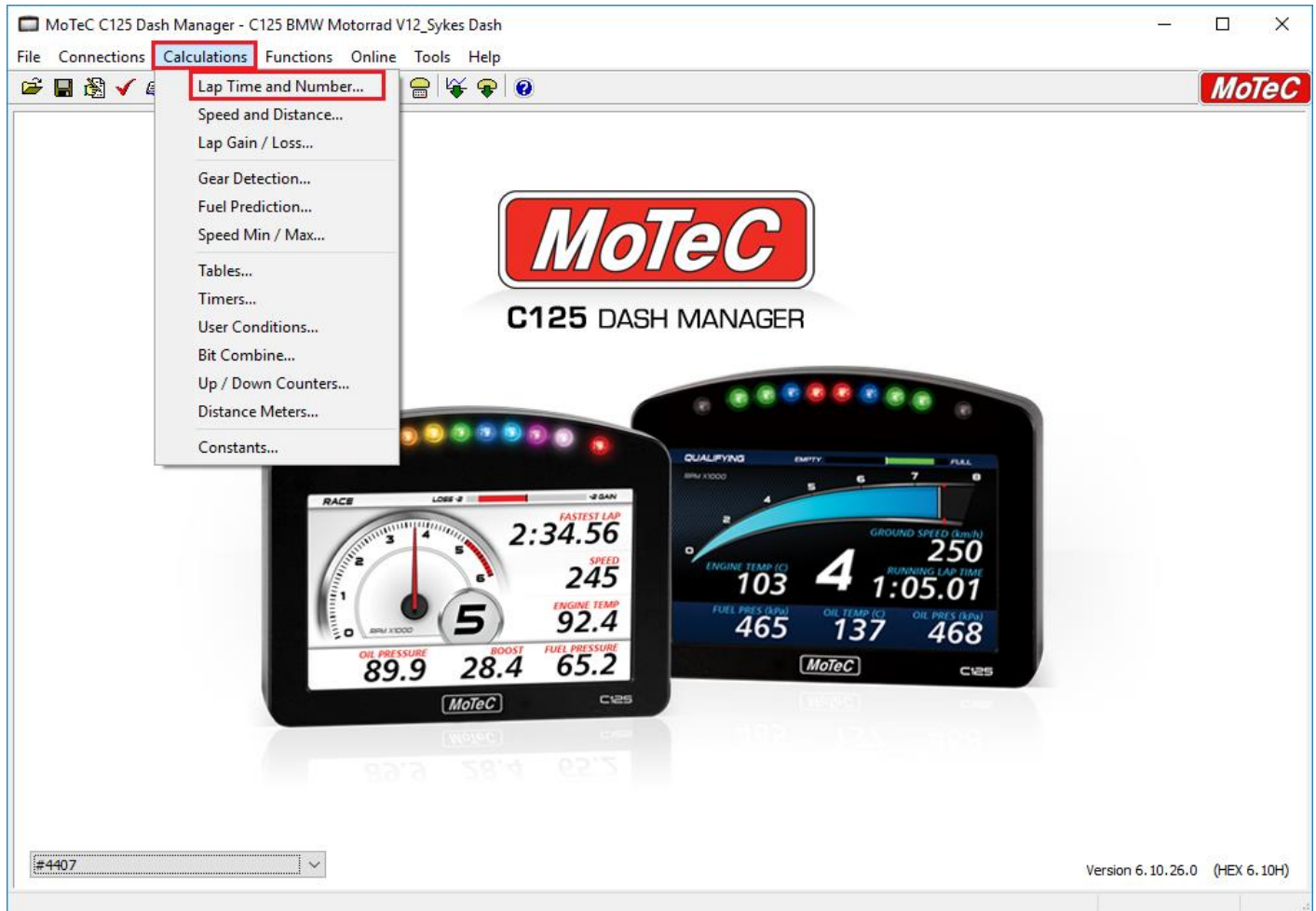
Buttons at the bottom: Channel..., Clear, Duplicate, Delete, Load Cal..., **Change Cal...**, Spd Levels..., Settings...
 Legend: F = Use anti-aliasing filter on the device
 Buttons: OK, Cancel, Help

Beacon setup

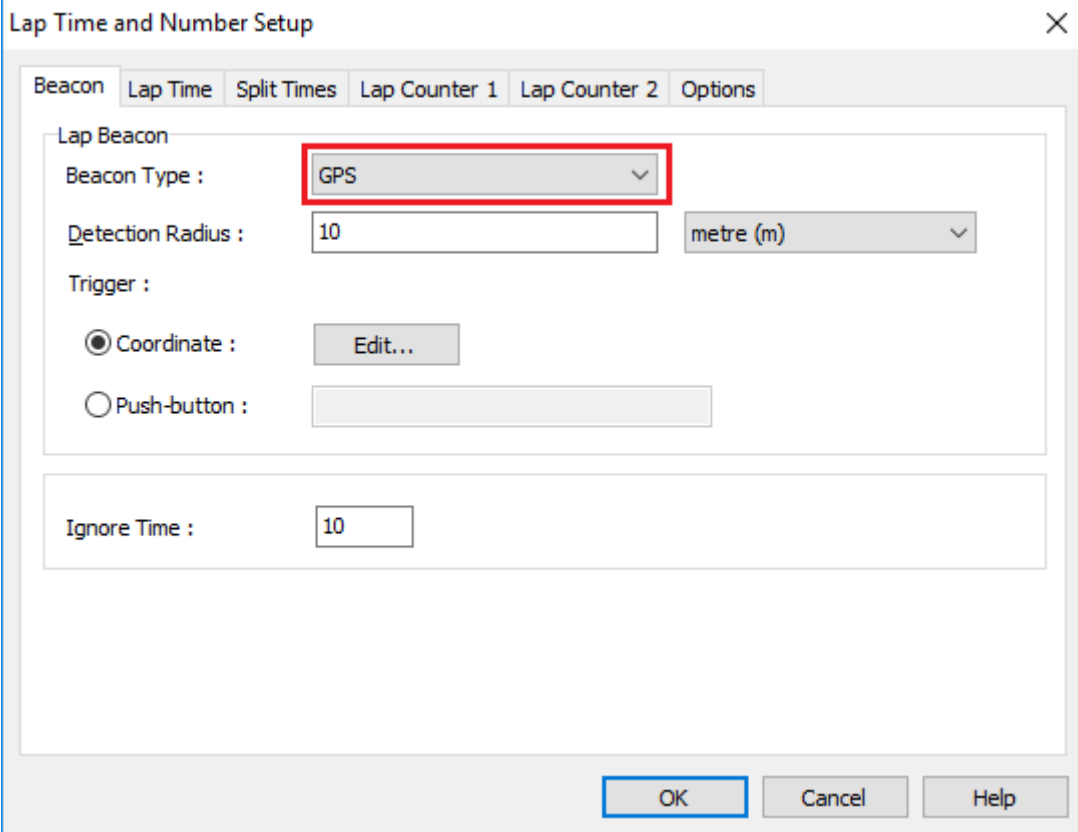
The Beacon is used to create lap times on the dashboard for the rider and for the logged data. It is also used to reset the lap distance if Track-Detection is used. The BMW system provides two different beacon types: GPS or X2. In most cases the GPS is used as a beacon.

GPS Beacon setup

To configure the GPS Beacon select **Calculations** and **Lap Time and Number...**:



As Beacon Type, select **GPS**:



Lap Time and Number Setup

Beacon | Lap Time | Split Times | Lap Counter 1 | Lap Counter 2 | Options

Lap Beacon

Beacon Type : **GPS**

Detection Radius : 10 metre (m)

Trigger :

Coordinate : Edit...

Push-button :

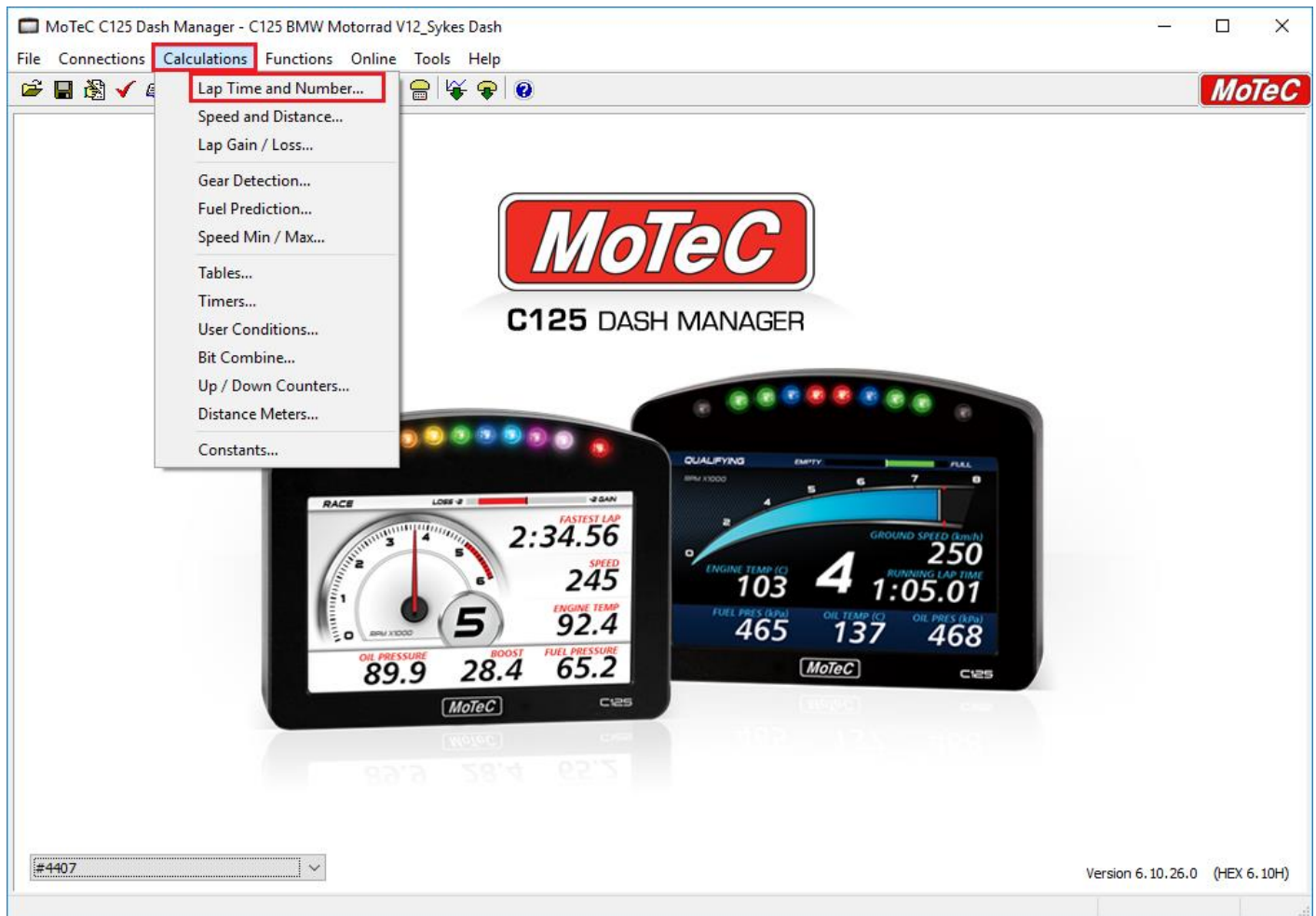
Ignore Time : 10

OK Cancel Help

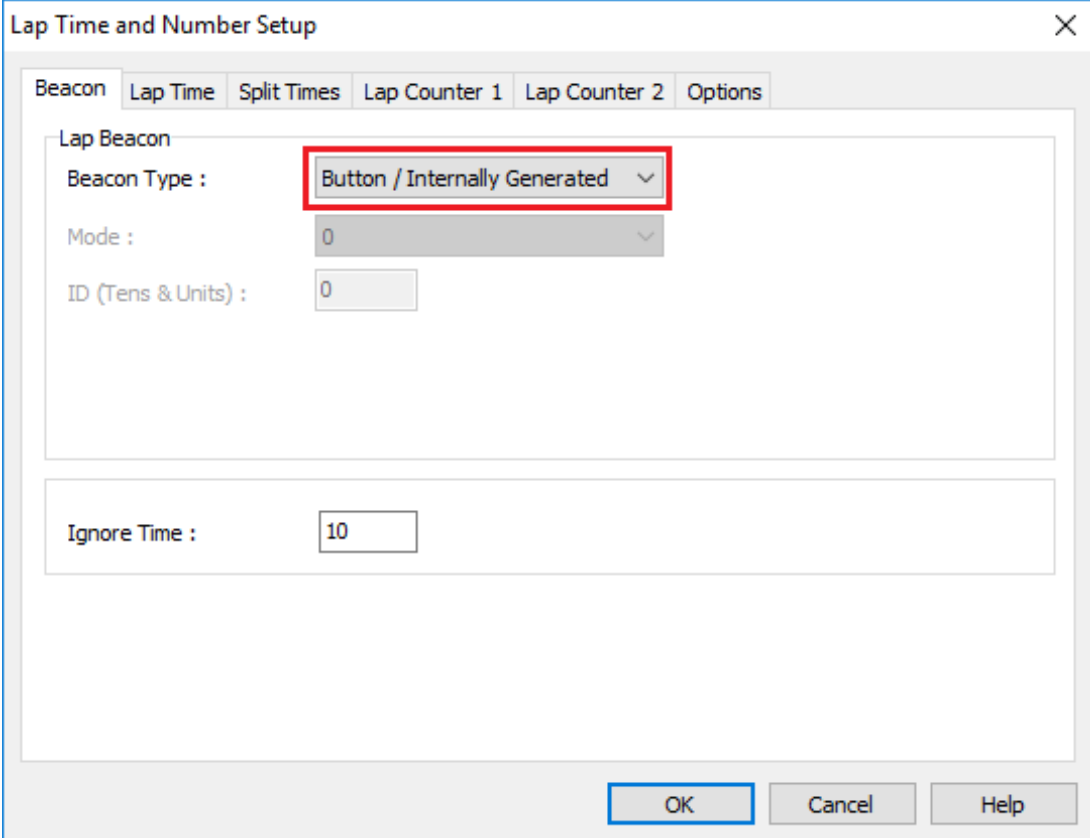
The Detection Radius should be selected between 10m and 20m, depending on the width of the track and the signal quality on the start finish line. In some cases the quality of the GPS signal can be reduced by high buildings or if the bike is passing the position on high lean angles.

X2 Beacon setup

To configure the GPS Beacon select **Calculations** and **Lap Time and Number...**:



As Beacon Type select **Button / Internally Generated**:



Lap Time and Number Setup

Beacon | Lap Time | Split Times | Lap Counter 1 | Lap Counter 2 | Options

Lap Beacon

Beacon Type : **Button / Internally Generated** ▾

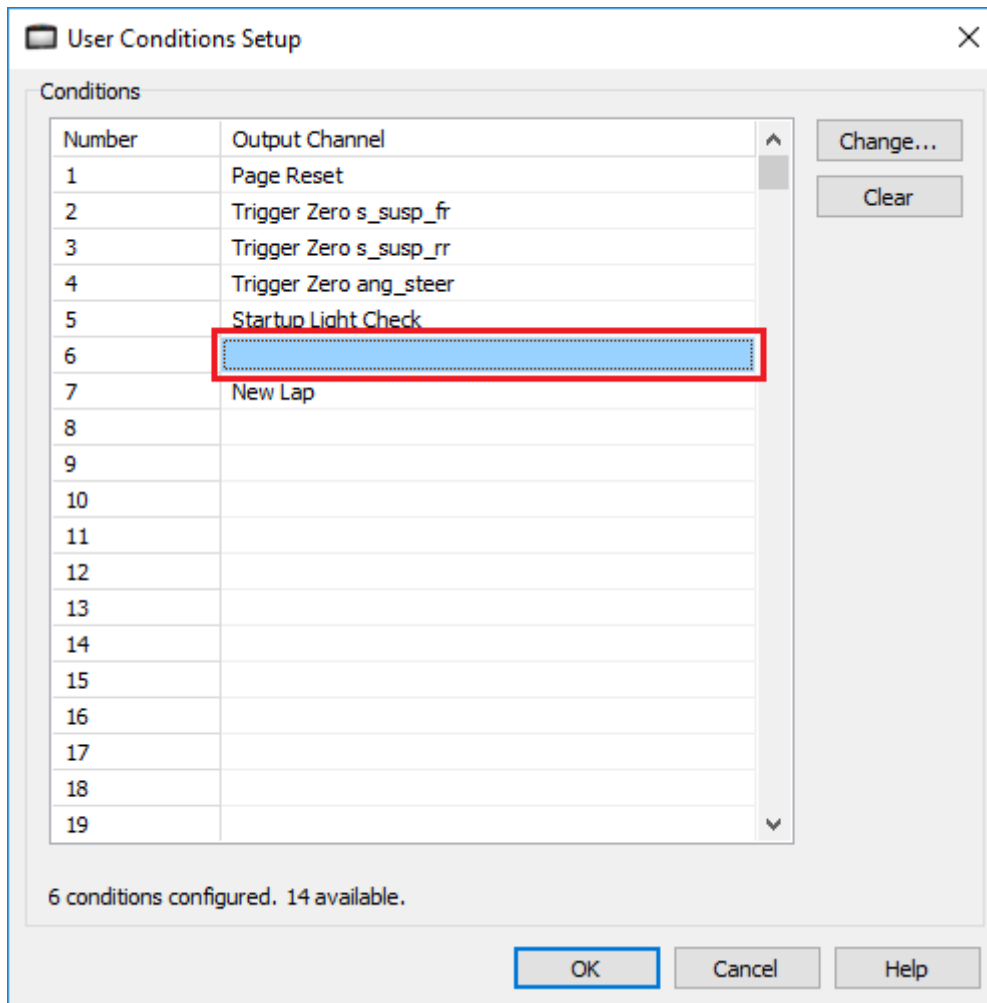
Mode : 0 ▾

ID (Tens & Units) : 0

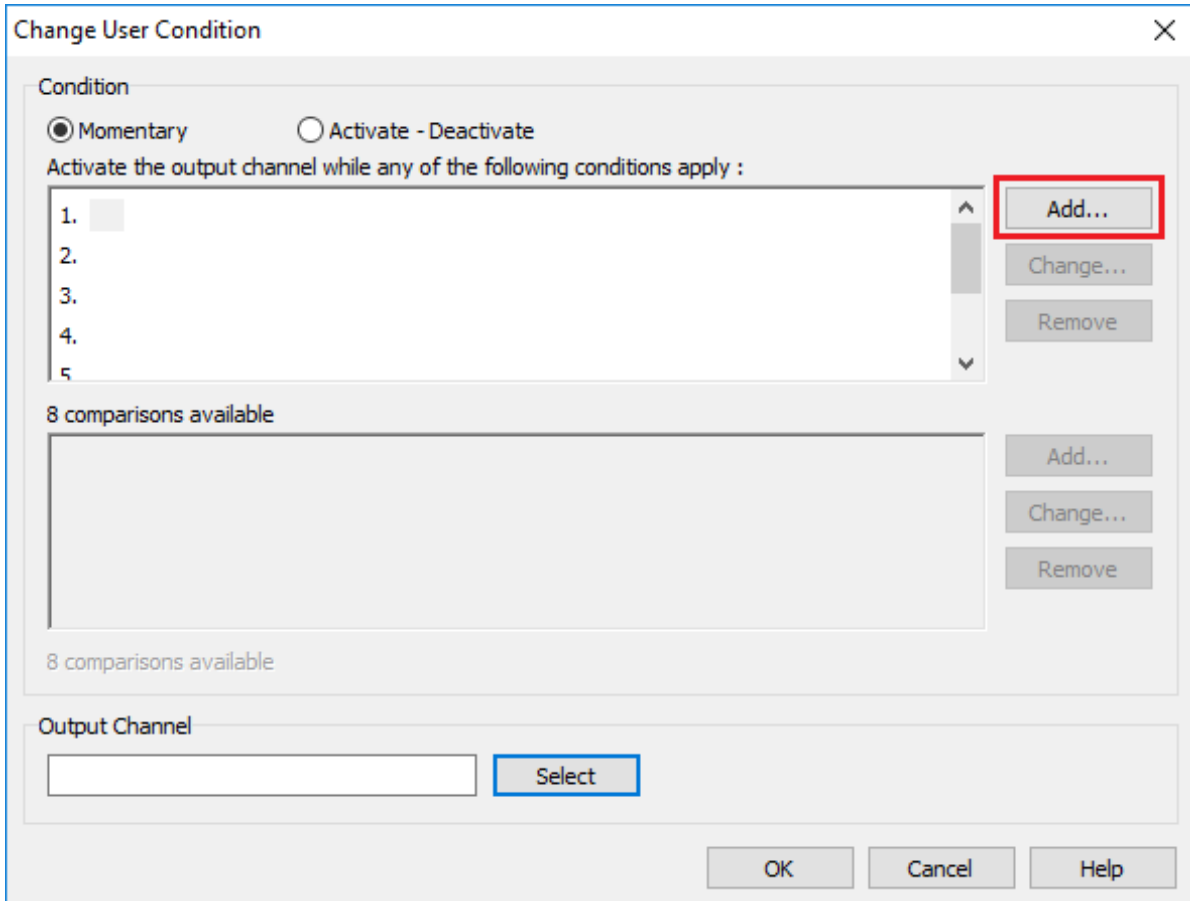
Ignore Time : 10

OK Cancel Help

Now create a new User Conditions by double clicking on an empty field:

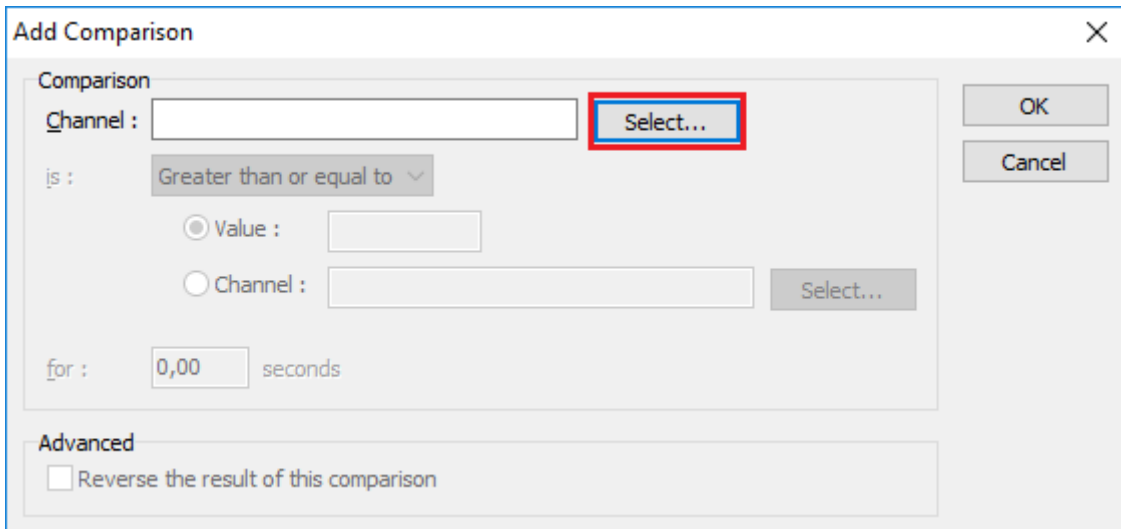


Now click **Add...** to create a new condition:

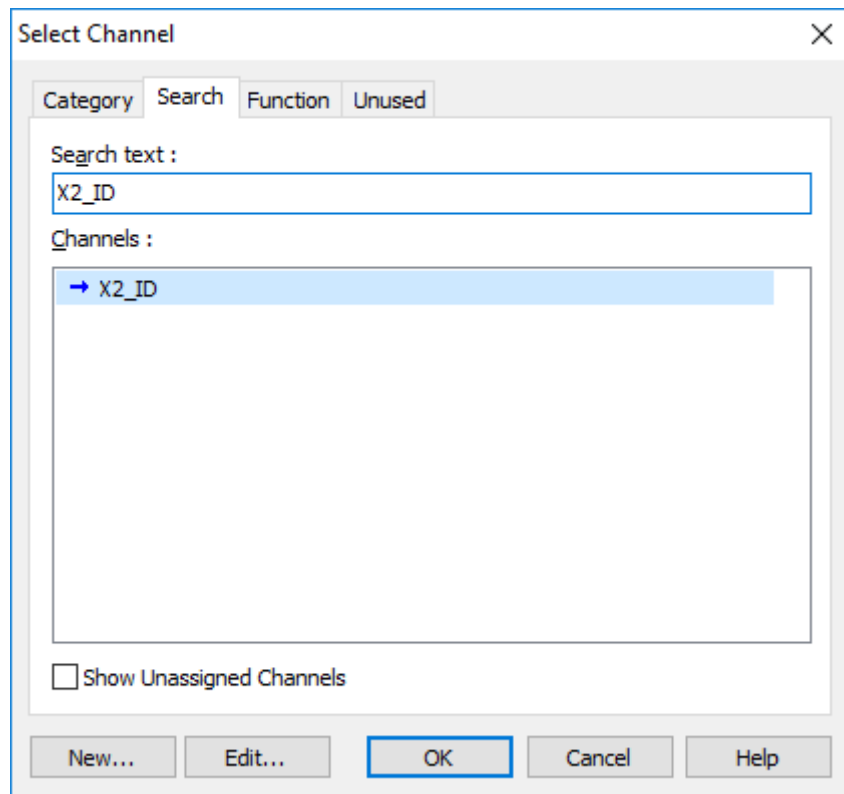


The **Change User Condition** dialog box is shown. It features a 'Condition' section with two radio buttons: **Momentary** (selected) and **Activate - Deactivate**. Below this, it says 'Activate the output channel while any of the following conditions apply :'. There is a list box with five numbered slots (1-5). To the right of this list are three buttons: **Add...** (highlighted with a red box), **Change...**, and **Remove**. Below the list box, it says '8 comparisons available' and there is an empty list box. To the right of this list box are three buttons: **Add...**, **Change...**, and **Remove**. At the bottom, there is an 'Output Channel' section with an empty text box and a **Select** button (highlighted with a blue box). At the very bottom of the dialog are three buttons: **OK**, **Cancel**, and **Help**.

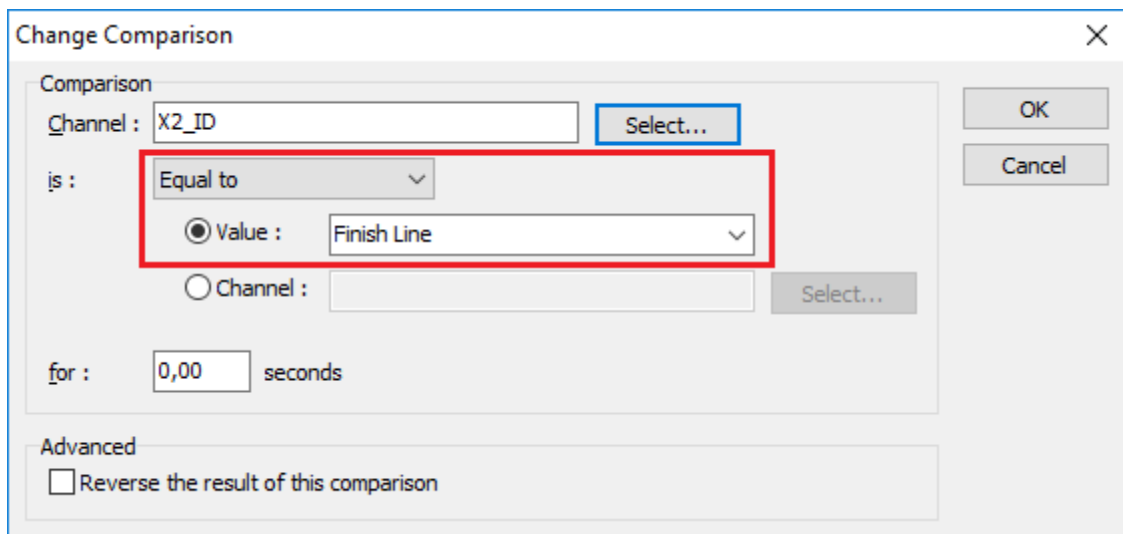
Click on **Select...** and search for the channel **X2_ID**:



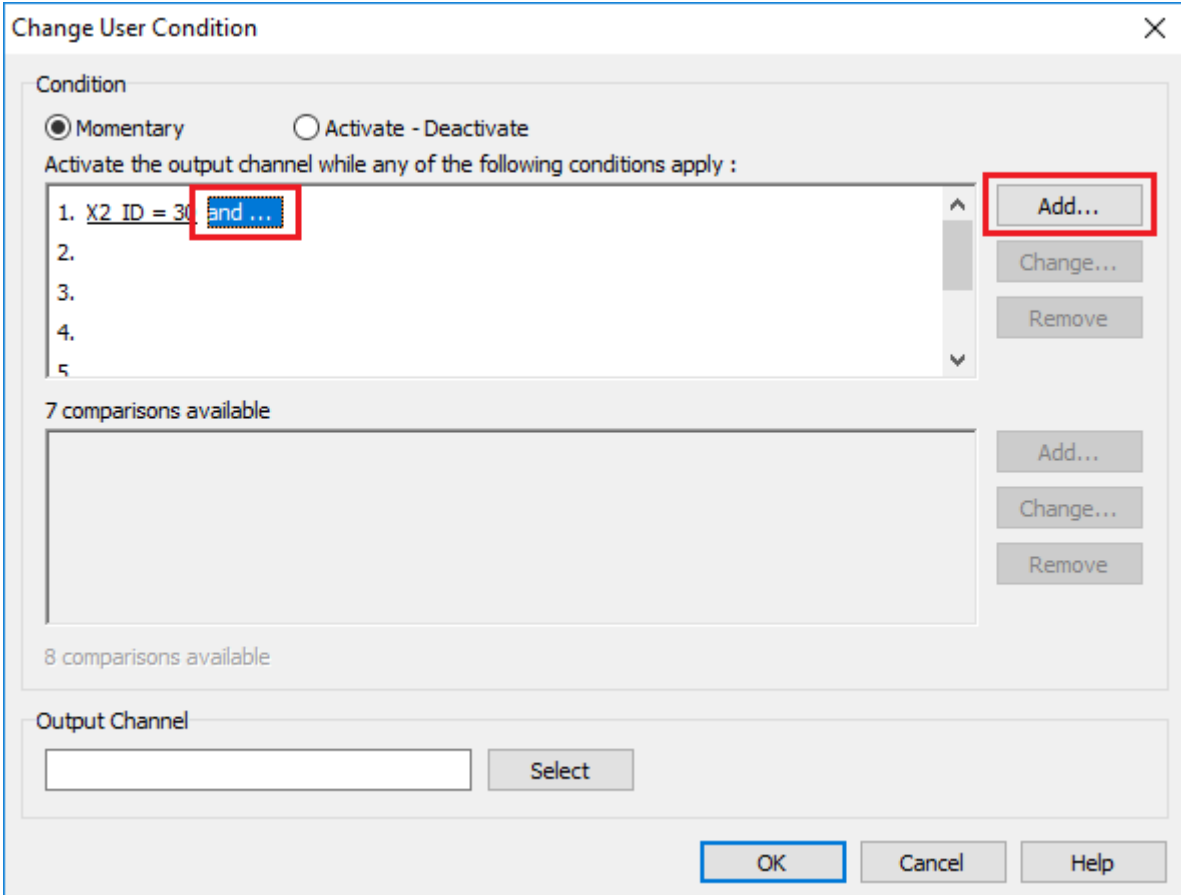
The **Add Comparison** dialog box is shown. It has a 'Comparison' section with a 'Channel' text box and a **Select...** button (highlighted with a red box). Below this is a dropdown menu for 'is' with 'Greater than or equal to' selected. There are two radio buttons: **Value** (selected) and **Channel**. The 'Value' option has a text box next to it. The 'Channel' option has a text box and a **Select...** button. Below this is a 'for' section with a text box containing '0,00' and the word 'seconds'. At the bottom, there is an 'Advanced' section with a checkbox labeled 'Reverse the result of this comparison'. On the right side of the dialog are two buttons: **OK** and **Cancel**.



For comparison, select **Equal to Value Finish Line**:

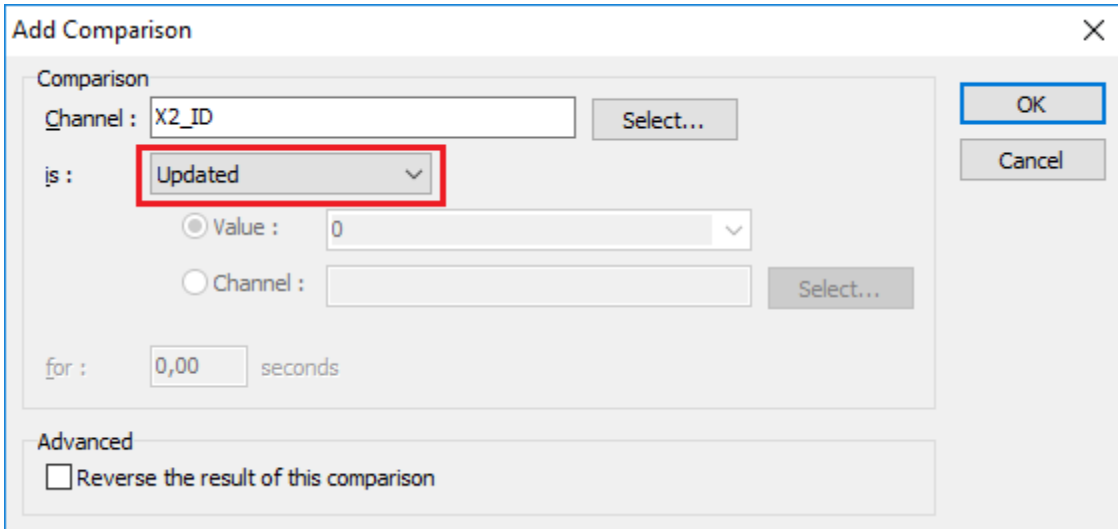


Now a second condition must be created. Therefore click next to the condition created before and **Add...**:



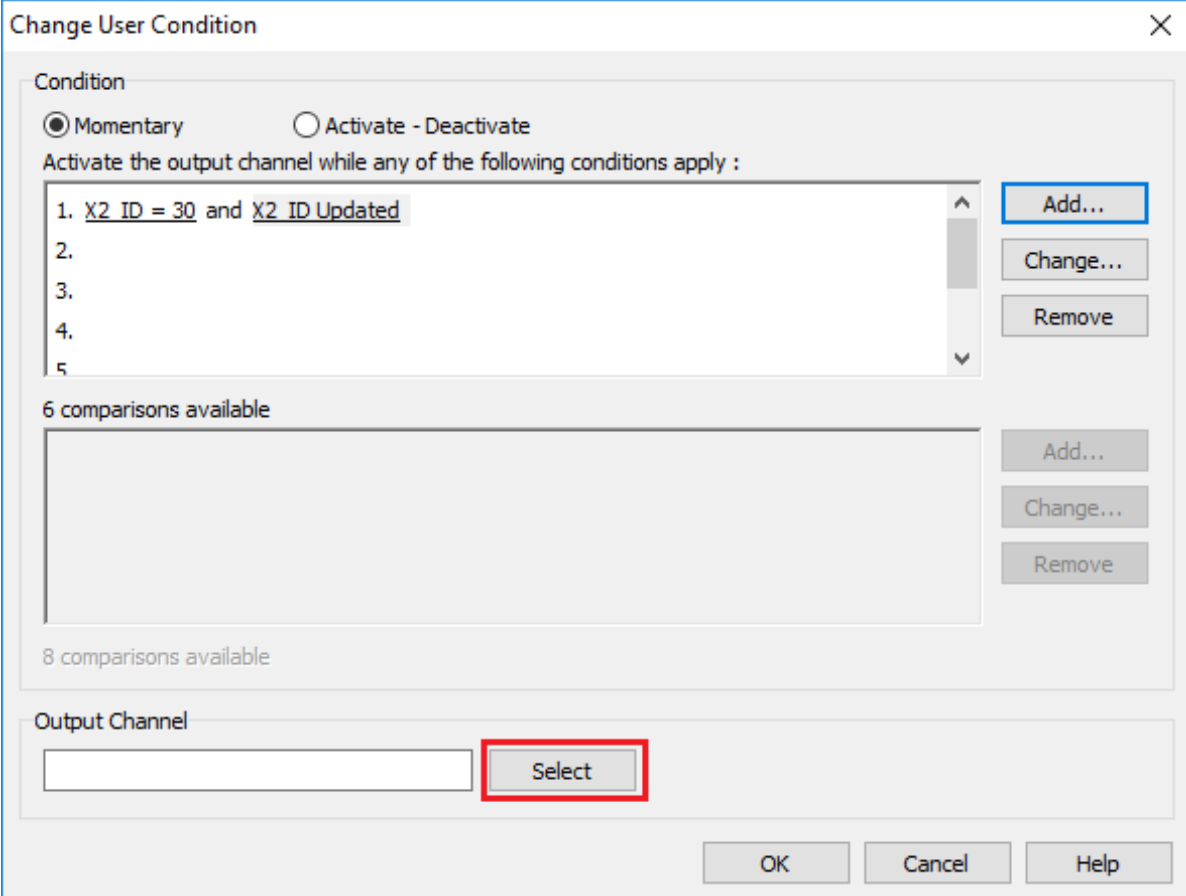
The 'Change User Condition' dialog box is shown. It has a title bar with a close button (X). The 'Condition' section has two radio buttons: 'Momentary' (selected) and 'Activate - Deactivate'. Below this is the text 'Activate the output channel while any of the following conditions apply :'. A list box contains five items, with the first item '1. X2_ID = 30' followed by a red-bordered 'and ...' button. To the right of the list box are three buttons: 'Add...' (highlighted with a red box), 'Change...', and 'Remove'. Below the list box is a section for '7 comparisons available' with an empty list box and three buttons: 'Add...', 'Change...', and 'Remove'. At the bottom of this section is the text '8 comparisons available'. The 'Output Channel' section has an empty text box and a 'Select' button. At the bottom of the dialog are three buttons: 'OK' (highlighted with a blue box), 'Cancel', and 'Help'.

Search again for the channel **X2_ID**, but this time for comparison select **Updated**:



The 'Add Comparison' dialog box is shown. It has a title bar with a close button (X). The 'Comparison' section has a 'Channel' text box containing 'X2_ID' and a 'Select...' button. Below this is a dropdown menu for 'is :' with 'Updated' selected and highlighted with a red box. There are two radio buttons: 'Value' (selected) and 'Channel'. The 'Value' radio button has a text box containing '0' and a dropdown arrow. The 'Channel' radio button has an empty text box and a 'Select...' button. Below this is a 'for :' text box containing '0,00' and the word 'seconds'. The 'Advanced' section has a checkbox labeled 'Reverse the result of this comparison'. On the right side of the dialog are two buttons: 'OK' (highlighted with a blue box) and 'Cancel'.

Now click **Select** for the Output Channel:

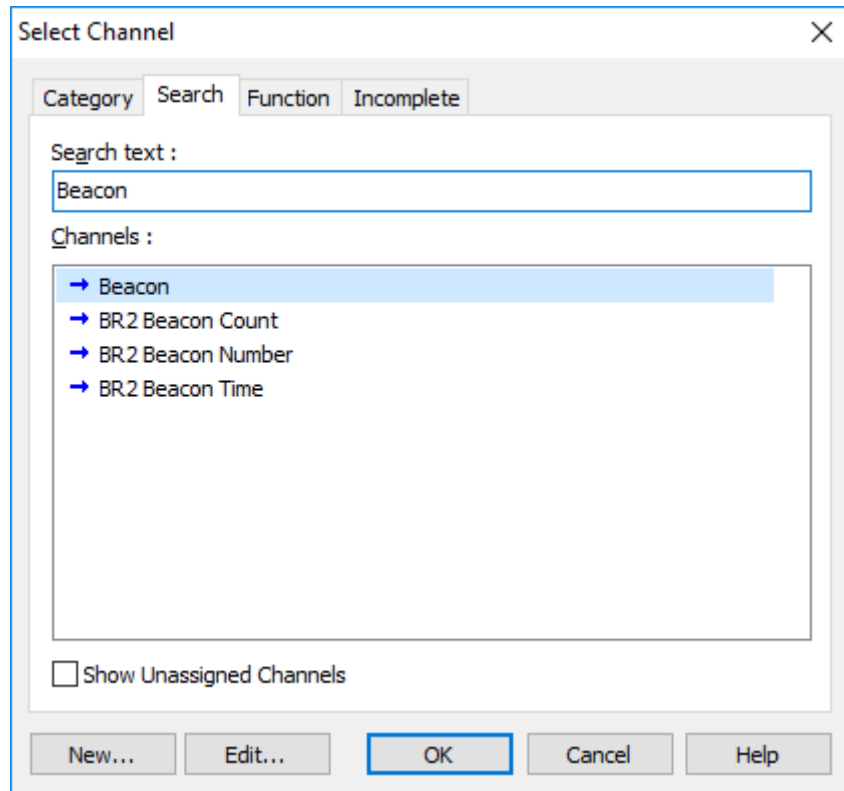


The dialog box is titled "Change User Condition" and has a close button (X) in the top right corner. It is divided into three main sections:

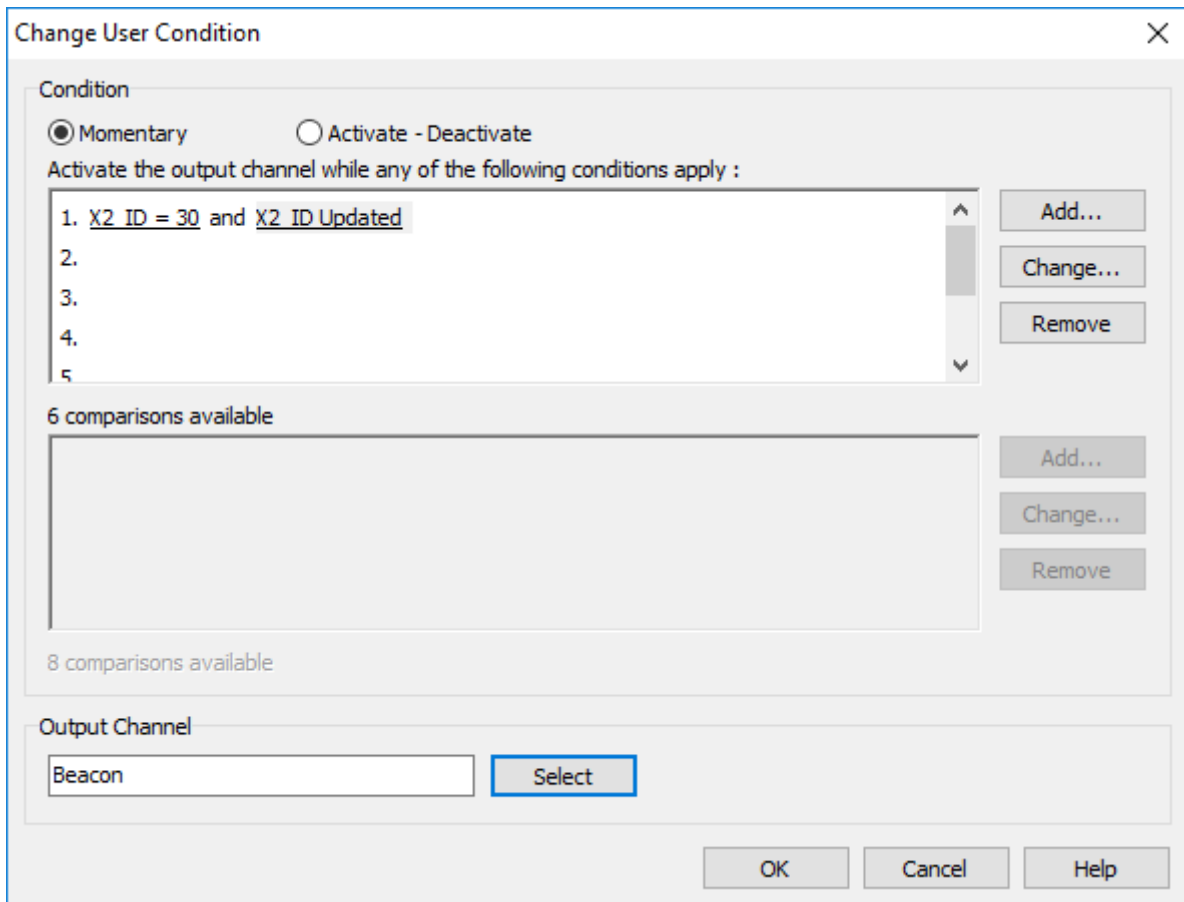
- Condition:** This section contains two radio buttons: "Momentary" (which is selected) and "Activate - Deactivate". Below the radio buttons is the text "Activate the output channel while any of the following conditions apply :". A list box contains five items, with the first item "1. X2 ID = 30 and X2 ID Updated" selected. To the right of the list box are three buttons: "Add...", "Change...", and "Remove".
- 6 comparisons available:** This section has an empty list box and three buttons to its right: "Add...", "Change...", and "Remove".
- 8 comparisons available:** This section has an empty list box and three buttons to its right: "Add...", "Change...", and "Remove".

At the bottom of the dialog, there is an "Output Channel" section with an empty text input field and a "Select" button highlighted with a red rectangle. At the very bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

Search for the Channel **Beacon**:



Now the Beacon is set up for the use with X2:



Change User Condition [X]

Condition

Momentary Activate - Deactivate

Activate the output channel while any of the following conditions apply :

1. X2_ID = 30 and X2_ID Updated
- 2.
- 3.
- 4.
- 5.

6 comparisons available

8 comparisons available

Output Channel

Beacon **Select**

OK Cancel Help

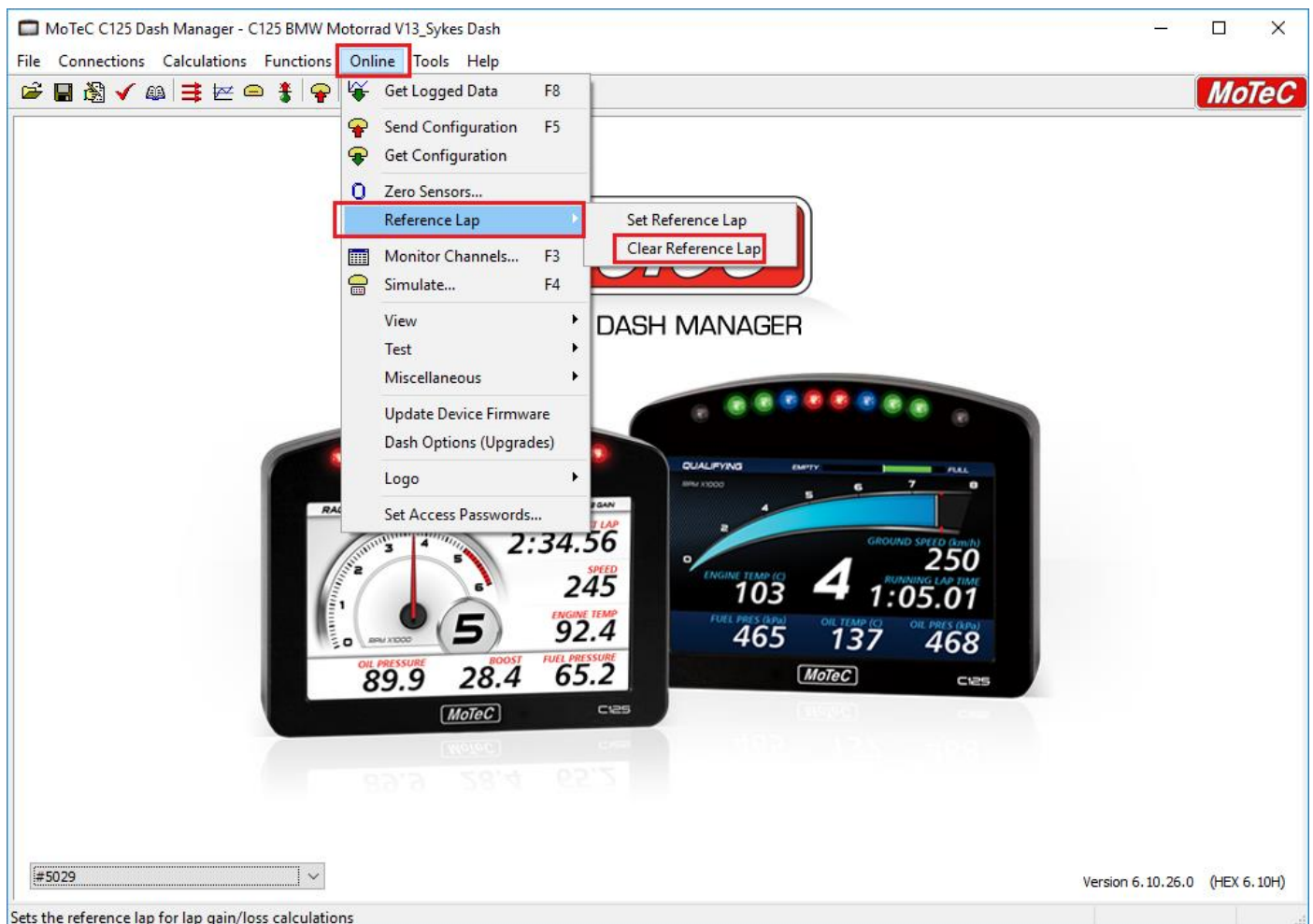
If a GPS should be used again as Beacon, the created User Condition must be deleted. Otherwise the Output Channel **Beacon** would be allocated to two conditions. If the Beacon is changed between GPS and X2 quite often, it is useful to create two different C125 configurations.

Reference Lap

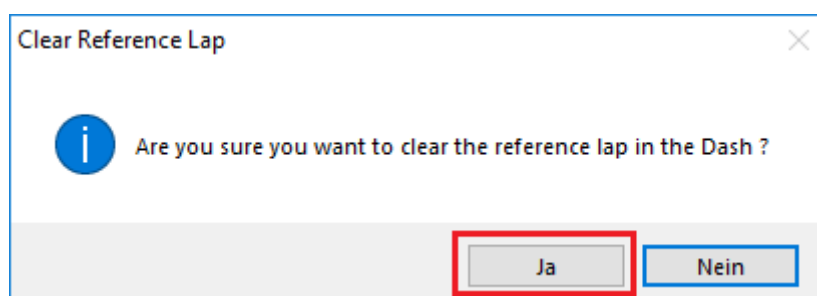
The Reference Lap will be shown as Best in the dashboard. The Reference Lap is updated, as soon as a new best Lap is completed. It is possible to set a Reference Lap or clear the Reference Lap.

Clear Reference Lap

To clear the Reference Lap, the computer must be connected to the dashboard. Select **Online**, **Reference Lap** and **Clear Reference Lap**:



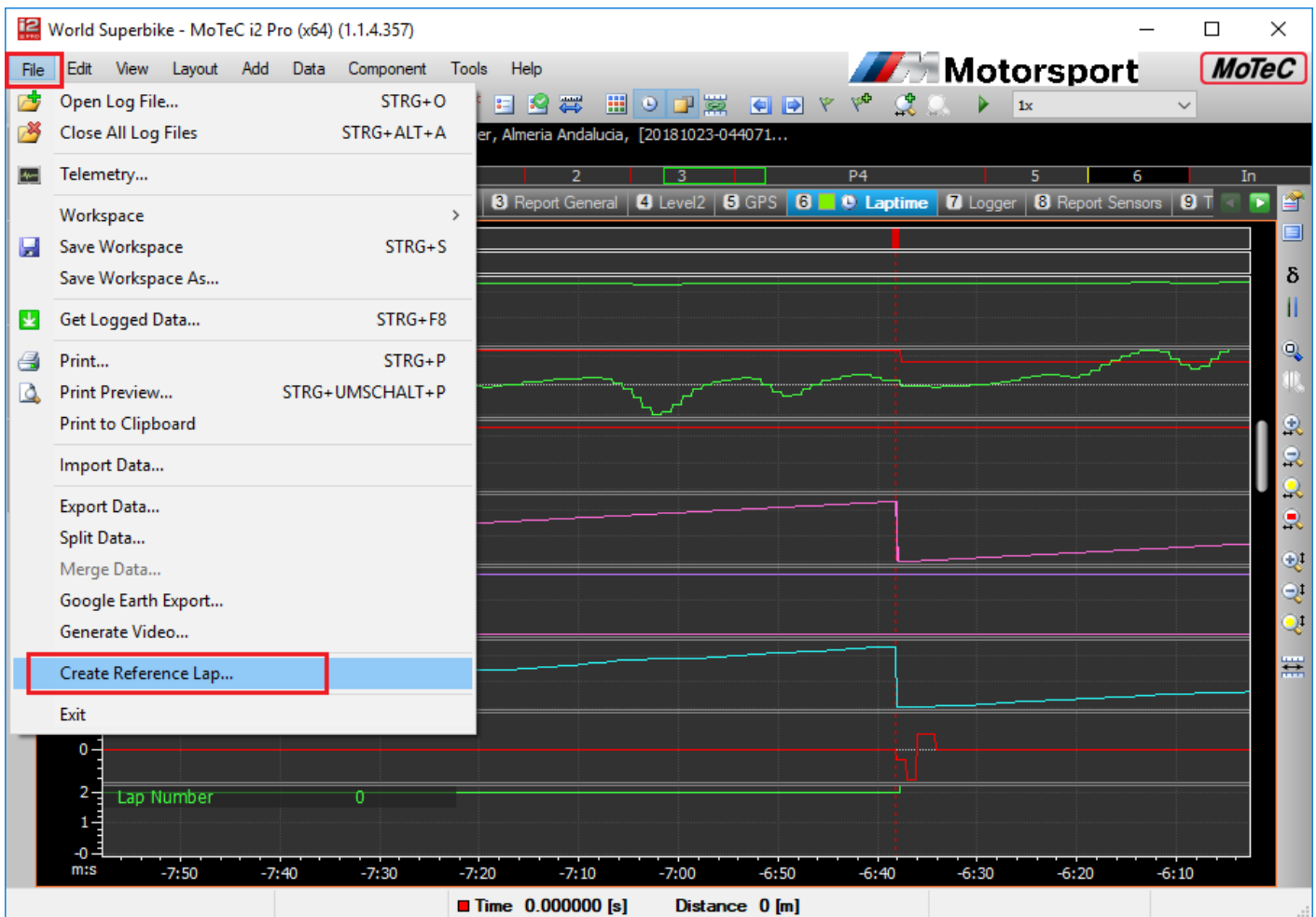
Now confirm the warning:



The dashboard will now show 0:00.00 as the Best Lap.

Set Reference Lap

Before setting a Reference Lap, it is necessary to create a Reference Lap with i2. Therefore open i2 as well as the measurement with your desired Reference Lap. Select **File** and **Create Reference Lap...**:



The fastest lap in the measurement is selected automatically. Select **Create** and save the *.td1 file:

Create Reference Lap ✕

This will create a reference lap file that can be used in MoTeC logging devices for Lap Gain Loss prediction or Telemetry Monitor for display comparisons.

Source Range

Ref Lap :

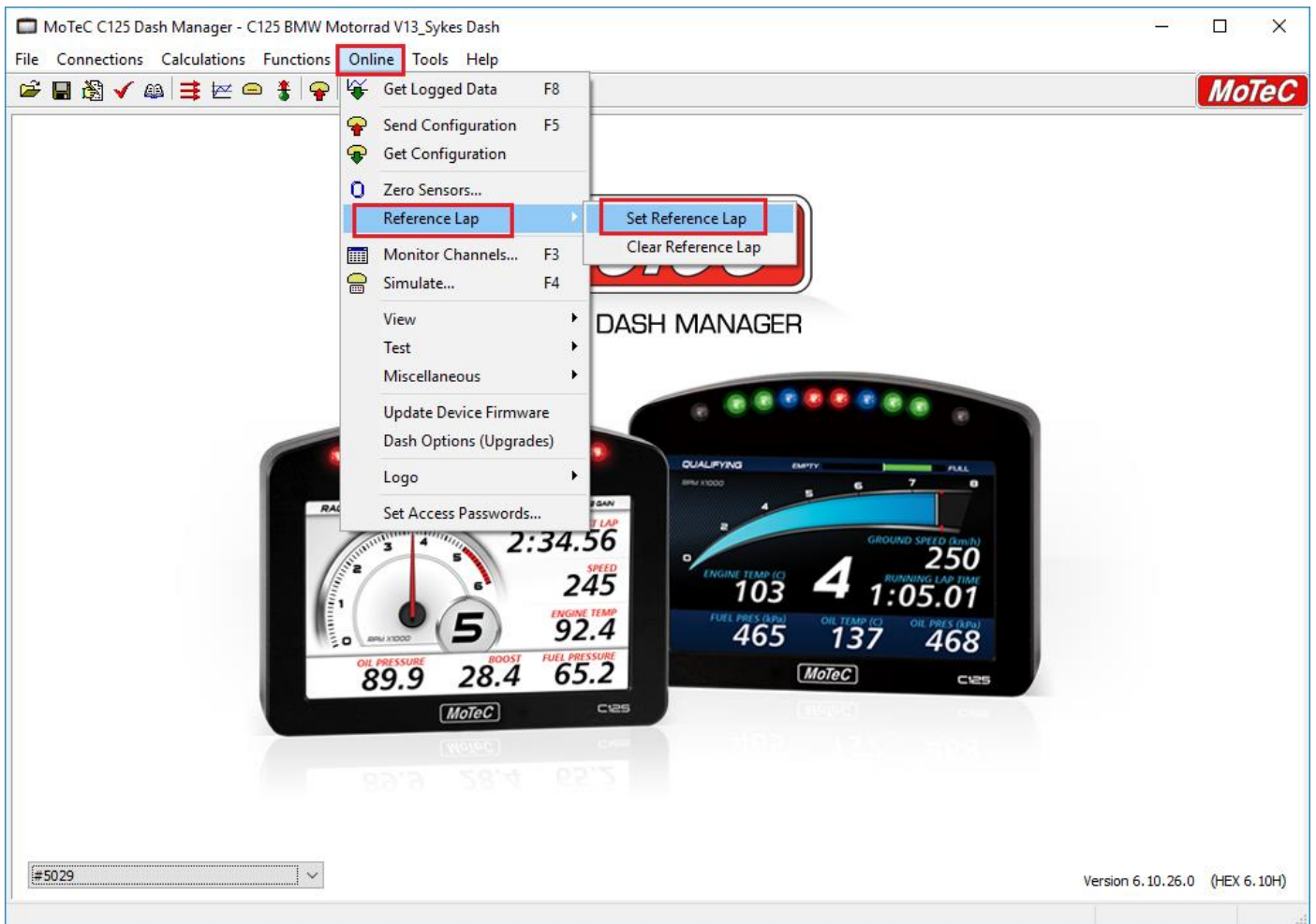
Telemetry Options

Export extra Channels to be used by Telemetry Monitor.

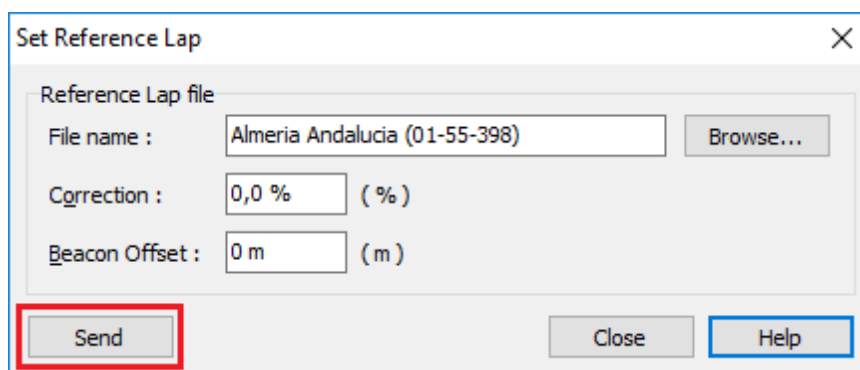
Exported Channels :

Channel

In order to load the new Reference Lap to the dashboard, select **Online**, **Reference Lap** and **Set Reference Lap**:



Browse to the created *.td1 file and open it. If the Beacon now has a different position as in the Reference Lap, set a value for **Beacon Offset** and select **Send** to store the new lap in the dashboard:



The dashboard will now show the new Reference Lap until it is updated.

Channel description

Channel	Description
accx_veh	Longitudinal bike acceleration
ang_steer	Steering angle
Beacon	Laptrigger
Button DTC/EBR -	Button state DTC/EBR - (LHS switch unit)
Button DTC/EBR +	Button state DTC/EBR + (LHS switch unit)
Button Function	Button state Function select (LHS switch unit)
Button Mode	Button state Mode select (RHS switch unit)
Button Page	Button state Page select (LHS switch unit)
Button Suspension	Button state Suspension zero (LHS switch unit)
cf_lambda_b1	Injection correction bank 1
cf_lambda_b2	Injection correction bank 2
drum_gbx	Gearbox drum position
dtc_adj	Level rider Traction-Control adjustment (LHS switch unit)
engbr_adj	Level rider Engine-Braking adjustment (LHS switch unit)
fuel_cons	Fuel consumption
fx_act	Actual rear wheel force
fx_engbr	Engine-Braking rear wheel force target
fx_engbr_clp	Engine-Braking rear wheel force target from closed loop control
fx_engbr_olp	Engine-Braking rear wheel force target from open loop control
gear	Gear
i_gear	Gearbox ratio
idx_igncut_lvl	Ignition cut level
idx_mode_sel	Vehicle mode selection (RHS switch unit)
idx_mode_veh	Vehicle mode (RHS switch unit)
idx_sec_acc	Acceleration sector by Track-Detection
idx_sec_dec	Deceleration sector by Track-Detection
idx_trqcoord	Torque reducing function via ignition, ignition cut or injection
idx_trqcoord_tp	Torque reducing function via throttle
idx_trqmap	Active torque map
lambda_b1	Lambda bank 1
lambda_b2	Lambda bank 2
lambda_tgt_b1	Lambda target bank 1
lambda_tgt_b2	Lambda target bank 2
load_b1	Relative load bank 1
load_b2	Relative load bank2
lvl_fuel	Fuel level
md_act	Relative engine torque
md_lim_ign	Relative engine torque limitation via ignition
md_lim_igncut	Relative engine torque limitation via ignition cut
md_lim_tp	Relative engine torque limitation via throttle
md_req	Relative engine torque requested by rider
md_tgt_dtc	Relative engine torque target by Traction-Control
md_tgt_lnc	Relative engine torque target by Launch-Control
md_tgt_prectrl	Relative engine torque target by Precontrol
md_tgt_whly	Relative engine torque target by Wheely-Control
n_eng	Engine speed
n_engbr_ref	Reference engine speed for Engine-Braking
p_atm	Atmospheric pressure
p_brake_fr	Front brake pressure
p_brake_rr	Rear brake pressure
p_fuel	Fuel pressure
phi_lean	Lean angle

pitch	Pitch angle
pitch_tgt	Pitch angle target by Wheely-Control
r_tire_fr	Front tire radius
r_tire_rr	Rear tire radius
s_susp_fr	Front suspension travel
s_susp_rr	Rear suspension travel
s_track	Current lap track distance
slip	Rear wheel slip for Traction-Control
slip_clutch	Clutch slip
slip_engbr	Rear wheel slip for Engine-Braking
slip_tgt	Rear wheel slip target by Traction-Control
slip_tgt_offs	Rear wheel slip target offset over speed by Traction-Control
ST_dtcoff	Traction-Control deactivation status
ST_func	Selected function for rider adjustment
ST_gear_adp	Status gearbox adaption
ST_ignition	Ignition status
ST_immob	Immobilizer status
ST_killswitch	Killswitch status
ST_launch	Launch-Control status
ST_pitlim	Pit-Limiter status
ST_td	Track-Detection status
t_air	Intake air temperature
t_coolant	Engine temperature
tp_1	Throttle position bank 1
tp_2	Throttle position bank 2
tpd	Grip position
u_shift_1	Shift sensor voltage 1
u_shift_2	Shift sensor voltage 2
u_sys	ECU system voltage
v_front	Front wheelspeed
v_rear	Rear wheelspeed
v_ref	Vehicle speed

Error flag description

Channel	Description
Alarm DTC	Rider alarm Traction-Control
Alarm Engine Temp	Rider alarm engine temperature high
Alarm Oil Pressure	Rider alarm oil pressure low
Alarm Quickshifter	Rider alarm quickshifter not available
Alarm Safetysystem	Rider alarm safetysystem error
E_Button DTC/EBR -	Error DTC/EBR – Button
E_Button DTC/EBR +	Error DTC/EBR + Button
E_Button Function	Error Function select Button
E_Button Page	Error Page select Button
E_Button Suspension	Error Suspension zero Button
E_cam	Error camshaft sensor
E_cams	Error shiftcam system
E_cool	Error coolant temperature sensor
E_crank	Error crankshaft sensor
E_drum	Error drum position sensor
E_dtc	Error Traction-Control system
E_exhaust	Error exhaust flap system
E_fall	Fall detected

E_grip	Error grip position sensor
E_ign	Error lower injection system
E_imu	Error sensorbox, lean angle sensor
E_injup	Error upper injection system
E_lambda1	Error lambda sensor bank 1
E_lambda2	Error lambda sensor bank 2
E_oil	Error oil pressure
E_pfuel	Error fuel pressure sensor
E_pump	Error fuel pump
E_safetysys	Safetysystem Error
E_shift	Error quickshift sensor
E_start	Error starter system
E_tair	Error intake temperature sensor
E_thr	Error throttle position sensor
E_thre	Error throttle engine
E_trumpet	Error trumpet actuator
E_vfront	Error front wheelspeed sensor
E_vrear	Error rear wheelspeed sensor

Setup information

To connect the C125 to a computer, an IPV6 connection is used. On some computers, this connection may be disabled. This connection can be enabled in the Windows registry:

Open the **Run command** window or press windows key + R. Type regedit and enter.

Go to Updated registry key

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TCP6\Parameters

Set DisabledComponents to 0 (from FF)

Hardware information

The connection-interface to the dashboard is the OBD-II connector (diagnostics). All you need is an adapter cable OBD-II to Ethernet, which is a common automotive part and available on many online market places.