

# How to configure Manual CAN I/O parameters

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## Manual CAN I/O parameter configuration example

**NOTE!** Manual CAN  
can be tested  
on FW  
55.00.09.rev.04  
or newer

## Manual CAN Baudrate

Manual CAN Baudrate (bit/s) 500 k

1. In the Manual CAN Settings section the user has to select suitable **baudrate**. Manual CAN baudrate should be visible in the CAN protocol. If it is not known, the user can try to choose different baudrates to indicate which one works.

2. Select **CAN Type**. Normally every CAN protocol documentation should mentioned which CAN type to use. If not, select standard.

3. Fill in the correct **Data mask**. This field determines which IO elements of the frame the user will receive.

As an example, the part of the CAN protocol was taken. First, the user has to locate the data frame, he/she wants to read, for this situation, data frame „Battery status“ was taken into account. It holds five I/O parameters of the battery. If we would like to receive all the data of the frame, in the configurator the user has to leave the default value in the Data mask field (FFFFFFFFFFFFFF) - which will be used in this example.

Frame ID	Name	Period [ms]	Byte Orientation [MSB:LSB]	Bit [MSb:LSb]	Description	Scale factor
0x200	Vehicle status	500	1:0	7:0	Reserved	-
			3:2	7:0	Actual speed in [km/h]	1 km/h
			5:4	7:0	Reserved	-
			7:6	7:0	Actual speed [mph]	1 mph
0x280	Distance	1000	3:0	7:0	Trip [m]	100 m
			7:4	7:0	Odometer [m]	100 m
0x620	Range estimation	1000	0	7:0	Estimated range [km]	1 km
0x300	Battery status	1000	0	7:0	Average of the two batteries SoC [%]	1%
			1	7:0	SoC second battery [%]	1%
			3:2	7:0	Battery current [A]	0,0625 A
			5:4	7:0	Battery temperature [°C]	0,1 °C
			7:6	7:0	Battery voltage [V]	0,046 V
0x506	Battery ID Energy	1000	3:0	7:0	First battery SN	-
			7:4	7:0	Remain capacity [mAh]	1 mAh
0x507	Battery ID	1000	3:0	7:0	Second battery SN	-
			4	7:0	Reserved	-
0x704	Battery heartbeat	500	0	0	Under/OverTemperature	1: UT/OT error 0: OK
				1	Regeneration disabled	1: Regeneration disabled

If the user would like to get **everything except**, for example, the *Battery temperature* value, some modifications have to be made on the **Data mask** field. In this case, if the user does not want to get the *Battery Temperature* value, he/she should find where this information stands in the data frame (byte orientation). For this example, *Battery temperature* parameter can be found between 4th and 5th byte of the frame. In the picture below, it is explained, how the 8 byte CAN frame breaks down and which part of the frame has to be changed according to this example.

0x300	Battery status	1000	0	7:0	Average of the two batteries SoC [%]	1%
			1	7:0	SoC second battery [%]	1%
			3:2	7:0	Battery current [A]	0,0625 A
			5:4	7:0	Battery temperature [°C]	0,1 °C
			7:6	7:0	Battery voltage [V]	0,046 V

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4. Write correct **CAN ID**. In this case the Frame ID is needed to be written. Here the CAN ID is 0x300. So in the configurator the user needs to write 300 instead of last three F values (FFFFF300), and every other F in the field has to be replaced with 0 (00000300). This means that it will take the data only from the ID 300 and nowhere else.

5. Other fields of the MANUAL CAN0 are not configured as the data is not requested and is only being read.

6. Received I/O values are RAW and the user has to decode it. The image below is an example of how it can be decoded using additional software (we have used *Busmaster* for this):

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**NOTE!** Manual CAN protocol should be selected in the CAN I/O section.