

## LCU4 programming procedure

The configuration messages of the lambda controller are exchanged on the following CAN IDs:

- 0x7FE → the ECU sends the set configuration message to the controller;
- 0x7FD → the controller sends an echo message to the ECU containing the configuration that is currently saved inside the memory.

All parameters are part of the system configuration which is stored into the EEPROM and are recalled at every power-on. After the power-on, a validation check is done on the parameters that are read out from the EEPROM and in case of fail, the controller will go into an error state condition. The lambda controller has a default configuration which will be recalled at the first power-up and it will be considered as valid till up the first setup.

### Set baud rate configuration

To set a new baud rate it is necessary to send to the lambda controller a message on CAN ID **0x7FE** containing the following information:

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x01</b>	0x02	0x00	0xFF	0xFF	0x05	0xDC	<b>0x40</b>

Tabella 1: Set baud rate 1M

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x01</b>	0x02	0x00	0xFF	0xFF	0x05	0xDC	<b>0x42</b>

Tabella 2: Set baud rate 500k

Bit 7 of Byte 7 is reserved to the controller, please do not override the default "0" value.

### Set channel configuration

To set the new baud rate parameter, it is necessary to send to the lambda controller on CAN ID **0x7FE** a message containing the following information:

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x03</b>	<b>0x00</b>	TX CAN ID		0x02	0x04	0x00	0x00

Tabella 3: Set CH1

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x03</b>	<b>0x01</b>	TX CAN ID		0x02	0x04	0x00	0x00

Tabella 4: Set CH2

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x03</b>	<b>0x02</b>	TX CAN ID		0x02	0x04	0x00	0x00

Tabella 5: Set CH3

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x03</b>	<b>0x03</b>	TX CAN ID		0x02	0x04	0x00	0x00

Tabella 6: Set CH4

Byte 1 defines the channel number to be selected and therefore can assume hexadecimal values between 0x00 and 0x03. Byte 2 and Byte 3 specify the CAN ID to which the channel in Byte 1 sends the data acquired by the lambda sensor.

Byte 5, Byte 6 and Byte 7 are reserved to the controller, please pay attention to correctly set the data as specified above.

### Get baud rate configuration

To read from the memory the parameters it is possible to send a get configuration message on CAN ID **0x7FE** with the following information:

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x81</b>	0x00						

Tabella 7: Get baud rate

The bytes from Byte 2 to Byte 7 are reserved to the controller, please pay attention to correctly set the data as specified above.

The lambda controller responds to a get configuration message by sending an echo message on CAN ID **0x7FD** containing the configuration parameters read from the EEPROM.

## Get channel configuration

To read from the memory the parameters it is possible to send a get configuration message on CAN ID **0x7FE** with the following information:

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x83</b>	0x00						

Tabella 8: Get CH1 configuration

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x83</b>	0x01	0x00	0x00	0x00	0x00	0x00	0x00

Tabella 9: Get CH1 configuration

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x83</b>	0x02	0x00	0x00	0x00	0x00	0x00	0x00

Tabella 10: Get CH2 configuration

CAN ID	DATA							
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
<b>0x7FE</b>	<b>0x83</b>	0x03	0x00	0x00	0x00	0x00	0x00	0x00

Tabella 11: Get CH3 configuration

The bytes from Byte 2 to Byte 7 are reserved to the controller, please pay attention to correctly set the data as specified above.

The lambda controller responds to a get configuration message by sending an echo message on CAN ID **0x7FD** containing the configuration parameters read from the EEPROM.