

ECUMASTER ADU

Application Note



ECUMASTER EMU BLACK

Revision 1.0

1. Copyright and trademarks

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2. Introduction

This application note explains how to connect to the ADU and configure the ECUMASTER EMU BLACK.

3. Electrical connection

The ECUMASTER EMU BLACK is able to send the standard log stream over CAN BUS. There are two options for connection. If the EMU BLACK CAN speed is set to 1Mbps then you can use the ADU CAN1 or CAN2 networks.

If the EMU BLACK CAN speed is set to 500kbps then you can use the ADU CAN2 network only.

EMU BLACK terminal	ADU CAN1	ADU CAN2	Comment
B25	4	6	CAN L
B12	5	7	CAN H

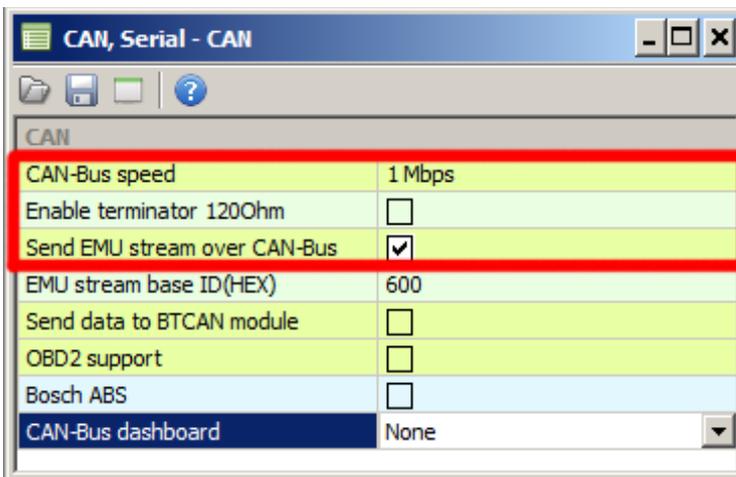
Twisted pair cable is required for any CAN BUS connection.

Ensure that the CAN BUS is properly terminated.

4. ADU and EMU BLACK configuration

First step is enabling the EMU BLACK standard output stream. This option is available in the “CAN, Serial / CAN” menu found in the toolbar on the left side of the software.

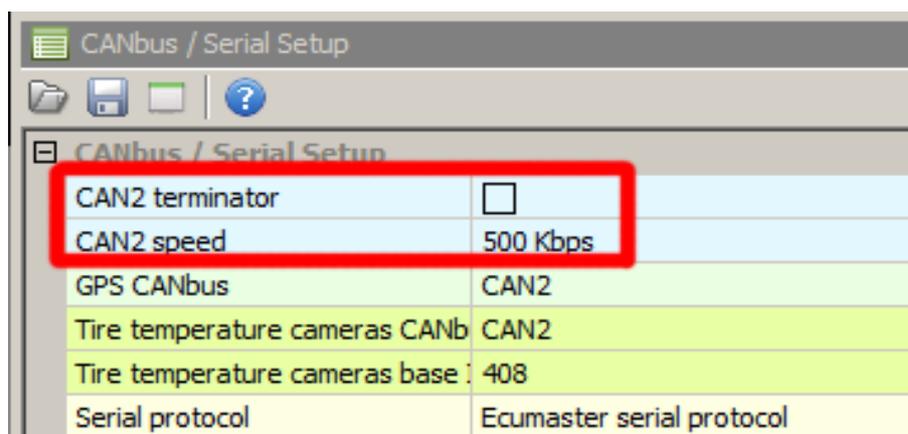
It is important to select the proper CAN BUS speed. If you choose to connect the ECU to CAN1 or CAN2@1Mbps, you should select 1Mbit speed. If you choose to connect to CAN2 with 500kbps speed, you should select 500kbit.



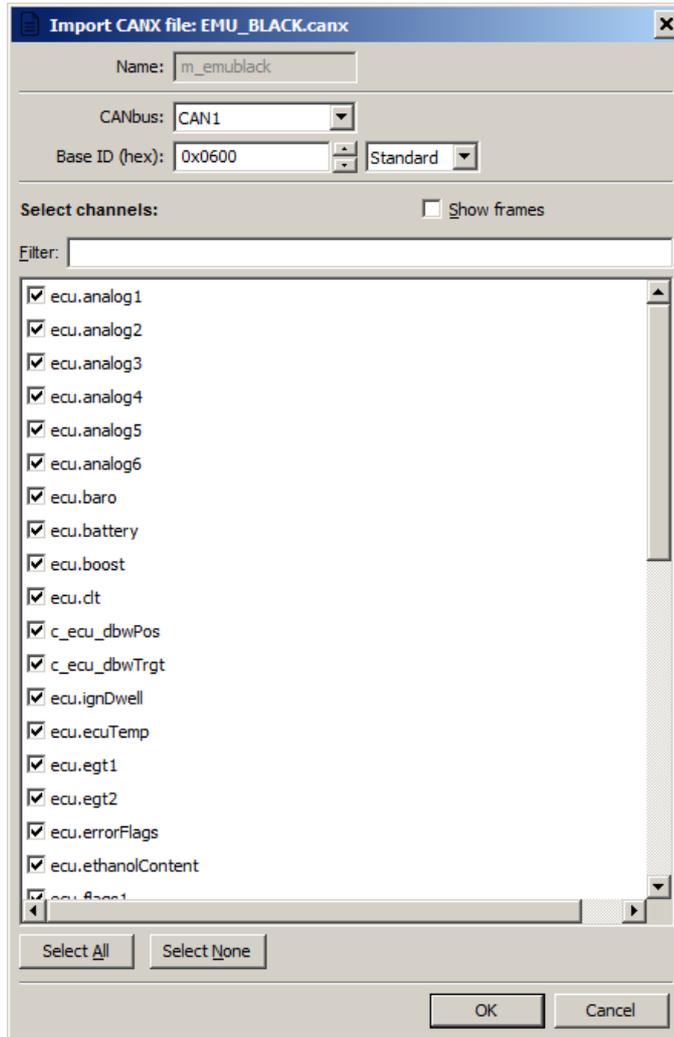
Also, the “Send emu stream over CAN-Bus” check box should be selected. Depending on CAN BUS topology, the termination resistor should be enabled (*Enable terminator 120Ohm*)

If you choose to use the ADU CAN1 network, there is a fixed 1Mbps speed set and no CAN configuration is required. If you choose to connect the EMU BLACK to CAN2, you will need to set proper CAN BUS speed and termination in ADU configuration.

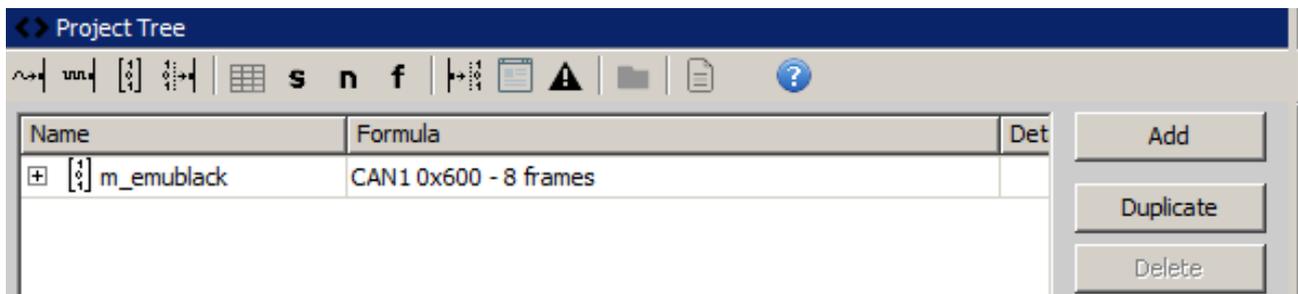
To open the CAN2 configuration press F9 to show pane selector, then open “General / CAN BUS Serial setup”. Select appropriate CAN2 speed and termination.



The next step is to load the proper CANX file with the EMU BLACK channel definitions. On the Project tree, click the “Add” button and select “Import .CANX file”. When the file dialog opens, select the “*emu_black.canx*” file. The following dialog will appear:



At this point, select the CAN BUS network that will be used for communication (CAN1 or CAN2) and channels you want to read. In most situations, all channels should be loaded (Select All). The project tree should look like the following:



If you open "m_emublack mob", all available CAN inputs will be visible.

5. Supported channels

ADU channel	Description
ecu.analog1	Analog input #1
ecu.analog2	Analog input #2
ecu.analog3	Analog input #3
ecu.analog4	Analog input #4
ecu.analog5	Analog input #5
ecu.analog6	Analog input #6
ecu.baro	Barometric pressure
ecu.battery	Battery voltage
ecu.boost	Boost level
ecu.clt	Engine coolant temperature
ecu.ecuTemp	ECU internal temperature
ecu.egt1	Exhaust gases temperature 1
ecu.egt2	Exhaust gases temperature 2
ecu.errorFlags	<p>The following flags are available:</p> <ul style="list-style-type: none"> - cltSensor error - iatSensor error - mapSensor error - wboSensor error - egt1Sensor error - egt2Sensor error - egtAlarm error - knocking - ffSensor error - dbwFailure error
ecu.ethanolContent	Fuel ethanol content
ecu.flags1	<p>The following flags are available:</p> <ul style="list-style-type: none"> - gearCut active - ALS active - launch control active - idle state - current table set - TC intervention

	<ul style="list-style-type: none"> - pit limiter active
ecu.flags2	<p>The following flags are available:</p> <ul style="list-style-type: none"> - parametricOutput#1 state - parametricOutput#2 state - parametricOutput#3 state - parametricOutput#4 state - parametricOutput#5 state - virtualOutput#1 state - virtualOutput#2 state - virtualOutput#3 state
ecu.flags3	<p>The following flags are available:</p> <ul style="list-style-type: none"> - canSwitch#1 state - canSwitch#2 state - canSwitch#3 state - canSwitch#4 state - canSwitch#5 state - canSwitch#6 state - canSwitch#7 state - canSwitch#8 state
ecu.flags4	<p>The following flags are available:</p> <ul style="list-style-type: none"> - Switch #1 state - Switch #2 state - Switch #3 state - Mux switch #1 state - Mux switch #2 state - Mux switch #3 state - Launch control map set - ALS map set - MIL
ecu.flags5	<p>The following flags are available:</p> <ul style="list-style-type: none"> - fuel pump state - radiator fan state - AC clutch state - AC fan state - nitrous state - starter request - boost map set

ecu.fuelPress	Fuel pressure
ecu.gear	Current gear
ecu.iat	Intake manifold temperature
ecu.ignAngle	Ignition advance
ecu.ignDwell	Ignition dwell
ecu.injDC	Injectors DC
ecu.injPW	Injectors pulse width
ecu.lambda1	Lambda from oxygen sensor #1
ecu.lambda1Trim	Current lambda #1 fuel trim
ecu.map	Manifold absolute pressure
ecu.oilPress	Engine oil pressure
ecu.oilTemp	Engine oil temperature
ecu.rpm	Engine RPM
ecu.speed	Vehicle speed
ecu.tps	Throttle position sensor
c_ecu_dbwPos	Actual electronic throttle position
c_ecu_dbwTrgt	Electronic throttle target
c_ecu_pitLTrqRdc	Pit limiter torque reduction
c_ecu_tcDrpm	Traction control delta RPM
c_ecu_tcDrpmRaw	Traction control delta RPM raw
c_ecu_tcTrqRdc	Traction control torque reduction