

HypE motor – NMEA2000 gateway

Version 1.0 [2026/01/06]



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You should satisfy yourself that you are safely install and troubleshoot electrical systems and satisfy any legal requirements you may be subject to before beginning the project.

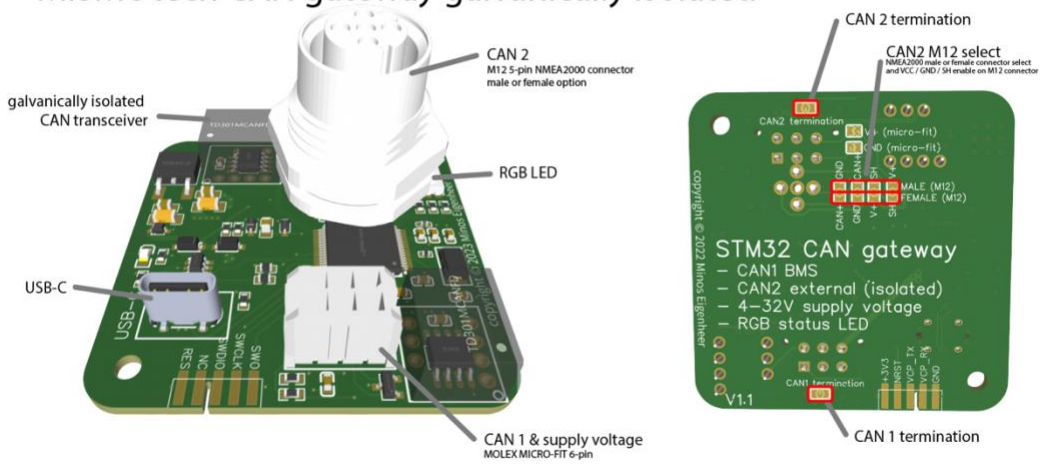
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1 Hardware overview

MISMOtech CAN gateway galvanically isolated

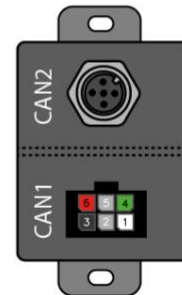


2 Pinout

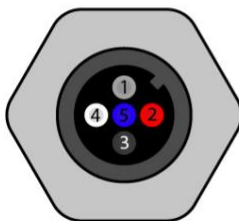
CAN 1 micro-fit 6p.



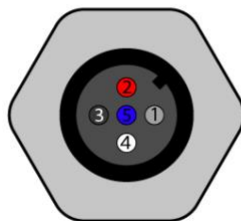
- ① CAN Low
- ② Analog input 1
- ③ GND
- ④ CAN High
- ⑤ Analog input 2
- ⑥ Voltage supply 12V



CAN 2 galvanically isolated NMEA2000 M12 5p. connector



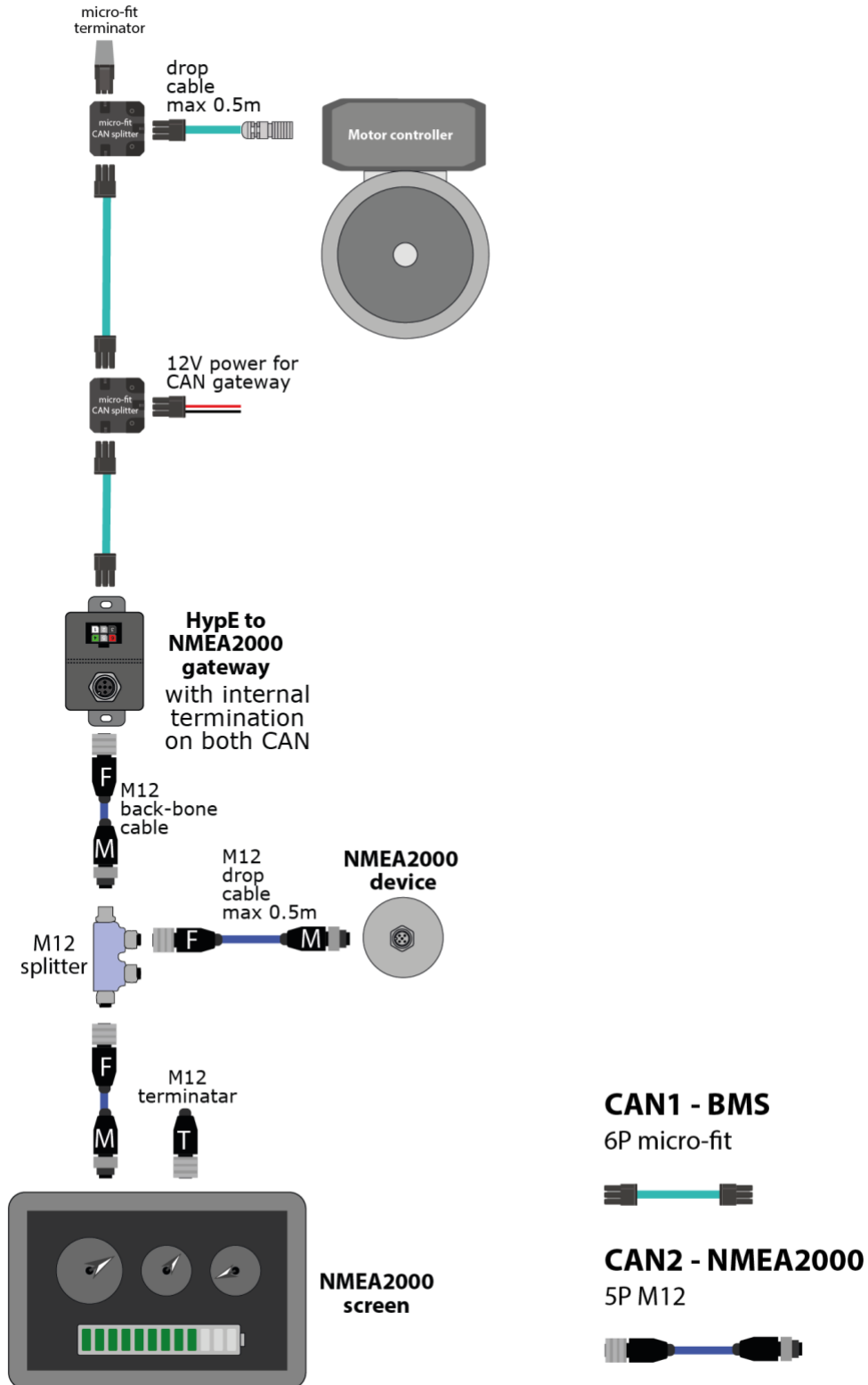
female



male

- ① Shield (optional SJ) not isolated!
- ② PWR (optional SJ) not isolated!
- ③ GND (optional SJ) not isolated!
- ④ CAN H isolated
- ⑤ CAN L isolated

2.1 Connection diagram



3 NMEA2000 battery messages

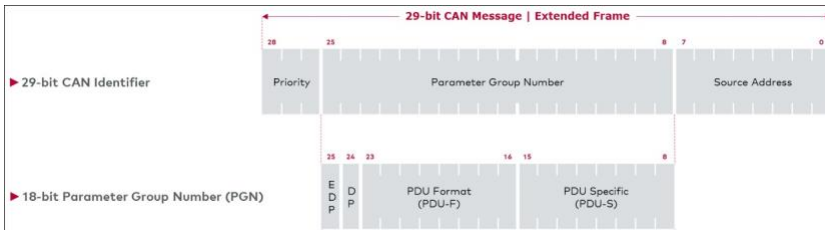
3.1 Interface definition

Speed : 250 kbps

ID : 29-bit CAN 2.0B

3.2 Message definition

NMEA2000 Identifier definition.



	DEC	HEX	BIN	note
PR (Priority)	6	6	110	1...8
PGN (Parameter group number)	127506	1F212	011111001000010010	DC Detailed Status
EDP (extended datapage)	0	0	0	Reserved
DP (Datapage)	1	1	1	parameter group of this ID
PDU Format (0...239 addressable, 240...255 broadcast)	242	F2	11110010	PDU2 (broadcast)
PDU Specific / destination address	18	12	00010010	PDU Specific
SA (source address)	80	50	01010000	Broadcast Address (BCA)

	DEC	HEX	BIN
CAN ID	435294800	19F21250	11001111100100001001010000

<3-bits priority><1-bit reserved><1-bit datapage><16-bits PGN >< 8-bit source address >

As described in the list below a PGN consists of datapage + PGN.

For example 0x1F214 means:

Datapage = 1

PGN = 0XF214

3.3 PGN list

List of NMEA2000 PGNs populated values are marked in bold. Unused variables in normal font.

PGN	Name	Content	Comment
127488	Engine Parameters, Rapid Update	1 Engine Instance 2 Engine Speed 3 Engine Boost Pressure 4 Engine tilt/trim 5 NMEA Reserved	Old combustion engine PGN

127489	Engine Parameters, Dynamic	1 Engine instance 2 Engine oil pressure 3 Engine oil temp. 4 Engine coolant temp. 5 Alternator potential 6 Fuel rate 7 Total engine hours 8 Engine coolant pressure 9 Fuel Pressure 10 Not Available 11 Engine Discrete Status 1 12 Engine Discrete Status 2 13 Percent Engine Load 14 Percent Engine Torque	Old combustion engine PGN 3: Controller temp 4: Motor temp 13: Percent engine load and percent engine torque corresponds to engine kW divided by manually configured max kW.
128002	Electric Drive Status (Rapid Update)	1 Inverter/Motor Controller 2 Active Motor Mode 3 Brake Mode 4 NMEA Reserved 5 Rotational Shaft Speed 6 Motor DC Voltage 7 Motor DC Current	Not implemented
127490	Electric Drive Status (Dynamic)	1 Inverter/Motor Identifier 2 Operating Mode 3 NMEA Reserved 4 Motor Temperature 5 Inverter Temperature 6 Coolant Temperature 7 Gear Temperature 8 Shaft Torque	Not implemented
127494	Electric Drive Information	1 Inverter/Motor Identifier 2 Motor Type 3 NMEA Reserved 4 Motor Voltage Rating 5 Maximum Continuous Motor Power 6 Maximum Boost Motor Power 7 Maximum Motor Temperature Rating 8 Rated Motor Speed 9 Maximum Controller Temperature Rating 10 Motor Shaft Torque Rating 11 Motor DC-Voltage Derating Threshold 12 Motor DC-Voltage Cut Off Threshold 13 Drive/Motor Hours	Not implemented

Alerts are not implemented!

126983	Alert	<p>1 Alert Type 2 Alert Category 3 Alert System (Hardcoded to "System", value=17) 4 Alert Sub-System (Hardcoded to "Unknown sub system", value=2) 5 Alert ID 6 Data Source Network ID NAME 7 Data Source Instance 8 Data Source Index / Source 9 Alert Occurrence Number 10 Temporary Silence Status 11 Acknowledge Status 12 Escalation Status 13 Temporary Silence Support 14 Acknowledge Support 15 Escalation Support 16 NMEA Reserved 17 Acknowledge Source Network ID NAME 18 Trigger Condition (Hardcoded to "Auto", value=1) 19 Threshold Status 20 Alert Priority 21 Alert State</p>	Not implemented
126985	Alert Text	<p>1 Alert Type 2 Alert Category 3 Alert System (Hardcoded to "System", value=17) 4 Alert Sub-System (Hardcoded to "Unknown sub system", value=2) 5 Alert ID 6 Data Source Network ID NAME 7 Data Source Instance 8 Data Source Index / Source 9 Alert Occurrence Number 10 Language ID 11 Alert Text Description 12 Alert Location Text Description (Hardcoded to "Pascal system")</p>	Not implemented



4 CAN bus notes

>> Use twisted and shielded cable for the CAN bus.

>> Don't use drop cables longer than 0.5m.

>> Make sure you have two 120-ohm termination resistors connected on each CAN bus!

The gateway has on-board termination resistors (split terminator type) which can be enabled with a solder jumper on the back of the PCB.

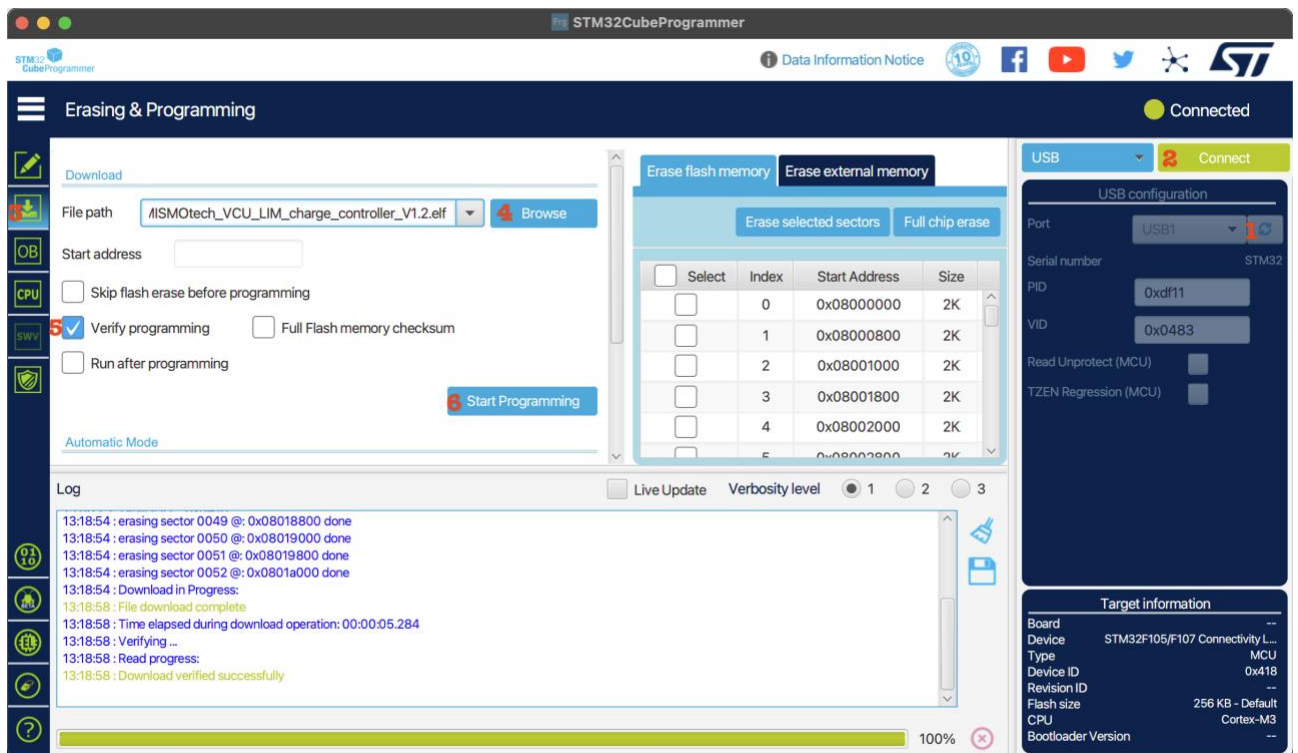
5 RGB status LED

Yellow dimmed	No connection
Green breath	Ready
Orange breath	Warning
Red flashing	Fault
Off	No Power supply
Dark blue	SW update mode

6 CAN gateway software update process

The controller software can be updated with a USB-C data cable. **Make sure the cable has actually data wires and not only power!** The device is also powered by the USB during the software update.

1. Download and install STM32CubeProgrammer for your operating system. <https://www.st.com/en/development-tools/stm32cubeprog.html>
2. Disconnect the CAN cables from the gateway to turn it off. Remove the case with the two screws at the bottom.
3. Connect a USB-C cable from your computer to the device. The status LED should be blue.
4. Select USB as the communication method in STM32CubeProgrammer. It sometimes takes a few seconds before the device is recognized in DFU mode, just press the refresh button a couple of times until you see USB1 device. >> Try a different USB cable if it does not work.
5. Press “Connect” to establish a connection to the device.
6. Move to the Erasing & Programming tab on the left and press “Browse” to select the *.elf image with the new software.
7. Select “Verify programming”.
8. Make sure “Run after programming” is **not** selected.
9. Press “Start Programming” and wait until the process finishes. Do not disconnect the device during the download process!
10. You should get a few pop-ups with the “File download complete” and “Download Verified successfully” messages and your VCU should be updated at this point. You can press “Disconnect” and remove the USB-C cable.
11. Put controller back in the case and reconnect the CAN cables.



7 Revision history

Revised on	Version	Description	Approved by
06-01-2026	1.0	Publish document	ME