

CAN (Controller Area Network) Nodes and Messages in FE6

Each node sends messages corresponding to the data in the tables below.

Pedal Node (Node-Elephant)			
Message ID	8 byte Content	Received by	Notes
0x200	<ul style="list-style-type: none"> Diff fault bit (indicates if throttle pots are within %3 of each other) 0 Throttle raw (upper 8 bits) Throttle raw (lower 8 bits) 0 Percent throttle (upper 8 bits) Percent throttle (lower 8 bits) 0 	Dashboard	Throttle raw will be sent as 0 if there are any rules violations. Check CAN for percent to see if anything is sending.
0x201	<ul style="list-style-type: none"> 0 or 1 depending on if brake is greater than 10% 0 Brake raw (upper 8 bits) Brake raw (lower 8 bits) 0 Percent brake(upper 8 bits) Percent brake(lower 8 bits) 0 	Dashboard	First byte indicates if car will respond to drive request. Brakes are mechanical so the data doesn't matter.

Dashboard			
Message ID	8 byte Content	Received by	Notes
0x766	Dash command <ul style="list-style-type: none"> Set interlock VCL_Throttle (upper 8 bits) VCL_Throttle (lower 8 bits) 0 0 0 0 0 	Motor Controller	State machine decides when interlock should be set to close contactor.
0x626	Dash status <ul style="list-style-type: none"> State (of dash state machine) Error state (which state the fatal error occurred in) Rest of message filled with 0s 	N/A	

Battery Management System (Alpaca-BMS)			
Message ID	8 byte Content	Received by	Notes
0x388	Voltage <ul style="list-style-type: none"> • Minimum voltage (upper) • Minimum voltage (lower) • Max voltage (upper) • Max voltage (lower) • Pack voltage (upper) • Pack voltage .. • Pack voltage .. • Pack voltage (lower) 	Dash	Pack voltage is 32 bit values shifted so the upper bits begin at the 5th byte of the CAN message.
0x488	Temperature <ul style="list-style-type: none"> • Subpack 1 highest temp • Subpack 2 highest temp • Subpack 3 highest temp • Subpack 4 highest temp • Subpack 5 highest temp • Cell index of cell with highest temp out of the whole pack • Subpack where the highest cell temp was found • Highest cell temperature of pack 	Dash	For a reason unknown to me we do not send the highest temp of the 6th subpack, likely for debugging purposes so highest temp could be printed on dash (we had troubles with subpack 5).

The motor controller has a limited number of customizable CAN mailboxes it is allowed to declare, currently they are all declared but are not all used. In addition to these mailboxes, the controller inherently sends out CAN messages, as designated by the operating system, to alert other nodes on the bus of its status. For example, it will send out a constant pulse of 0x726 as a “heartbeat” to let other nodes that it is still functioning.

Motor Controller			
Message ID	8 Byte Content	Received by	Notes
0x566	Motor Data <ul style="list-style-type: none"> • Capacitor voltage (upper) • Capacitor voltage (lower) • Motor RPM (upper) 	Dash	You will not find any of these variables declared in the code. They are parameters

	<ul style="list-style-type: none"> • Motor RPM (lower) • Motor temperature (upper) • Motor temperature (lower) • Throttle Command (upper) • Throttle Command (lower) 		built into the operating system that you have access to through VCL. Please contact Flona or Brian if you would like to know more.
0x666	Controller Data <ul style="list-style-type: none"> • 0xFF • Keyswitch voltage (upper) • Keyswitch voltage (lower) • Battery current (upper) • Battery current (lower) • Battery current display • Controller temp (upper) • Controller temp (lower) 	Dash	Display variables are a different motor controller presentation of the same value (less precision). The dash only looks at the 1st byte as an awk when interlock is received.
0x726	Heartbeat	Dash	See 1239E manual for details.
0xA6	Fault Check	Dash	