



**ECU MASTER and LAMBDA controller - J1939 protocol**

PGN (CAN ID [hex])	Message	SPN	Byte	Resolution, Offset	Range	Direction	Period
<b>61444 (0x0CF00400)</b> MASTER / LAMBDA	<b>Electronic Engine Controller #1: EEC1</b> Engine Speed	190	4,5	0.125RPM /bit, 0RPM	0 to 8031.875RPM	<b>TX/RX</b>	<b>10ms</b>
<b>61443 (0x0CF00300)</b> MASTER	<b>Electronic Engine Controller #2: EEC2</b> Accelerator Pedal Position Percent Load At Current Speed	91 92	2 3	0.4% /bit, 0% 1% /bit, 0%	0 to 100% 0 to 250%	<b>TX</b>	<b>50ms</b>
<b>65262 (0x18FEE00)</b> MASTER	<b>Engine Temperature #1: ET1</b> Engine Coolant Temperature Engine Fuel Temperature Engine Oil Temperature 1 Engine Intercooler Temperature	110 174 175 52	1 2 3,4 7	1°C /bit, -40°C 1°C /bit, -40°C 0,03125 /bit, -273°C 1°C /bit, -40°C	-40 to 210°C -40 to 210°C -273 to 1735°C -40 to 210°C	<b>TX</b>	<b>1s</b>
<b>65263 (0x18FEEF00)</b> MASTER	<b>Engine Fluid Level / Pressure #1: EFP1</b> Fuel Delivery Pressure Engine Oil Level Engine Oil Pressure Crankcase Pressure Coolant Pressure Coolant Level	94 98 100 101 109 111	1 3 4 5,6 7 8	4kPa /bit, 0kPa 0.4% /bit, 0% 4kPa /bit, 0kPa 1/128kPa /bit, -250kPa 2kPa /bit, 0kPa 0.4% /bit, 0%	0 to 1000kPa 0 to 100% 0 to 1000kPa -250 to 251.99kPa 0 to 500kPa 0 to 100%	<b>TX</b>	<b>500ms</b>
<b>65271 (0x18FEF700)</b> MASTER	<b>Vehicle Electrical Power: VEP</b> Electrical Potential	168	5,6	0.05V /bit, 0V	0 to 3212.75V	<b>TX</b>	<b>1s</b>
<b>65270 (0x18FEF600)</b> MASTER	<b>Inlet / Exhaust Conditions #1: IEC1</b> Boost Pressure Intake Manifold 1 Temperature Air Inlet Pressure Exhaust Gas Temperature	102 105 106 173	2 3 4 6,7	2kPa /bit, 0kPa 1°C /bit, -40°C 2kPa /bit, 0kPa 0,03125 /bit, -273°C	0 to 500kPa -40 to 210°C 0 to 500kPa -273 to 1735°C	<b>TX</b>	<b>500ms</b>
<b>65266 (0x18FEF200)</b> MASTER	<b>Fuel Economy (Liquid): LFE</b> Throttle Position	51	7	0.4% /bit, 0%	0 to 100%	<b>TX</b>	<b>50ms</b>
<b>65269 (0x18FEF500)</b> MASTER	<b>Ambient Conditions: AMB</b> Barometric Pressure Air Inlet Temperature	108 172	1 6	0.5kPa /bit, 0kPa 1°C /bit, -40°C	0 to 125kPa -40 to 210°C	<b>TX</b>	<b>1s</b>
<b>65272 (0x18FEF800)</b> MASTER	<b>Transmission Fluids: TF</b> Transmission Oil Level Transmission Oil Pressure Transmission Oil Temperature	124 127 177	2 4 5,6	0.4% /bit, 0% 16kPa /bit, 0kPa 0,03125 /bit, -273°C	0 to 100% 0 to 4000kPa -273 to 1735°C	<b>TX</b>	<b>1s</b>
<b>65253 (0x18FEE500)</b> MASTER	<b>Engine Hours, Revolutions: HOURS</b> Total Engine Hours	247	1-4	0.05hr /bit, 0hr	0 to 210,554,060.75 hr	<b>TX</b>	<b>1s</b>
<b>00000 (0x0C000003)</b> MASTER	<b>Torque/Speed Control #1: TSC1</b> Requested Speed/Speed Limit	898	2,3	0.125RPM /bit, 0RPM	0 to 8031.875RPM	<b>RX</b>	<b>10ms</b>
<b>65350 (0x0CFF4611)</b> MASTER	<b>User Engine Control</b> Engine Start Engine Kill		1,1 5,1	1 -> START 1 -> KILL	0 to 1 0 to 1	<b>RX</b>	<b>10ms</b>
<b>61455 (0x18F00F00)</b> MASTER / LAMBDA	<b>Aftertreatment Outlet Gas #1: AOG1</b> Aftertreatment Outlet Lambda Aftertreatment Outlet O2 Aftertreatment Sensor Temperature Aftertreatment Actual Step	520193 3227 520194 520195	1,2 3,4 5,6 7,8	0.000390625 /bit, 0 0.000514% /bit, -12% 0.03125 /bit, -273°C 1 Step /bit, 0	0 to 25.6 -12 to 21% -273 to 1735°C 0 to 65535	<b>RX/TX</b>	<b>50ms</b>

Title: ECU MASTER and LAMBDA controller - J1939 and CANopen protocol Document: 1002-0021-14 Date: 31.5.2015 Author: Radek Taraba	<b>Revision:</b>
	V8.0-0: First edition
	V8.42-0: Added CANopen



ECU MASTER and LAMBDA controller - CANopen protocol							
PDO (CAN ID [hex])	Message	SPN	Byte	Resolution, Offset	Range	Direction	Period
GUARD (0x700 + ADR) MASTER & LAMBDA	NODE GUARD #1: NG					TX	50ms
	HEART BIT		1,8		0 to 1		
PDO1 (0x180 + ADR) MASTER	Electronic Engine Controller #1: EEC1					TX	25ms
	Engine Speed	190	1,2	0.125RPM /bit, 0RPM	0 to 8031.875RPM		
	Electrical Potential	168	3	0.05V /bit, 0V	0 to 3212.75V		
	Air Inlet Temperature	172	5	1°C /bit, -40°C	-40 to 210°C		
	Air Inlet Pressure	106	6	2kPa /bit, 0kPa	0 to 500kPa		
	Boost Pressure	102	7	2kPa /bit, 0kPa	0 to 500kPa		
PDO2 (0x280 + ADR) MASTER	Engine Fluid Level / Pressure #1: EFP1					TX	50ms
	Engine Coolant Temperature	110	1	1°C /bit, -40°C	-40 to 210°C		
	Coolant Level	111	3	0.4% /bit, 0%	0 to 100%		
	Coolant Pressure	109	4	2kPa /bit, 0kPa	0 to 500kPa		
	Engine Oil Temperature 1	175	5,6	0,03125 /bit, -273°C	-273 to 1735°C		
	Engine Oil Level	98	7	0.4% /bit, 0%	0 to 100%		
PDO1 (0x180 + ADR) LAMBDA	Aftertreatment Outlet Gas #1: AOG1					TX	50ms
	Aftertreatment Outlet Lambda	520193	1,2	0.000390625 /bit, 0	0 to 25.6		
	Aftertreatment Outlet O2	3227	3,4	0.000514% /bit, -12%	-12 to 21%		
	Aftertreatment Sensor Temperature	520194	5,6	0.03125 /bit, -273°C	-273 to 1735°C		
	Aftertreatment Actual Step	520195	7,8	1 Step /bit, 0	0 to 65535		

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