潍柴动力自主ECU整车网络通讯技术应用规范

潍柴动力股份有限公司

目录

1. 修改记录

修改日期	作者	修改原因及内容	版本号	备注
2013.4.10	艾聪	初始版本	V1.0	
2014.2.14	艾聪		V2.0	
2014.3.8	艾聪	新增信号数据精度描述	V3.0	

2. 参考文献

【1】 CAN2.0B
【2】 ISO11898
【3】 SAEJ1939/21-CAN Data Link Layer ,Issue 1994-07,Revised 2006-12
【4】 SAEJ1939/71-CAN Vehicle Application Layer ,Issue 1994-08,Revised 2006-11
【5】 SAEJ1939/73-CAN Application Layer Diagnostics ,Issue 1996-02,Revised 2006-09

3. 规范适用说明

【1】本规范适用于潍柴高压共轨系统电控单元EDC7UC31，软件版本WP_532_v46，依据SAE J1939 通用协议标准，用于潍柴发动机CAN总线通讯在基于发动机/车辆中的不同电控单元之间传递、交换信息/指令的应用。

【2】有关于CAN通讯协议和报文标准均在参考文献中有定义，本文只涉及部分目前潍柴发动机能够支持的特征报文的信息描述，本规范介绍的协议和特征均符合OSI（开放式系统互联）标准。

【3】本规范涉及了SAEJ1939协议的数据链路层、车辆应用层和故障诊断层的描述，标准报文部分注有参考出处，非标部分，则按照本规范的注释详细说明其特征。

【4】潍柴发动机ECU支持高速CAN通讯网络，如有低速CAN网络接入，则需按照CAN通讯标准进行网络布线，加网关模块进行转换。

4. 术语解释

PGN-parameter group number,参数组，SAEJ1939定义术语，用于描述参数特性
EEC-electronic engine controller,电控发动机控制器
LFE-fuel economy(liquid),燃油经济性
EFL/P1-engine fuel level/pressure,发动机流体标准/压力
EC-engine configuration,发动机配置
ET-engine temperature,发动机温度
EngR-engine retarder,发动机缓速器
TCO1-tachograph,仪表
EBC-electronic brake controller,电子刹车控制器
DMx-diagnostic management,故障管理
TSC1-torque speed control,扭矩/速度控制
TSC1_AE-requested engine torque/speed, limits from ABS/ESP，速度/扭矩控制，来自于ABS/ESP
TSC1_DE-requested engine torque/speed, limits from Driveline retarder，速度/扭矩控制，来自于驱动缓速系统
TSC1_PE-requested engine torque/speed, limits from PTO，速度/扭矩控制，来自于PTO
TSC1_TE-requested engine torque/speed, limits from Transmission，速度/扭矩控制，来自于传动系
TSC1_VE-requested engine torque/speed, limits from Vehicle，速度/扭矩控制，来自于整车
TSC1_AR-requested retarder torque, limits from ABS/ESP，速度/扭矩控制，来自于ABS/ESP
TSC1_DR-requested retarder torque, limits from Driveline retarder，速度/扭矩控制，来自于驱动缓速系统
TSC1_TR-requested retarder torque, limits from Transmission，速度/扭矩控制，来自于传动系
TSC1_AR-requested retarder torque, limits from Vehicle，速度/扭矩控制，来自于整车
PGNRQ-Parameter Group Number request，参数组申请

5. 节点源地址列表

表5.1为整车CAN网络中不同电控单元或不同功能模块节点集成于同一CAN网络中的目标地址，均按照SAEJ1939协议标准划分。

表 5.1　SAE J1939 CAN 节点地址

节点地址（Hex）	节点地址（Dec）	节点名称
0x 00	0	发动机控制单元
0x 03	3	传动系控制单元（变速箱）
0x 0B	11	电控刹车系（ABS/ASR）
0x 0F	15	发动机缓速器
0x 10	16	驱动系统缓速器
0x 17	23	仪表
0x 1D	29	防盗系统
0x 21	33	车身控制单元
0x 24	36	PTO
0x 27	39	车辆智能中心
0x 29	41	排气缓速器
0x EE	238	转速表
0x F9	249	故障诊断
0x 3D	61	DCU

6. 物理层技术条件

6.1 通讯物理介质（线束）双绞线，CANH、CANL 参见 ECU 针脚图:

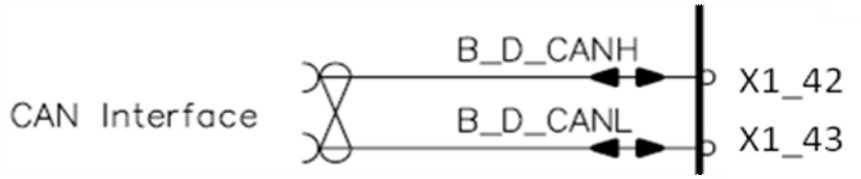

图6-1　ECU CAN针脚

线束技术要求：

- 线径： 0.6 mm2;
- 最大双绞间距：25 twists / m， 即每隔40 mm 绞一个结 ；
- 线延迟小于 5 ns/m;
- 总线长度最大为 40 m ，最多不超过 30 个节点，且节点与节点间最小要相隔 0.1 m;
- 节点与总线间距离不超过 0.3 m;

6.2 控制器电阻配置 发动机电控单元已内置 120Ω终端电阻

6.3 协议标准

- SAE J1939
- CAN2.0B
- 29位标识符
- 支持扩展帧

具体参见文献： SAEJ1939/21-data link layer (数据链路层)
SAEJ1939/71-vehicle application layer(车辆应用层)
SAEJ1939/73-diagnostics application layer(故障诊断层)

- 传输速率 250kbps
- 填充格式：Intel
- 总线拓扑（总线电平） 依据ISO11898标准高速CAN部分要求

7. 发送报文列表（Tx/Sending Messages）

	报文名称		标识符ID	Rx/Tx	源地址	周期	参考文献	备注
1	EEC1		0x0CF00400	Tx	0x 00	10ms	SAEJ1939/71 5.3.7	
2	EEC2		0x0CF00300	Tx	0x 00	50ms	SAEJ1939/71 5.3.6	
3	EEC3		0x18FEDF00	Tx	0x 00	250ms	SAEJ1939/71 5.3.13	
4	AMCON		0x18FEF500	Tx	0x 00	1000ms	SAEJ1939/71 5.3.35	
5	CrCtlVehSpd		0x18FEF100	Tx	0x 00	100ms	SAEJ1939/71 5.3.31	
6	EC/DMx	CNFBAM	0x18ECFF00	Tx	0x 00	1000ms	SAEJ1939/21	
7	EC/DMx	CNFPKT	0x18EBFF00	Tx	0x 00	50ms	SAEJ1939/21	
	EC1		0x18FEE300	Tx	0x 00	5s	SAEJ1939/71	
8	EngTemp		0x18FEEE00	Tx	0x 00	1000ms	SAEJ1939/71 5.3.28	
9	FIEco		0x18FEF200	Tx	0x 00	100ms	SAEJ1939/71 5.3.32	
10	EFL/P1		0x18FEEF00	Tx	0x 00	500ms	SAEJ1939/71	
11	LFC		0x18FEE900	Tx	0x 00	On request	SAEJ1939/71 5.3.23	
12	DM1		0x18FECA00	Tx	0x 00	1000ms	SAEJ1939/73	
13	DM2		0x18FECB00	Tx	0x 00	On request	SAEJ1939/73	
14	DM4		0x18FECD00	Tx	0x 00	On request	SAEJ1939/73	
15	DM11ACK		0x18E8FF00	Tx	0x 00	On request	SAEJ1939/21 5.4.4	
16	INCON		0x18FEF600	Tx	0x 00	500ms	SAEJ1939/71 5.3.36	
17	VehPow		0x18FEF700	Tx	0x 00	1000ms	SAEJ1939/71 5.3.37	
18	EngHrRev		0x18FEE500	Tx	0x 00	On request		

19	ERC1		0x18F0000F	Tx	0x 00	100ms	SAEJ1939/71	
20	shutDown		0x18FEE400	Tx	0x 00	1000ms	SAEJ1939/71	
21	FanDrv		0x18FEBD00	Tx	0x 00	1000ms	SAEJ1939/71	
22	EngRetCfg	BAM	0x18ECFF0F	Tx	0x 0F	1000ms		
		Package	0x18EBFF0F	Tx	0x 0F	60ms		
23	CCSS		0x18FEED00	Tx	0x 00	On request	SAEJ1939/71	
24	DLCC		0x18FD0700	Tx	0x 00	1000ms	SAEJ1939/71	
25	VD		0x18FEE000	Tx	0x 00	100ms		
26	Tx_DOSUUA2		0x18F02400	Tx	0x 00	50ms		
27	Tx_AT1UUA1		0x18FD3E00	Tx	0x 00	500ms		
28	Tx_MFDA		0x18FF0000	Tx	0x 00	20ms		
29	MFD1		0x18FF0800	Tx	0x 00	100ms		
30	Tx_WFI		0x18FEFF00	Tx	0x 00	10s		
31	CmpntId		0x18FEEB00	Tx	0x 00	On request	SAEJ1939/71	
32	SWId		0x18FEDA00	Tx	0x 00	On request		
33	SCRHtrSta		0x18FE5C00	Tx	0x 00	1000ms		
34	AdBlue		0x18FF2484	Tx	0x 00	100ms		

8. 接收报文列表（Rx/Receiving Messages）

	报文名称	标识符ID	Rx/Tx	源地址	周期	参考文献	备注
1	EBC1	0x18F0010B	Rx	0x 03	10ms	SAEJ1939/71 5.3.4	
2	ERC1-DR	0x18F00010	Rx	0x 10	100ms	SAEJ1939/71 5.3.3	
3	HRVD	0x18FEC1EE	Rx	0x EE	1000ms	SAEJ1939/71 5.3.54	

4	RxAMCON	0x01FEF521	Rx	0x 21	1000ms	SAEJ1939/71 5.3.35	
5	TimeDate	0x18FEE6EE	Rx	0x EE	1000ms	SAEJ1939/71	
6	DashDspl	0x18FEFC17	Rx	0x 17	1000ms	SAEJ1939/71	
7	DM13	0x18DFFF27	Rx	0x 27	1000ms	SAEJ1939/73 5.7.13	
8	ETC1	0x0CF00203	Rx	0x 03	10ms	SAEJ1939/71 5.3.5	
9	ETC2	0x18F00503	Rx	0x 03	100ms	SAEJ1939/71	
10	ETC7	0x18FE4A03	Rx	0x 03	100ms	SAEJ1939/71	
11	RxCCVS	0x18FEF121	Rx	0x 21	100ms	SAEJ1939/71 5.3.31	
12	PGNRQ	0x18EA0021	Rx	0x 21	On occurence	SAEJ1939/21 5.4.2	
13	TCO1	0x0CFE6CEE	Rx	0x EE	50ms	SAEJ1939/71 5.3.43	
14	TSC1AE	0x0C00000B	Rx	0x 0B	10 ms	SAEJ1939/71 5.3.1	
15	TSC1AR	0x0C000F0B	Rx	0x 0B	50ms	SAEJ1939/71	
16	TSC1DE	0x0C000010	Rx	0x 10	10 ms	SAEJ1939/71 5.3.1	
17	TSC1DR	0x0C000F10	Rx	0x 10	50ms	SAEJ1939/71	
18	TSC1PE	0x0C000024	Rx	0x 24	10 ms	SAEJ1939/71 5.3.1	
19	TSC1TE	0x0C000003	Rx	0x 03	10 ms	SAEJ1939/71 5.3.1	
20	TSC1TR	0x0C000F03	Rx	0x 03	50ms	SAEJ1939/71	
21	TSC1VE	0x0C000021	Rx	0x 21	10 ms	SAEJ1939/71 5.3.1	
22	TSC1VR	0x0C000F21	Rx	0x 21	50ms	SAEJ1939/71	
23	WSI	0x18FEBF0B	Rx	0x 0B	50ms	SAEJ1939/71 5.3.56	
24	DEC1	0x0CFF0431	Rx	0x 31	20ms	SAEJ1939/71	
25	AT1O1	0x18F00F52	Rx	0x 52	50 ms	SAEJ1939/71	
26	CM1	0x18E00021	Rx	0x 21	1000ms	SAEJ1939/71	
27	EGF1	0x0CF00A89	Rx	0x 89	50 ms		

28	ActDos	0x18F0233D	Rx	0x 3D	10ms		

9. 发送报文详细描述（Tx/Sending Messages）

Message/报文				Parameter definition/参数定义			备注
Name/ 报文名称	ID/ 地址	Cycle time/ 频率	Type/ 类型	Byte/字节	Bit/ 位	Parameter/参数	
AMCON 环境条件	0x18FEF500	1000ms	Tx	Byte 1	1-8	Barometric pressure/大气压力	Scale:0.5kPa/bit Offset:0hPa
				Byte 2-3	1-8	Cab interior temperature/发动机舱内部温度	Not available set to 0xFFFF
				Byte 4-5	1-8	Ambient air temperature/ 大气温度	Scale:0.03125℃/bit Offset:-273℃
				Byte 6	1-8	Air inlet temperature/进气温度	Scale:1℃/bit Offset:-40℃
				Byte 7-8	1-8	Road surface temperature/路面温度	Not available set to 0xFF
CmpntId ECU软件版本	0x18FEEB00	On request	Tx	Byte 1	1-8	ASCII Value for *, always set to 0x2A	
				Byte 2		Component Identification	First character
				Byte 3			Not used
				Byte 4			Not used
				Byte 5			Not used
				Byte 6			Not used
				Byte 7			Not used
				Byte 8			Last character
CrCtlVehSpd 巡航控制	0x18FEF100	100ms	Tx	Byte 1	8-5	Not defined/未定义	
					4-3	Status of parking brake/刹车开关状态	00:Not actuated 01:Actuated 10:Error

							11:Not available
					2-1	Not defined/未定义	
				Byte 2-3	1-8	Wheel based vehicle Speed/ 车速	Scale:1/256km/h/bit Offset:0
				Byte 4	8-7	Status of clutch switch/离合开关状态	00:Not actuated 01:Actuated 10:Error 11:Not available
					6-5	Status of brake switch/刹车开关状态	00:Not actuated 01:Actuated(Brk_st=0x03) 10:Error 11:Not available
					4-3	Cruise control enable/巡航控制使能（不用，常设为01b）	Not used
					2-1	Cruise control active/巡航控制激活状态标识	00:Not active 01:active
				Byte 5	8-7	Cruise Control Accelerate Switch	00:Not actuated 01:Actuated
					6-5	Cruise Control Resume Switch	00:Not actuated 01:Actuated
					4-3	Cruise Control Resume Switch	00:Not actuated 01:Actuated
					2-1	Cruise Control Set Switch	00:Not actuated 01:Actuated
				Byte 6	8-1	Cruise control set speed/巡航控制设定速度	Scale:1km/h/bit
				Byte 7	8-6	Cruise control state/巡航控制状态	000:Off/Disable 001:Hold 010:Acc 011:Dec 100:Resume 101:Set 110:Acc Override
					5-1	PTO state/PTO 状态	00000:Disable/Off 00001:Hold

							00010:Not used 00011:Standby/Neutral 00100:Not used 00101:Set 00110:Decelerate 00111:Resume 01000：Acc 01001:Not used 01010:Programmed set speed 0 01011:Programmed set speed 1 01100:Programmed set speed 2 01101:Programmed set speed 3 01110-11110:Not used 11111:Not available
				Byte 8	1-8	Not defined/未定义	
DM11ACK 故障清除	0x18EBFF00	On request	Tx	Byte 1	1-8	Control Byte/控制字节	00:Initiation of erasing of fault memory is not successful 01: Initiation of erasing of fault memory is successful
				Byte 2-5	1-8	Not defined/未定义，设为FFFFFFFF	
				Byte 6	1-8	PGN LSB	0xD3
				Byte 7	1-8	PGN	0xFE
				Byte 8	1-8	PGN MSB	0x00
EEC1 发动机控制器＃1	0x0CF00400	10ms	Tx	Byte 1	8-5	Not defined/未定义	Not used
					4-1	Engine Torque Mode/发动机扭矩模式	Scale:16 states/4Bit
				Byte 2	1-8	Driver's Demand Engine - Percent Torque/驾驶指令百分比扭矩	Scale:1%/bit Offset:-125%
				Byte 3	1-8	Actual Engine - Percent Torque/发动机实际扭矩百分比	Scale:1%/bit Offset:-125%
				Byte 4-5	1-8	Engine Speed/发动机转速	Scale:0.125rpm/bit
				Byte 6	1-8	Source Address of Controlling Device for	1 Source address/bit

						Engine Control 控制发动机设备源地址	
				Byte 7	8-5	Not Used/未用	Not used
					4-1	Engine Starter Mode/起动机模式	Not used
				Byte 8		Engine Demand – Percent Torque/发动机需求扭矩百分比	Scale:1%/bit Offset:-125%
EEC2 发动机控制器＃2	0x0CF00300	50ms	Tx	Byte 1	8-7	Not Used/未用	
					6-5	Road speed limit status/速度限制状态	00:active 01:Not active 10:Error(Not managed by ECU) 11:Not available
					4-3	Accelerator pedal kick-down switch/踏板开关	00:Kick-down not active 01:Kick-down active 11:Not available
					2-1	Accelerator pedal low idle switch/加速踏板低怠速开关	00:Low idle switch signal not active 01:Low idle switch signal active 10:Error 11:Not available
				Byte 2	1-8	Accelerator pedal position/ 踏板位置	Scale:0.4%/bit
				Byte 3	1-8	percent load at current speed/当前转速下负荷百分比	Scale:1%/bit
				Byte 4	1-8	Remote accelerator pedal position	0.4 %/bit, 0 offset
				Byte 5	1-8	Not defined/未定义	Not used
				Byte 6	1-8	Not defined/未定义	Not used
				Byte 7	1-8	Actual maximum available engine ercentage torque	Scale:0.4%/bit
				Byte 8	1-8	Not defined/未定义	
EEC3 发动机控制器＃3	0x18FEDF00	250ms	Tx	Byte 1	1-8	nominal friction percent torque/摩擦扭矩百分比	Scale:1%/bit Offset:-125%
				Byte 2-3	1-8	engine's desired operating speed/发动机目标运行速度	Scale:0.125rpm/bit
				Byte 4	1-8	engine's operating speed asymmetry	1 ratio

						adjustment/发动机平稳调整	
				Byte 5	1-8	Estimated Engine Parasitic Losses - PercentTorque	Scale:1%/bit
				Byte 6-7	1-8		Not used
				Byte 8	8-7	Not defined/未定义	Not used
					6-5	Not defined/未定义	Not used
					4-3	After Treatment Exhaust Dew Point Message - exhaust bank 1	当DSQ_stHtgNSU为1时此信号置1，否则置0 00:Not exceeded the dew point 01:Exceeded the dew point 10:Error 11:Not available
					2-1	Not defined/未定义	
LFC 燃油消耗量	0x18FEE900	on request	Tx	Byte 1-4	1-8	Trip Fuel Consumption	0.5 L/bit, 0 offset
				Byte 5	1-8	Total Fuel consumption Byte 1(LSB)	0.5 L/bit, 0 offset
				Byte 6	1-8	Total Fuel consumption Byte 2	
				Byte 7	1-8	Total Fuel consumption Byte 3	
				Byte 8	1-8	Total Fuel consumption Byte 4(MSB)	
LFE 燃油经济性	0x18FEF200	100ms	Tx	Byte 1-2		Fuel Rate/ 油耗	Scale:0.05L/h/bit
				Byte 3-4		Instantaneous Fuel Economy/ 瞬时油耗	Scale:0.001953125Km/L/bit
				Byte 5-6		Average Fuel Economy/平均燃油经济性（未用）	Not used
				Byte 7		Throttle position/节气门位置 (未用)	Not used
				Byte 8		Not defined/未定义	Not used
EFL/P1 发动机液位/压力	0x18FEEF00	500ms	Tx	Byte 1		Fuel Deliver y Pressure/燃油压力	Not used
				Byte 2		Extended Crankcase Blow-by Pressure/ (未用)	Not used
				Byte 3		Engine Oil Level/机油液位	Scale:0.4%/bit
				Byte 4		Engine Oil Pressure/机油压力	1、 OPSCDpOutValSwt_C=0时发送绝对值 OPSCD_pOutVal-OPSCD_pOutValOf_C OPSCD_pOutValOf_C=0

							2、 OPSCDpOutValSwt_C=1时发送相对值 OPSCD_pOutVal-APSCD_pVal Scale:4Kpa/bit
				Byte 5-6		Crankcase Pressure/曲轴箱压力(未用)	Not used
				Byte 7		Coolant Pressure/冷却液压力（未用）	Not used
				Byte 8		Engine Coolant Level/冷却液液位	Not used
ET1 发动机温度	0x18FEEE00	1000ms	Tx	Byte 1		Engine Coolant Temperature/发动机冷却水温度	Scale:1℃/bit Offset:-40℃
				Byte 2		Fuel Temperature/燃油温度	Scale:1℃/bit Offset:-40℃
				Byte 3-4		Engine Oil Temperature /机油温度	Scale:0.03125℃/bit Offset:-273℃
				Byte 5-6		Turbo Oil Temperature/增压器机油温度（未用）	Not used
				Byte 7-8		Engine Intercooler Temperature/ （未用）	Not used
VehPow 整车电源	0x18FEF700	1000ms	Tx	Byte 1-6		Not defined/未定义	Not used
				Byte 7		Battery voltage LSB/电瓶电压（低字节）	Scale:0.05/bit Offset:0
				Byte 8		Battery voltage MSB/电瓶电压（高字节）	Scale:0.05/bit Offset:0
EngHrRev 发动机运行时间	0x18FEE500	on request	Tx	Byte 1		Total engine hours-Byte1(LSB)/发动机累计运行时间	Scale:0.05h/bit
				Byte 2-3		Total engine hours-Byte2-3/发动机累计运行时间	
				Byte 4		Total engine hours -Byte4(MSB) /发动机累计运行时间	
				Byte 5		Total engine revolutions-Byte1(LSB)/发动机累计转速	Not used
				Byte 6-7		Total engine revolutions-Byte2-3/发动机累计转速	Not used
				Byte 8		Total engine revolutions-Byte4(MSB) /发动机累计转速	Not used

INCON 发动机进气条件	0x18FEF600	1000ms	Tx	Byte 1		Not defined/未定义，一直为FF	Not used
				Byte 2		boost pressure-atmosphere pressure/相对增压压力	Scale:2kPa/bit
				Byte 3		Intake manifold temperature/ 进气温度	Scale:1℃/bit Offset:-40℃
				Byte 4		Air inlet pressure (absolute boost pressure)/绝对增压压力	Scale:2kPa/bit
				Byte 5		Air filter differential pressure/空滤器压差(未用)，一直为0xFF	Not used
				Byte 6-7		Exhaust gas temperature/排气温度（未用），一直为0xFFFF	Not used
				Byte 8		Coolant filter differential temperature/冷却器温差（未用）	Not used
DM1/DM2 (SINGLE)	DM1: 0x18FECA00 DM2: 0x18FECB00	DM1: 1000ms DM2: on request	Tx	Byte 1	8-7	Malfunction Indictor Lamp State/MIL 灯状态	00 Slow Flash (1 Hz, 50% duty cycle) 01 Fast Flash (2 Hz or faster, 50% duty cycle) 10 Class C DTC (for WWH OBD discriminatory display systems, not applicable for other OBD non-discriminatory display systems) 11 Unavailable / Do Not Flash
					6-5	Red Stop Lamp State /红色停止灯状态	00 Lamp Off 01 Lamp On
					4-3	Amber Warn Lamp State/环境警告灯状态	00 Lamp Off 01 Lamp On
					2-1	Protect Lamp State/保护灯状态（不使用，设为0x11）	Not used
				Byte 2		Reserved /保留	
				Byte 3		SPN 第一字节	
				Byte 4		SPN 第二字节	

				Byte 5	8-6	SPN MSB	
					5-1	FMI 码	
				Byte 6	8	SPN 转换模式，设为0	
					7-1	Occurrence count for faults, limited to 128/当前故障计数	
				Byte 7		Not defined/未定义	
				Byte 8		Not defined/未定义	
DM1/ DM2 BAM 当前/历史故障信息通告	0x18ECFF00	DM1：1000ms DM2： On request	Tx	Byte 1		Control Byte/控制字节	
				Byte 2		Total messages size, number of Bytes/总信息字节数（低字节）	
				Byte 3		Total messages size, number of Bytes/总信息字节数（高字节）	
				Byte 4		Total number of packets/总包数	
				Byte 5		Reserved /保留，设为FF	
				Byte 6-8		PGN，DM1 为CAFE00,DM2 为CBFE00	
DM1/DM2 PACK 1	0x18EBFF00	DM1：50ms DM2： on request	Tx	Byte 1		Package identification ,set to 0x 01	
				Byte 2		Diagnostic lamp	
				Byte 3		Reserved ,set to 0x FF	
				Byte 4		Diagnostic trouble code#1(Byte1)	
				Byte 5		Diagnostic trouble code#1(Byte2)	
				Byte 6		Diagnostic trouble code#1(Byte3)	
				Byte 7		Diagnostic trouble code#1(Byte4)	
				Byte 8		Diagnostic trouble code#2(Byte1)	
DM1/DM2 PACK 2	0x18EBFF00	DM1：50ms DM2： on request	Tx	Byte 1		Package identification ,set to 0x 02	
				Byte 2		Diagnostic trouble code#2(Byte2)	
				Byte 3		Diagnostic trouble code#2(Byte3)	
				Byte 4		Diagnostic trouble code#2(Byte4)	
				Byte 5		Diagnostic trouble code#3(Byte1)	
				Byte 6		Diagnostic trouble code#3(Byte2)	
				Byte 7		Diagnostic trouble code#3(Byte3)	
				Byte 8		Diagnostic trouble code#3(Byte4)	
DM1/DM2 PACK 3	0x18EBFF00	DM1：50ms DM2： on request	Tx	Byte 1		Package identification ,set to 0x 03	
				Byte 2		Diagnostic trouble code#4(Byte1)	
				Byte 3		Diagnostic trouble code#4(Byte2)	

				Byte 4		Diagnostic trouble code#4(Byte3)	
				Byte 5		Diagnostic trouble code#4(Byte4)	
DM4BAM 内存故障通告	0x18ECFF00	100ms	Tx	Byte 1		Control Byte ,set to 0x20/控制字节	
				Byte 2		Total messages size ,number of Bytes(low Byte)	
				Byte 3		Total messages size ,number of Bytes(high Byte)	
				Byte 4		Total number of packages	
				Byte 5		Reserved for Assignment by SAE ,set to 0x FF	
				Byte 6-8		PGN of the package messages ,set to 0x CDFE00	
DM4 SINGLE	0x18FECD00	On request	Tx	Byte 1		Freeze frame length/冻结帧长度	
				Byte 2		SPN 低字节	
				Byte 3		SPN 第二字节	
				Byte 4	8-6	SPN 高字节，设为100b	
					5-1	FMI	
				Byte 5	8	SPN 转换模式	
					7-1	故障计数，限制到126	
				Byte 6-8		Not defined/未定义	
DM4 PACK 1	0x18EBFF00	50ms	Tx	Byte 1		Package identification ,set to 0x 01	
				Byte 2		Freeze frame length（1st DTC） /冻结帧长度，0x04	
				Byte 3-4		SPN number(low Byte +second Byte)	
				Byte 5		SPN number (MSB)+FMI	
				Byte 6		Faults status	
				Byte 7		Freeze frame length（2nd DTC） /冻结帧长度，0x04	
				Byte 8		SPN number	
DM4 PACK 2	0x18EBFF00	50ms	Tx	Byte 1		Package identification ,set to 0x 02	
				Byte 2		SPN number	
				Byte 3		SPN number (MSB)+FMI	
				Byte 4		Faults status	
				Byte 5		Freeze frame length（3st DTC） /冻结帧长	

						度，0x04	
				Byte 6-7		SPN number	
				Byte 8		SPN number (MSB)+FMI	
DM4 PACK 3	0x18EBFF00	50ms	Tx	Byte 1		Package identification ,set to 0x 03	
				Byte 2		Faults status	
				Byte 3		Freeze frame length（4th DTC） /冻结帧长度，0x04	
				Byte 4-5		SPN number	
				Byte 6		SPN number (MSB)+FMI	
				Byte 7		Faults status	
EngConf BAM 发动机配置通告	0x18ECFF00	5000ms	Tx	Byte 1		Control Byte ,set to 0x20/控制字节	
				Byte 2		Total messages size ,number of Bytes(low Byte),set to 0x1C	
				Byte 3		Total messages size ,number of Bytes(high Byte),SET TO 0x00	
				Byte 4		Total number of packages ,set to 0x 04	
				Byte 5		Reserved for Assignment by SAE ,set to 0x FF	
				Byte 6		PGN of the package messages ,set to 0x E3	
				Byte 7		PGN of the package messages ,set to 0x FE	
				Byte 8		PGN of the package messages ,set to 0x 00	
EngConf PACK 1 发动机配置	0x18EBFF00	50ms	Tx	Byte 1		Package identification, set to 1	
				Byte 2-3		Point 1-engine speed at idle/怠速转速	Scale:0.125rpm/bit Offset:0
				Byte 4		Point 1-percent torque at idle/怠速扭矩	Scale:1%/bit Offset:125%
				Byte 5-6		Point 2-highest possible engine speed	
				Byte 7		Point 2-percent torque at highest speed	
				Byte 8		Point 3-low Byte of engine speed	
EngConf PACK 2 发动机配置	0x18EBFF00	50ms	Tx	Byte 1		Package identification ,set to 2	
				Byte 2		Point 3-high Byte of engine speed	
				Byte 3		Point 3-percent torque	
				Byte 4-5		Point 4-engine speed	
				Byte 6		Point 4-percent torque	

				Byte 7-8		Point 5-engine speed	
EngConf PACK 3 发动机配置	0x18EBFF00	50ms	Tx	Byte 1		Package identification ,set to 3	
				Byte 2		Point 5-percent torque	
				Byte 3-4		Point 6-engine speed	
				Byte 5-6		Byte of gain of end-speed governor	
				Byte 7-8		Reference engine torque/参考扭矩	
EngConf PACK 4 发动机配置	0x18EBFF00	50ms	Tx	Byte 1		Package identification ,set to 4	
				Byte 2-3		Point 7-Byte of max momentary engine override speed limit	
				Byte 4		Maximum momentary engine override time limit	
				Byte 5-8		Requested speed control ,not use d/未用	
ERC1	0x18F0000F	100ms	Tx	Byte1	1..4	Retarder Torque Mode	0000:No request 0101:ASR control 0110:Transmission control 1010:DR control 1110:VM control
					5..6	Retarder Enable - Brake Assist Switch	Not used
					7..8	Retarder Enable - Shift Assist Switch	Not used
				Byte2		Actual Retarder Torque Percentage	Scale:1%/bit Offset:-125%
				Byte3		Intended Retarder percent Torque	Scale:1%/bit Offset:-125%
				Byte4	1..2		Not used
					3..4	Retarder Requesting Brake Light	Not used
				Byte 5		Source Address of controlling device for retarder control	Not used
				Byte 6		Driver's Demand Retarder Percent Torque	Scale:1%/bit Offset:-125%

				Byte 7		Retarder Switch Percent Torque	
				Byte 8		Actual Maximum Available retarder Percent Torque	Scale:1%/bit Offset:-125%
ShutDown	0x18FEE400	1000ms	Tx	Byte 1	1..2	Engine Idle Shutdown has Shutdown Engine	Not used
					3..4	Engine Idle Shutdown Driver Alert Mode	Not used
					5..6	Engine Idle Shutdown Timer Override	Not used
					7..8	Engine Idle Shutdown Timer State	Not used
				Byte 2	1..6		Not used
					7..8	Engine Idle Shutdown Timer Functio	Not used
				Byte 3	1..2	A/C High Pressure Fan Switch	Not used
					3..4	Refrigerant Low Pressure Switch	Not used
					5..6	Refrigerant High Pressure Switch	Not used
					7..8		Not used
				Byte 4	1..2	Engine Wait to Start Lamp	00:Lamp OFF 01:Lamp ON
					3..8		
				Byte 5	1..2	Engine protection system has shutdown engine	00:shutdown not active 01:shutdown active
					3..4	Engine Protection System Approaching Shutdown	Not used
					5..6	Engine Protection System Timer Override	Not used
					7..8	Engine Protection System Timer State	Not used
				Byte 6	1..2	Engine Protection System Configuration	Not used
					3..6		Not used
					7..8	Engine Protection System Configuration	Not used
				Byte 7	1..2	Engine Alarm Acknowledge	Not used
					3..4	Engine Alarm Output Command Status	Not used
					5..6	Engine Air Shutoff Command Status	Not used
					7..8	Engine Overspeed Test	Not used
				Byte 8	1..2	Engine Air Shutoff Status	Not used
FanDrv	0x18FEBD00	1000ms	Tx	Byte 1		Estimated percent fan speed	Scale:0.4%/bit
				Byte 2	1..4	Fan Drive State	0000:Fan off 0001:Engine system

							0010:Excessive engine air temp 0011:Excessive engine oil temp 0100:Excessive engine Coolant temp 0101-1000:Not defined 1001:manual control 1010:Transmission retarder 1011:A/C system 1100:Timer 1101:Engine brake 1110:other 1111:Not available
				Byte 3 4		Fan Speed	Scale:0.125rpm/bit
				Byte 5			Not used
				Byte 6			Not used
				Byte 7			Not used
				Byte 8			Not used
CCSS	0x18FEED00	on request	Tx	Byte 1		Maximum Vehicle Speed Limit	1 km/h per bit, 0 offset
				Byte 2		Cruise Control High Set Limit Speed	1 km/h per bit, 0 offset
				Byte 3		Cruise Control Low Set Limit Speed	1 km/h per bit, 0 offset
DLCC	0x18FD0700	1000ms	Tx	Byte1	3..4	Engine Amber Warning Lamp Command	Not used
					7..8	OBD Malfunction Indicator Lamp Command	Not used
				Byte2	1..2	Engine Brake Active Lamp Command	Not used
					5..6	Engine Oil Pressure Low Lamp Command	Not used
					7..8	Engine Coolant Temperature High Lamp Command	Not used
				Byte8	7..8	Eng Wait Start Lamp	Not used
VD	0x18FEE000	100ms	Tx	Byte 1		Trip distance	Scale:0.125Km/bit Offset:0
				Byte 2			
				Byte 3			

				Byte 4			
				Byte 5		Vehicle distance	Scale:0.125Km/bit Offset:0
				Byte 6			
				Byte 7			
				Byte 8			
DOSUUA2	0x18F02400	50ms	Tx	Byte 1		requested Urea Dosing quantity	Scale:0.3g/h/bit Offset:0
				Byte 2			
AT1UUA1	0x18FD3E00	500ms	Tx	Byte 1		SCR Catalyst Inlet temperature	0.03125 C/bit Offset:-273 C
				Byte 2			
				Byte 4		SCR Catalyst Inlet temperature	0.03125 C/bit Offset:-273 C
				Byte 5			
SCRHtrSta	0x18FE5C00	1000ms		Byte 1		Remaining quantity of reducing	Scale:0.01L/bit Offset: 0
				Byte 2			
				Byte 3	bit0	Defrost status	1/bit Offset: 0
MFD1	0x18FF0800	100ms	Tx	Byte 1		Relative engine oil pressure	Scale: 4kPa/bit Offset:0
				Byte 2	5..6	Over coolant temperature status	00 Normal 01 Pre-warning 11 Warning (Engine Max Power is limited)
					7..8	Engine oil pressure Status	Remarks:Oil_p VS Oil_pMinP_mp 00 Normal 01 Below operating range 11 Not available
				Byte 3	5..8	Cold start heater status	0000:Off phase (heater off, lamp off) 0001:Pre-heating phase (heater on, lamp on) 0010:Stand by phase with

							heating (heater on, lamp blinking), cranking recommended. 0011:Stand by phase without heating (heater off, lamp off) 0100:Crank with extra heating phase (heater on, lamp off) 0101:Crank phase (heater off, lamp off) 0110:Post heating phase (heater on, lamp off) 0111:Heating phase end (heater off, lamp off) 1000:After run phase (heater off, lamp off) 1001 – 1111:Not defined
				Byte 4	1..2	OBD Lamp Status	00:Lamp Off 01:Lamp On 10:Lamp Blinking 11:Not Available
				Byte 5		Exhaust flap valve output	Scale：0.4%/bit Offset:0%
				Byte 6			Not used
				Byte 7			Not used
				Byte 8			Not used
WFI	0x18FEFF00	10ms		Byte 1	1..2	Water in fuel indicator	00:No water present in the fuel

							01:water present in the fuel 10:Error Value 11:Not available
SWID	0x18FEDA00	on request	Tx	Byte 1			Not used
				Byte 2		ASCII value of SWId	Not used
				Byte 3			Not used
				Byte 4			Not used
				Byte 5			Not used
				Byte 6			Not used
				Byte 7			Not used
				Byte 8			Not used
EngRetCfg BAM 发动机缓速器配置通告	0x18ECFF0F	5000ms	Tx	Byte 1		Control Byte ,set to 0x20/控制字节	
				Byte 2		Total messages size ,number of Bytes(low Byte),set to 0x13	
				Byte 3		Total messages size ,number of Bytes(high Byte),SET TO 0x00	
				Byte 4		Total number of packages ,set to 0x 03	
				Byte 5		Reserved for Assignment by SAE ,set to 0x FF	
				Byte 6		PGN of the package messages ,set to 0x E1	
				Byte 7		PGN of the package messages ,set to 0x FE	
				Byte 8		PGN of the package messages ,set to 0x 00	
EngRetCfg PACK 1 发动机配置	0x18EBFF0F	50ms	Tx	Byte 1		Package identification, set to 1	
				Byte 2		Retarder Type	FrmMng_stRetCfgTypeLoc_C 0000 Electric/Magnetic 0001 Hydraulic 0010 Cooled Friction 0011 Compression Release (Engine retarder) 0100 Exhaust 0101-1101 Not defined 1110 Other 1111 Not available

						Retarder Location	0000 (Primary) Engine Compression Release Brake (Engine rpm) 0001 (Primary) Engine Exhaust Brake (Exhaust pressure) 0010 (Primary) Transmission Input (Engine rpm) 0011 (Secondary) Transmission Output (Output Shaft rpm) 0100 (Secondary) Driveline (Output Shaft rpm) 0101 Trailer (Vehicle speed) 0110-1101 Not defined 1110 Other 1111 Not available
				Byte 3		Retarder Control Method	1 step/bit, 0 offset
				Byte 4-5		Point 1, Retarder speed at idle	0.125 rpm/bit, 0 offset
				Byte 6		Retarder percent torque at idle	1 %/bit, -125 % offset
				Byte 7-8		Point 2, Maximum retarder speed	0.125 rpm/bit, 0 offset
EngRetCfg PACK 2 发动机配置	0x18EBFF0F	50ms	Tx	Byte 1		Package identification ,set to 2	
				Byte 2		Retarder percent torque at maximum speed	1 %/bit, -125 % offset
				Byte 3-4		Point 3, Engine speed	0.125 rpm/bit, 0 offset
				Byte 5		Point 3, Retarder percent torque	1 %/bit, -125 % offset
				Byte 6-7		Point 4, Engine speed	0.125 rpm/bit, 0 offset
				Byte 8		Point 4, Retarder percent torque	1 %/bit, -125 % offset
EngRetCfg PACK 3 发动机配置	0x18EBFF0F	50ms	Tx	Byte 1		Package identification ,set to 3	
				Byte 2-3		Point 5, Retarder speed at peak torque	0.125 rpm/bit, 0 offset
				Byte 4-5		Reference Retarder torque	1 Nm/bit, 0 offset

				Byte 6		Point 5, Retarder percent torque	1 %/bit, -125 % offset
				Byte 7-8		0xFF	

10. 接收报文详细描述（Rx/Sending Messages）

Message/报文				Parameter definition/参数定义			备注
Name/ 报文名称	ID/ 地址	Cycle time/ 频率	Type/ 类型	Byte/字节	Bit/ 位	Parameter/参数	
RxAMCON 环境信息接收	0x18FEF521	1000ms	Rx	Byte 1-3		Not defined/未定义	Not used
				Byte 4-5		Ambient air temperature/空气温度	Not used
				Byte 6-8		Not defined/未定义	Not used
RxCCVS 巡航控制接收信息	0x18FEF121	100ms	Rx	Byte 1	5-8	Not defined/未定义	Not used
					4-3	Status of parking brake/刹车状态	00:Switch not actuated 01:Switch actuated 10:Error 11:Switch status not available
					2-1	Not defined/未定义	Not used
				Byte 2-3		Wheel based vehicle Speed/ 车速	Scale:0.00390625Km/h/bit Offset:0
				Byte 4	8-7	Status of clutch switch/离合开关状态	00:Clutch not actuated 01:Clutch actuated 10:Error 11:Not available
					6-5	Status of brake switch/刹车开关状态	00:Brake not Depressed and no defect 01:Brake Depressed and no defect

								10:Brake plausibility not ok 11:brake switch status not available
					4-1		Not defined/未定义	Not used
				Byte 5-6			Not defined/未定义	Not used
				Byte 7	8-7		Not defined/未定义	Not used
					6-1		PTO state/PTO 状态	Not used
				Byte 8			Not defined/未定义	Not used
PGNRQ PGN请求	0x18EA0021	On Request	Rx	Byte 1 **PGN LSB**	Byte 2 **PGN**	Byte3 **PGN MSB**	Kind of request	
				0xCB	0xFE	0x00	DM2 Request/DM2 申请发送	
				0xCD	0xFE	0x00	DM4 Request/DM4 申请发送	
				0xD3	0xFE	0x00	DM11 Request/DM11 申请发送	
				0x00	0xEF	0x00	STOD Request/STOD 申请发送	
				0xE5	0xFE	0x00	Engine Hours Revolution/发动机运转时间申请发送	
				0xE9	0xFE	0x00	Fuel Consumption/总油耗申请发送	
				0xDA	0xFE	0x00	Software identification/软件版本申请发送	
				0xEB	0xFE	0x00	Component identification/组件确认申请发送	
				0xF0	0xFF	0x00	Not defined/未定义	
TSC1_AE 扭矩/速度控制 （ 刹车系统）	0x0C00000B	10ms	Rx	Byte 1	8-7		Not defined/未定义	
					6-5		Override control mode priority/override 控制模式优先级	00:Highest Priority 01:High priority 10:Medium priority 11:Low priority
					4-3		Requested speed control conditions/请求速度控制条件	00:Transient Optimized for driveline disengaged and non-lockup conditions 01:Stability Optimized for driveline disengaged and non-lockup conditions

							10:Stability Optimized for driveline engaged and/or in lockup condition 1 11: Stability Optimized for driveline engaged and/or in lockup condition 2
					2-1	Override control modes/override 控制模式	00:Override disabled 01:Speed control 10:Torque control 11:Speed/torque limit control
				Byte 2-3		Requested speed/speed limit/ 目标转速/转速限制	Scale:0.125rpm/bit Offset:0
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Scale:1%/bit Offset:-125%
				Byte 5-8		Not defined/未定义	Not used
EngGsFlowRt 发动机气体流量	0x0CF00A89	50ms	Rx	Byte 1		EGR mass flow rate value /EGR 流量（LSB）	Not used
				Byte 2		EGR mass flow rate value /EGR 流量（MSB）	Not used
				Byte 3-4		Inlet air mass flow rate vale, Not Used 未用	Not used
				Byte 5-8		Not defined/未定义	Not used
TSC1_TE 扭矩/速度控制（ 传动系统）	0x0C000003	10ms	Rx	Byte 1	8-7	Not defined/未定义	Not used
					6-5	Override control mode priority/override 控制模式优先级	00:Highest Priority 01:High priority 10:Medium priority 11:Low priority
					4-3	Requested speed control conditions/请求速度控制条件	00:Transient Optimized for driveline disengaged and non-lockup conditions 01:Stability Optimized for driveline disengaged and

							non-lockup conditions 10:Stability Optimized for driveline engaged and/or in lockup condition 1 11: Stability Optimized for driveline engaged and/or in lockup condition 2
					2-1	Override control modes/override 控制模式	00:Override disabled 01:Speed control 10:Torque control 11:Speed/torque limit control
				Byte 2-3		Requested speed/speed limit/ 目标转速/转速限制	Scale:0.125rpm/bit Offset:0
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Scale:1%/bit Offset:-125%
				Byte 5-8		Not defined/未定义	
TSC1_DE 扭矩/速度控制 （缓速器系统）	0x0C00000B	10ms	Rx	Byte 1	8-7	Not defined/未定义	
					6-5	Override control mode priority/override 控制模式优先级	00:Highest Priority 01:High priority 10:Medium priority 11:Low priority
					4-3	Requested speed control conditions/请求速度控制条件	00:Transient Optimized for driveline disengaged and non-lockup conditions 01:Stability Optimized for driveline disengaged and non-lockup conditions 10:Stability Optimized for driveline engaged and/or in lockup condition 1

							11: Stability Optimized for driveline engaged and/or in lockup condition 2
					2-1	Override control modes/override 控制模式	00:Override disabled 01:Speed control 10:Torque control 11:Speed/torque limit control
				Byte 2-3		Requested speed/speed limit/ 目标转速/转速限制	Scale:0.125rpm/bit Offset:0
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Scale:1%/bit Offset:-125%
				Byte 5-8		Not defined/未定义	Not used
TSC1_PE 扭矩/速度控制 （PTO 系统）	0x0C000024	10ms	Rx	Byte 1	8-7	Not defined/未定义	Not used
					6-5	Override control mode priority/override 控制模式优先级	00:Highest Priority 01:High priority 10:Medium priority 11:Low priority
					4-3	Requested speed control conditions/请求速度控制条件	00:Transient Optimized for driveline disengaged and non-lockup conditions 01:Stability Optimized for driveline disengaged and non-lockup conditions 10:Stability Optimized for driveline engaged and/or in lockup condition 1 11: Stability Optimized for driveline engaged and/or in lockup condition 2

					2-1	Override control modes/override 控制模式	00:Override disabled 01:Speed control 10:Torque control 11:Speed/torque limit control
				Byte 2-3		Requested speed/speed limit/ 目标转速/转速限制	Scale:0.125rpm/bit Offset:0
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Scale:1%/bit Offset:-125%
				Byte 5-8		Not defined/未定义	Not used
TSC1_VE 扭矩/速度控制 （ 车身系统）	0x0C000021	10ms	Rx	Byte 1	8-7	Not defined/未定义	Not used
					6-5	Override control mode priority/override 控制模式优先级	00:Highest Priority 01:High priority 10:Medium priority 11:Low priority
					4-3	Requested speed control conditions/请求速度控制条件	00:Transient Optimized for driveline disengaged and non-lockup conditions 01:Stability Optimized for driveline disengaged and non-lockup conditions 10:Stability Optimized for driveline engaged and/or in lockup condition 1 11: Stability Optimized for driveline engaged and/or in lockup condition 2
					2-1	Override control modes/override 控制模式	00:Override disabled 01:Speed control 10:Torque control 11:Speed/torque limit control

				Byte2-3		Requested speed/speed limit/ 目标转速/转速限制	Scale:0.125rpm/bit Offset:0
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Scale:1%/bit Offset:-125%
				Byte 5-8		Not defined/未定义	Not used
TSC1_AR 扭矩限制 （ 刹车系统）	0x0C000F0B	50ms	Rx	Byte 1	8-7	Not defined/未定义	Not used
					6-5	Override control mode priority/override 控制模式优先级	00:Highest Priority 01:High priority 10:Medium priority 11:Low priority
					4-3	Not defined/未定义	00:Transient Optimized for driveline disengaged and non-lockup conditions 01:Stability Optimized for driveline disengaged and non-lockup conditions 10:Stability Optimized for driveline engaged and/or in lockup condition 1 11: Stability Optimized for driveline engaged and/or in lockup condition 2
					2-1	Override control modes/override 控制模式	00:Override disabled 01:Speed control 10:Torque control 11:Speed/torque limit control
				Byte 2-3		Not defined/未定义	Scale:0.125rpm/bit Offset:0
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Scale:1%/bit Offset:-125%
				Byte 5-8		Not defined/未定义	Not used

TSC1_DR 扭矩限制 （缓速器系统）	0x0C000F0B	50ms	Rx	Byte 1	8-7	Not defined/未定义	Not used
					6-5	Override control mode priority/override 控制模式优先级	同 TSC1_AE
					4-3	Not defined/未定义	Not used
					2-1	Override control modes/override 控制模式	Not used
				Byte 2-3		Not defined/未定义	Not used
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Not used
				Byte 5-8		Not defined/未定义	Not used
TSC1_TR 扭矩限制 （ 传动系统）	0x0C000F0B	50ms	Rx	Byte 1	8-7	Not defined/未定义	Not used
					6-5	Override control mode priority/override 控制模式优先级	00:Highest Priority 01:High priority 10:Medium priority 11:Low priority
					4-3	Not defined/未定义	00:Transient Optimized for driveline disengaged and non-lockup conditions 01:Stability Optimized for driveline disengaged and non-lockup conditions 10:Stability Optimized for driveline engaged and/or in lockup condition 1 11: Stability Optimized for driveline engaged and/or in lockup condition 2
					2-1	Override control modes/override 控制模式	00:Override disabled 01:Speed control 10:Torque control 11:Speed/torque limit control

				Byte 2-3		Not defined/未定义	Scale:0.125rpm/bit Offset:0
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Scale:1%/bit Offset:-125%
				Byte 5-8		Not defined/未定义	Not used
TSC1_VR 扭矩限制 （ 车身系统）	0x0C000F21	50ms	Rx	Byte 1	8-7	Not defined/未定义	Not used
					6-5	Override control mode priority/override 控制模式优先级	00:Highest Priority 01:High priority 10:Medium priority 11:Low priority
					4-3	Not defined/未定义	00:Transient Optimized for driveline disengaged and non-lockup conditions 01:Stability Optimized for driveline disengaged and non-lockup conditions 10:Stability Optimized for driveline engaged and/or in lockup condition 1 11: Stability Optimized for driveline engaged and/or in lockup condition 2
					2-1	Override control modes/override 控制模式	00:Override disabled 01:Speed control 10:Torque control 11:Speed/torque limit control
				Byte 2-3		Not defined/未定义	Scale:0.125rpm/bit Offset:0
				Byte 4		Requested torque/torque limit/目标扭矩/扭矩限制	Scale:1%/bit Offset:-125%

				Byte 5-8		Not defined/未定义	Not used
DEC1 开关控制器1	0x0CFF0431	20ms	Rx	Byte1	8-7	T50 switch/T50 开关，01 为激活/按下	Not used
					6-3	Multi-state switch/多态开关	Not used
					2-1	Not defined/未定义	Not used
				Byte2	8-7	Cruise control, minus switch/巡航“-”键，01为激活/按下	Not used
					6-5	Cruise control, plus switch/巡航“+”键，01为激活/按下	Not used
					4-3	Cruise control, resume switch/巡航“恢复”键，01为激活/按下	Not used
					2-1	Cruise control, stop switch/巡航“停止”键，01为激活/按下	Not used
				Byte 3	8-7	Not defined/未定义	Not used
					6-5		Not used
					4-3		Not used
					2-1		Not used
				Byte 4	8-1		Not used
				Byte 5	8-7	Not defined/未定义	Not used
					6-5	A/C switch/空调开关，01为激活/按下	Not used
					4-3	Neutral gear position/空档开关，01为激活/按下	00:Neutral switch OFF 01:Neutral switch ON 10:not available 11:not available
					2-1	Not defined/未定义	Not used
				Byte 6			Not used
				Byte 7			Not used
				Byte 8		Not defined/未定义	Not used
WheelSpeedInfo (EBC2) 轮速信息	0x18FEBF0B	50ms	Rx	Byte 1		Front axle speed, low Byte/前轴速度，低字节	1/256 km/h per bit, 0 offset
				Byte 2		Front axle speed, high Byte/前轴速度，高字节	
				Byte 3-8		Not defined/未定义	Not used
DM13 通讯网络选择	0x18DFFF27	1000ms	Rx	Byte 1	8-7	Current data link/当前数据链接	
					6-3	Not defined/未定义	

					2-1	J1939 network #1,primary vehicle network/网络＃1联入CANB 控制器	
				Byte 2	8-7	J1939 network # 2,联入CANA 和CANC 控制器	
					6-1	Not defined/未定义	
				Byte 3		Not defined/未定义	
				Byte 4	8-5	Hold signal/悬挂信号	
					4-1	Not defined/未定义	
				Byte 5-8		Not defined/未定义	
ETC1 电子传动控制	0x0CF00203	10ms	Rx	Byte 1	8-7	Not defined/未定义	Not used
					6-5	Shift in process/换挡过程	00:Gear shift not Active 01: Gear shift Active
					4-3	Torque converter lockup engaged/扭矩转换锁定/结合	00:Torque Converter lockup is disengaged 01: Torque Converter lockup is engaged
					2-1	Driveline Engaged	00:Driveline is Disengaged 01:Driveline is engaged
				Byte 2-3		Output shaft speed(gearbox output speed)	Scale:0.125rpm/bit Offset:0rpm
				Byte 4		Percent Clutch Slip	0.4 %/bit, 0 offset
				Byte 5	8-5	Not defined/未定义	Not used
					4-3	Momentary engine overspend enable/发动机瞬时超速使能	Not used
					2-1		00: Momentary overspeed request not allowed 01: Momentary overspeed request allowed
				Byte 6-8		Not defined/未定义	Not used
HRVD 高分辨率行车里程	0x18FEC1EE	1000ms	Rx	Byte 1		HRVD-Low Byte1	Not used
				Byte 2		HRVD-Low Byte2	Not used

				Byte 3		HRVD-high Byte1	Not used
				Byte 4		HRVD-high Byte2	Not used
				Byte 5-8		Not defined/未定义	Not used
TCO1 车速信息	0x0CFE6CEE	50ms	Rx	Byte 1-4		Not defined/未用	Not used
				Byte 5-6		Tachograph output shaft speed /转速表输出	0.125rpm/bit
				Byte 7		Tachograph vehicle speed-LSB /转速表车速低字节	0.00390625/km/h/bit
				Byte 8		Tachograph vehicle speed-MSB /转速表车速高字节	
EBC1 电子刹车控制器＃1	0x18F0010B	20ms	Rx	Byte 1	8-7	EBS brake switch /电子刹车系统开关	00:Brake not depressed and not defect 01:Brake depressed and no defect 10:Brake plausibility NOT OK 11:Brake switch status not available
					6-5	Not defined/未定义	
					4-3	ASR brake control active/ASR 刹车控制激活	00:ASR brake control passive but installed 01:ASR brake control active 10:ASR brake control Not OK 11:Not available
					2-1	ASR engine control active/ ASR 控制发动机状态激活	00:ASR engine control passive but installed 01:ASR engine control active 10:ASR engine control not OK 11:Not availble

				Byte 2		Brake Pedal Position /未用	Not used
				Byte 3		Status_EBC2/未用	Not used
				Byte 4	8-7	Measured_aux_1/未用	Not used
					6-5	Auxiliary engine shut down/辅助发动机停机	00:OFF,No shut off request 01:ON,shut off request active 10:Error 11:Not available
					4-1	Not defined /未用	Not used
				Byte 5		Engine retarder selection/未用	Not used
				Byte 6	8-7		00:Off 01:On 10:reserved 11:Take no action
					6-5	the ABS/EBS amber/yellow optical warning signal	00 Off 01 On 10 Reserved 11 Take no action
					4-3	EBS red optical warning signal	00 Off 01 On 10 Reserved 11 Take no action
					2-1		Not used
				Byte 7	8-1	Not defined/未用	Not used
				Byte 8	8-1	Not defined/未用	Not used
ERC1DR	0x18F00010	100 ms	Rx	Byte 1	1..4	Retarder Torque Mode	Not used
					5..6	Retarder Enable - Brake Assist Switch	Not used
					7..8	Retarder Enable – Shift Assist Switch	Not used
				Byte 2		Actual Retarder Percent Torque	Not used
				Byte 3		Intended Retarder Percent Torque	Not used
				Byte 4	1...2	Engine Coolant Load Increase	Not used
					3...4	Retarder Requesting Brake Light	Not used
				Byte5		Source Address of Controlling Device for	Not used

						Retarder Control	
				Byte6		Drivers Demand Retarder Percent Torque	Not used
				Byte7		Retarder Switch Percent Torque	Not used
				Byte8		Actual Maximum Available Retarder Percent Torque	Not used
TimeDate	0x18FEE6EE	1000 ms	Rx	Byte 1		Second	Not used
				Byte 2		Minute	Not used
				Byte 3		Hour	Not used
				Byte 4		Month	Not used
				Byte5		Day	Not used
				Byte6		Year	Not used
				Byte7		Local minute offset	Not used
				Byte8		Local hour offset	Not used
ETC2	0x18F00503	100ms	Rx	Byte 1		Selected gear	Scale:1 gear/bit Offset:-125
				Byte 2		Actual gear ratio low byte	Scale:0.001/bit Offset:0
				Byte 3		Actual gear ratio high byte	
				Byte 4		Current gear	cale:1 gear/bit Offset:-125
ETC7	0x18FE4A03	100ms	Rx	Byte 1	1...2	Transmission Current Range Display Blank State	Not used
					3...4	Transmission Service Indicator	Not used
					5...6	Transmission Requested Range Display Blank State	Not used
					7...8	Transmission Requested Range Display Flash State	Not used
				Byte2	1...2	Transmission Ready for Brake Release	Not used
					3...4	Active Shift Console Indicator	Not used
					5...6	Transmission Engine Crank Enable	00 - Cranking disabled; 01 - Cranking enabled; 10 - Error 11 - Not available

					7...8	Transmission Shift Inhibit Indicator	Not used
				Byte 3	1...2	Transmission Mode 4 Indicator	Not used
					3...4	Transmission Mode 3 Indicator	Not used
					5...6	Transmission Mode 2 Indicator	Not used
					7...8	Transmission Mode 1 Indicator	Not used
AT1O1	0x18F00F52	50 ms	Rx	Byte 1-2		Aftertreatment 1 outlet NOx	Scale:0.05ppm/bit Offset:-200
				Byte3- 4		Aftertreatment 1 outlet %O2	Scale:0.000514%/bit Offset:-12%
				Byte 5	1...2	Aftertreatment 1 outlet Gas Sensor Power in range	00 - Not in range 01 - In range 10 - Error 11 - Not available
					3...4	Aftertreatment 1 outlet Gas Sensor at temperature	
					5...6	Aftertreatment 1 outlet NOx reading stable	00 - Not stable 01 - Stable 10 - Error 11 - Not available
					7...8	Aftertreatment 1 outlet Wide-Range %O2 reading stable	
				Byte6	1...5	Aftertreatment 1 outlet Gas Sensor Heater preliminary FMI	Not used
					6...7	Aftertreatment 1 outlet NOx Sensor Heater Control	Not used
				Byte 7	1...5	Aftertreatment 1 outlet NOx Sensor preliminary FMI	Not used
				Byte 8	1...5	Aftertreatment 1 outlet O2 Sensor preliminary FMI	Not used
CM1	0x18E00021	1000ms	Rx	Byte 1		Requested Percent Fan Speed	0.4 %/bit, 0 offset
				Byte 2-3			Not used
ActDos	0x18F0233D	10ms	Rx	Byte 1		real injected Urea quantity	Factor:2^-10
				Byte 2			
DashDspl	0x18FEFC17	1000ms	Rx	Byte 1		Washer Fluid Level (Not evaluated by EDC)	Not used
				Byte 2		Fuel Level	0.4 %/bit, 0 offset
				Byte 3			Not used

				Byte 4			Not used
				Byte 5			Not used
				Byte 6			Not used
				Byte 7			Not used
				Byte 8			Not used
DM1DCU (SINGLE)	0x18FECA3D	1000ms	Tx	Byte 1	8-7	Malfunction Indictor Lamp State/MIL 灯状态	Everest_swtModeEn_C=1,表示ECU匹配即插即用DCU，以下标定量为DCU发送的故障码， Com_stLampDcu1_C=0x210D00; Com_stLampDcu2_C=0xFA0F00; Com_stLampDcu3_C=0xE21300; Com_stLampDcu4_C=0xFB0F00; Com_numDM1DCUFMI1_C=0; Com_numDM1DCUFMI2_C=0; Com_numDM1DCUFMI3_C=0; Com_numDM1DCUFMI4_C=0;
					6-5	Red Stop Lamp State /红色停止灯状态	
					4-3	Amber Warn Lamp State/环境警告灯状态	
					2-1	Protect Lamp State/保护灯状态（不使用，设为0x11）	
				Byte 2		Reserved /保留	
				Byte 3		SPN 第一字节	
				Byte 4		SPN 第二字节	
				Byte 5	8-6	SPN MSB	
					5-1	FMI 码	
				Byte 6	8	SPN 转换模式，设为0	
					7-1	Occurrence count for faults, limited to 128/当前故障计数	
				Byte 7		Not defined/未定义	
				Byte 8		Not defined/未定义	
DM1DCU BAM 当前故障信息	0x18ECFF3D	1000ms	Tx	Byte 1		Control Byte/控制字节	
				Byte 2		Total messages size, number of Bytes/总信息字节数（低字节）	
				Byte 3		Total messages size, number of Bytes/总信息字节数（高字节）	
				Byte 4		Total number of packets/总包数	
				Byte 5		Reserved /保留，设为FF	
				Byte 6-8		PGN，DM1 为CAFE00,DM2 为CBFE00	
DM1DCU PACK 1	0x18EBFF3D	50ms	Tx	Byte 1		Package identification ,set to 0x 01	
				Byte 2		Diagnostic lamp	
				Byte 3		Reserved ,set to 0x FF	

				Byte 4		Diagnostic trouble code#1(Byte1)	
				Byte 5		Diagnostic trouble code#1(Byte2)	
				Byte 6		Diagnostic trouble code#1(Byte3)	
				Byte 7		Diagnostic trouble code#1(Byte4)	
				Byte 8		Diagnostic trouble code#2(Byte1)	
DM1DCU PACK 2	0x18EBFF3D	50ms	Tx	Byte 1		Package identification ,set to 0x 02	
				Byte 2		Diagnostic trouble code#2(Byte2)	
				Byte 3		Diagnostic trouble code#2(Byte3)	
				Byte 4		Diagnostic trouble code#2(Byte4)	
				Byte 5		Diagnostic trouble code#3(Byte1)	
				Byte 6		Diagnostic trouble code#3(Byte2)	
				Byte 7		Diagnostic trouble code#3(Byte3)	
				Byte 8		Diagnostic trouble code#3(Byte4)	
DM1DCU PACK 3	0x18EBFF3D	50ms	Tx	Byte 1		Package identification ,set to 0x 03	
				Byte 2		Diagnostic trouble code#4(Byte1)	
				Byte 3		Diagnostic trouble code#4(Byte2)	
				Byte 4		Diagnostic trouble code#4(Byte3)	
				Byte 5		Diagnostic trouble code#4(Byte4)	

11. 报文配置

报文配置信息包括报文ID，报文周期调度模式，报文周期调度次数，报文超时调度次数，报文使能标志。
报文发送或接收周期=报文周期调度模式*报文周期调度次数；
报文发送或接收超时周期=报文发送或接收周期*报文超时调度次数；
例如：
EEC1报文配置列表

EEC1报文ID	0xCF00400	Frm_TxEEC1MsgID_C
EEC1报文周期调度模式	10ms	Frm_TxEEC1SchedMode_C
EEC1报文周期调度次数	1	Frm_TxEEC1SchedCount_C
EEC1报文超时调度次数	4	Frm_TxEEC1TOCount_C
EEC1报文使能标志	1(enbale)、0(disable)	Frm_TxEEC1MsgEnBl_C

EEC1报文ID= Frm_TxEEC1MsgID_C=0xCF00400;
EEC1报文周期= Frm_TxEEC1SchedMode_C* Frm_TxEEC1SchedCount_C=10ms*1=10ms;
EEC1报文超时周期= EEC1报文周期* Frm_TxEEC1TOCount_C=10ms*4=40ms;
EEC1报文使能标志= Frm_TxEEC1MsgEnBl_C=1；发送报文
各发送报文配置，*表示各报文名称

*报文ID	*	Frm_Tx*MsgID_C
*报文周期调度模式	*ms	Frm_Tx*SchedMode_C
*报文周期调度次数	*	Frm_Tx*SchedCount_C
*报文超时调度次数	*	Frm_Tx*1TOCount_C
*报文使能标志	1(enbale)、0(disable)	Frm_T*MsgEnBl_C

各接收报文配置，*表示各报文名称

*报文ID	*	Frm_Rx*MsgID_C
*报文周期调度模式	*ms	Frm_Rx*SchedMode_C
*报文周期调度次数	*	Frm_Rx*SchedCount_C
*报文超时调度次数	*	Frm_Rx*1TOCount_C
*报文使能标志	1(enbale)、0(disable)	Frm_Rx*MsgEnBl_C

*表示各报文名称，如下表

报文配置标定列表				
Tx			Rx	
INDEX	MESSAGE		INDEX	MESSAGE
0	EEC1		0	AMCON
1	EEC2		1	WSI
2	OEM_TF		2	HRVD
3	OEM_TE		3	DashDspl
4	OEM_TD		4	TSC1_VR
5	OEM_TC		5	TSC1_TR
6	OEM_TB		6	TSC1_DR
7	ERC1		7	TSC1_AR
8	TxVD		8	TSC1_VE
9	FLECO		9	TSC1_PE
10	CCVS		10	TSC1_DE
11	DOSUUA2		11	TSC1_TE
12	AT1UUA1		12	CCVS
13	MFDA		13	TSC1_AE
14	OEM_T7		14	TimeDate
15	OEM_T6		15	TCO1
16	GPRSCMD		16	ETC7
17	OEM_T4		17	ETC2
18	OEM_T3		18	ETC1
19	SCRHtrSta		19	EngTemp
20	AdBlue		20	ERC1DR
21	EEC3		21	EGF1
22	INCON		22	EBC1
23	EngPress		23	AT1OGC2
24	ShutDown		24	AT1OGC1
25	FanDrv		25	AT1IGC2

26	EngTemp		26	AT1IGC1
27	TI1		27	AT1IG1
28	AMBCON		28	AT1OG1
29	VehPow		29	DM13
30	EngCfg		30	DM1DCU
31	WFI		31	TRF1
32	DM1		32	GPS03
33	CmpntID		33	ActDos
34	EngHrRev		34	OEM_2
35	SWID		35	AT1SD1
36	FlCo		36	DEC1
37	DM4		37	GPS01
38	DM2		38	GPS02
39	EEC5		39	TSC1_DD
40	DM6		40	OEM_6
41	DM12		41	OEM_5
42	EngRetCfg		42	CM1
43	DM3		43	
44	DM11		44	
45	DM19		45	
46	DLCC		46	
47	CCSS		47	
48	MFD1		48	

每个报文的超时或字节数错误对应的DFC(DFC_FRMMNG*DLC、DFC_FRMMNG*TO)的使能与屏蔽，通过标定DFC_DisblMsk_CA[Index]来实现。bit15位标1代表屏蔽，标0代表使能，Index为该DFC的Index值,可参考DSM列表。

注意Frm_T*MsgEnBl_C、Frm_Rx*MsgEnBl_C是用来进行报文接收的使能与屏蔽，即通过标定这两个量可以接收或者不接收总线上的报文，通过标定DFC_DisblMsk_CA[Index]可以实现报文对应DFC的使能与屏蔽。