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| --- | --- | --- | --- | --- | --- | --- |
| ID = xxxx Measurements1 (Voltages & Temperatures) | | | | | | |
| Byte Position | Data Name | Factor | Offset | Min | Max | Description |
| Byte 1 | MaxCellTemp | 1 | -40 | -40 | 100 | Cell maximum temperature, resolution 1 ‘k |
| Byte 2 | MinCellTemp | 1 | -40 | -40 | 100 | Cell minimum temperature, resolution 1 ‘k |
| Byte 3 | MaxCellVolt\_H | 0.0001 | 0 | 0 | 65535 | Cell maximum voltage, resolution 0.1mv |
| Byte 4 | MaxCellVolt\_L | 0.0001 | 0 | 0 | 65535 |
| Byte 5 | MinCellVolt\_H | 0.0001 | 0 | 0 | 65535 | Cell minimum voltage, resolution 0.1mv |
| Byte 6 | MinCellVolt\_L | 0.0001 | 0 | 0 | 65535 |
| Byte 7 | DC\_Link\_Volt\_H | 0.1 | 0 | 0 | 500 | DC link voltage measured after contactors |
| Byte 8 | DC\_Link\_Volt\_L | 0.1 | 0 | 0 | 500 |

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| ID = xxxx Measurements2 (Current) | | | | | | |
| Byte Position | Data Name | Factor | Offset | Min | Max | Description |
| Byte 1 | Pack\_Current\_H | 0.1 | -500 | -500 | 500 | Pack current, resolution 0.1 A |
| Byte 2 | Pack\_Current\_L | 0.1 | -500 | -500 | 500 | Pack current, resolution 0.1 A |
| Byte 3 |  |  |  |  |  |  |
| Byte 4 |  |  |  |  |  |
| Byte 5 |  |  |  |  |  |  |
| Byte 6 |  |  |  |  |  |
| Byte 7 |  |  |  |  |  |  |
| Byte 8 |  |  |  |  |  |

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| ID = xxxx Status | | | | | | | | | | | | | | |
| Byte Position | Data Name | | | Start bit | Data Len | | Factor | | | Offset | | Min | Max | Description |
| Byte 1 | BMS\_State | | |  | 3 | | 1 | | | 0 | | 0 | 7 | BMS\_Standby (0), BMS\_Charging (1), BMS\_Driving (2), Pre- BMS\_Fault (3), PreCharge\_Mode (4) |
| Contactor\_State | | |  | 2 | | 1 | | | 0 | | 0 | 3 | Open (0), Close (1) |
| DI\_Status | | |  | 4 | | 1 | | | 0 | | 0 | 7 | Input1 (bit 0), Input2 (bit 1), Input3 (bit 2), Input4 (bit 3)  0: input Low, 1: input High |
| Byte 2 | ChargeCU\_ModeReq | | |  |  | |  | | |  | |  |  | Init\_Mode (0), CC\_Mode(1), CV\_Mode(2),  Personal\_Mode(3),  Pre\_Charge\_Mode(4),  FastCharge\_Mode(5) |
|  | | |  |  | |  | | |  | |  |  |  |
| Byte 6 |  | | |  |  | |  | | |  | |  |  |
| Byte 7 |  | | |  |  | |  | | |  | |  |  |  |
| Byte 8 |  | | |  |  | |  | | |  | |  |  |
| ID = xxxx | | | | | | | | | Estimations 1 | | | | | | |
| Byte Position | | Data Name | Factor | | | Offset | | Min | Max | | Description | | | | |
| Byte 1 | | SOC | 1 | | | 0 | | 0 | 100 | |  | | | | |
| Byte 2 | | SOH | 1 | | | 0 | | 0 | 100 | |  | | | | |
| Byte 3 | | DischargeCurrentReq \_H | 0.1 | | | 0 | | 0 | 1000 | |  | | | | |
| Byte 4 | | DischargeCurrentReq \_L | 0.1 | | | 0 | | 0 | 1000 | |
| Byte 5 | | ChargeCurrentReq\_H | 0.1 | | | 0 | | 0 | 1000 | |  | | | | |
| Byte 6 | | ChargeCurrentReq\_L | 0.1 | | | 0 | | 0 | 1000 | |
| Byte 7 | | ChargeVoltReq\_H | 0.0001 | | | 0 | | 0 | 65535 | |  | | | | |
| Byte 8 | | ChargeVoltReq\_L | 0.0001 | | | 0 | | 0 | 65535 | |

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| ID = xxxx | | | | | Estimations 2 | |
| Byte Position | Data Name | Factor | Offset | Min | Max | Description |
| Byte 1 | RD\_H | 1 | 0 | 0 | 1000 | Mileage in km |
| Byte 2 | RD\_L | 1 | 0 | 0 | 1000 |
| Byte 3 | RCT\_H | 1 | 0 | 0 | 65535 | Time in minute |
| Byte 4 | RCT\_L | 1 | 0 | 0 | 65535 |
| Byte 5 | RDT\_H |  |  |  |  | Time in minute |
| Byte 6 | RDT\_L |  |  |  |  |
| Byte 7 |  |  |  |  |  |  |
| Byte 8 |  |  |  |  |  |

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| ID = xxxx | | | | | Faults | |
| Byte Position | Data Name | Factor | Offset | Min | Max | Description |
| Byte 1 | VoltSensor | 1 | 0 | 0 | 100 |  |
| Byte 2 | OverCurrent | 1 | 0 | 0 | 100 |  |
| Byte 3 | HighTemp | 1 | 0 | 0 | 1000 |  |
| Byte 4 | LowTemp | 1 | 0 | 0 | 1000 |
| Byte 5 | OverVolt | 1 | 0 | 0 | 1000 |  |
| Byte 6 | UnderVolt | 1 | 0 | 0 | 1000 |
| Byte 7 | Charger | 1 | 0 | 0 | 65535 |  |
| Byte 8 | Inverter | 1 | 0 | 0 | 65535 |
|  | OverDischargeCurrent |  |  |  |  |  |
|  | OverChargeCurrent |  |  |  |  |  |
|  | BalEn |  |  |  |  |  |
|  | ShortCircuitFault |  |  |  |  |  |
|  | BMBFault |  |  |  |  |  |
|  | CurrentSensor |  |  |  |  |  |
|  | MemoryFault |  |  |  |  |  |
|  | InputPowerFault |  |  |  |  |  |
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| ID = xxxx | | | | | From VCU | |
| Byte Position | Data Name | Factor | Offset | Min | Max | Description |
| Byte 1 | ReqSOC | 1 | 0 | 0 | 100 |  |
| Byte 2 | Req\_SOC | 1 | 0 | 0 | 100 |  |
| Byte 3 | StateRequest | 1 | 0 | 0 | 1000 | Standby (0), Charging (1), Driving (2) |
| Byte 4 | Reset |  |  |  |  |  |
| Byte 5 | Req\_FastCh |  |  |  |  |  |
| Byte 6 |  |  |  |  |  |
| Byte 7 |  |  |  |  |  |  |
| Byte 8 |  |  |  |  |  |
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