

Thunderstruck Motors VCU v3.1.2 Feature List – March 2020

Refer to the VCU Manual on our website for detailed instructions:

http://www.thunderstruck-ev.com/images/companies/1/DD_VCUv3.1R1.pdf

The v3.1.2 VCU release includes the following features:

- Controls UQM and Nissan Leaf motor inverters (2013-2016 Leaf)
- Software feathered throttle with seamless regenerative braking
- Throttle on start protection
- Throttle mapping for torque slope control
- Forward/Neutral/Reverse feature with in-motion protection against direction change
- 5 volt output for throttle sensor (pot or hall)
- Outputs for pre-charge and main contactors
- Brake light relay control during regenerative braking
- Software settable canbus termination resistor (120 Ohm)
- Canbus and status tracing for debugging
- Simple command line user interface for Windows and Mac
- Throttle off/max voltage settings (thw1off/thw1max)
- Configurable torque: maximum (maxtorque), throttle regen (idleregen), brake (brakeregen)
- Throttle zero torque position (deadspot) in percent of travel
- Torque taper (maxrpm torque, torquekneerpm) settings limit torque and current at high rpm
- Maximum pack voltage option (regenmax) limits regenerative braking for charged packs
- Minimum pre-charge voltage option (prechgminv) tested prior to closing main contactor

The following user interface output is an example of the initial Nissan Leaf configuration:

```
*****  
*   Vehicle Control Unit v3.1.2           *  
*   Thunderstruck Motors / Dilithium Design *  
*****
```

show config

THROTTLE

thtype : hall
thw1off : 0.75v
thw1max : 4.59v

MAP

range1 : 0..100% throttle => 0..100% torque
deadspot : 30%

BRAKE

brtype : switch
brakeregen: 450.0Nm

MOTOR/INVERTER

inverter : leaf
maxtorque : 900.0Nm
maxrpm : 10000
idleregen : 300.0Nm
maxrpm torque : 150.0Nm
torquekneerpm: 3000
prechgminv: 310.0V
regenmax : 410.0V

OPTIONS

FNR : enabled (Forward/Neutral/Reverse switch)
canterm : enabled (CAN termination resistor)