NEBULA SYSTEMS

AN RAC GROUP COMPANY

NC1701

ENHANCED VEHICLE COMMUNICATIONS CONTROLLER

Nebula Systems has created the first dedicated controller for use in Telematics embedded systems, enabling companies in the Connected Car space to access vehicle OEM data without requiring previous knowledge of vehicle ECU communication protocols.

The NC1701 features essential functionality for most Telematics applications, and when combined with Nebula's MECH5 cloud platform, it truly "connects" the vehicle by creating a gateway to an unlimited number of applications.

WWW.NC1701.IO

FEATURES AND BENEFITS

OEM VIN READING

NC1701 provides OEM VIN reading capability. This means you now have the potential to read VINs when not available through standard OBDII requests.

ENHANCED PID READING

When connected to the MECH5 cloud platform, NC1701 can be configured to read OEM specific parameters from any ECU (i.e. Fuel level, Seat belt status, TPMS information, Service information, etc.)

UNIQUE VEHICLE ID BASED ON OBD SIGNATURE

If a VIN is not available, then NC1701 can read specific OEM data from various ECUs to create a unique vehicle identifier. The benefit of creating such a unique ID is that you can determine if the device is still connected to the same vehicle (when the VIN is not available).

ENHANCED DTC READING

Full OEM Data Trouble Codes reading across all ECUs in the vehicle. NC1701 provides OEM trouble codes, and MECH5 APIs can be used for code translation.

ADVANCED IGNITION DETECTION

NC1701 overcomes many ignition detection issues faced when using an OBD Dongle. By using MECH5 to provide configuration it is able to read Ignition status from multiple sources providing further options for Virtual Ignition Detection.

LIVE FIRMWARE UPDATES

The NC1701 firmware can be updated whilst still in use in normal operation mode. Once the download procedure has finished (and it's safe for the host to do so), the switching to the new firmware takes less than 250 ms making the downtime very short.

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GHOST MODE

NC1701 has the ability to detect if a 3rd party device is using the CAN bus to connect to any ECU in the car and automatically back off when this occurs.

STANDARD OBD2 COMMANDS (DTC/PID READING, ETC.)

NC1701 is fully compatible with OBD2 Standard Protocols.

MECH5 X-LINK FULL REMOTE DIAGNOSTICS

Once the NC1701 has established a secure connection to the MECH5 platform it can be fully utilised for Remote Vehicle Diagnostics (this mode of operation will only work when vehicle is stationary) whether using an API into your own backend solution or via direct access to the MECH5 Web App where you can perform technician level diagnostics.

Layered security prevents any unauthorised access to the vehicle OBD by embedding encrypted scripts within the NC1701 itself upon configuration, thereby preventing any OBD hacking.

SECURITY FIRST

The NC1701 has been designed with security in mind.

It doesn't require a direct communications channel with the MECH5 APIs and relies on the Host to communicate on its behalf. Communication between the Host and the MECH5 APIs is done via a secure channel (HTTPS).

All communications between the NC1701 and the MECH5 APIs (upgrading firmware, downloading configuration files, etc.) are encrypted using enterprise-grade encryption.

FULLY MULTIPLEXED REFERENCE DESIGN

NC1701 is capable of handling multiple CAN buses and ISO lines, making it compatible with more vehicle models and ECUs than standard offerings.

NOTE: The NC1701 needs to be embedded using the suggested reference design for some of these features to work properly.

ADVANCED SLEEP MODES

NC1701 can be configured to enter "power saving mode" and can "wake up" using different sources:

- Battery voltage change
- CAN bus activity
- Advanced ignition sense signal

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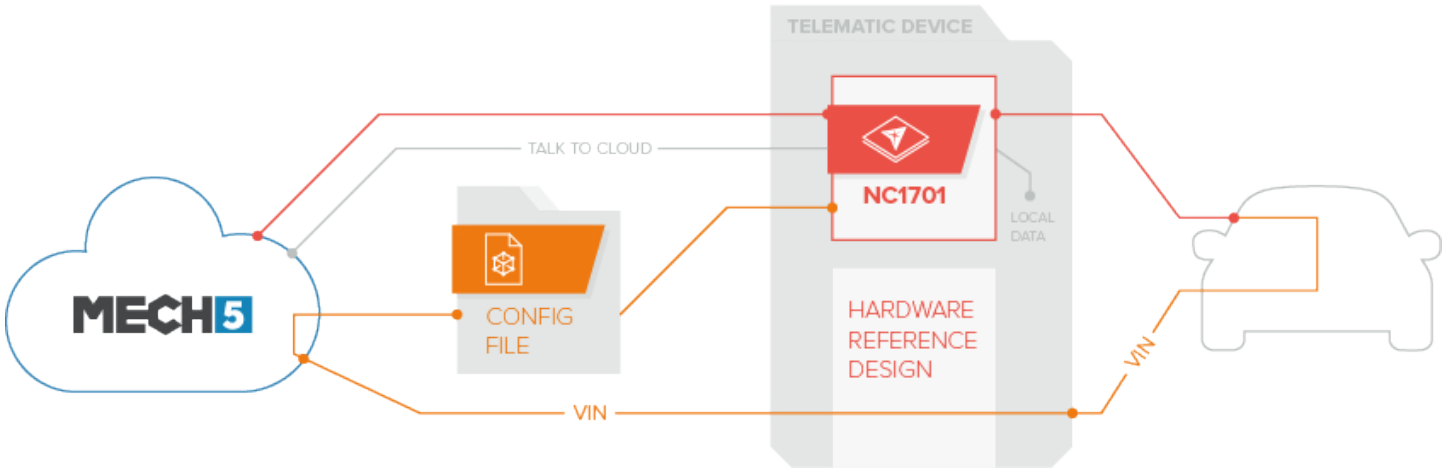
ENHANCED PID READING WITH NC1701

Enhanced PIDs are manufacturer specific parameters that can be requested using manufacturer specific communication protocols from any ecu in the car. As opposed to OBDII generic PIDs which are limited in scope, and restricted to engine only.



FASTER TIME TO MARKET

- Simple integration with your existing hardware design
- No knowledge required on diagnostic communications protocols or hardware

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