



Blocklet for Trusted Vehicle Applications

DATA SHEET

Overview

Blocklet™ for Trusted Vehicle Applications (TVA) is a secure and flexible platform that enables a wide range of new products, services, and business models to be created at the intersection of connected vehicle ecosystems and blockchain. When combined with our Blocklet Kit, Blocklet TVA is a comprehensive package of hardware, software, and training services designed exclusively for connected vehicle applications.

Blocklet TVA's cellular-connected telematics device is unique in its integration of Filament's Blocklet technology—an Internet of Things (IoT)-class hardware wallet for enterprise blockchains. Blocklet enables on-board processing and secure, at-the-source logging of vehicle diagnostic and usage data directly into a blockchain—creating an immutable, cryptographically verified digital ledger. The device connects directly to the vehicle's on-board diagnostic-II (OBD-II) or J1939 port and logs data from the Engine Control Unit (ECU) via the Controller Area Network (CAN) Bus while the vehicle is running. Vehicle data, including engine revolutions per minute (RPM), speed, fuel level, run-time, and other sensor data is packaged into a transaction and cryptographically signed on the device by the integrated Blocklet enclave. Blocklet TVA wirelessly transmits these signed transactions to a hosted validator network, where they are verified and added to the blockchain. These transactions are then made accessible to any authorized party that needs to view or verify vehicle data.



BLOCKLET TVA

Highlights

- **Blockchain-native Chipset for Vehicle Diagnostics:** Ability to securely collect, attest, and transact data such as parameters from the vehicle ECU as recorded directly from the vehicle data bus.
- **Robust Vehicle Data:** Immutable vehicle-attested logs of incline, acceleration, impacts, vibrations, and road quality.
- **Secure, Native Blockchain Transactions:** Signed transactions containing diagnostic data are posted to the blockchain for verification and secure access.
- **Embedded Multi-Key Wallet:** Facilitates key generation and secure, automated payments and transactions for new services and products.

Capabilities

Blocklet TVA's hardware provides a trusted identifier for immutable, historic vehicle data. The device's real-time diagnostic data stream from vehicle CANBus and sensors, combined with its embedded multi-key wallet, enable secure transactional business models for manufacturers, fleet managers, and more.

By providing extensive vehicle telematics data, the product offers the transparency necessary to examine metrics that inform business decisions and improve operations. Blocklet TVA leverages cryptographically signed contracts to enable service-model pricing plans and eliminate the need to collect or store asset location data in the cloud. Integrated motion sensors efficiently report changes in location, and keep that information on the local network, reducing load.

FEATURE	SPECIFICATION
On-Board Blockchain Processing	Blocklet processing module*
Passenger Car Connectivity	J1962 OBD-II port
Commercial Vehicle Connectivity	J1939 port
Alternate Connectivity	T-cable connection when needed
Data Collection	From Blocklet Chip™, sensors, CANBus transceiver
Encryption	Cryptographic hardware/on-chip private key storage
Interoperability - Plug-In Device	Compatible with devices already plugged into J1962 (OBD-II) or J1939 port
Geolocation Reporting	Timestamped latitude and longitude data
Timestamp	ISO 8601:2004 standard format, Universal Time Coordinated (UTC) time zone
Wireless Communication	Cellular: LTE, LTE-m, LTE Cat-M1/NB1, Local: WiFi, Bluetooth
FOTA Firmware Updates	Downloadable and over-the-air updates
On-Board Humidity Sensor	Accurately detect vehicle flooding and water damage
Device Provisioning	Wireless provisioning, setup, and activation
Durability	Design and installation inside vehicle make device highly resistant to environmental damage
*Blockchain Platform Support	BigchainDB, Ethereum, Hyperledger Fabric and Sawtooth

Onboard Sensors



9-AXIS INERTIAL MOTION



BAROMETRIC PRESSURE



HUMIDITY



TEMPERATURE

Supported CANBus Protocols

- ISO 15765-4
- ISO 14230-4
- ISO 9141-2
- SAE J1850 VPW
- SAE J1850 PWM
- Single Wire CAN (SW-CAN)
- Medium Speed CAN (MS-CAN)
- ISO 15765
- ISO 11898
- SAE J1939

Deployment Applications

Automotive

Blocklet TVA adds economic capability into vehicles and infrastructure including new models for vehicle leasing and vehicle tracking. The product enables a secure method of recording data, while also allowing physical equipment to transact with each other independently.

Freight

Fleet companies can quickly and accurately report truck diagnostic and electronic logging data to authorized parties and regulators. Fleet managers can also use the technology to record and validate detailed service history or prove the origin of parts and materials used in vehicle manufacturing.

Blocklet TVA is driving new opportunities for automotive and freight by enabling blockchain-native vehicle authentication, part provenance, smart insurance, alternate payment and leasing models, usage-based fees, and more.



FILAMENT

www.filament.com | hello@filament.com | +1.775.434.0095

© 2018 Filament. All rights reserved.

The information contained herein is subject to change without notice and is provided "as is" without warranty of any kind. Filament shall not be liable for technical or editorial errors or omissions contained herein.

BTVADS181112