



An ISO 9001:2015 Registered Company

“CAN Opener”

**CAN Bus Benefits
for Law Enforcement**

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Introductions

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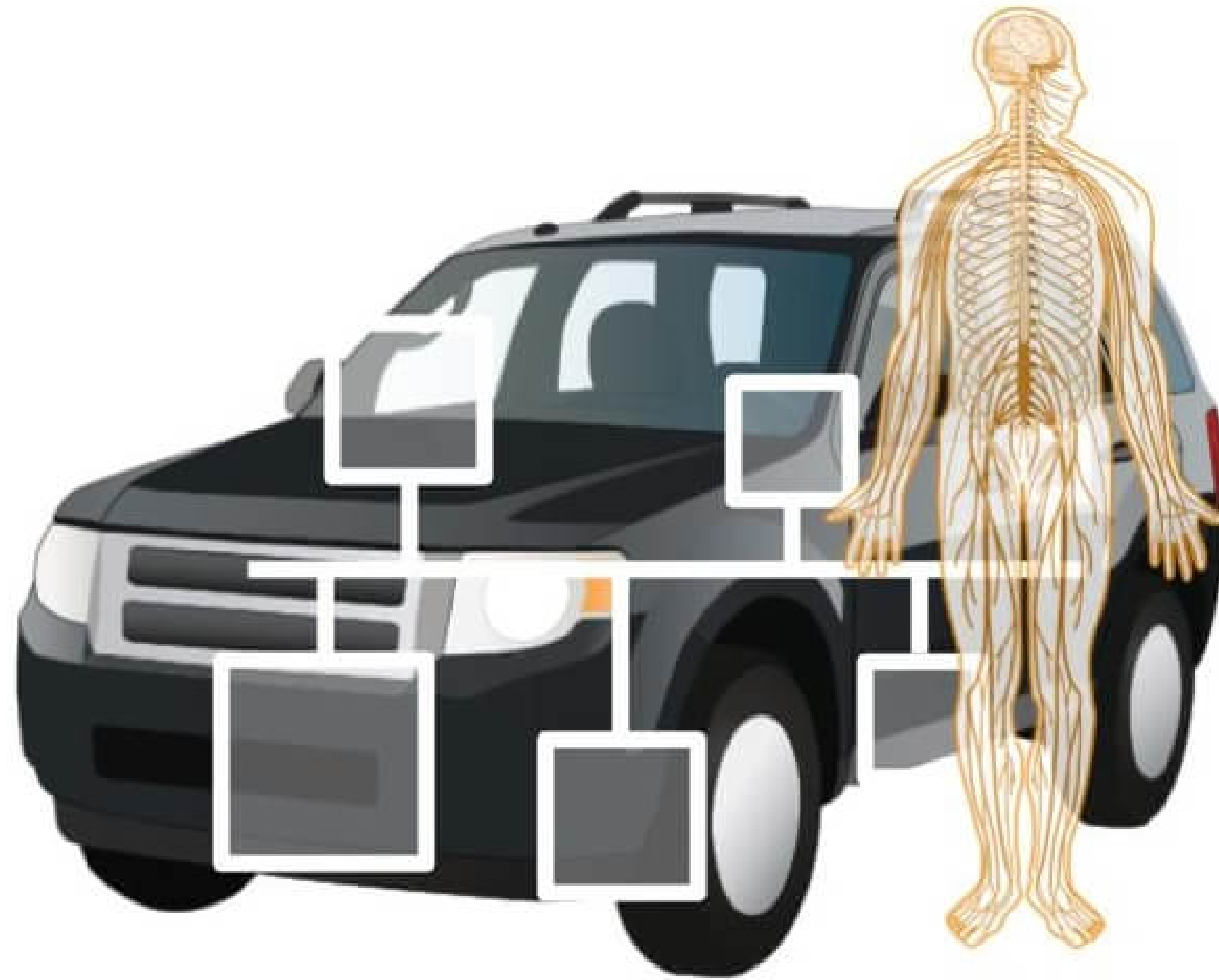


Outline

- What is it?
- What are the benefits?
- What does it mean to you?
- Challenges
- Potential solutions

What is CAN?

- Controller Area Network (CAN bus)
- Central nervous system of a modern vehicle
- Allows devices to communicate without complex wiring
- Message-based protocol



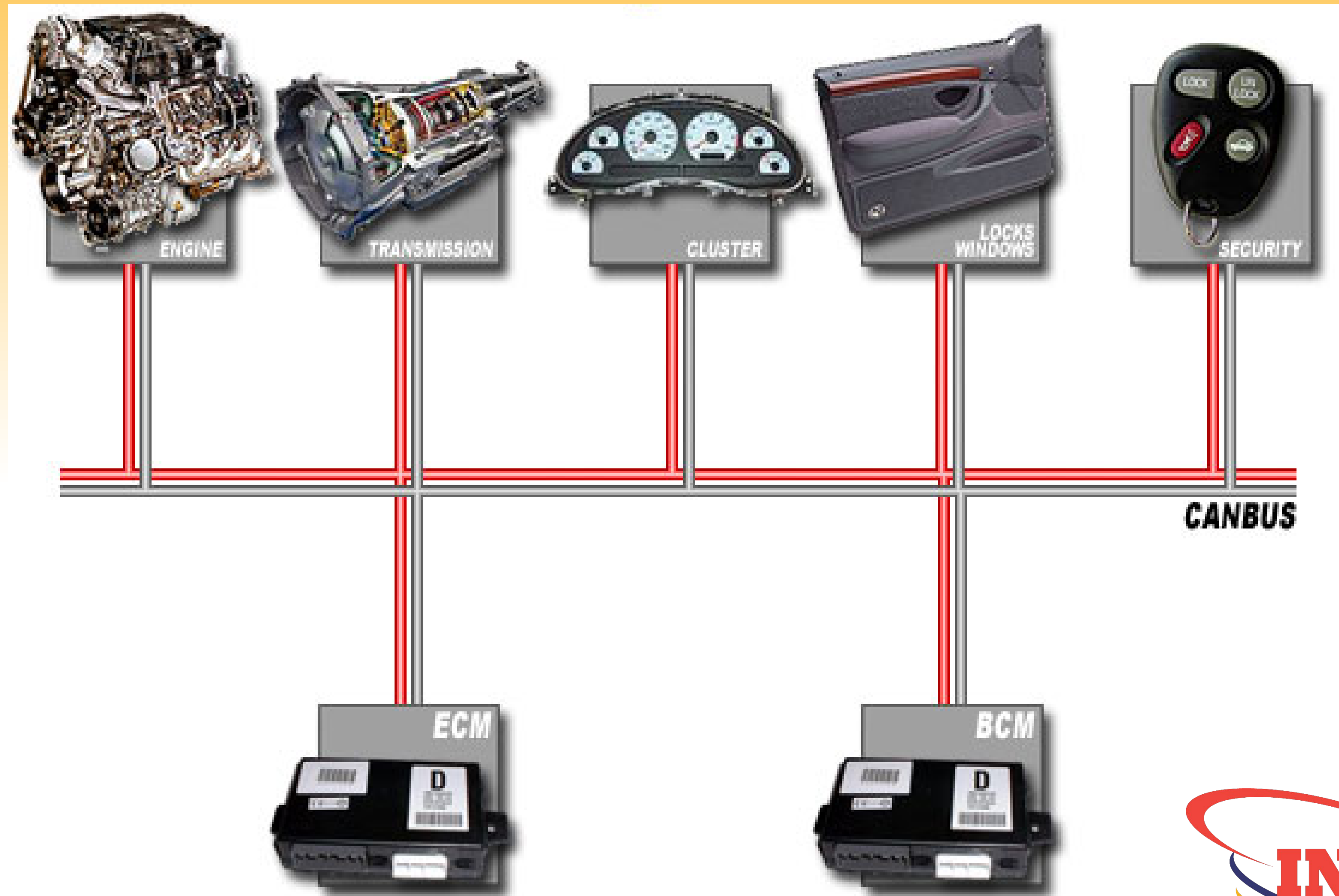
Really, what is it?

“High Speed” indeterministic serial data communication protocol developed by Robert Bosch GmbH in 1983 and officially released by SAE in 1986.

- Previous format:
 - Class B, SAE J1850
 - Slow Speed
- **New formats:**
 - Class C, SAE J1939
 - Medium Duty Truck
 - Medium Speed & High Speed (250/500 kbs)
 - Differential Twisted Pair Wiring Format
 - Class C, SAE J2284
 - Ford, GM and FCA
 - High Speed – 500 kbs
 - Differential Twisted Pair Wiring Format
 - Class B, GMLAN (SW-CAN)
 - GM
 - Very Slow Speed – 33.3 kbs
 - Single Wire Format

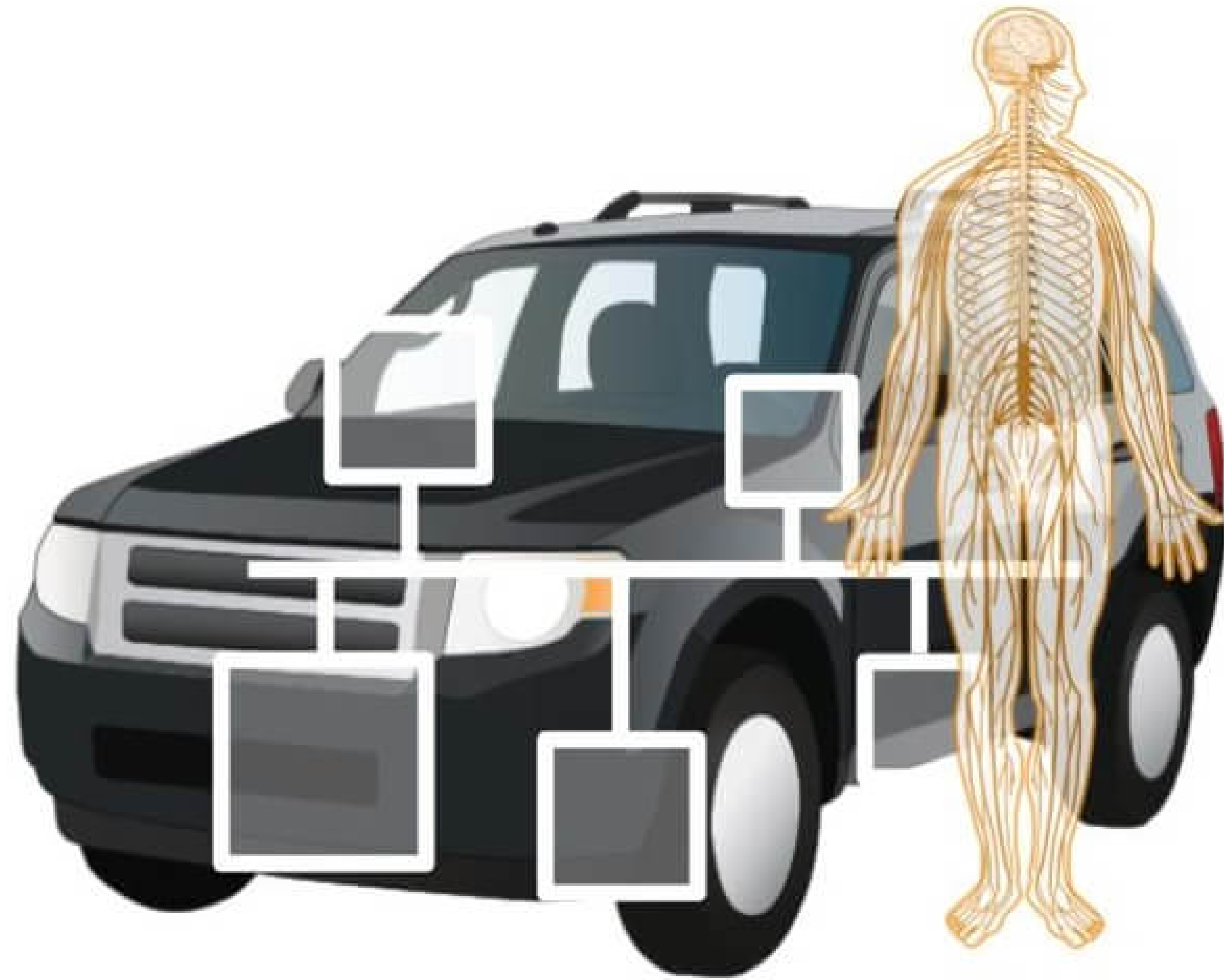


What is CAN in an automobile?



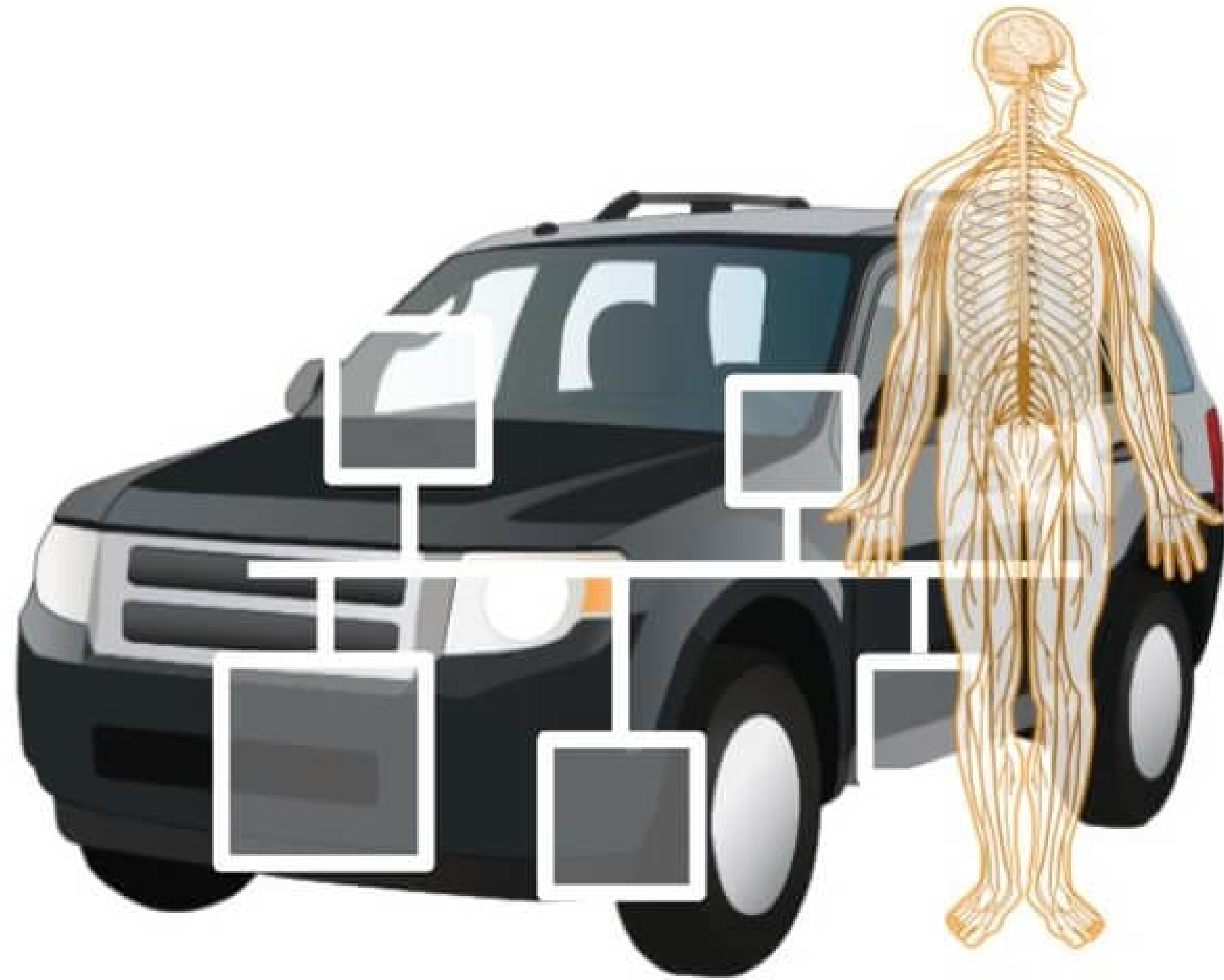
Benefits of CAN

- Robust
- Centralized
- Efficient
- Flexible
- Low Cost



Benefits of CAN

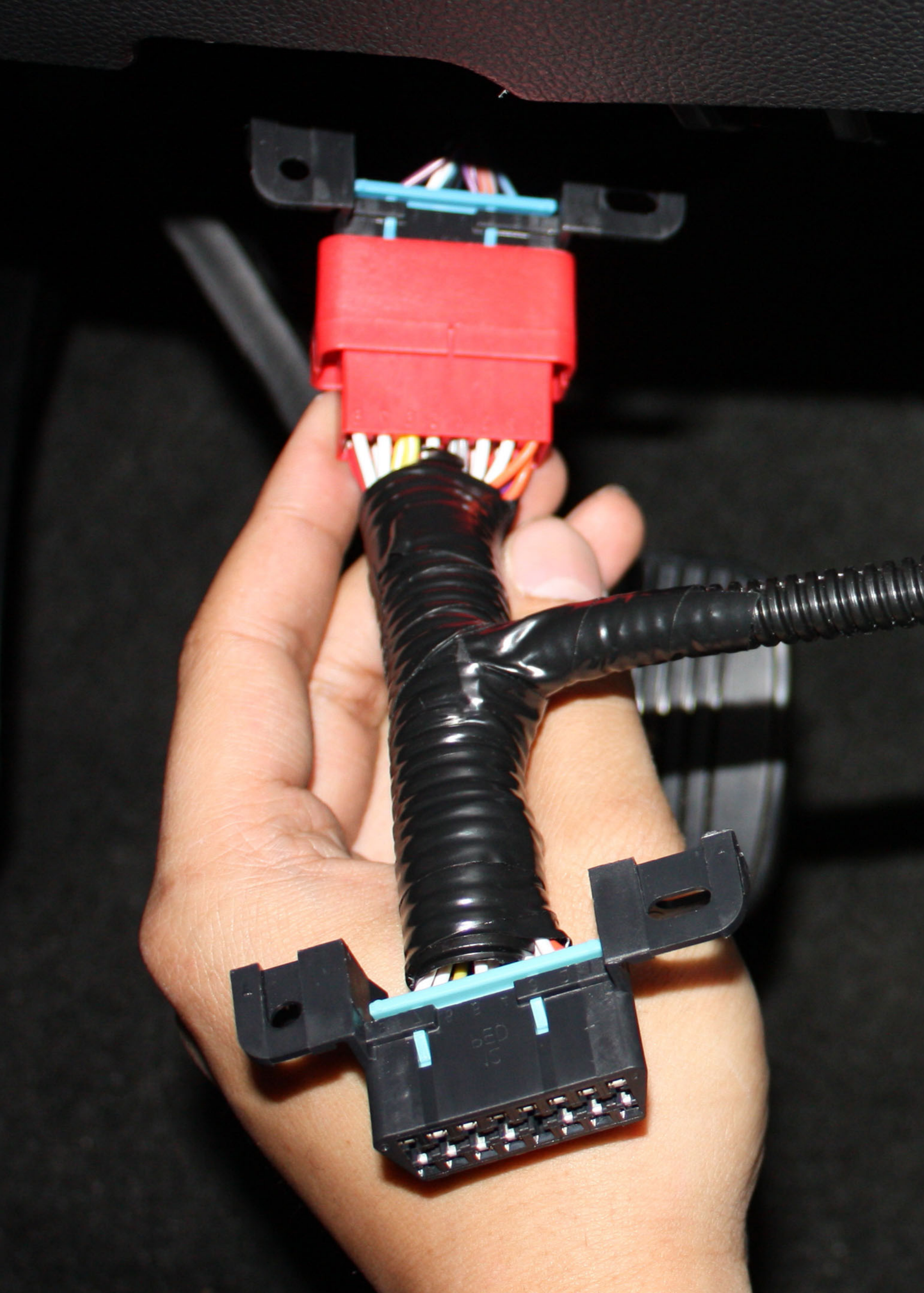
- Allows for vehicle data retrieval via a data link
- Quick, uniform, and reliable communication with chassis data





Plugging In

- OBD II
- Gateway
- Where the industry is headed and future encoding



Data Methods

- Active CAN requests
- Passive data acquisition
- Active CAN commands

What does CAN mean to you?

New opportunities for integrating chassis data into aftermarket control systems:

- **Smart lighting systems**
 - SOS bluePRINT
 - Whelen CanTrol
 - Code 3 Matrix
 - Federal Signal Pathfinder
- **Video systems**
- **Fuel monitoring systems**
- **Fleet telematics**
- **Vehicle control systems**
- **GPS**
- **Radar guns**



CAN Challenges with Active Requests & Commands

- Engine and Body Control Modules (BCM & ECM) can have issues and vehicle begins throwing codes and/or acting erratically
- Certain basic vehicle functions can be compromised
- One or more aftermarket devices cease to function properly or at all
- Encrypted data by OEMs is coming soon and will not allow active requests on the CAN bus



Possible Solution to Active Requests

InterMotive Break Out Box (BOB/BOB^e)

- Provides an auxiliary CAN network for third-party devices
- Minimizes the impact on the vehicle network
- Passively acquires data and passes it along to active third-party devices
- Removes most compatibility issues when multiple devices connect to the vehicle network



Other CAN Solutions



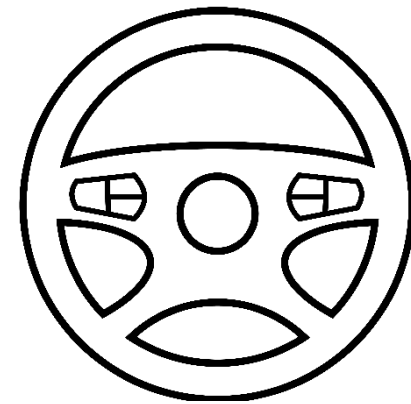
Idle Mitigation

IdleLock | EcoLock | EcoStar III



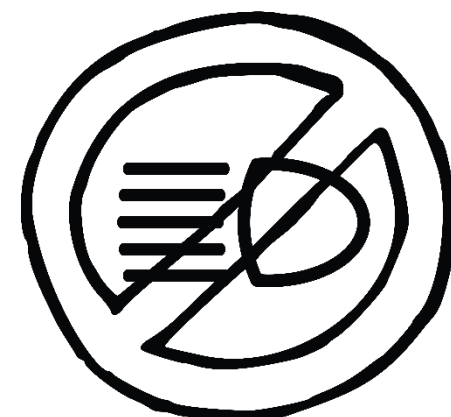
Officer Safety

Surveillance Mode / Office Protection Package



Steering Wheel Button Control

Police Interface Module



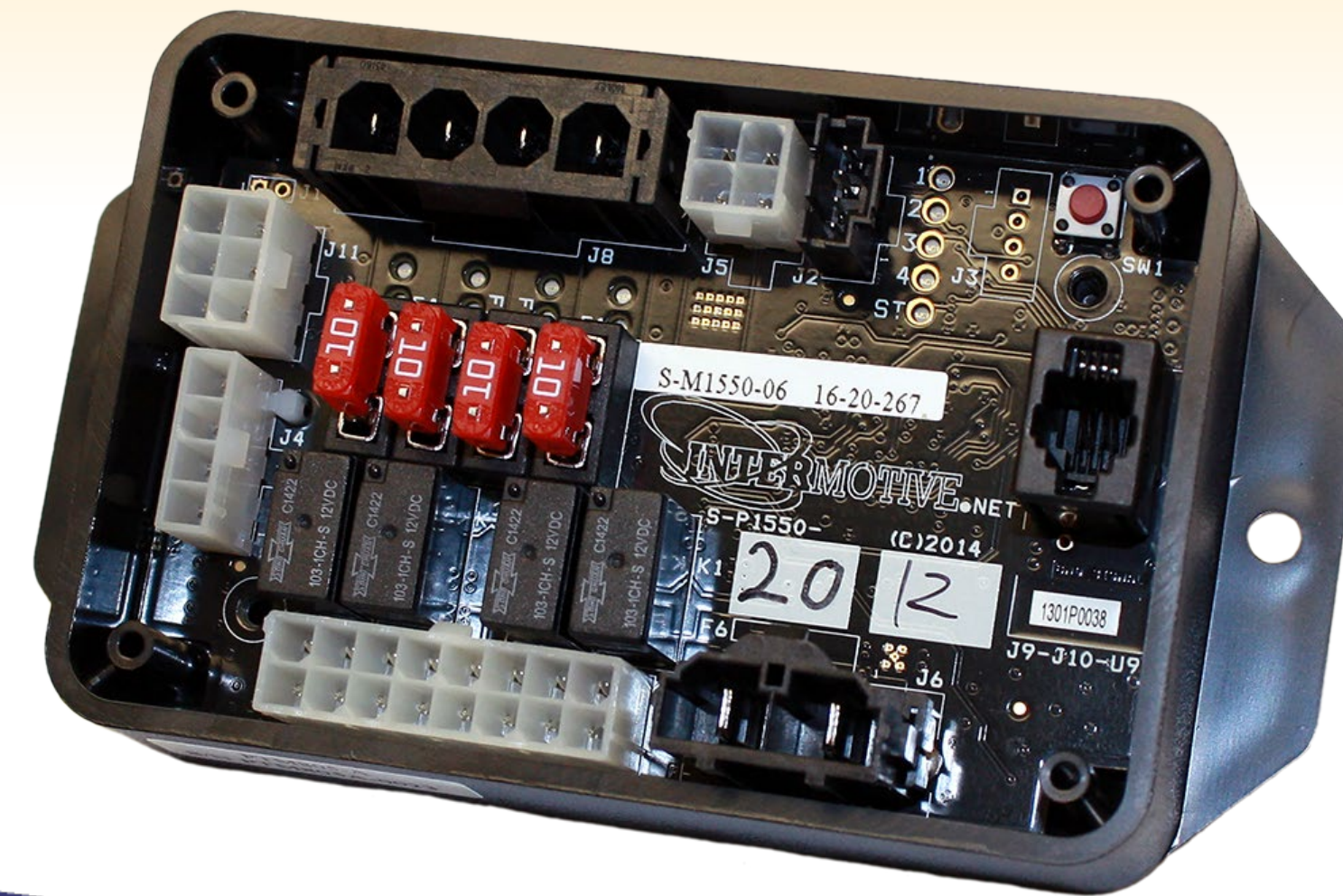
Covert Operations

Blackout Module



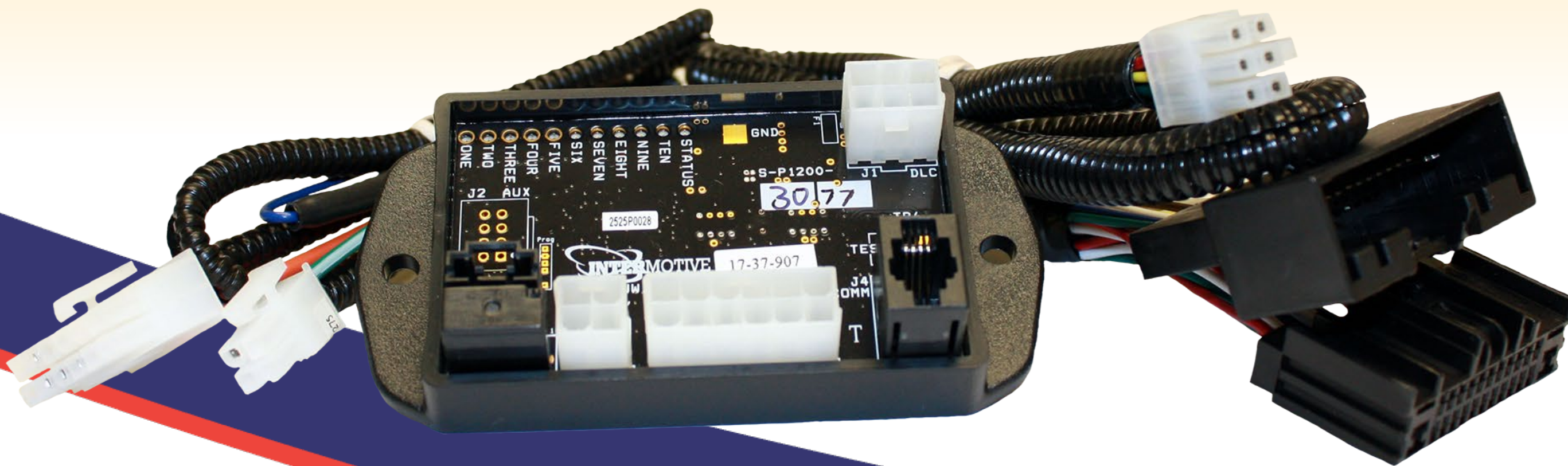
Idle Mitigation: EcoLock

- Idle reduction/theft prevention system
- Automatically turns the engine off/on when specific conditions are met
- Key is removed from the ignition and transmission is locked in Park
- All lights, equipment and HVAC are still fully functional
- Weapons rack and trunk release are disabled when system is activated



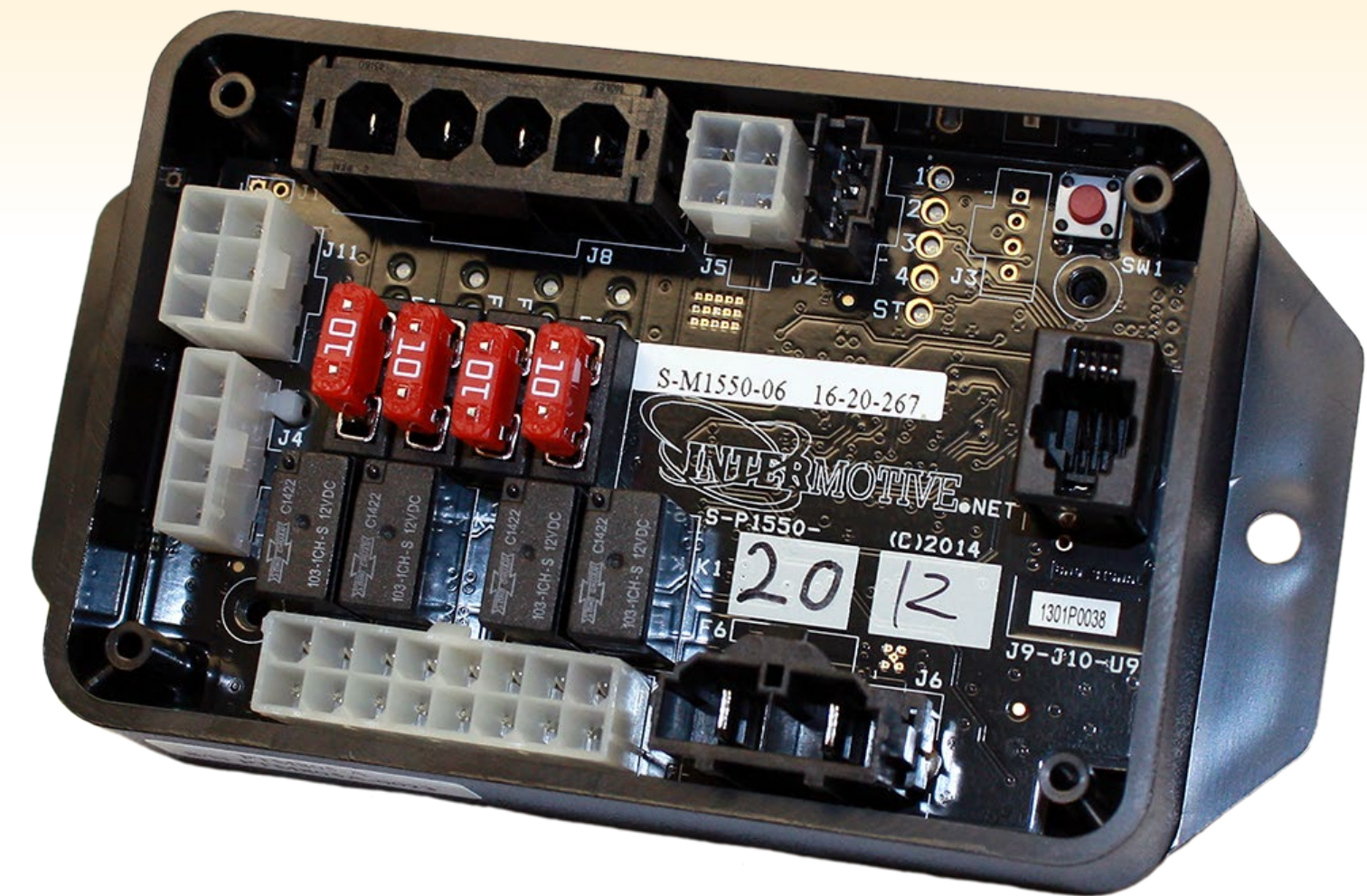
Surveillance Mode Module™

- Designed to increase situational awareness while inside vehicle
- Detects movement behind vehicle
- Automatic functions:
 - Sounds alert chime
 - Shows activity on camera
 - Raises windows; locks doors
 - Turns on reverse lights
 - Flashes brake lights
- Output provided for other functions (activating light bar or siren)



Blackout Module

- Aids in covert/surveillance operations
- Deactivates exterior and interior vehicle lighting:
 - Headlights
 - Dome lights
 - Parking lamps
 - Dims instrument cluster
 - Reverse lights
 - Mutes alert chimes
 - Service brake lights
- Deactivated manually or by auto-exit speed
- Exit speed is between 5-20 MPH



Summary

- Many benefits to CAN bus networks on modern vehicles
- CAN bus is being used more frequently by “smart” aftermarket systems to obtain vehicle data
- Many of these aftermarket systems obtain vehicle data by ACTIVELY requesting data which can lead to several devices requesting data at the same time
- Solutions exist to mitigate many of these “Active” request problems
- Encrypted CAN data is going to change the landscape for aftermarket devices



Thank you!

For more information, contact:

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