

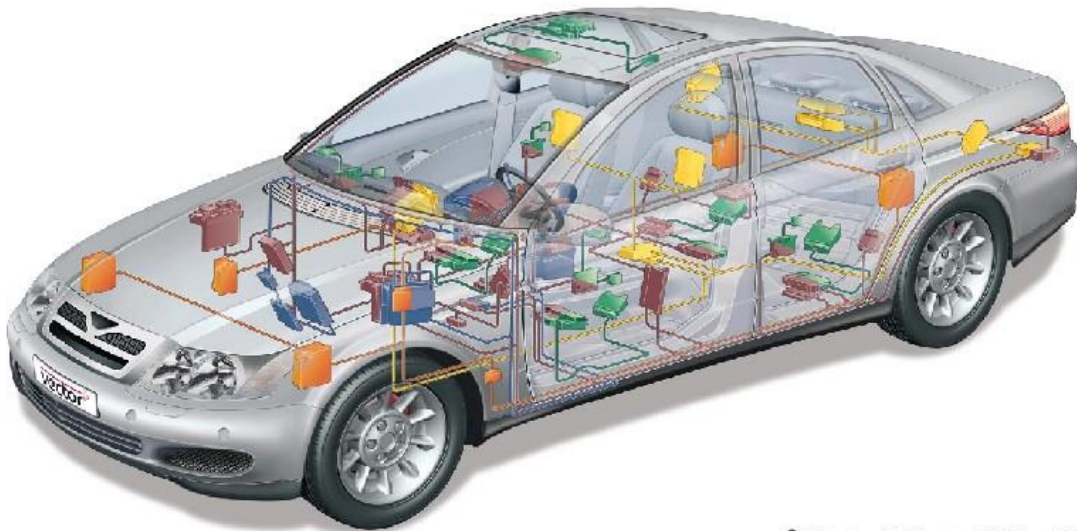
# **eCAN**

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## **White Paper**

Ver 1.0  
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## Overview

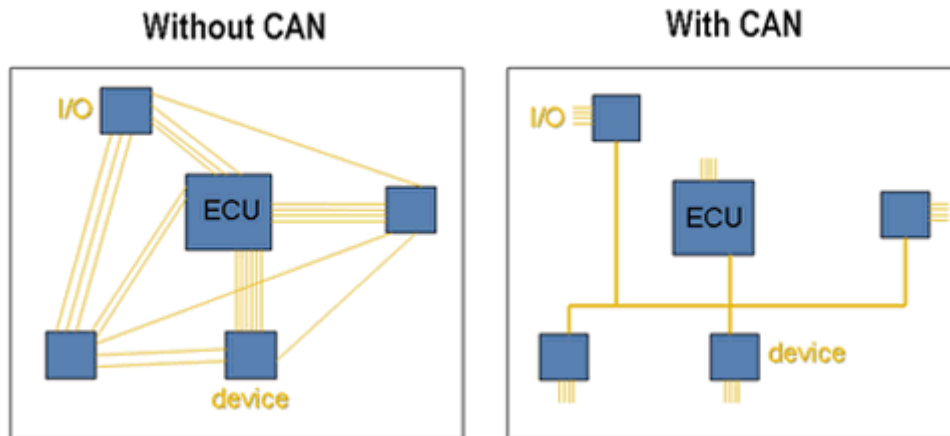


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<CAN applied vehicle>

CAN(Controller Area Network) communication is a specification designed for in-vehicle modules to communicate with each other. Conventional methods within vehicles used UART based serial communication, and as initially there were not many communication modules, there were no problems in application. However, as vehicle technology develops and communication modules increase, vehicle load has dramatically increased due to exponentially increased wirings. This has caused problems such as falling fuel efficiency and increasing product costs.

CAN was developed to cause this problem by German company Bosch in 1986. It used bus communication method rather than 1:1 communication method which UART based serial communication has, and various technologies were incorporated to prevent communication conflicts.



<CAN and UART Connection>

## CAN Communication Technology

### Message Directional

ID is assigned to CAN according to the priority of the message and used to communicate. This causes each node to self-judge the message delivered to each node and ignore the message which is except it needs.

### Enhanced Error Mechanism

Several mechanisms have applied to CAN to improve communication reliability. If communication state detection, error check and management were carried out in conventional SW method, CAN can detect and handle errors occurring during communication due to the error detection mechanism built in HW in real time.

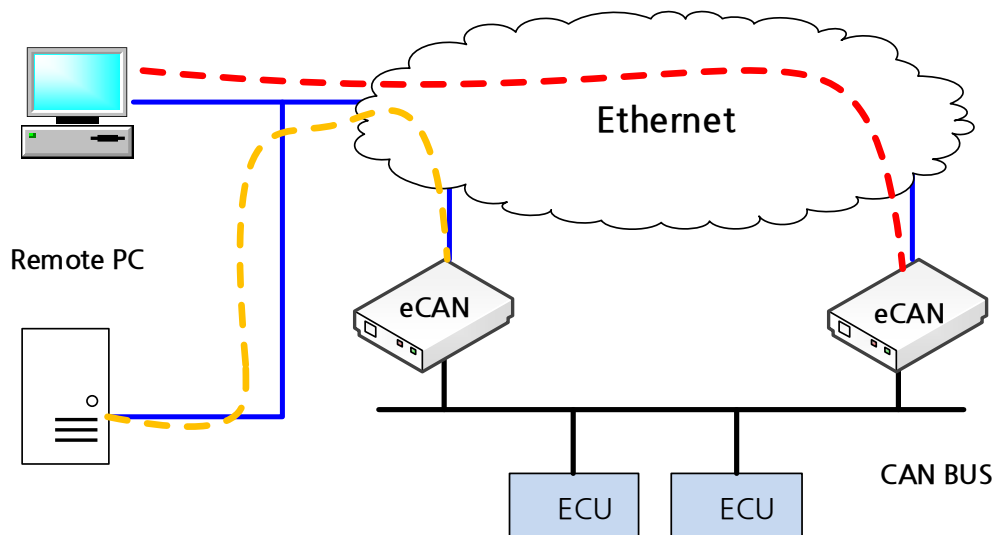
### Multi-Master

CAN communication is conducted based on priority of each node and message without a network administrator which manages the network. If arbitrary node A message is assigned with the highest priority ID, the rest of the nodes communicate according to the priority of each ID after the A message is sent.

CAN, developed for vehicle network, are widely applied and utilized in all sectors of the industry other than vehicles due to the advantages of their communication methods.

## eCAN

eCAN is a network access equipment which converts CAN communication into Ethernet based communication. eCAN basically provides communication converting functionality, while providing additional functions through Com Redirector, eCANConfig.



### Connecting and managing eCAN

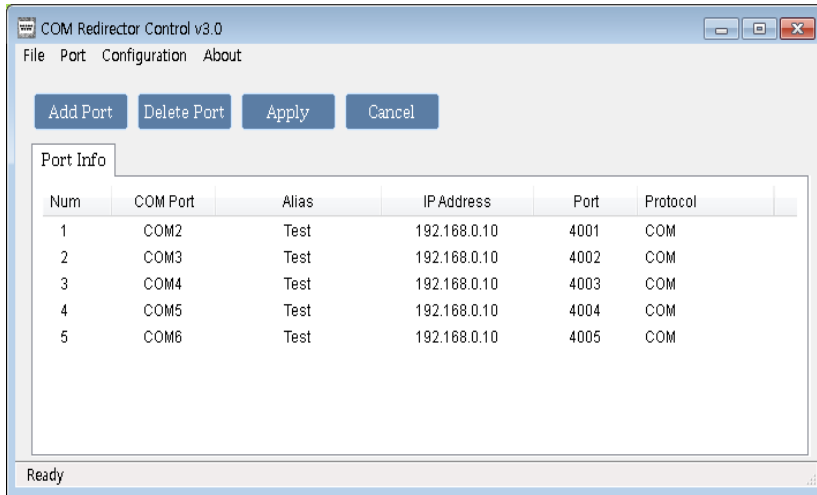
eCAN reads CAN signal and export it to the network. Alternatively, it also export network data to CAN data. CAN communication speed is supported up to 1Mbps, ensuring fast and reliable communication. It supports various network protocols, including TCP, UDP, DHCP and HTTP, which can be used in variety of environments.

### Configuration

Users can easily set up advanced communication environments, which is possible to set up CAN communication and network advanced environments through the web or utility. When setting through the web, it can be accessed from a web browser and set up using a simple interface provided by eCAN. When using the utility, configuration can be easily changed.

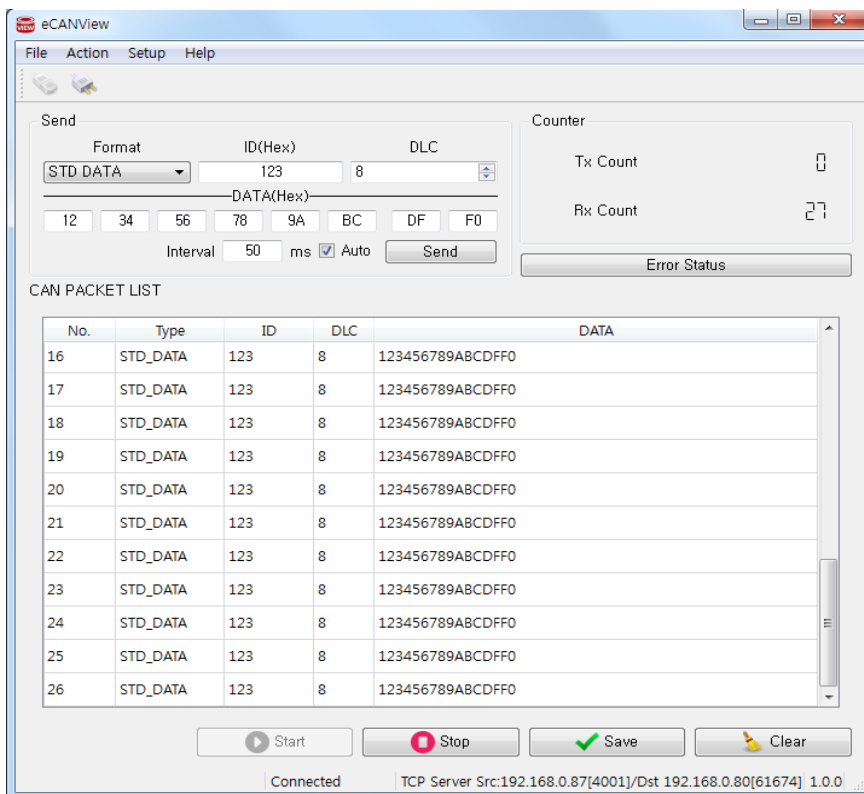
## Com Redirector

Com Redirector is an application software which is installed on a PC, a driver automatically converting Serial to Ethernet. eCAN provides the ability to use CAN ports as virtual serial ports, enabling users to use CAN communication through conventional serial communication programs without a need of creating new socket programs.



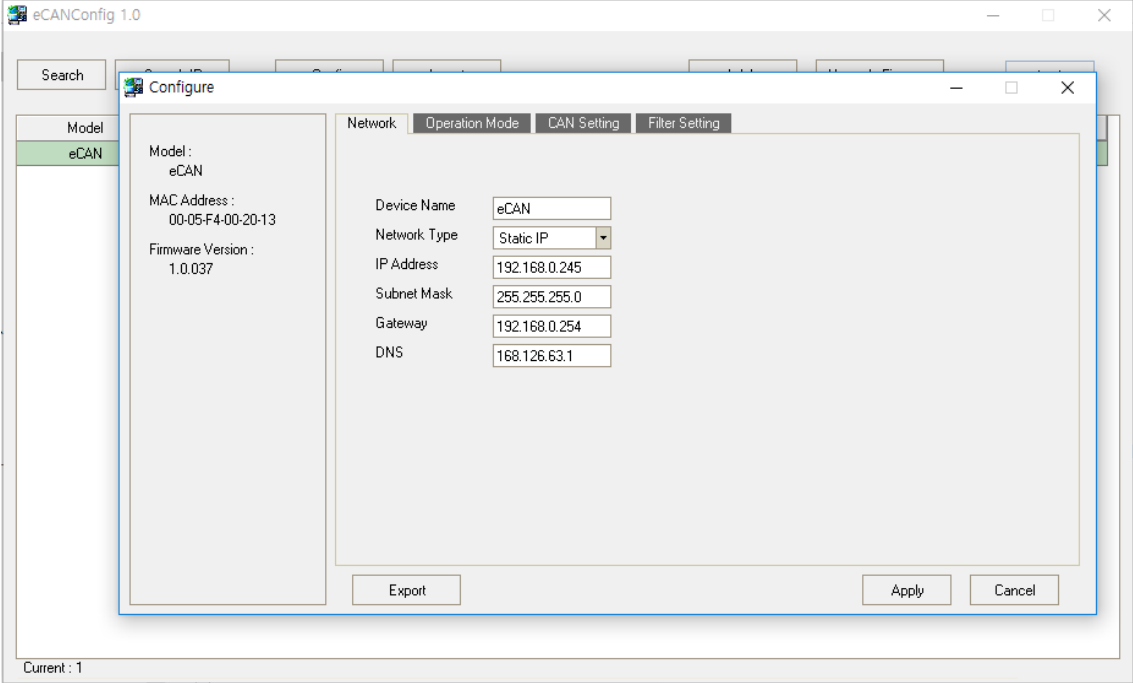
## eCANView

eCANView program is a program runs in Windows environment and is for testing the performance and reliability of eCAN. It provides serialized CAN ports, and socket port TCP, UDP server/client functions. It also provides an objective evaluation of the performance, reliability, stability of the equipment being tested through burning test.



**eCANConfig**

eCANConfig program runs in a Windows environment and performs searching and setup of eCAN. It provides Search to search eCAN equipment present on the local area network, and Configure to change and save settings for selected devices, and Upgrade Firmware to upgrade firmware for selected devices.

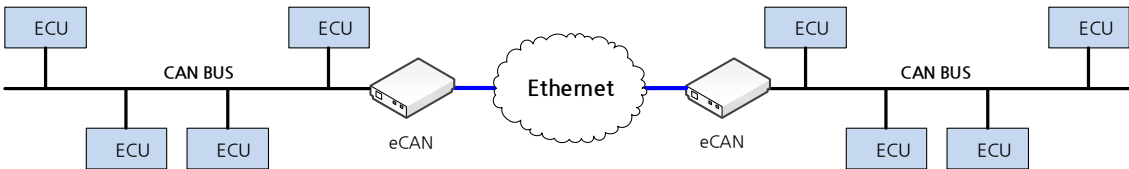


## Utilization of eCAN

eCAN can be applied in various areas. There are many applicable areas such as monitoring/control of vehicle communication modules or production facilities, building automation, operation monitoring/control/data collection of common equipment, remote control of equipment over the Internet, and control of ships and railways.

### CAN Communication Tunneling

By configuring two eCANs as Server-Client Pair, it can simplify the distance limitation of CAN communication and high cost maintenance. Also, the Ethernet section can utilize various media such as wired section, wireless section and PPP communication.



### CAN to Ethernet Convertor

As the most common example of utilization, a PC and eCAN are connected to the network, allowing the use of CAN devices with eCAN connections on the PC. At this time, Com Redirector provided by eCAN allows users to use programs developed for ComPort as it is.

