

sCAN

User Manual



Revision History

| Revision Date | Document Version | Pages | Description |
|----------------------|-------------------------|--------------|--------------------|
| 2015/09/04 | 1.0 | All | New |
| 2017/08/09 | 1.1 | 6 / 4~21 | Added Notes/image |
| 2017/09/17 | 1.2 | 4, 7 | Added Notes |
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1. sCAN

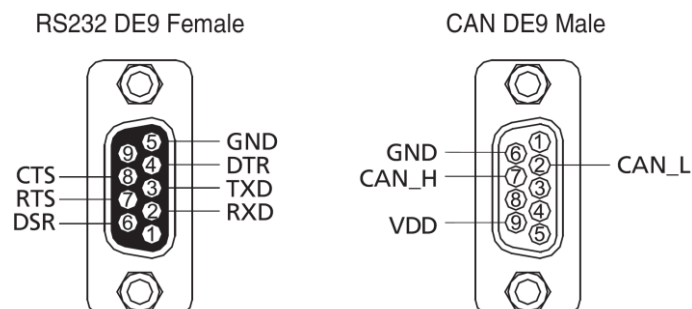
1.1. About Product

This product is a convertor designed to convert the RS-232 signal to CAN and vice versa.

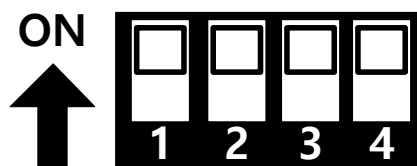
- Providing the integrated utilities at a GUI environment (communication configurations, test, firmware upgrade)
- Enabling power supply to DE9 (pin no.9) or CAN VBUS
- Providing a LED to check the communication state
- Supporting 1Mbps for the maximum speed of CAN communication
- Supporting 921.6Kbps for the maximum speed of serial communication
- Supporting CAN 2.0A / 2.0B
- Supporting CAN: ISO 11898-2
- $\pm 15\text{kV}$ ESD Protection
- Supporting various communication optional modes (ABOR, DAR)

1.2. Composition

The product photo, Pin Spec and lower switch information are as shown in the following figure.



This is about the DIP-Switch back of the sCAN device.



| No. | Status | Description |
|----------|--------|---|
| Switch 1 | ON | Activate a CAN VDD as power |
| | OFF | Deactivate a CAN VDD as power (Default) |
| Switch 2 | ON | Activate DE9 pin no. 9 as power |
| | OFF | Deactivate DE9 pin no. 9 as power (Default) |
| Switch 3 | ON | Active mode |
| | OFF | Active mode (Default) |
| Switch 4 | ON | Enable terminating resistance (125Ω) |
| | OFF | Disable terminating resistance (Default) |

1.3. About CANView

The commands are easily delivered via a COM port terminal but this provides the utility to upgrade, set and test the firmware for user's convenience.

1.4. Requirements, Recommendations, and Notes on Operations

- **Requirements:**

- CPU : Pentium 1GHz
- Memory : 512MB
- Operating system : Windows XP SP2
- Hard : At least 10MB spare space to execute a program
- At least 1 serial COM Port 1
- Supportable monitor resolution (1360 x 768) or higher

- **Recommendation:**

- CPU : At least Intel Dual Core 1GHz
- Memory : At least 1GB
- Operating system : Windows XP SP3 or higher
- Hard : At least 10MB spare space to execute a program
- At least 1 serial COM Port 1
- Supportable monitor resolution (1360 x 768) or higher

- **Notes on Operation:**

- Please supply 5V power to RS 2332 or CAN side.
- To use within the industrial operating temperature, the baud rate of RS 232 side must be 460kbps or slower.

2. Installation and Execution CANView

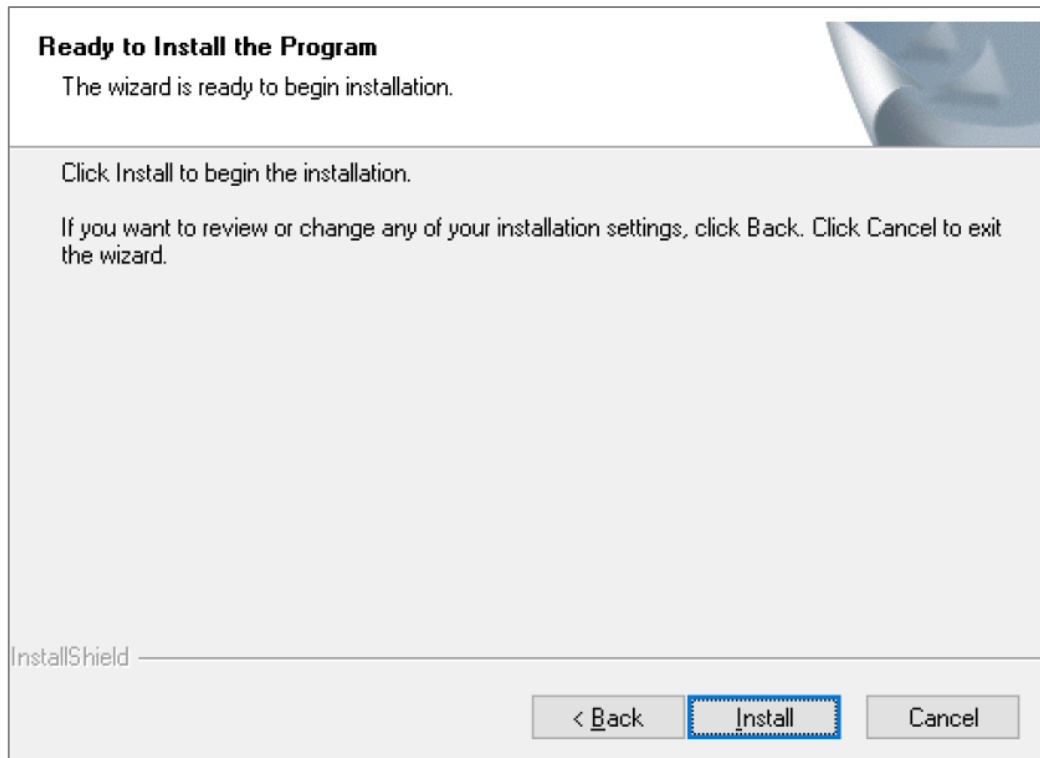
2.1. Installation

2.1.1. Turn on the PC and insert a CD.

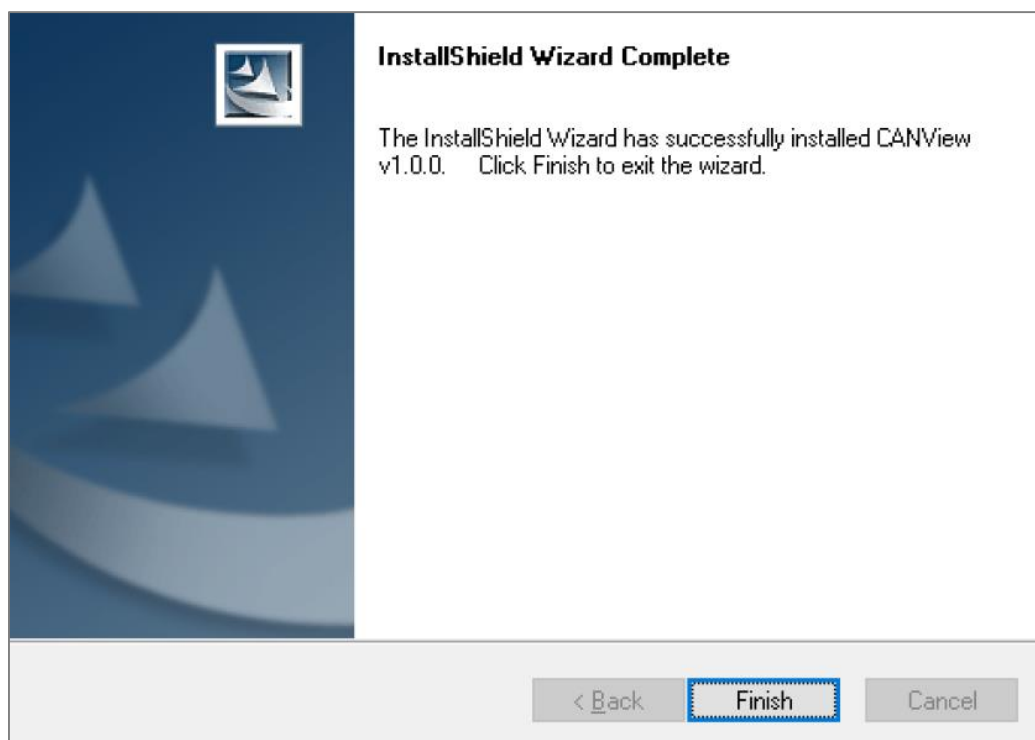
Move to [CD Drive]\PROGRAM folder. If the following file comes up, execute the “CANView v1.0.0.1 Setup”.

2.1.2. Press a button “Install” if the following screen pops up.

If previous version of sCAN Utility is already installed, remove the old sCAN Utility prior to the installation.

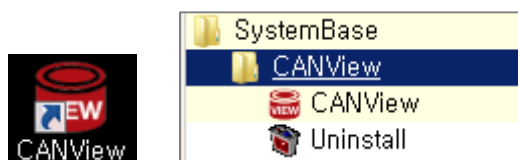


2.1.3. Press a “Finish” button once installation is completed.



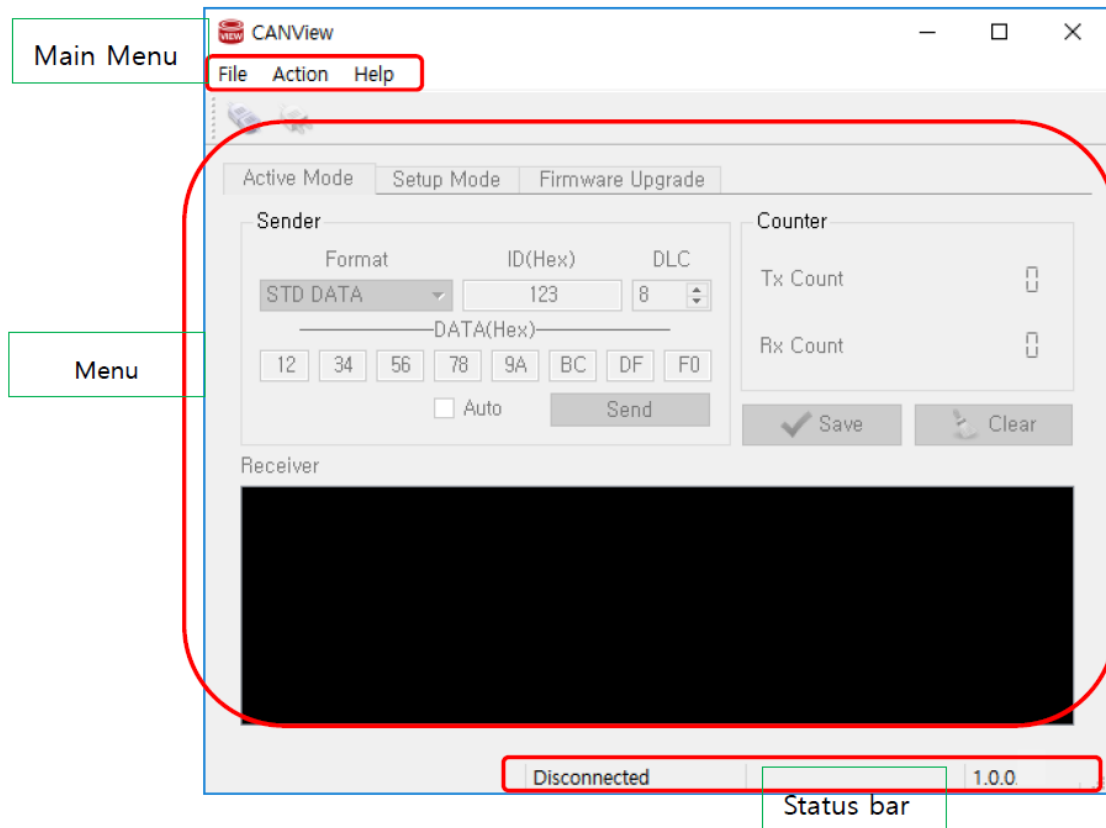
2.1.4. Short-cut is installed on a desktop and program start menu).

* The following figure may be different at Windows 8/Server 2012 or higher.



2.2. Execution

- 2.2.1. Double-click the left mouse button to select a short-cut icon on the desktop to run a program.
- 2.2.2. The CANView screen in appeared as shown in the following figure.



3. Program Description

A program is broadly classified into 5 parts.

| Name | Description |
|--------------------|---|
| Title bar | Displays the program title. |
| Menu | Contains the basic functions of a program. |
| Toolbar | Simply opens or closes the serial port. |
| Main window | Controls sCAN based on mode. |
| Status bar | Displays device connection information and program version. |

The detailed description of each part is explained in the next chapter.

4. Menu Description

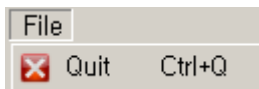
File Action Help

A menu is broadly classified into 3 parts.

| Name | Description |
|---------------|-------------------------------------|
| File | Executes or terminates the program. |
| Action | Opens or closes the serial port. |
| Help | Checks the program version. |

4.1. File

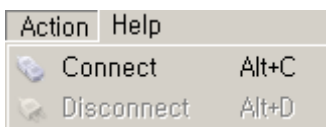
The submenu is displayed as shown in the following figure of clicking a file menu.



- **Quit:** To terminate a program.

4.2. Action

The submenu is displayed as shown in the following figure of clicking an action menu.

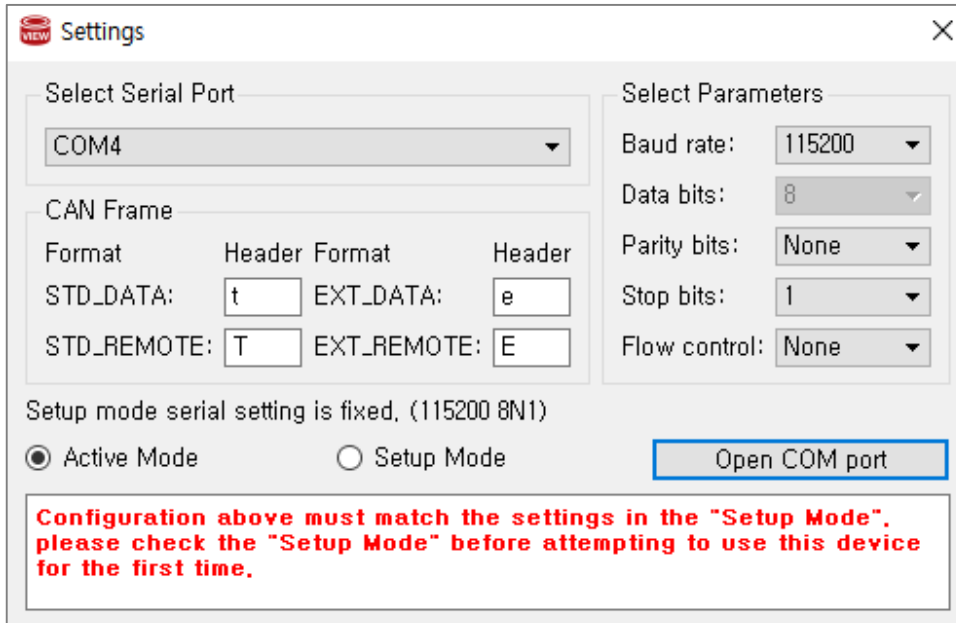


- **Connect:** Sets the serial port communication configurations and open a port.

- **Disconnect:** Closes a serial port.

4.2.1. Connect

To set the serial port communication configurations and open a port.



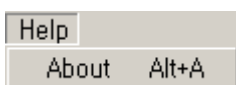
The Settings dialog box contains the following fields and controls:

- Select Serial Port:** A dropdown menu showing "COM4".
- Select Parameters:**
 - Baud rate: 115200
 - Data bits: 8
 - Parity bits: None
 - Stop bits: 1
 - Flow control: None
- CAN Frame:**
 - Format: STD_DATA, Header: t, EXT_DATA: e, STD_REMOTE: T, EXT_REMOTE: E
- Setup mode serial setting is fixed, (115200 8N1)
- Radio buttons for **Active Mode** (selected) and **Setup Mode**.
- Open COM port** button.
- Red text warning: "Configuration above must match the settings in the 'Setup Mode'. please check the 'Setup Mode' before attempting to use this device for the first time."

| Item | Description |
|---------------------|---|
| Baud rate | To set the Baudrate. |
| Data bits | Data bits is fixed at 8bit. (Other bits are unable to use since ASCII values is being used.) |
| Parity | One of None, Even, Odd, Mark and Space can be selected/ |
| Stop bits | 1bit or 2 bits can be selected. |
| Flow control | None or Hardware can be selected. |

4.3. Help

The submenu is displayed as shown in the following figure of clicking a Help menu.





- **About:** The information of this program is appeared as shown in the follows.




Tool Bar

5. Tool Bar



| Icon | Description |
|---|--|
|  | Connect Opens a serial port to connect the sCAN. |
|  | Disconnect Closes a serial port. |

5.1. Connect


Settings
×

Select Serial Port

COM4

CAN Frame

Format

Header

Format

Header

STD_DATA:

t

 EXT_DATA:

e

 STD_REMOTE:

T

 EXT_REMOTE:

E

Select Parameters
 Baud rate:

115200

 Data bits:

8

 Parity bits:

None

 Stop bits:

1

 Flow control:

None

Setup mode serial setting is fixed, (115200 8N1)
☒ Active Mode
 ☐ Setup Mode

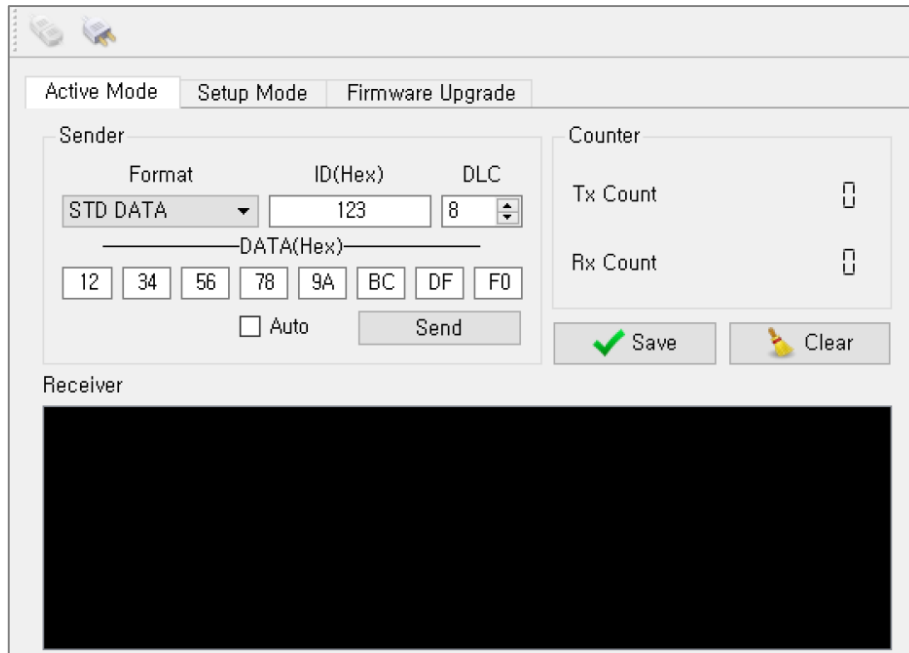
Open COM port

**Configuration above must match the settings in the "Setup Mode".
 please check the "Setup Mode" before attempting to use this device
 for the first time.**

| Item | Description |
|---------------------|---|
| Baud rate | To set the Baudrate. |
| Data bits | Data bits is fixed at 8bit. (Other bits are unable to use since ASCII values is being used.) |
| Parity | One of None, Even, Odd, Mark and Space can be selected/ |
| Stop bits | 1bit or 2 bits can be selected. |
| Flow control | None or Hardware can be selected. |

6. Main Window

6.1. Active Mode Tab



The screenshot shows the 'Active Mode' tab of the sCAN software interface. At the top, there are three tabs: 'Active Mode' (selected), 'Setup Mode', and 'Firmware Upgrade'. Below the tabs, the interface is divided into three main sections: 'Sender', 'Counter', and 'Receiver'.

Sender Section: This section contains fields for configuring a CAN frame. It includes a 'Format' dropdown menu set to 'STD DATA', an 'ID(Hex)' text box containing '123', and a 'DLC' spinner box set to '8'. Below these is a 'DATA(Hex)' section with eight individual hex digit boxes containing '12', '34', '56', '78', '9A', 'BC', 'DF', and 'F0'. At the bottom of this section is an 'Auto' checkbox (unchecked) and a 'Send' button.

Counter Section: This section displays two counters: 'Tx Count' and 'Rx Count', each with a numeric display box showing '0'.

Receiver Section: This section is a large black rectangular area intended for displaying received CAN frames.

At the bottom right of the interface, there are two buttons: a 'Save' button with a green checkmark icon and a 'Clear' button with a yellow eraser icon.

The user can select if sCAN is on active mode. This windows enables receiving and sending the CAN Frame.

Sender

It creates and sends a CAN Frame. Auto/manual mode can be selected via an auto checkbox.

Receiver

A window to show the received CAN Frame.

Counter

The count will be increased once CAN frame is received or sent so the status of transmission can be identified.

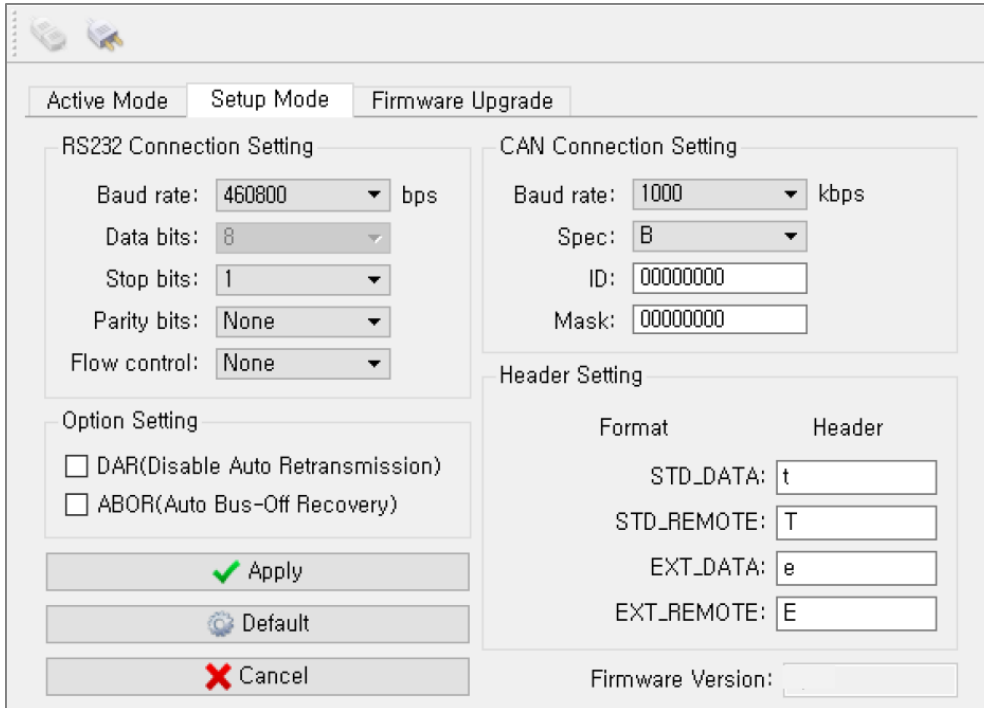
Save

It saves the all contents currently display on the receiver window in a TXT file. (up to 50000)

Clear

It initiates the receiver and counter.

6.2. Setup Mode Tab



The screenshot shows the 'Setup Mode' tab of the sCAN configuration window. It is divided into three main sections: RS232 Connection Setting, CAN Connection Setting, and Option Setting. The RS232 section includes fields for Baud rate (460800 bps), Data bits (8), Stop bits (1), Parity bits (None), and Flow control (None). The CAN section includes Baud rate (1000 kbps), Spec (B), ID (00000000), and Mask (00000000). The Option Setting section has checkboxes for DAR (Disable Auto Retransmission) and ABOR (Auto Bus-Off Recovery). At the bottom, there are buttons for Apply, Default, and Cancel. A Firmware Version field is also present at the bottom right.

| RS232 Connection Setting | | CAN Connection Setting | |
|--------------------------|------------|------------------------|-----------|
| Baud rate: | 460800 bps | Baud rate: | 1000 kbps |
| Data bits: | 8 | Spec: | B |
| Stop bits: | 1 | ID: | 00000000 |
| Parity bits: | None | Mask: | 00000000 |
| Flow control: | None | | |

| Option Setting | |
|--------------------------|----------------------------------|
| <input type="checkbox"/> | DAR(Disable Auto Retransmission) |
| <input type="checkbox"/> | ABOR(Auto Bus-Off Recovery) |

| Header Setting | |
|----------------|--------|
| Format | Header |
| STD_DATA: | t |
| STD_REMOTE: | T |
| EXT_DATA: | e |
| EXT_REMOTE: | E |

Firmware Version: _____

The users can select if sCAN is on setup mode. This window is to set the communication configurations of sCAN.

RS232 Connection Setting

To set the serial communication configurations.

CAN Connection Setting

To set the CAN communication configurations.

Option Setting

To set the CAN communication options.

Firmware Version

To check the version of sCAN Firmware.

Apply

To apply the communication configurations.

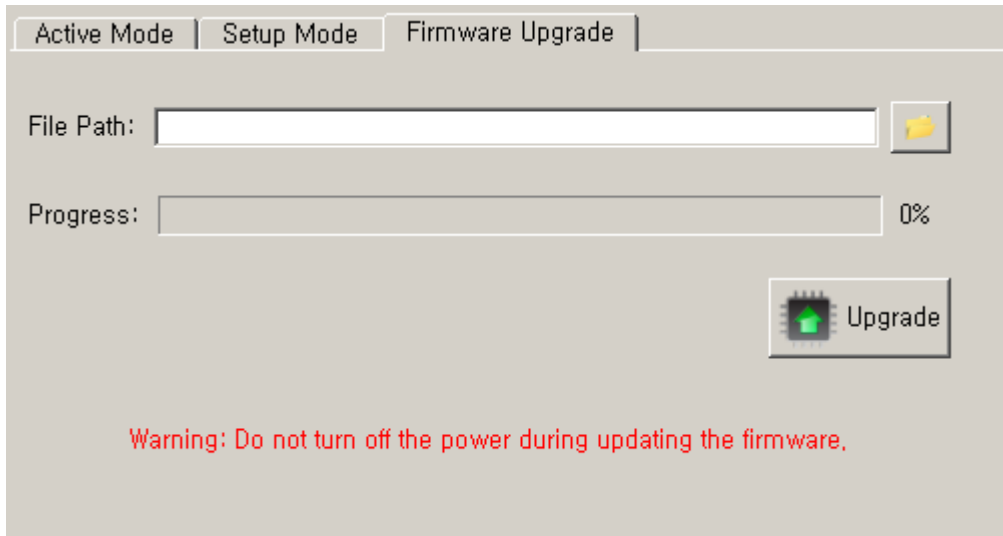
Default

To set the communication configurations at default. Press an “Apply” button to apply.

Cancel

Not to apply the communication configurations but to return to current configurations.

6.3. Firmware Upgrade Tab



The users can select if sCAN is on setup mode. This window is to firmware-upgrade the sCAN.

File Path

To display an absolute path of firmware file to be upgraded.

Progress

To display the progress of firmware upgrade.

Upgrade

To execute a firmware upgrade.

7. Status Bar



The status bar show the current connection.

| Title | Description |
|--|--|
| Message | To display HELP or message |
| Connection displayer | To display the current status of COM Port |
| Connection configurations displayer | To display the current connection configurations of COM Port |
| Program version | To display the current program version |

7.1. Connection Displayer

- Connect: Connected with the sCAN device.
- Disconnect: Disconnected from sCAN device.

7.2. Connection Status Displayer

- COM19, 115200, 8N1, Non-flow

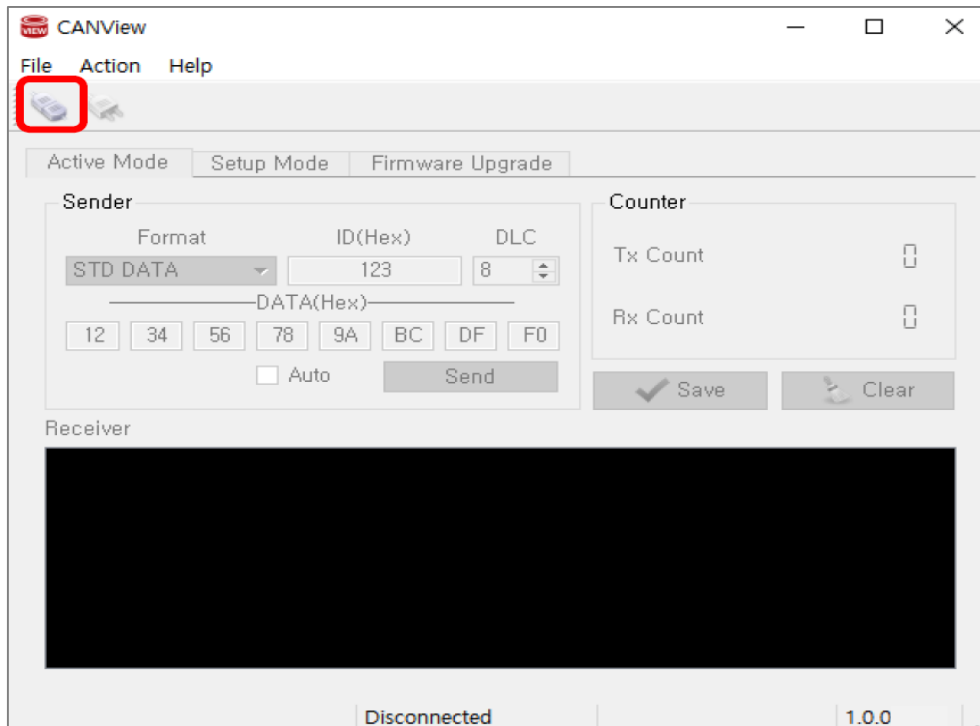
Current serial port: Connection based on the following configurations: COM19, Baud rate: 115200, Data 8bits, None parity bit, 1 stop bit and Non flow control

7.3. Program Version

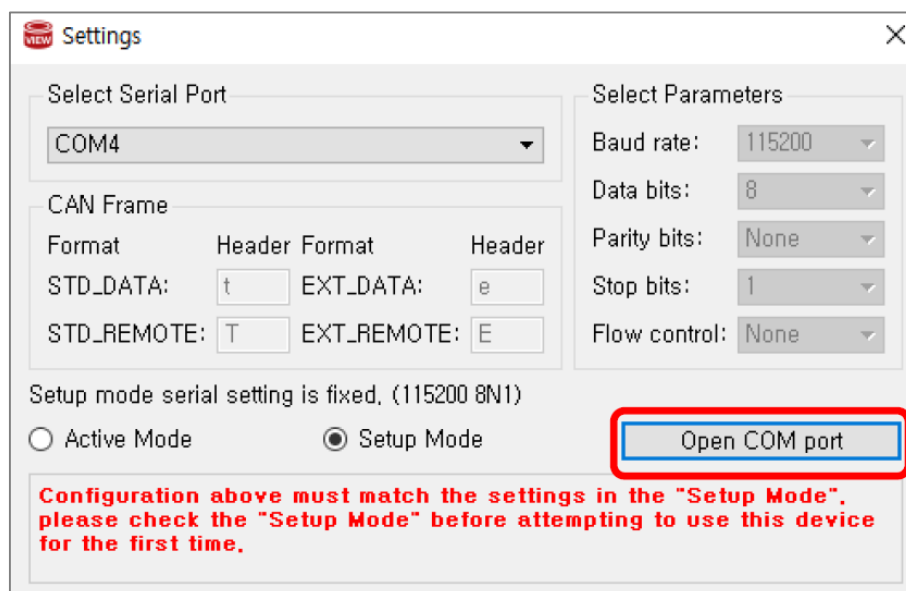
- The current version of CANView program is 1.0.0.3.

8. Firmware Upgrade

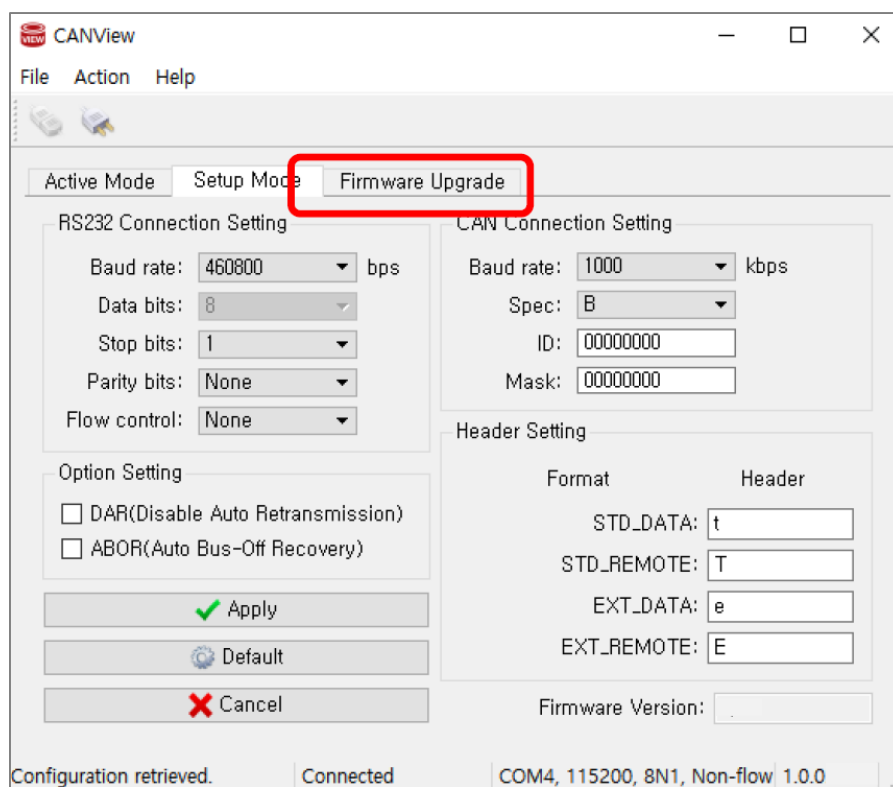
- 8.1. The DIP-switch back of the sCAN device is to be set at setup mode.
- 8.2. Execute a CANView.
- 8.3. Click an icon, Auto Connect.



- 8.4. Click an Open COM port button.

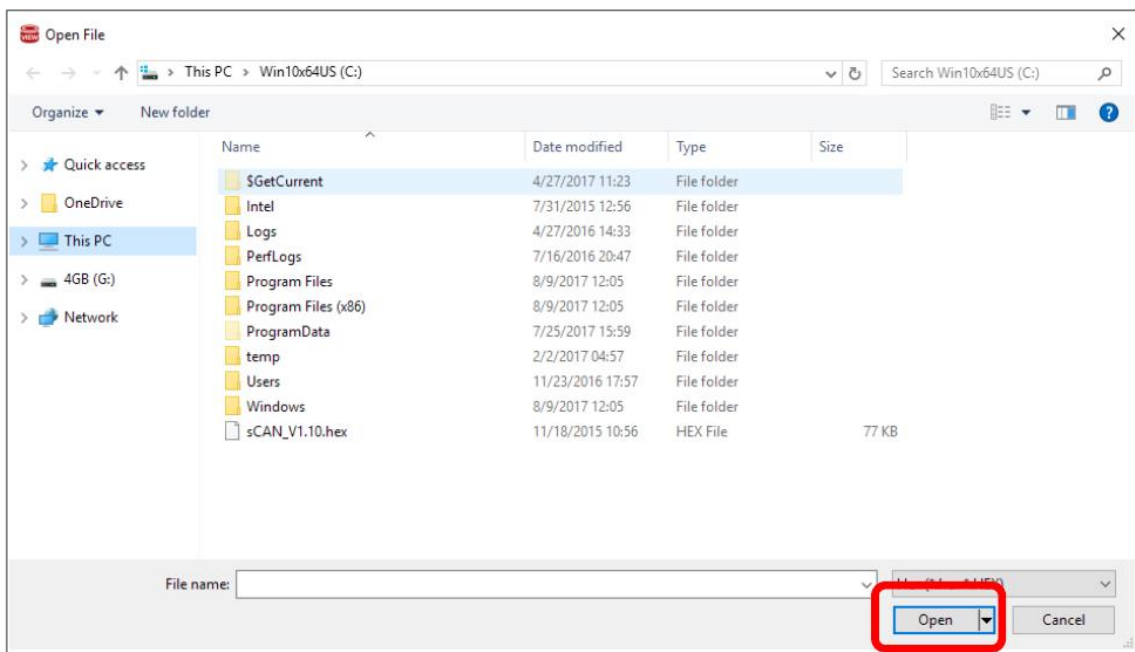
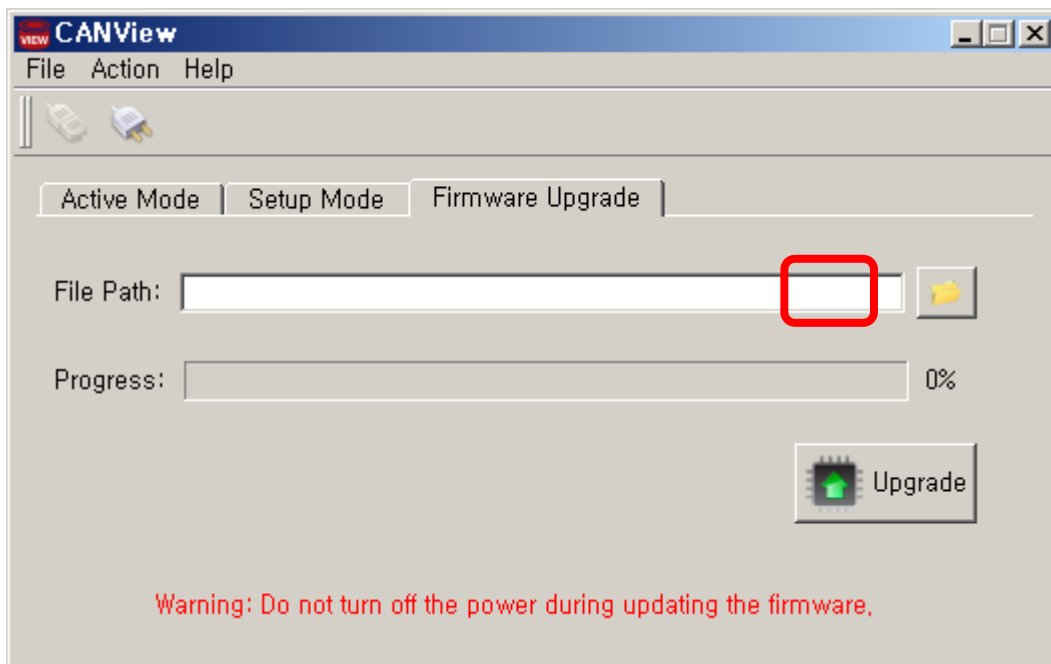


- 8.5. Click a Firmware Upgrade tab.

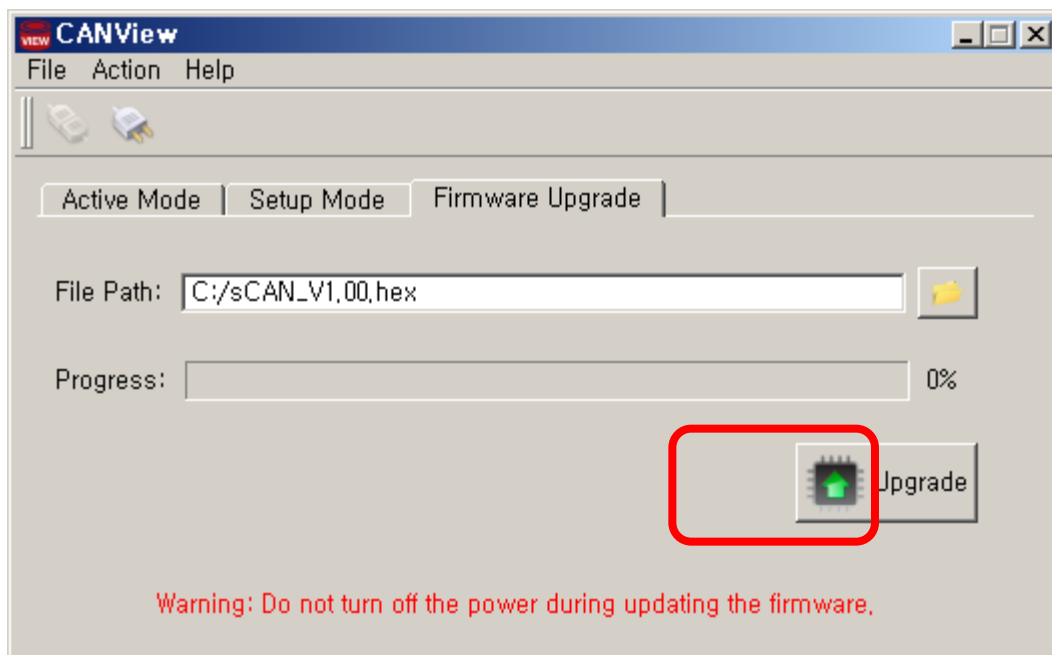


8.6. Click right upper button in the file path to assign a location of HEX file.

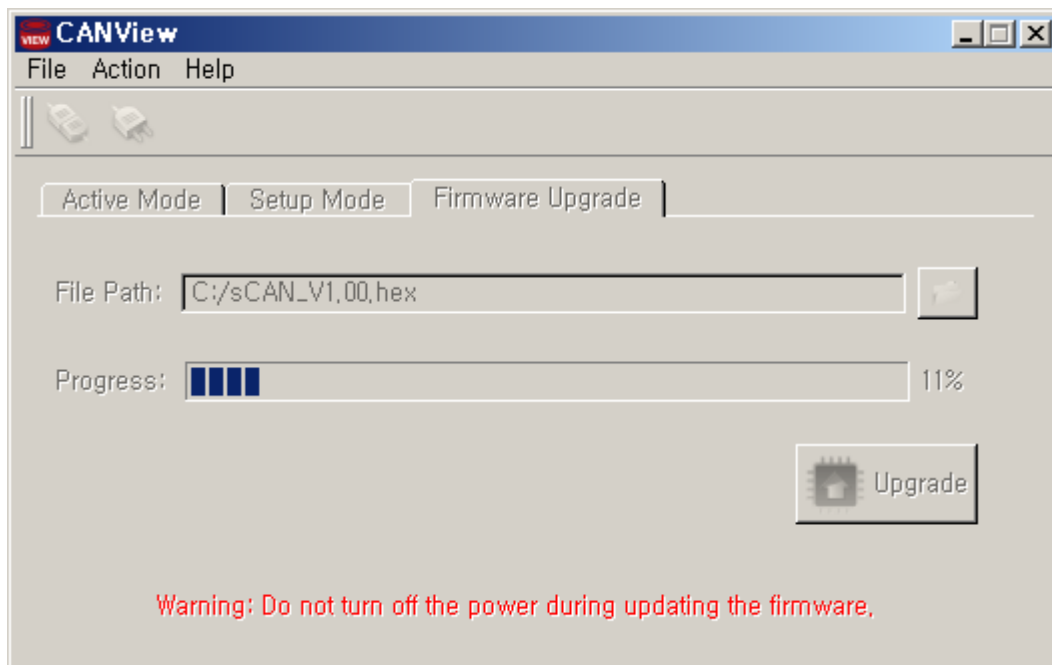
(Only English is supported for file path excluding he blank.)



- 8.7. Press an Upgrade button to start a firmware upgrade.



- 8.8. Do not disconnect the power when firmware upgrade is in process.



9. Solution

This page provides the frequently asked questions on sCAN.

9.1. CAN data is not retrievable.

- ➔ Check if the device is set on the active mode. You can check it via a RDY LED.
- ➔ Check if communication configurations are properly set. Use a DIP-switch back of the product to set the device at Setup mode. Check if both serial communication configurations and CAN communication configurations are properly set.
- ➔ If device is connected to terminal, use a DIP-switch to install the terminating resistant (125Ω).

10. Reference

10.1. Mask

At the CAN communication, in general, it combines receiving ID and receiving mask ID to filter the CAN frame to be seen on the CAN network, thereby controlling the processing loads for communication.

Receiving ID is to present the CAN frame ID to be seen, whereas the receiving Mask ID is to check all receive data are consistent the bits of the receiving ID previously set. If it's consistent, the data is received but if not, it is not received.

10.2. DAR(Disable Automatic Retransmit)

In CAN communication, in general, the device sends the CAN frame and then resend it if errors have occurred in other CAN device, thereby ensuring the data integrity.

However, this may cause over-loads in the communication and delays in sending due to pushed-back priority. For such as the DAR (Disable Automatic Retransmit) function is activated and operated to reduce the communication loads and also prevent the delays in communication attributed to pushed-back priority. However, problems may be caused due to failure in sending to other CAN device by the errors in sending.

10.3. ABOR(Automatic Bus-Off Recovery)

In CAN communication, the error frame is spread through the entire CAN network; therefore, the errors are to be frequently occurred on a device which contributes to overloads of communication and instability in the entire network. In order avoids such problem, the CAN communication itself separates from the CAN network once the TEC (Transmit Error Count) and REC (Receive Error Count) are increased to a certain level, ultimately reducing the effects on other CAN device and network. Here, the device itself doesn't send to or received from CAN network. Rebooting is required in order to recover it. If ABOR (Automatic Bus-Off Recovery) is being activated, it will be automatically recovered without rebooting. However if activated, the communication loads and instability of entire network may be continued.

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Working Hour

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