

uCAN V3.0

User Manual



Revision History

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Jan. 11th. 2018	1.0	All	New
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Preface

In this chapter, uCAN V3.0 and related features will be explained.

About This Manual

This manual explains the connection, communication, configuration, and other management operations regarding uCAN.

To Our Readers

This manual was created to support the users of uCAN V3.0. We recommend reading this manual before using the uCAN V3.0. The manual includes the details on utilizing the hardware and setting the software. This document will be helpful for controlling and managing uCAN V3.0 and its connected devices.

Manual Composition

1. Preface: General information and introduction of uCAN.
2. Getting Started: Instructions regarding uCAN V3.0 and its features.
3. Hardware Components: Details on pin specification, connectors, LEDs.
4. Configuration Utility: Configuring uCAN V3.0 with a configuration utility, CANView.
5. Appendix: Installing VCP driver, Troubleshooting, and Product Specification.

Documents Related to uCAN V3.0

Technical documents related to uCAN V3.0 are as follows:

Document	Description
User Manual	uCAN V3.0 hardware information, configuration, and management
CANView User Manual	Information regarding using CANView
CAN Command Library Manual	Command library for sCAN V1.0 and uCAN V3.0
uCAN V3.0 Spec Sheet	uCAN V3.0 Product Specifications

All documents are kept up-to-date in our website. Contents of the documents may change without notice.

1. Getting Started

In this chapter, uCAN V3.0 overview, main features, package components are explained.

Introduction

An uCAN V3.0 is a converter that converts USB signals to CAN signals, and CAN signals to USB signals. Users can transmit or receive CAN signals from the USB VCP (Virtual COM Port: a virtual serial port). And use the command lines with serial data format to configure communication settings. Command line library is provided for advanced readers to customize and utilize various command lines. Also, a GUI-based utility called CANView is provided for normal users to easily configure, test, and upgrade the firmware.

Features

- Supports CAN 2.0A / 2.0B
- Provides an Integrated GUI-based Utility
- Power supply from USB or CAN VBUS
- Communication Status Checked with LED
- Maximum CAN Speed: 1 Mbps
- Only CAN High is supported
- RS232 supports up to 460.8kbps
- ± 15 KV ESD Protection
- ABOR Communication Option for CAN

Contents of Package

Please check if your package includes following:

- 1 Unit of uCAN V3.0 Device
- 1 USB type A to type A Cable
- 1 uCAN V3.0 Quick Manual

Class A Device

This device is marketed for use in an industrial application and is not intended for use in the home or residential area.

2. Hardware Specifications

In this chapter, uCAN V3.0 hardware case, connectors, pin specifications, and reset button information is provided.

Case and Connectors



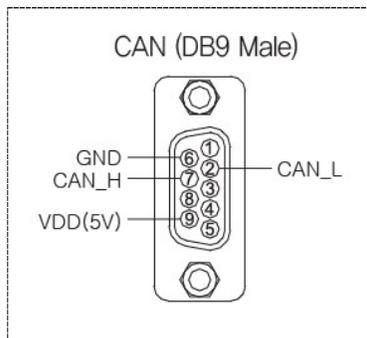
- USB connector: USB type A
- LED: Shows the status of uCAN V3.0. Different status of the LED will be explained below.
- CAN connector: DB9 Male

Power	5V DC 500 mA, Power Consumption: 0.60 W
Power Connector	USB VBUS or CAN VDD

LED

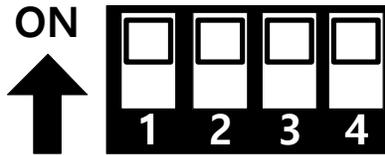
	LED Name	State	Actions
1	RDY	Blink (Operating)	After booting, RDY LED will start blinking. * If the RDY LED is constantly on or off after booting is complete, the device is out of order.
		Blink (Setting)	Quickly blinks for Settings Mode. (RDY)
2	DATA	Blink	Blinking DATA LED indicates transmitting or receiving CAN data.
3	ERR	On/Off	ERR LED constantly on indicates an error.

CAN Port Pin Specifications



Switch

The switches on the bottom of a uCAN V3.0, allows users to select power supply availability, communication modes, and enabling terminating resistors.



Number	Status	Description
Switch 1	ON	Use CAN side VDD for power (Default)
	OFF	VDD is disconnected
Switch 2	ON	Use USB VBUS for power (Default)
	OFF	USB VBUS is disconnected
Switch 3	ON	Active Mode (Default)
	OFF	Setup Mode
Switch 4	ON	Enable terminating resistors (120Ω) (Default)
	OFF	Disable terminating resistors

3. Configuration Utility

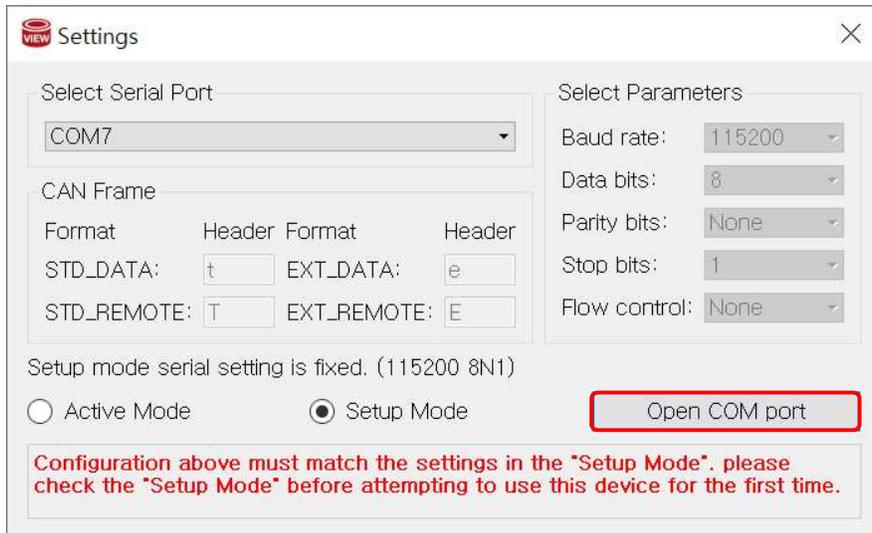
In this chapter, how to configure uCAN V3.0 through the CANView utility will be explained. For more info on detailed options and configure them, please refer to the CANView user guide.

Connecting

Icon	Description
	<p>Connect</p> <p>Open the VCP (Virtual COM Port: a virtual serial port) to connect with uCANV3.0.</p>
	<p>Disconnect</p> <p>Disconnect from the VCP.</p>

When you install the driver for the uCAN device, the virtual serial port will be added. You can check it from the “Device Manager” under the “Control Panel” in your Windows.

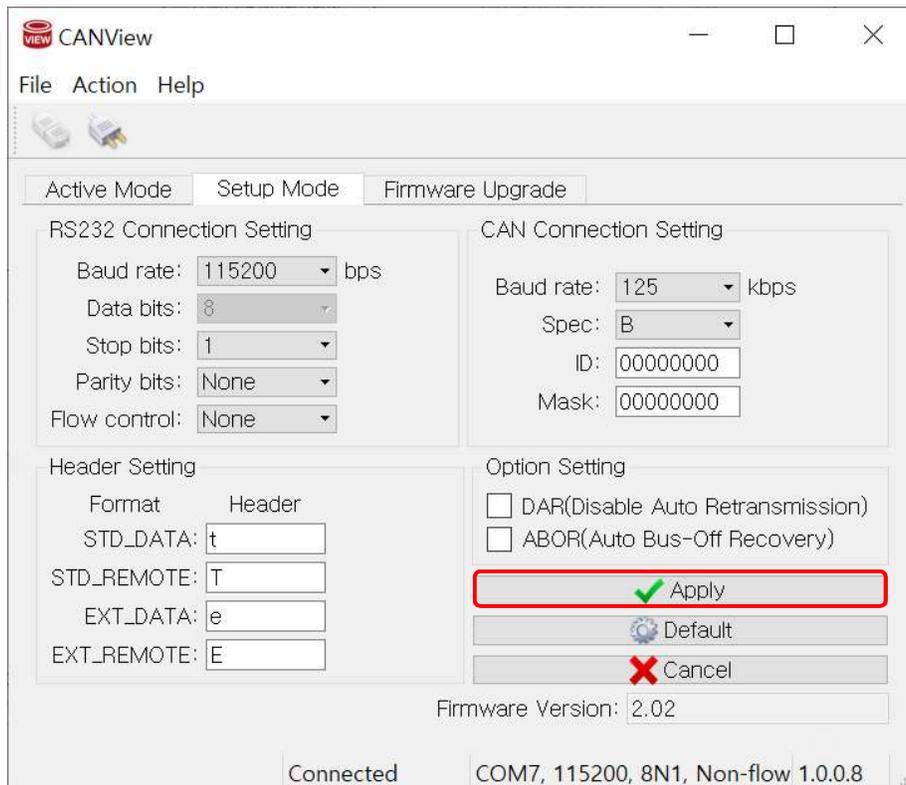
Select the serial port number from the CANView, and click “Open COM Port”.



※ CANView operates correctly only when CAN frame header values stored in the hardware and the values in the settings shown from the software are the same.

Setup Mode

※ To change uCAN V3.0 settings, you need to change the 3rd switch on the bottom of the product to 'Setup' mode or slide it to off position. After configuration is done, click the 'Apply' button. If you did not click the [Apply] button to save the changed values, you can click the 'Cancel' button to return to its previous values.



※ To change settings for sCAN and uCAN, you need to change the third switch on the bottom of the product to off or 'Setup' mode. After configuration is done, click the [Apply] button, then change the switch to on or 'Active' mode to apply the configuration.

RS232 Connection Setting

Baud rate : Serial communication speed setting. (Maximum 460800 bps)

Data bits : Length of data fixed to 8 bits.

Stop bits : It can be set to 1 and 2 as bits that inform the end of data.

Parity bits : Error detection bit can be set to Even, Odd, Mark, Space.

(Default: baud rate - 115200bps, data bits - 8, parity bits - none, stop bit - 1, flow control - none)

CAN Connection Setting

Baud rate : CAN communication speed setting. (can be set up to 1000 kbps)

Spec A : Only Standard Format is transmitted or received.

B : Both standard and extended format send or receive.

ID : CAN ID to be masked can be input as Hex value.

Mask : Typically, a CAN communication uses a combination of a reception ID and a mask ID to filter the received CAN data from the network to lessen the data processing.
A reception ID is a CAN data frame ID. The received mask ID is used for cross referencing received data IDs to specific bits in field. If it matches, the data is received, and if it does not match, the data is not received.

Option Setting

ABOR : If a device causes too much errors, the overall CAN network becomes unstable, thereby causing the communication to be ineffective and data transmission to be delayed. To prevent such phenomenon from happening, the TEC (Transmit Error Count) and the REC (Receive Error Count) are counted during data reception to automatically separate excessive errors from the network. By doing this, communication efficiency is raised. After the errors get solved, the device can be rebooted to return the network to its normal state. However, by using the ABOR (Automatic Bus-Off Recovery) feature, the network can be recovered without needing to reboot the device.

Header Setting

Data Frame header Options. (Set in different case alphabet.)

STD_DATA: Standard Data, STD_REMOTE: Standard Remote

EXT_DATA: Extended Data, EXT_REMOTE: Extended Remote

Firmware Version

Firmware version display.

Apply

Save currently set values to the device.

Default

Re-initialize to the out-of-the-box status.

(Settings are saved after clicking 'Apply' button.)

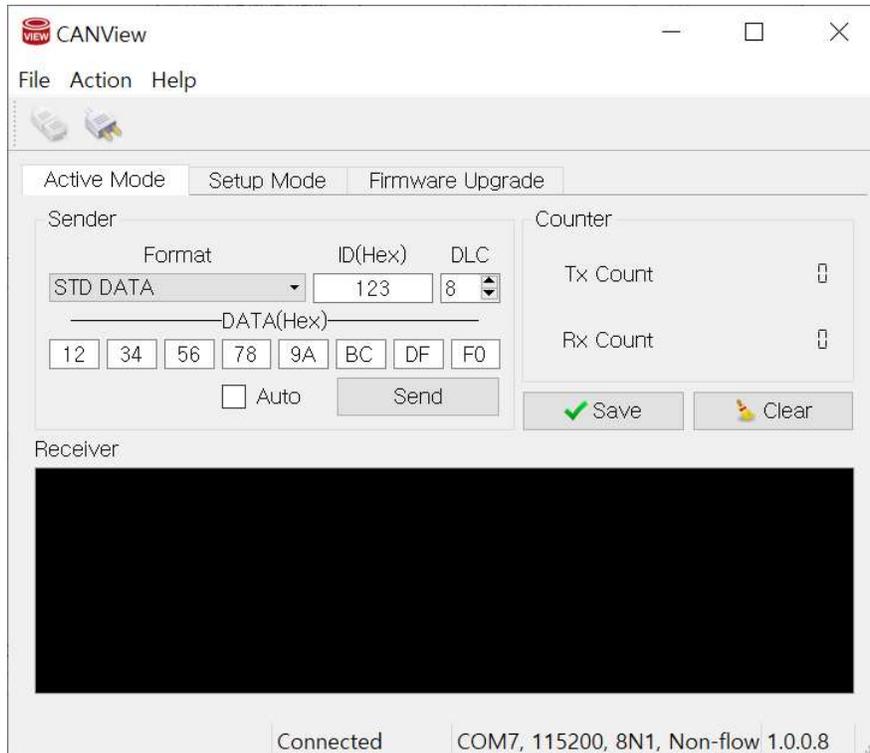
Cancel

Reverts to its previous values.

Active Mode

From the “Active Mode”, you can transmit and receive CAN data and check the counters of each.

※ To change settings for sCAN and uCAN, you need to change the third switch on the bottom of the product to off or ‘Setup’ mode. After configuration is done, click the [Apply] button, then change the switch to on or ‘Active’ mode to apply the configuration.



Sender

Format : CAN data settings and transmission.

STD_DATA : Standard Data, STD_REMOTE: Standard Remote.

EXT_DATA: Extended Data, EXT_REMOTE: Extended Remote

ID : Set the ID of CAN Frame to be transmitted.

Standard format: 0 to 1ff,

Extended format: 0 to 1fffffff

DLC : Set data length of CAN Frame Data

DATA : Set the Data value.

Auto : Can check whether same CAN frame is transmitted automatically.

Send : Transmits the set CAN frame.

Receiver

Displays received CAN data.

Counter

Displays transmitted and received CAN data counter

Save

Save the received CAN data to a text file.

Clear

Initialize the Receiver or Counter.

- ※ Correct data value is not displayed when "Clear" or "Save" button is clicked while transmission is in process.
- ※ CANView operates correctly only when the values in setup mode and settings windows are the same.

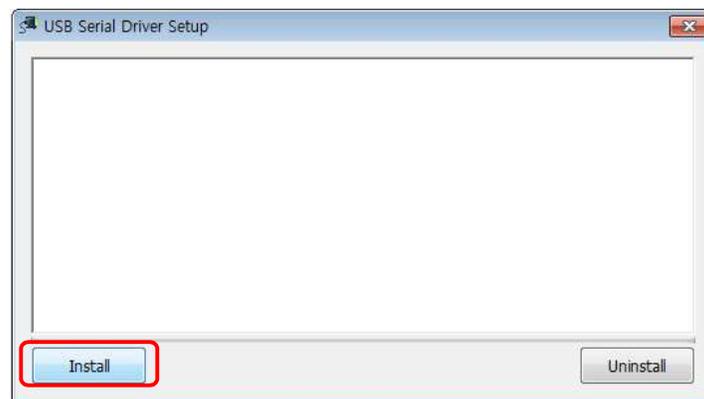
4. Appendix

Installing USB VCP (Virtual COM Port) Windows Drivers

1. Connect uCAN or USB-to-serial converter to your computer.
2. Go to <http://www.sysbas.com/>
3. Click “ENGLISH” on top right corner.
4. Click “Drivers”.
5. Click “USB Device” then download “USB One Click Driver”.
6. Extract the whole ZIP file.
7. Run “wmic os get osarchitecture” command from the command line prompt, or the DOS screen.
8. After checking your OS type, go to either 32bit 64bit folder that you extracted for the driver.
9. Double click “USB_Serial_Driver_Setup”.
10. Click the “Install” button from the window.

※ SystemBase does not provide drivers for other manufacturers.

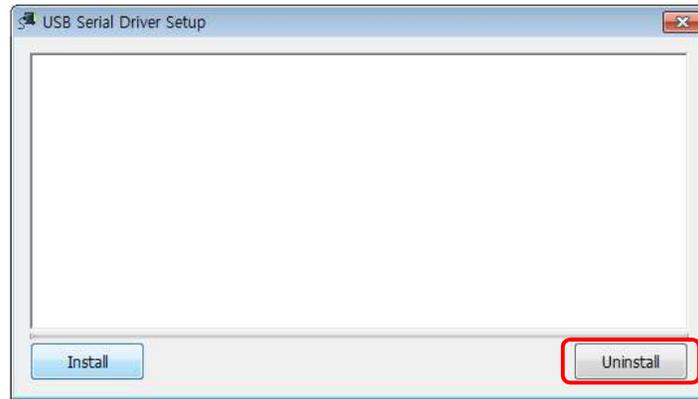
If needed, please contact the company where you purchased the product.



※ When installing driver for this product, please install from the local storage. If you try to install from a network drive, there may be a problem.

Uninstalling USB VCP Windows Driver

1. Please refer to the installation process (step 1 to 9).
2. After the below window appears, click “Uninstall” button.



Troubleshooting

1. Check if the power source is properly working. You can supply power to an uCAN V3.0 through USB or CAN port.
(Please refer to the Chapter 3. Hardware Components - Switch)
2. Check if the switch on the bottom of the product is set to Active mode.
(Please refer to the Chapter 3. Hardware Components - Switch)
3. Check if the communication settings for CAN side are properly configured.
(Please refer to the Chapter 4. Configuration Utility)
4. If long wires are used to connect the device, or multiple devices are connected on the CAN bus, set the terminating resistors with the switch. Usually the both ends should be the terminating resistor enabled.
(Please refer to the Chapter 3. Hardware Components - Switch)
5. When broken ASCII form of CAN frame is pass through the RS-232 side, this product may malfunction. In this case, please cut the power and re-supply it again. (Tip: Turn off switch #1 and #2 then turn them back on.)

Product Specifications

Communication (CAN)

Communication Standard	CAN 2.0A and 2.0B
Maximum Communication Distance	1 km
Maximum Communication Speed	1 Mbps (It is recommended to give 50 milliseconds delay between each frames when sending and receiving CAN data.)
Connector	DE9 Male
Signal	CAN_H, CAN_L, VDD*, GND

* This pin is used for supplying 5V power.

Communication (USB)

Communication Standard	USB 2.0 FS
Connector	USB Type A
Signal	USB DP, USB DM, USB VBUS, GND

Hardware

Power	5V DC 500 mA, Power Consumption: 0.60 W
Power Supply	USB VBUS or CAN VDD (Pin #9)
Size (W × L × H)	34.9 × 64.3 × 16.5 mm
Weight	26.1 g
Operational Temperature	-40 ~ 85 °C
Humidity	Max. 90 % R.H
LED	RDY(Yellow), DATA(Green), ERR(Red)
Protection	±15 KV ESD Protection(Air)

Software

Utility	CANView Window: 7, 8.1, 10 (32,64 bit) Window Server: 2008, 2012 (64 bit)
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Ordering Information

uCAN V3.0	uCAN V3.0, USB Cable, Quick Manual
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If you have any inconvenience while using the product, please contact us.

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