Extended-UART & PMBus

COSEL

COSEL Power supply communication software for AC-DC "C-Talk" User manual



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COSEL Power supply communication software for AC-DC "C-Talk"

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A. Revision history A-1

Disclaimer

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Applications manual

For C-Talk manual

1. Introduction

1.1 About C-Talk

C-Talk is software that communicate with a communication-compatible power supply.
You can change its settings, control it, and monitor its output voltage from a Windows PC (hereinafter referred to as PC) using Extended-UART or PMBus. The conversion module C-Bridge I is required to connect between PC and power supply.

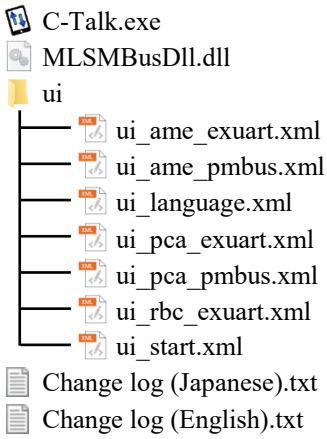
Extended-UART : Multi-drop bus and half-duplex communication protocol using insulated standard UART.

PMBus : A communication protocol based on I2C for power supplies.

1.2 Preparation

You can download C-Talk from our website.
https://www.cosel.com/en/product/app_soft/

C-Talk requires the files and folders as below. Please put these files in the same folder.
(No need installation)



1.3 Available power supply

C-Talk can be used with AME series, PCA series, and RB series that have communication functions. It supports Extended-UART and PMBus.

Table 1.3.1 List of communication methods supported by each power supply

Power supplies	Extended-UART	PMBus
AME series	-I3 option is required	-I option is required
PCA series	Standard model (*1)	-I option is required
RB series	-I3 option is required	Unsupported

*1 C-Talk does not support -P2 option.

1.4 Communication converter

A communication converter is required for PC to communicate with the power supply. The converters supported by this software are shown in Table 1.4.1. The supported communication methods depend on the converter, so prepare a converter suitable for communication method.

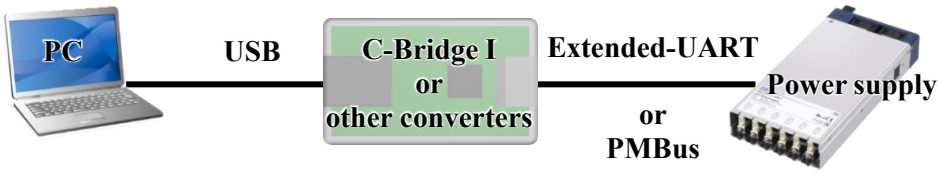


Figure 1.4.1 The connection between power supply and PC

Table 1.4.1 Converters that are confirmed operation

No	Product name	Manufacturer	Supported communication methods		Note
			Extended-UART	PMBus	
1	C-Bridge I	Media Logic	Supported	Supported	*1
2	UB232R	FTDI	Supported	Unsupported	*2
3	MM-CP2112C	Sunhayato	Unsupported	Supported	*2 *3

*1 C-Bridge is not for sale. Please contact to our sales offices.
*2 It is necessary to install parts and wire the converter. See 2.4-2.5 for details.
*3 You need to switch the I2C bus pull-up power supply to 5V. See 2.5 for details.

This document does not guarantee the operation of the above converters, so please use them after fully evaluating it. We will not be responsible for any damages, including those due to misstatement and/or missing information, and indirect faults resulting from the use of the information in this document.

2. Connection method

This section describes how to connect the converter to the power supply.

2.1 How to connect the power supply and converter (Extended-UART)

The procedure for communicating with your power supply using Extended-UART is shown below. PCA series (*1) supports Extended-UART in standard model. The other power supplies should be with -I3 option.

*1 C-Talk does not support -P2 option.

2.1.1 Position of Extended-UART connector on the power supply

(1) AME series

Connect the connector to CN1 of the power supply.

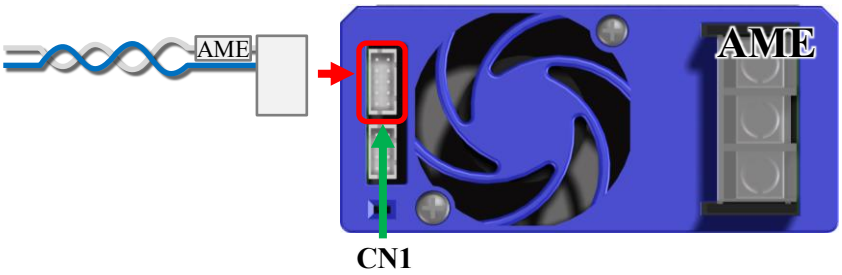


Figure 2.1.1 Position of Extended-UART connector on AME series

(2) PCA series

Connect the connector to CN1 or CN2 of the power supply.

It doesn't matter that you connect connector to either CN1 or CN2.

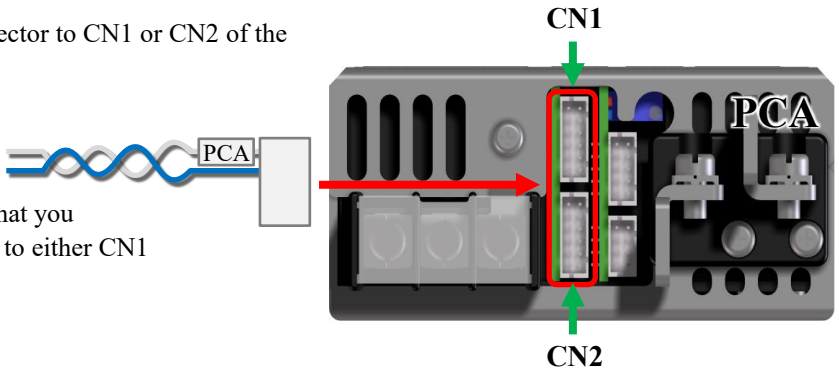
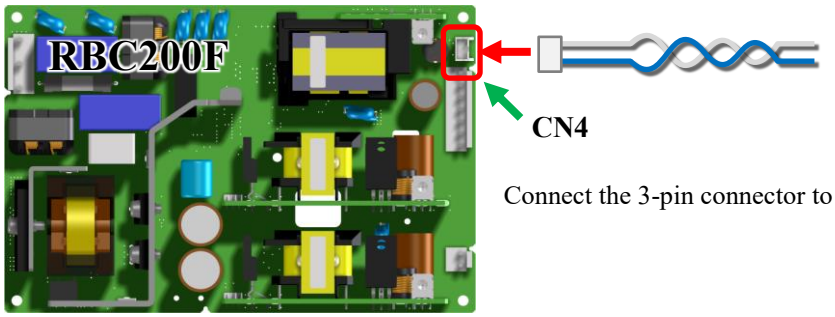


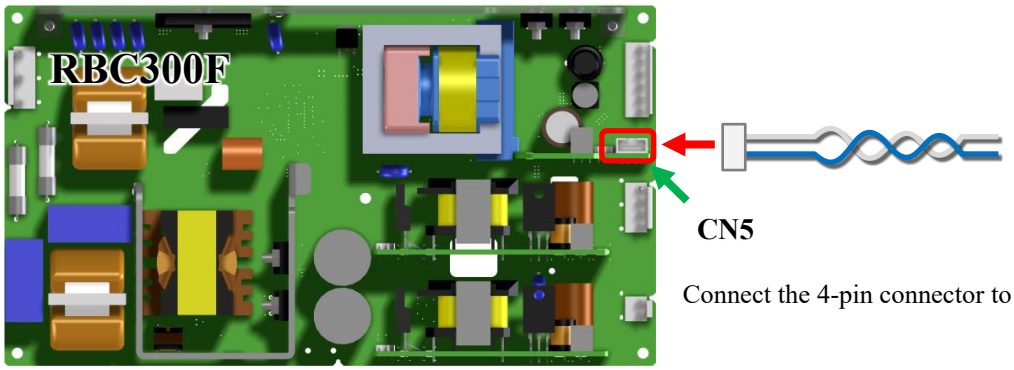
Figure 2.1.2 Position of Extended-UART connector on PCA series

(3) RB series



Connect the 3-pin connector to CN4.

Figure 2.1.3 Position of Extended-UART connector on RBC200F



Connect the 4-pin connector to CN5.

Figure 2.1.4 Position of Extended-UART connector on RBC300F

2.1.2 When connecting multiple power supplies using Extended-UART

The maximum number of power supplies that can be connected with C-Bridge I using Extended-UART is **TWO**.

* Please contact us if you want to connect three or more power supplies.

You can connect AME series, PCA series and RB series in combination.

When communicating with multiple power supplies, branch the wiring so that each signal line can be connected to each power supply. In the PCA series, PCA series can be connected to each other as shown in Figure 2.13 because connectors CN1 and CN2 are internally connected in parallel. For power supplies other than PCA series, branch each signal line and connect to each power supply. (Figure 2.14)

Please set the address of the power supplies to identify each power supply. For the address setting method, refer to "Extended-UART Communication Manual" of each power supply.

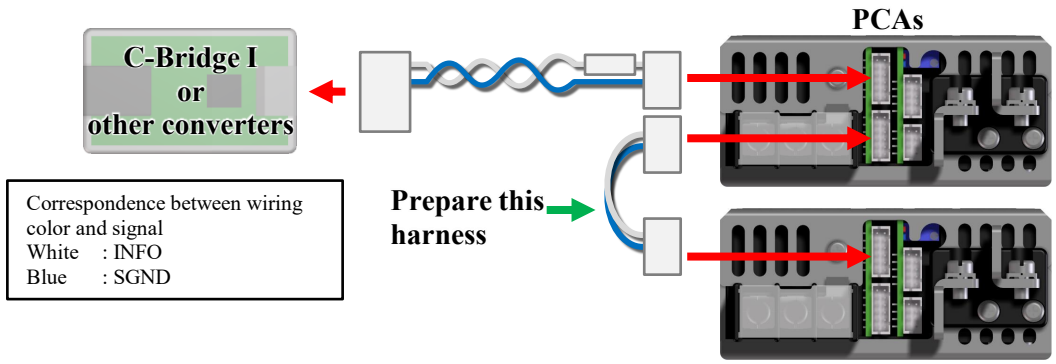


Figure 2.1.5 Example of connection between PCAs

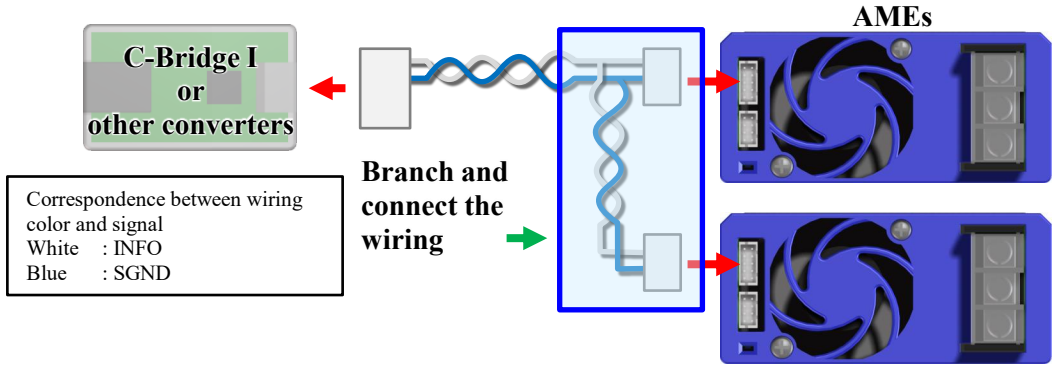


Figure 2.1.6 Example of connection between AMEs

2.2 How to connect the power supply and C-Bridge I (PMBus)

The procedure for communicating with your power supply using PMBus is shown below. The power supply must be with -I option.

2.2.1 Position of PMBus connector on the power supply

(1) AME series

Connect the 8-pin connector to CN2 of the power supply.

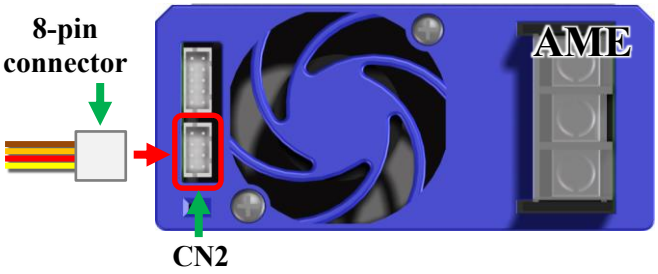


Figure 2.2.1 Position of PMBus connector on AME series

(2) PCA series

Connect the 8-pin connector to CN4 of the power supply.

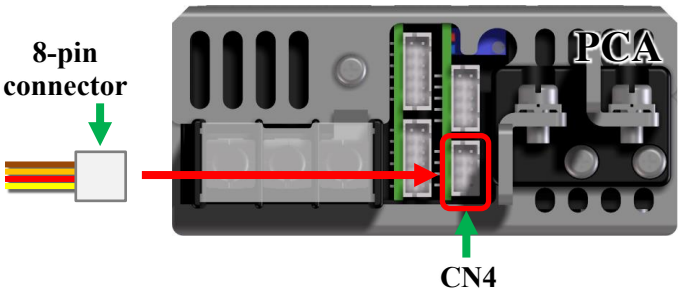


Figure 2.2.2 Position of PMBus connector on PCA series

2.2.2 When connecting multiple power supplies using PMBus

The maximum number of power supplies that can be communicated with PC using PMBus is eight.
You can connect AME series and PCA series in combination.
When communicating with multiple power supplies, branch the wiring so that each signal line can be connected to each power supply.
Please set the address of the power supplies to identify each power supply. For the address setting method, refer to "PMBus Communication Manual" of each power supply.

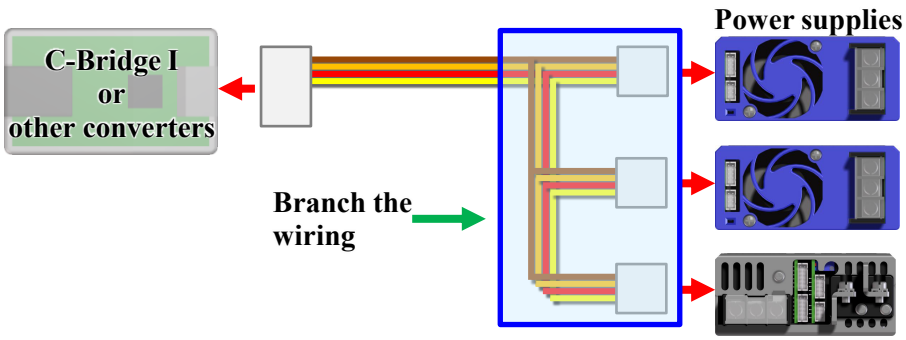


Figure 2.2.3 Example of branching harness for PMBus

2.3 How to connect PC and C-Bridge I

2.3.1 Installing C-Bridge I driver

To use Extended-UART, the driver for C-Bridge I is required.
Please install the driver for C-Bridge I on your PC.
For the driver installation, refer to "C-Bridge Driver Installation Manual".
You can download the driver and manual from our website.
To use PMBus, the driver for C-Bridge I is not required.

https://www.cosel.com/en/product/app_soft/

2.3.2 How to connect PC and C-Bridge I

A USB cable is required to connect C-Bridge I to your PC.
Please prepare a USB cable with a Type-B connector.

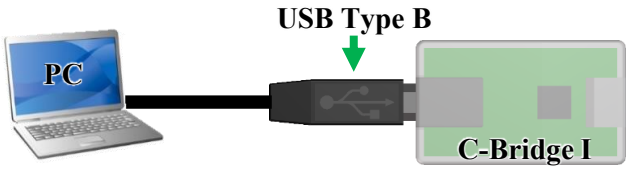


Figure 2.3.1 The connection between PC and C-Bridge I

2.3.3 How to connect the power supply and C-Bridge I (PMBus)

When C-Bridge I is connected to the power supply, use the "brown / orange / red / yellow / white" harness included in C-Bridge I. Connect the 10-pin connector to C-Bridge I and the 8-pin connector to the power supply.
If you use the harness included in C-Bridge I, the communication address will be set to "23".
You can connect only one power supply using the harness included in C-Bridge I.

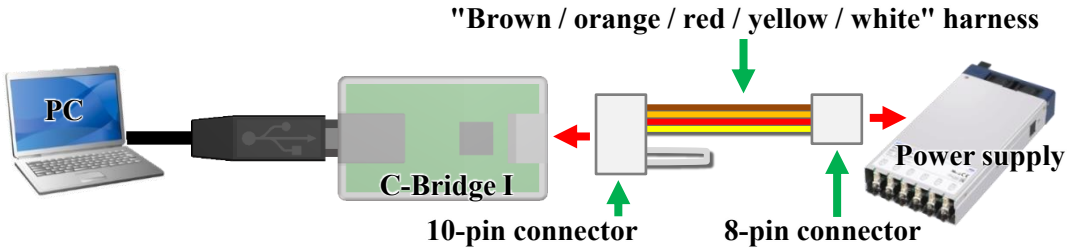
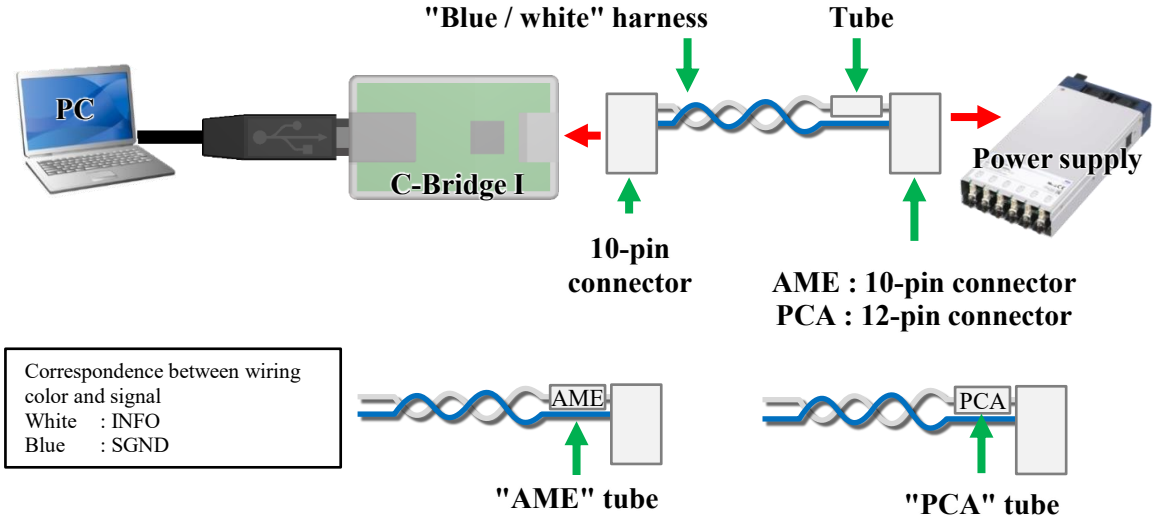


Figure 2.3.2 The connection between your power supply and C-Bridge I (PMBus)

Correspondence between wiring color and signal Brown: SDA Orange: SCL Red: SGND Yellow : SMBA

2.3.4 How to connect the power supply and C-Bridge I (Extended-UART)

When C-Bridge I is connected to the power supply, use the "blue / white" harness included in C-Bridge I.
For AME, use the harness with a tube printed "AME".
For PCA, use the harness with a tube printed "PCA".
Connect the connector that have no tube to C-Bridge I and the connector that has a tube to the power supply.
If you use the harness included in C-Bridge I, the communication address will be set to "7".
The maximum number of power supplies that can be connected with C-Bridge I using Extended-UART is **TWO**.
* Please contact us if you want to connect three or more power supplies.



(a) 10-pin connector for AME (b) 12-pin connector for PCA

Figure 2.3.3 The connection between power supply and C-Bridge I (Extended-UART)

The harness for RB series is not included in C-Bridge I.
Please modify the "blue / white" harness for AME series or PCA series and use it.
For the housing that fits RB series communication connector, see the outline drawing of the product catalog.

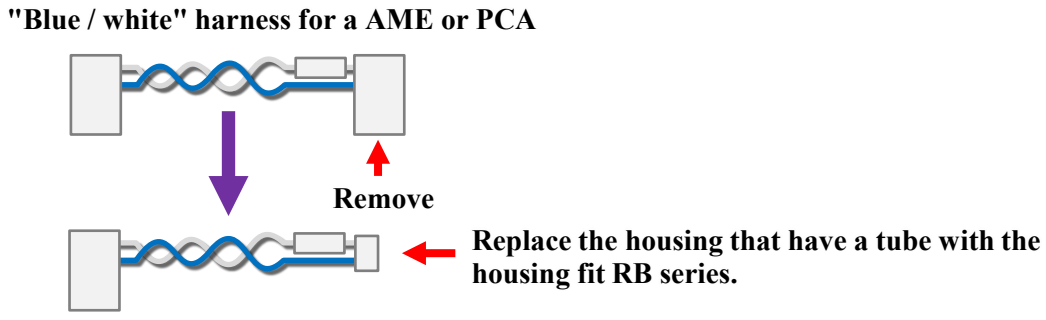


Figure 2.3.4 Modification to the harness for RB series

2.4 How to make a converter using FTDI UB232R

This section shows an example of making a converter for Extended-UART using UB232R. For details such as component selection, refer to the Extended-UART manual for the power supply used. Up to 4 power supplies can be connected to the converter.

2.4.1 Parts

(1) UB232R

FTDI UB232R



(2) Resistor 680Ω

Resistor 680Ω, 0.1W or higher

(3) Schottky barrier diode

Schottky barrier diode, Vrm>30V, If>50mA

Ex) CES388, CUHS20F30

(4) Harness

Please prepare the harness according to the power supply.

(See Table 2.4.1)

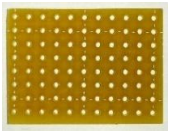


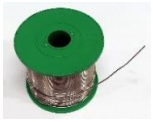
(5) Others

If necessary, prepare a USB cable (TypeA-miniB), wiring material, PCB, solder, etc.









2.4.2 Wiring diagram

Table 2.4.1 Harness pin numbers

Series	Harness	Pin number	
		INFO	SGND
AME (*1)	H-SN-58	7(Pink)	8(Brown)
	H-SN-61	7(Pink)	8(Brown)
PCA	H-SN-48	7(Pink)	10(Brown)
RBC200F	H-SN-64	2(Yellow)	3(Blue)
RBC300F	H-SN-70	2(Yellow)	3(Blue)

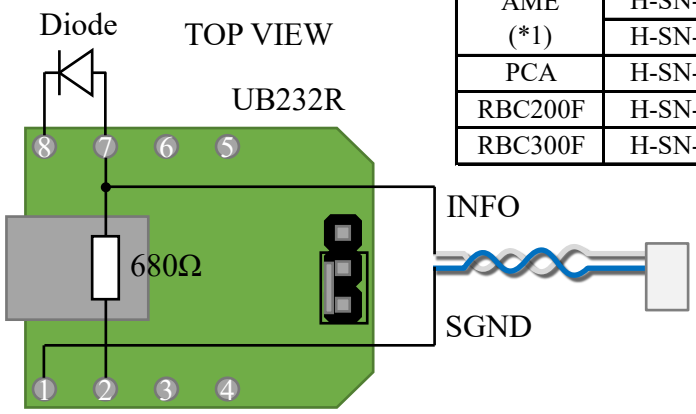


Figure 2.4.1 Wiring diagram

*1 H-SN-61 is for -J3 option (Molex housing version).

2.5 How to make a converter using Sunhayato MM-CP2112C

This section shows an example of making a converter for PMBus using MM-CP2112C. For details such as component selection, refer to the PMBus manual for the power supply used. Up to 8 power supplies can be connected to the converter.

2.5.1 Parts

(1) MM-CP2112C

Sunhayato MM-CP2112C. The chip used in the 4471 is CP2112 from SILICON LABS.

(2) Resistor 4.7kΩ (option)

Required when using the SMBALERT terminal of the power supply. No wiring and resistor are required if SMBALERT detection is not required. Resistor 4.7kΩ 0.1W or higher

(3) Harness

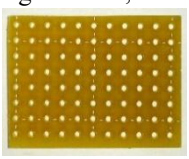
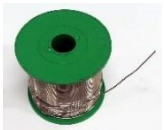
Please prepare the harness according to the power supply. (See Table 2.5.1)



(4) Others

If necessary, prepare a USB cable (TypeA-MicroB), wiring material, PCB, solder, etc.



2.5.2 Wiring diagram

The default logic level is 3.3V. You need to change it to 5V by cutting the JP2 jumper on the front side and shorting +V and VBUS. If you don't need SMBALRT, you don't need wiring and resistors.

Figure 2.5.1 shows an example of using GPIO.0 as the SMBA pin.

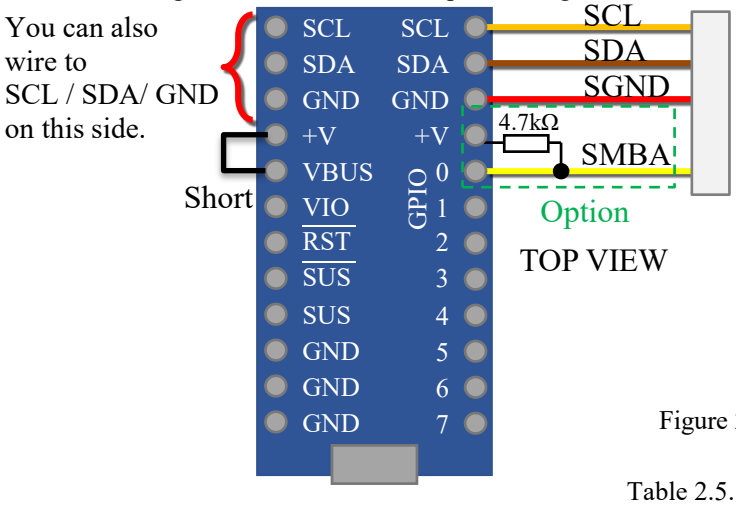


Figure 2.5.1 Wiring diagram

Table 2.5.1 Harness pin numbers

Series	Harness	Pin number			
		SDA	SGND	SCL	SMBA
AME (*1)	H-SN-66	1(Brown)	2(Red)	3(Orange)	4(Yellow)
	H-SN-67	1(Brown)	2(Red)	3(Orange)	4(Yellow)
PCA	H-SN-66	1(Brown)	2(Red)	3(Orange)	4(Yellow)

*1 H-SN-67 is for -J3 option (Molex housing version).

3. Initial settings

3.1 Overview of how to use C-Talk

(1) Opening C-Talk

(2) Selecting display language
You can select the display language from "English" or "Japanese".
The default language is "English".

(3) Selecting communication method
You can select the communication method from "PMBus" or "Extended-UART".

(4) Selecting power supply
By "Automatic setting" or "Manual setting", you can select the power supply to communicate with your PC and set its configuration.

Automatic setting : C-Talk automatically detects the power supply connected to the PC via C-Bridge I.

Manual setting : You have to select the power supply from the list and set these configuration.

(5) Starting communication with the power supply
You are ready to communicate with the power supply. You can control it by communication.

3.2 Opening C-Talk

Open the software which is download from our website.

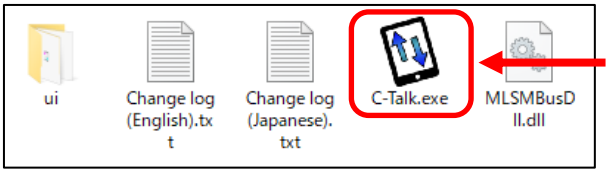


Figure 3.2.1 Downloaded files

3.3 Menu description

3.3.1 Selecting display language

You can select the display language from "Language" menu at the top of the window. The default language is "English".

Click "Language" menu.

Select the language.
Figure 3.3.1 shows an example of switching to Japanese.

When the display language is switched, it is complete.

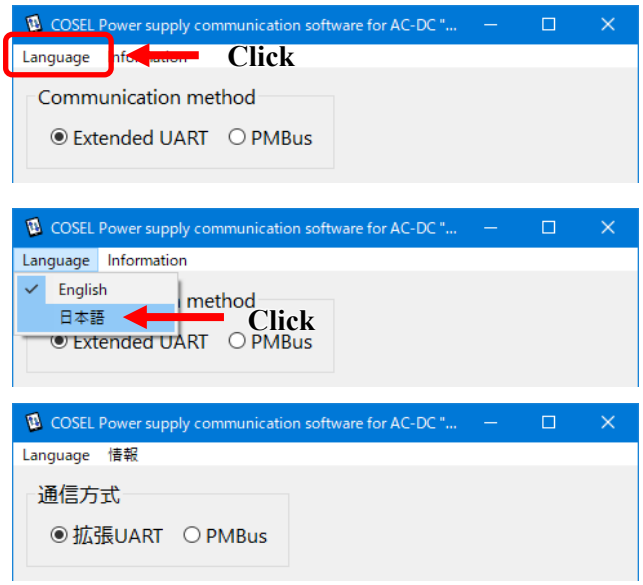


Figure 3.3.1 Switching the display language

3.3.2 Version information

You can check GUI version information from the "Information" menu at the top of the window.

Click "Information"

Click "About"

You can find GUI version information.

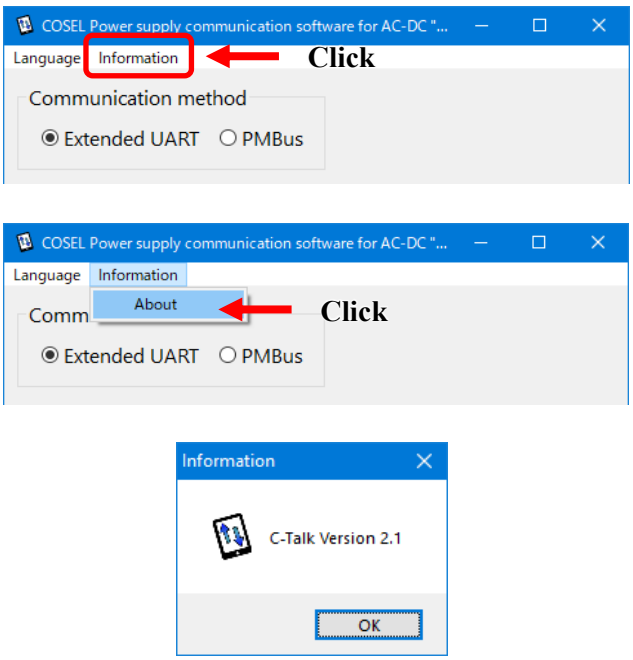


Figure 3.3.2 Version information

3.4 Selecting communication method

You can select the communication method from "PMBus" or "Extended-UART".

Click "Extended-UART" or "PMBus" radio button.

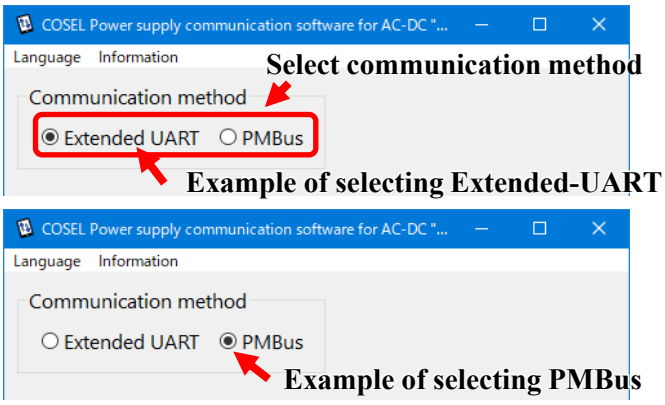


Figure 3.4.1 Selecting of communication method

3.5 Selecting power supply

Since the commands depend on the power supply series and communication method, it is necessary to select the power supply and communication method in advance. There are two setting methods, "Automatic setting" and "Manual setting".

Automatic setting

C-Talk communicates with the power supply connected to your PC and automatically gets the power supply series name, configuration, and address.

In the PMBus method, when an AME series with WRITE_PROTECT enabled is connected, C-Talk cannot correctly get the power supply series name and configuration. If C-Talk detects the AME series with WRITE_PROTECT enabled during automatic setting, the dialog shown in Figure 3.5.1 will be displayed.

If you click "OK" button, C-Talk temporarily disables WRITE_PROTECT and continue with the automatic setting.

If you press "Cancel" button, C-Talk does not detect the power supply at this address.

If you want to set the power supply without disabling WRITE_PROTECT, please select manual setting.

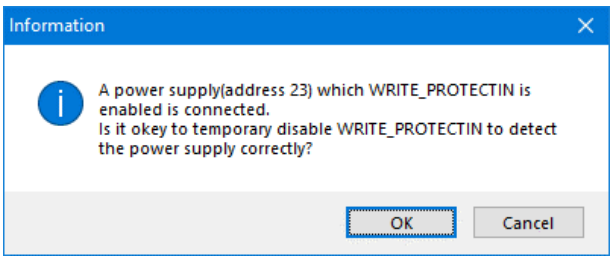


Figure 3.5.1 Detect a power supply with WRITE_PROTECT enabled.

Manual setting

You have to select the power supply from the list and set the configuration. In this case, C-Talk does not communicate with the power supply.

Before starting the setting, connect all the power supplies that communicate with your PC to a converter and turn on each power supply.

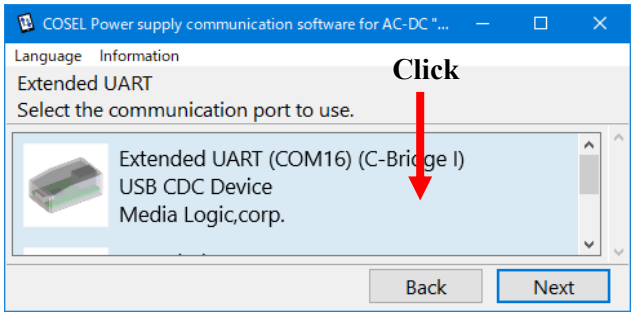
3.6 When setting with "Automatic setting"

3.6.1 When the communication method is Extended-UART

Select "Extended-UART" and click "Automatic setting" button.



A list of COM ports available on your PC is displayed. (*1, *2)
When using C-Bridge I, select "USB CDC Device".(*3)
If you select by double-clicking, the next screen will be displayed automatically.



When the item is selected, its background color will be dark blue.
Click "Next" button.
You can also proceed to the next by pressing the enter key.

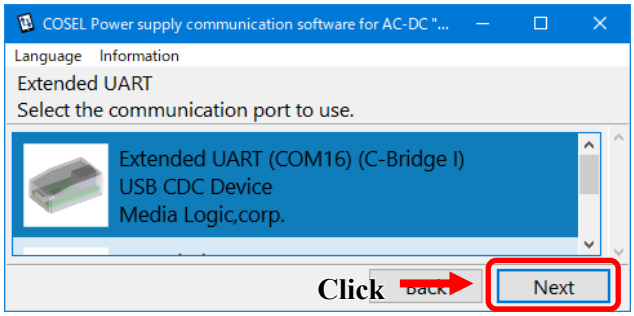


Figure 3.6.1 Automatic setting with Extended-UART

If you select a COM port that dose not support Extended-UART, Figure 3.6.2 is displayed. Make sure you have selected the correct COM port and that the circuit for Extended-UART is correct.

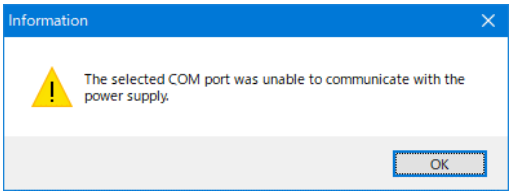


Figure 3.6.2 Dialog (COM port does not support Extended-UART)

*1 If any converter is not connected to your PC, it will not be displayed in the list.

*2 If C-Bridge I is connected with the "brown / orange / red / yellow / white" harness that is for PMBus, it will not be displayed in the list. If three or more power supplies are connected to C-Bridge I, it may not be displayed in the list. Please connect 2 or less power supplies to C-Bridge I.

*3 The manufacturer name of C-Bridge I is displayed as Media Logic, corp.

The result of detecting the power supply connected to converter is displayed.
If it is detected correctly, click "Next" button to complete the setting.

If the dialog shown in Figure 3.6.4 is displayed, check the following:

- Make sure the power supply is connected to converter.
- Make sure the power supply has power.
- Make sure the harness is used correctly.

After confirming the above, click "Back" button and retry from the previous screen.

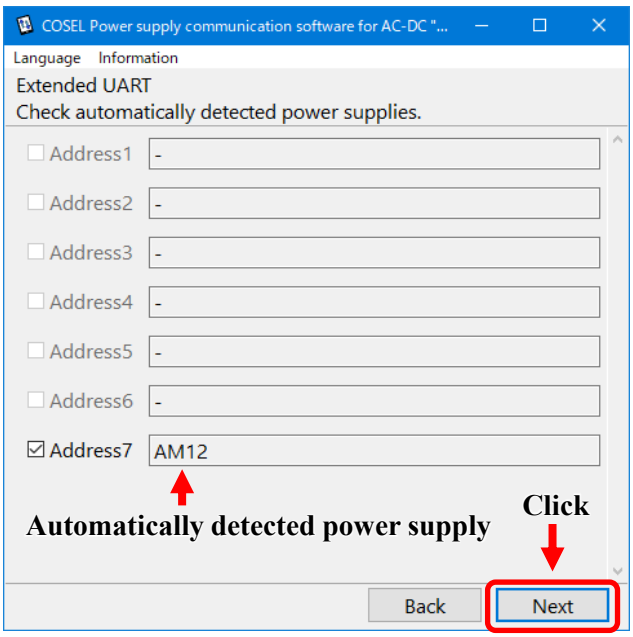


Figure 3.6.3 Automatic setting with Extended-UART

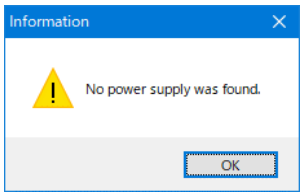


Figure 3.6.4 Display when no power supply is detected

3.6.2 When the communication method is PMBus

Select "PMBus" and click "Automatic setting" button.

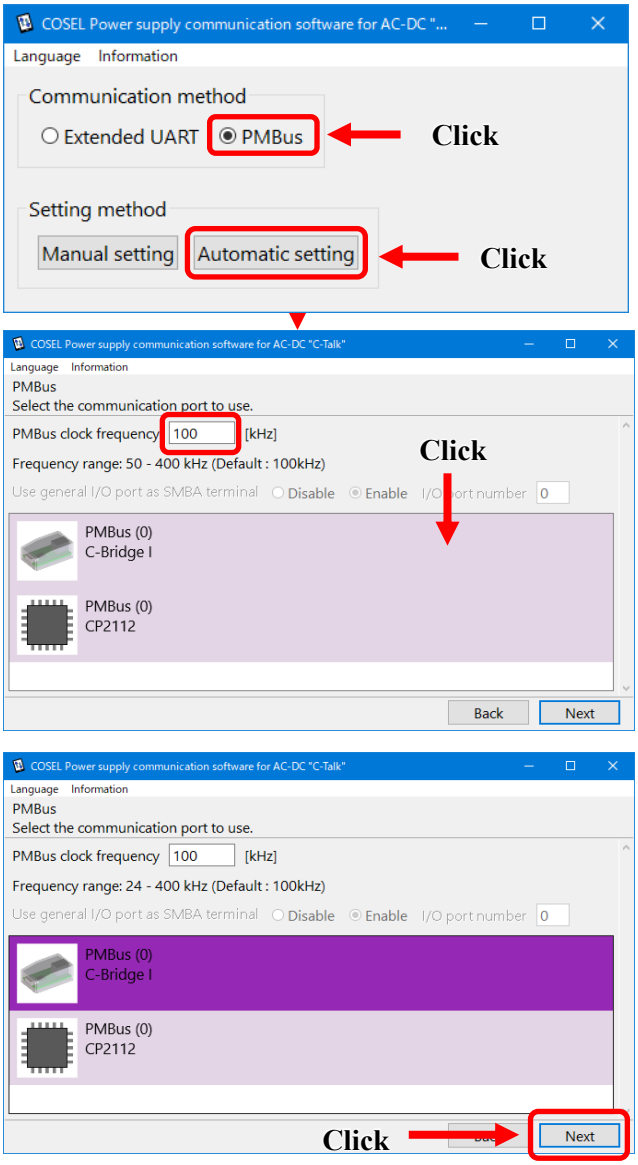


Figure 3.6.5 Automatic setting with PMBus

A list of PMBus converters connected to your PC is displayed. (*4, *5)
Select the converter to use.
If you select by double-clicking, the next screen will be displayed automatically.

You can set the clock frequency of PMBus. The initial clock is 100kHz. Please change if necessary.

When the item is selected, its background color will be dark purple.
Click "Next" button.
You can also proceed to the next by pressing the enter key.

When using a converter other than "C-Bridge I", C-Talk can use the general-purpose I/O port as the SMBA terminal. If you use this function, select "Enable".
For details, refer to "3.8 Assigning SMBA terminal to general-purpose I/O port".

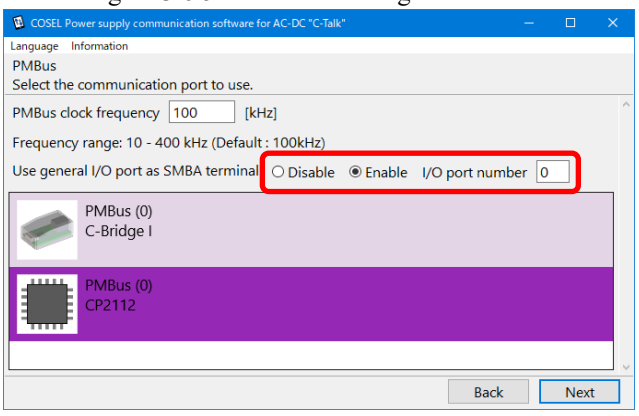


Figure 3.6.6 SMBA terminal settings

*4 If any converter is not connected to your PC, it will not be displayed in the list.
*5 If C-Bridge I is connected with the "blue / white" harness that is for Extended-UART, it will not be displayed in the list.

The result of detecting the power supply connected to converter is displayed.
If it is detected correctly, click "Next" button to complete the setting.

If the dialog shown in Figure 3.6.8 is displayed, check the following:

- Make sure the power supply is connected to converter.
- Make sure the power supply has power.
- Make sure the harness is used correctly.

After confirming the above, click "Back" button and retry from the previous screen.

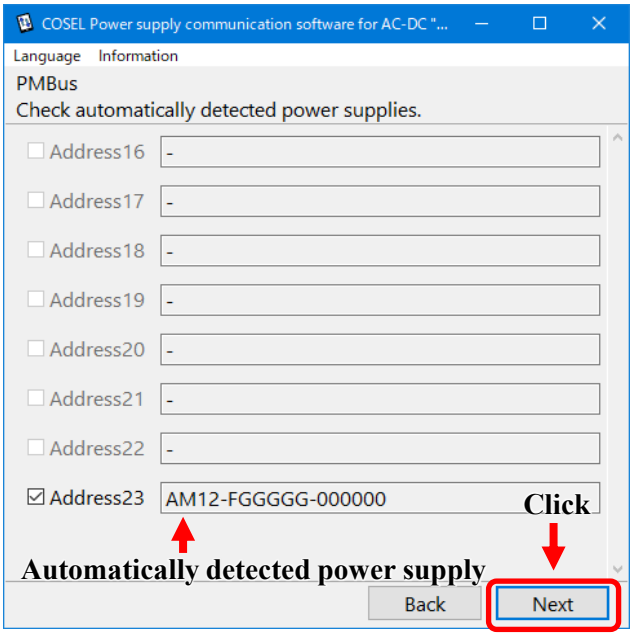


Figure 3.6.7 Automatic setting with PMBus

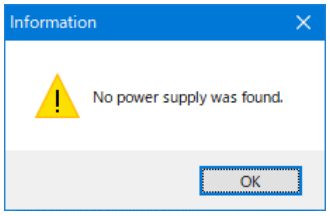
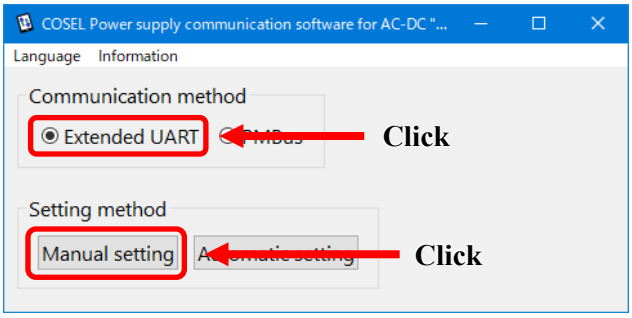


Figure 3.6.8 Display when no power supply is detected

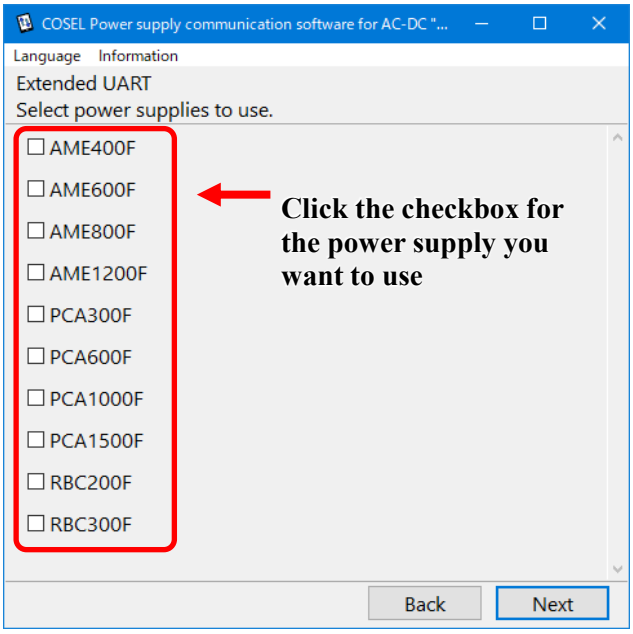
3.7 When setting with "Manual setting"

3.7.1 When the communication method is Extended-UART

Select "Extended-UART" and click "Manual settings" button.



Click the checkbox of model name of the power supply to communicate with your PC. (You can check more than one)



After clicking the checkbox, click "Next" button.

Figure 3.7.1 shows an example with the following power supplies checked.

・AME600F

・PCA600F

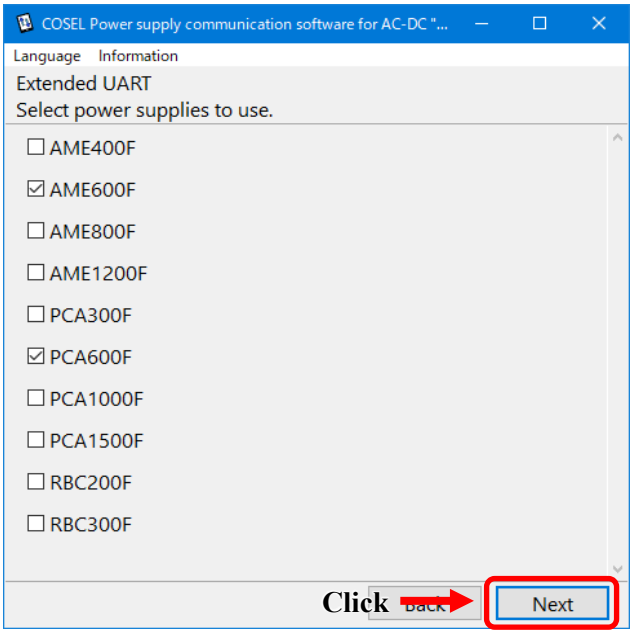


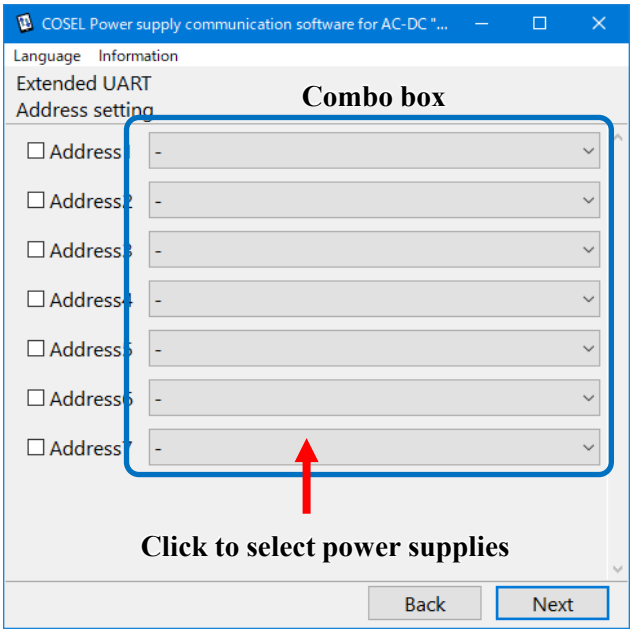
Figure 3.7.1 Manual setting with Extended-UART

Select power supplies for each address.

Select the power supply from the combo box of the address to be used.

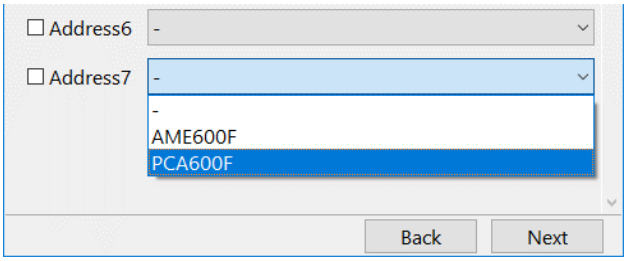
When connecting two or more power supplies to your PC, Similarly, select power supplies for each address.

Figure 3.7.2 shows an example with the following power supplies selected.
・AME600F(Address1)
・PCA600F(Address7)



When clicking the combo box, it will show the model name of the power supplies selected on the previous window.

When you select the model name, the checkbox of the address is automatically checked.



Make sure that the address you want to use is checked and that the model name of the power supply is selected correctly for each address, and then click "Next" button.

If the model name of the desired power supply is not in the combo box, it has not been selected on the previous settings window. Click "Back" button and reselect the power supply.

It does not communicate with unchecked addresses.

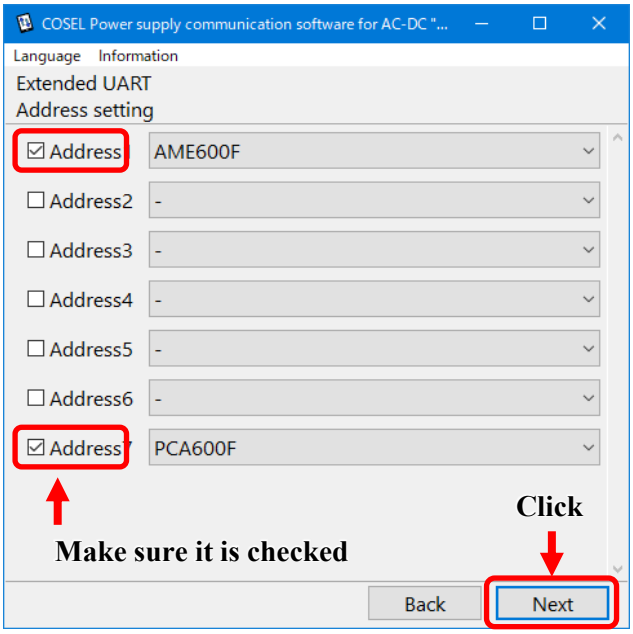


Figure 3.7.2 Manual setting with Extended-UART

A list of COM ports available on your PC is displayed. (*1, *2)
When using C-Bridge I, select "USB CDC Device".(*3)
If you select by double-clicking, the next screen will be displayed automatically.

When the item is selected, its background color will be dark blue.
Click "Next" button.
You can also proceed to the next by pressing the enter key.

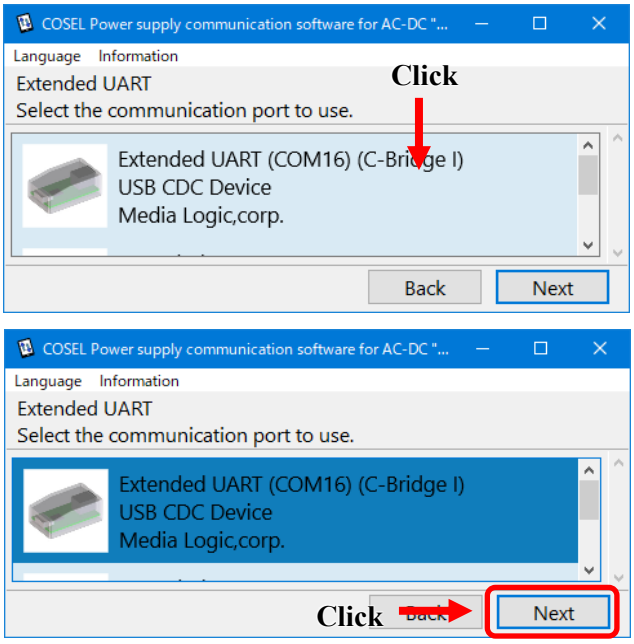


Figure 3.7.3 Manual setting with Extended-UART

*1 If any converter is not connected to your PC, it will not be displayed in the list.

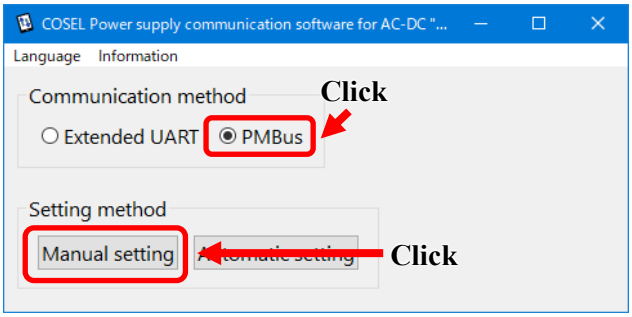
*2 If C-Bridge I is connected with the "brown / orange / red / yellow / white" harness that is for PMBus, it will not be displayed in the list. If three or more power supplies are connected to C-Bridge I, it may not be displayed in the list. Please connect 2 or less power supplies to C-Bridge I.

*3 The manufacturer name of C-Bridge I is displayed as Media Logic, corp.

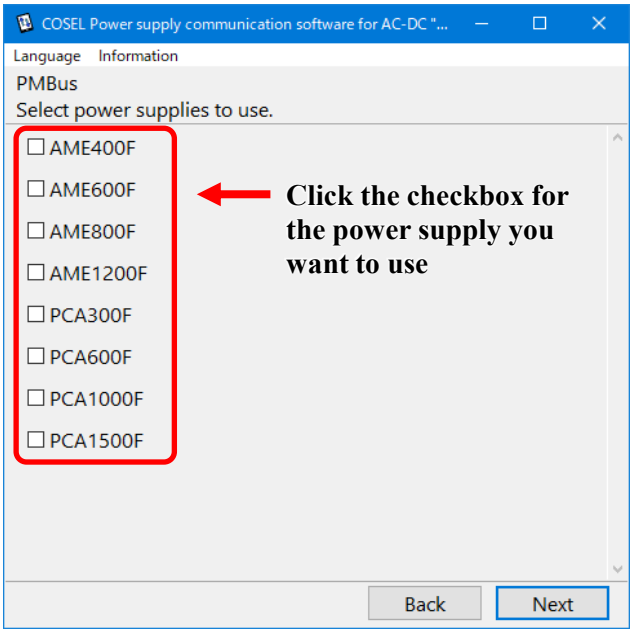
If you selected a configurable power supply (AME series / RB series) ,
refer to "3.7.3 Configurable power supply settings".

3.7.2 When the communication method is PMBus

Select "PMBus" and click "Manual setting" button.



Click the checkbox of model name of the power supply to communicate with your PC. (You can check more than one)



After clicking the checkbox, click "Next" button.

Figure 3.7.4 shows an example with the following power supplies checked.

・AME600F
・PCA600F
・PCA1000F

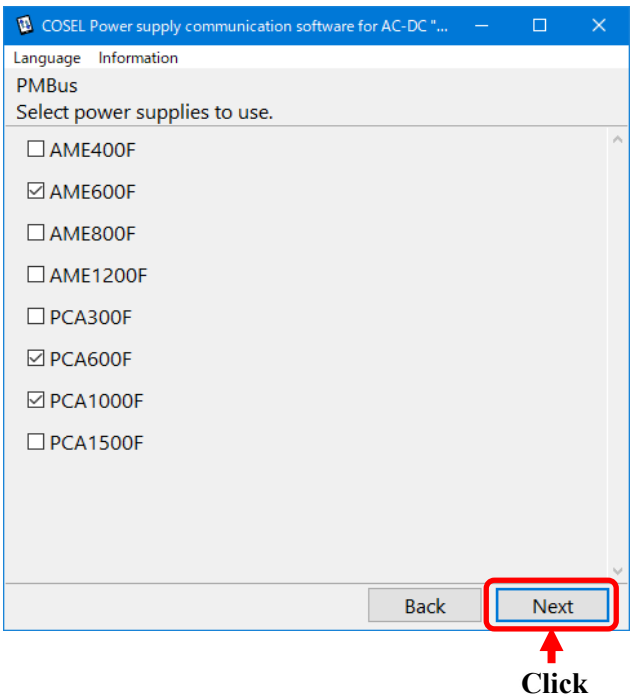


Figure 3.7.4 Manual setting with PMBus

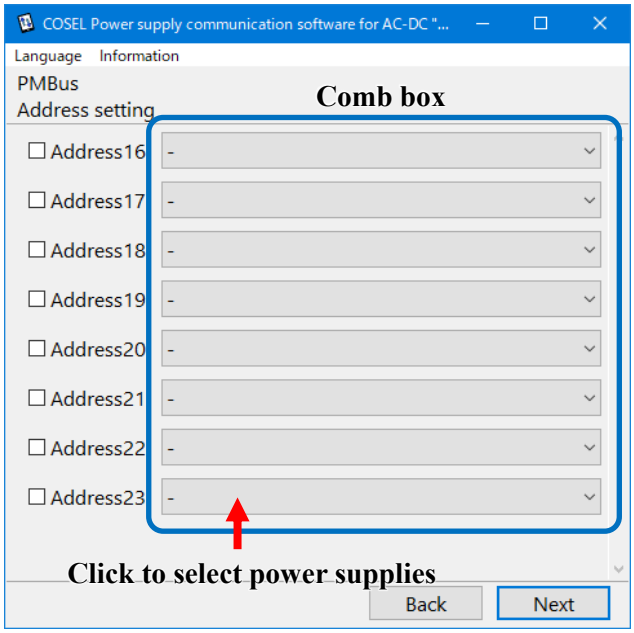
Select power supplies for each address.

Select the power supply from the combo box of the address to be used.

When connecting two or more power supplies to your PC, Similarly, select power supplies for each address.

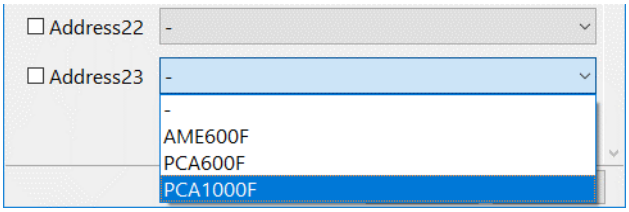
Figure 3.7.5 shows an example with the following power supplies selected.

・AME600F(Address16)
・PCA600F(Address19)
・PCA1000F(Address23)



When clicking the combo box, it will show the model name of the power supplies selected on the previous window.

When you select the model name, the checkbox of the address is automatically checked.



Make sure that the address you want to use is checked and that the model name of the power supply is selected correctly for each address, and then click "Next" button.

If the model name of the desired power supply is not in the combo box, it has not been selected on the previous settings window. Click "Back" button and reselect the power supply.

It does not communicate with unchecked addresses.

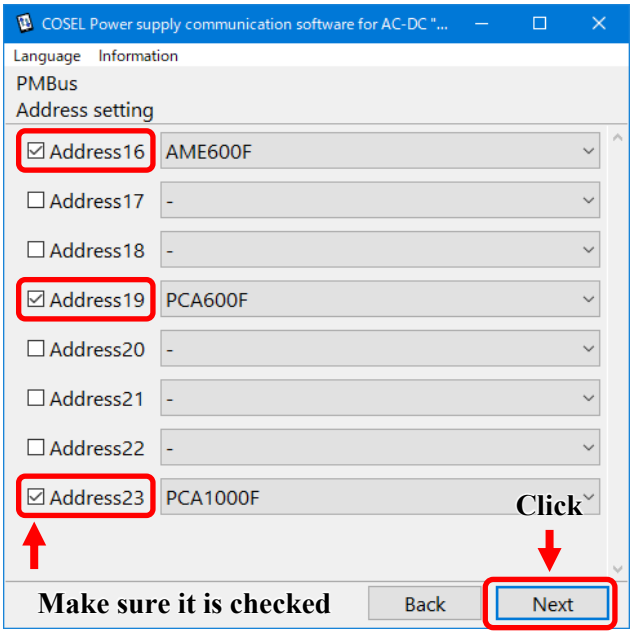


Figure 3.7.5 Manual setting with PMBus

A list of PMBus converters connected to your PC is displayed. (*4, *5)
Select the converter to use.
If you select by double-clicking, the next screen will be displayed automatically.

You can set the clock frequency of PMBus. The initial clock is 100kHz. Please change if necessary.

When the item is selected, its background color will be dark purple.
Click "Next" button.
You can also proceed to the next by pressing the enter key.

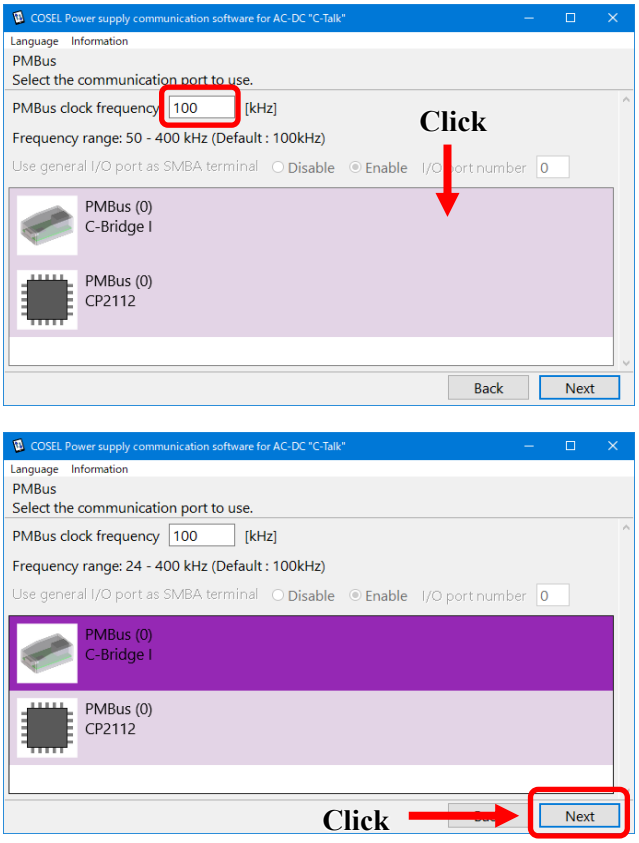


Figure 3.7.6 Manual setting with PMBus

When using a converter other than "C-Bridge I", C-Talk can use the general-purpose I/O port as the SMBA terminal. If you use this function, select "Enable".
For details, refer to "3.8 Assigning SMBA terminal to general-purpose I/O port".

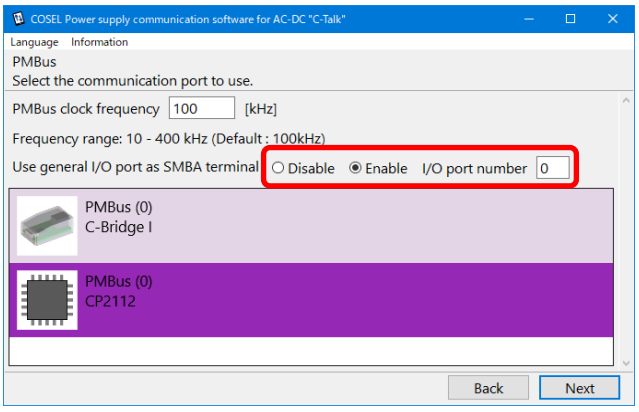


Figure 3.7.7 SMBA terminal settings

*4 If any converter is not connected to your PC, it will not be displayed in the list.
*5 If C-Bridge I is connected with the "blue / white" harness that is for Extended-UART, it will not be displayed in the list.

If you selected a configurable power supply (AME series / RB series) ,
refer to "3.7.3 Configurable power supply settings".

3.7.3 Configurable power supply settings

If you select a configurable power supply in the manual setting, you need to set its slot configuration.

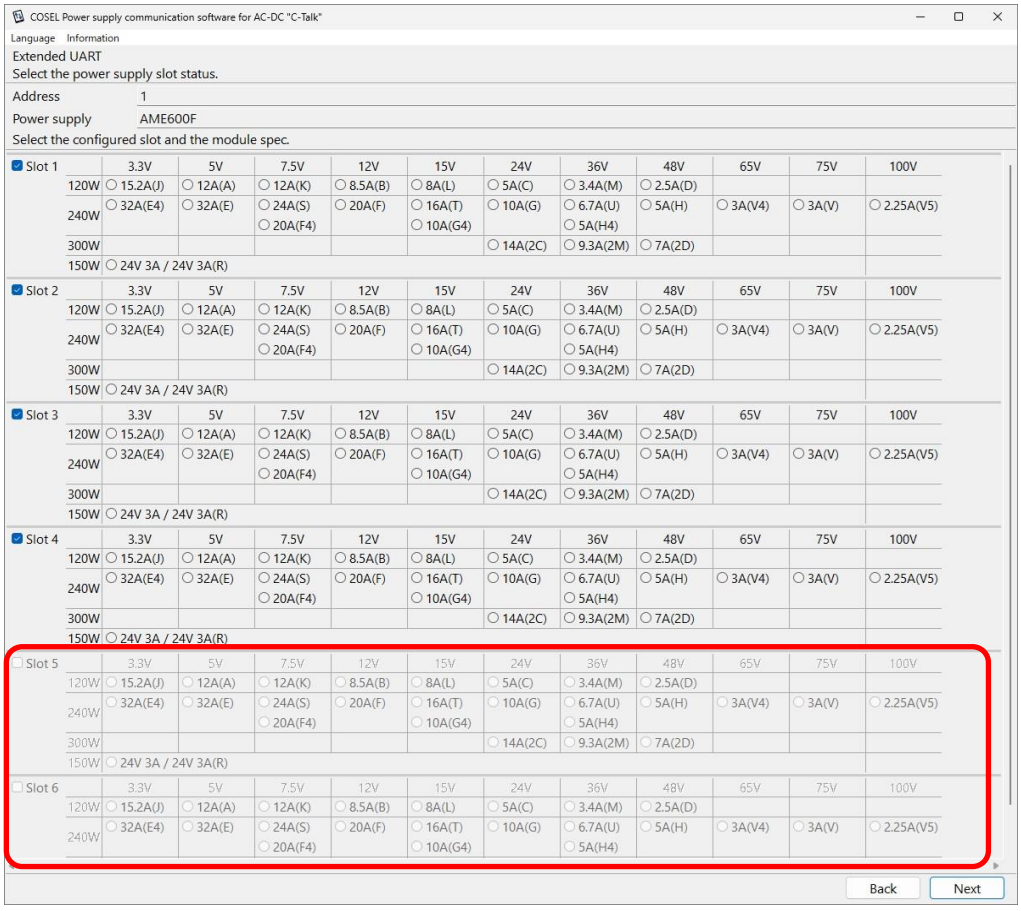
・Set all configurable power supplies that you select.

・Set all slots. Slots that cannot be set are grayed out.

・If there is a blank slot, uncheck the slot checkbox.

After completing the settings for all slots, click "Next" button. If you have set a configurable power supply to another addresses, the next configurable power supply settings window is shown. Please be careful not to confuse address of power supply with another one.

The following is an example of AME600F and RBC200F.



If you have selected AME600F series, there is no slots 5 and 6.
So these slots will be grayed out and no settings are required.

Figure 3.7.8 AME series slot selection window

Figure 3.7.9 shows an example of setting AME600F-CBOA.

AME600F-CBOA

Slot1	5V 12A
Slot2	Blank
Slot3	12V 8.5A
Slot4	24V 5A

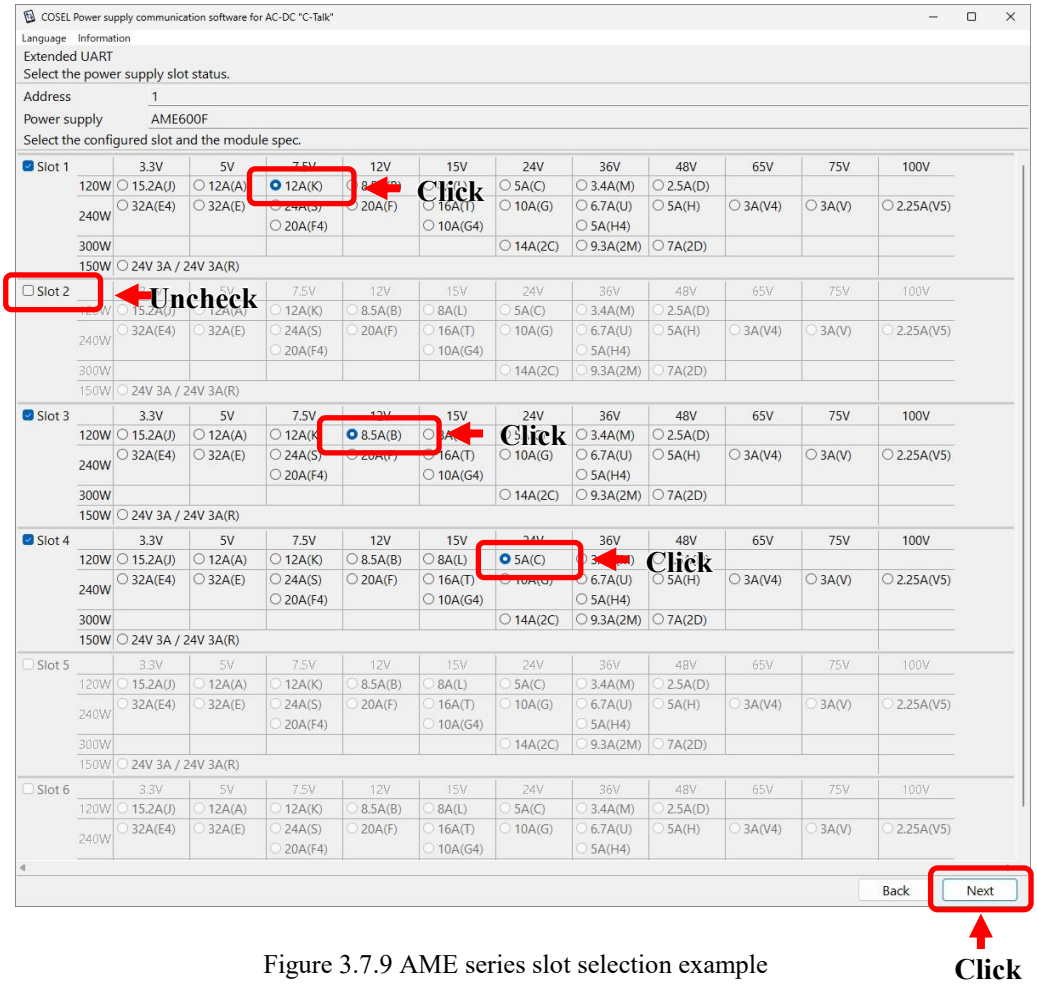


Figure 3.7.9 AME series slot selection example

If you select RBC200F, the following window will be displayed.

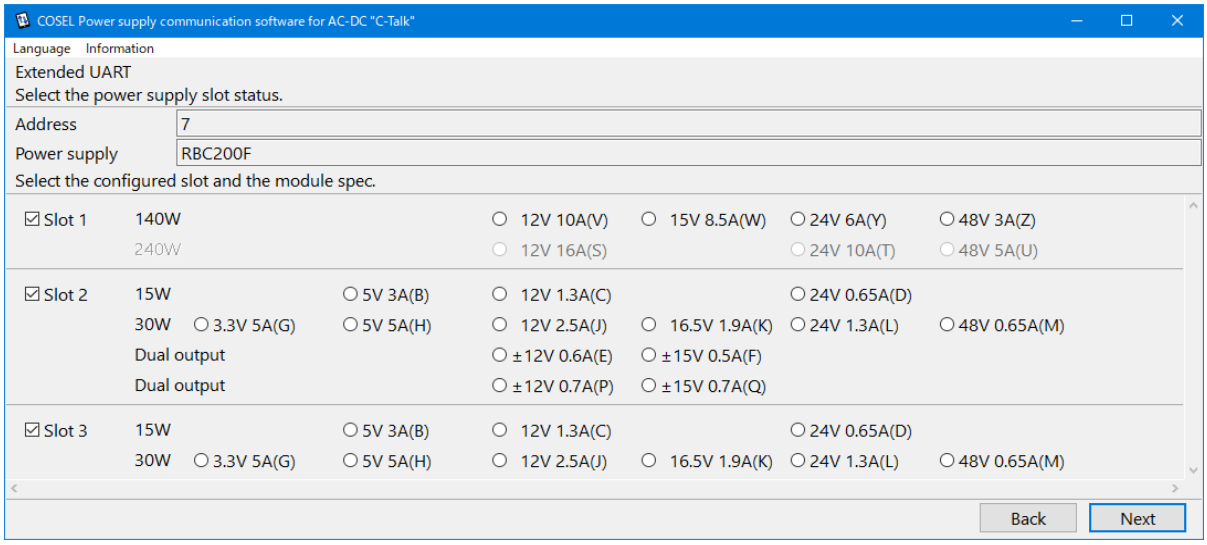


Figure 3.7.10 RB series slot selection window

Figure 3.7.11 shows an example of setting RBC200F-CHY.

RBC200F-CHY

Slot1 24V 6A

Slot2 5V 5A

Slot3 12V 1.3A

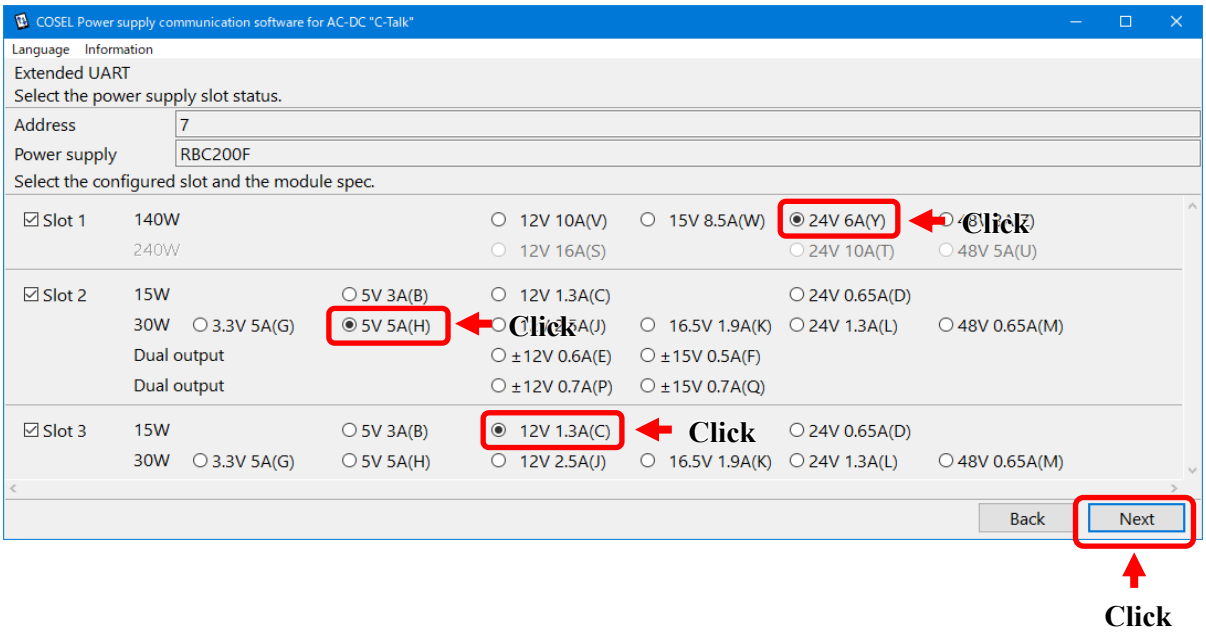


Figure 3.7.11 RB series slot selection window

3.8 Assigning SMBA terminal to general-purpose I/O port

All converters other than "C-Bridge I" do not have a SMBA pin. Instead, they have general purpose I/O ports, so you can switch I/O port to input mode and use it as an SMBA pin. By assigning I/O port number used as the SMBA pin according to Table 3.8.1, C-Talk recognizes the I/O port as SMBA pin.

Table 3.8.1 Correspondence between pin names and I/O port numbers

Converter (IC)	Pin name	I/O port number
Sunhayato MM-CP2112C (CP2112)	GPIO.0	0
	GPIO.1	1
	GPIO.2	2
	GPIO.3	3
	GPIO.4	4
	GPIO.5	5
	GPIO.6	6
	GPIO.7	7

As an example, when using GPIO.0 of MM-CP2112C (CP2112) as SMBA pin, select Enable and enter 0 for I/O port number according to Table 3.8.1. (Figure 3.8.1)
If you do not use SMBA pin, select Disable.

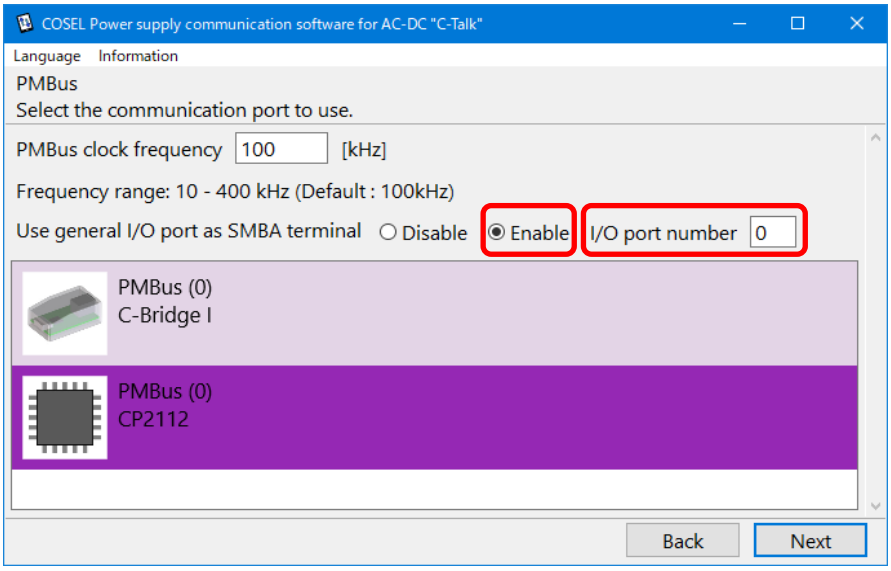


Figure 3.8.1 Example of Assigning GPIO.0 of CP2112 as SMBA terminal

3.9 Demo mode

You can check the command operation window of each power supply with the selected communication method. At Demo mode, C-Talk does not communicate with power supply even if you click the button on the operation window.

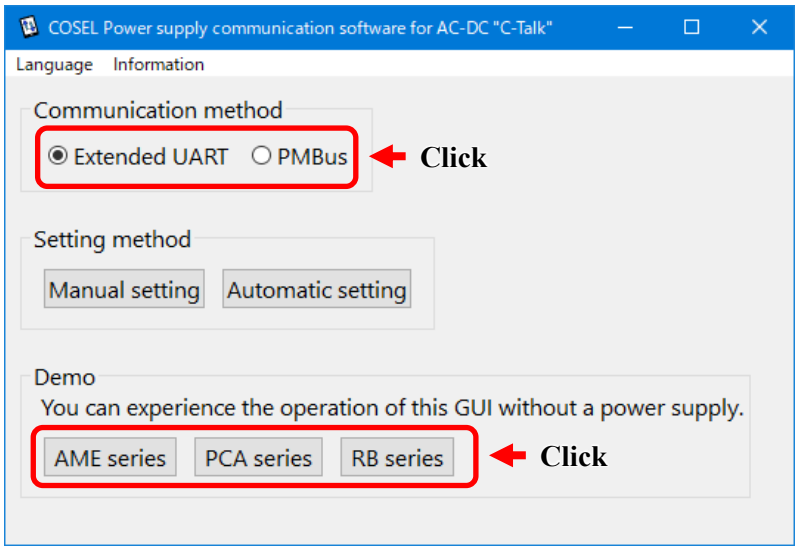


Figure 3.9.1 Demo button

4. How to use C-talk

The display of command operating window differs depending on the power supply and communication method.

4.1 Overview of command operating window

The window is divided into four areas.

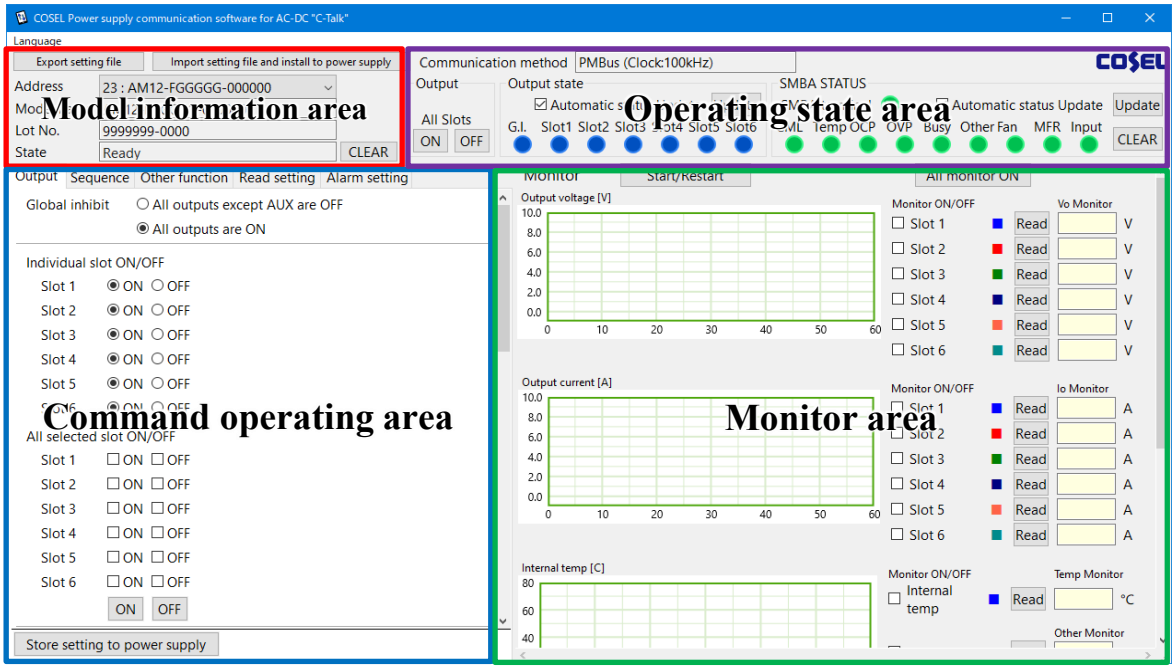


Figure 4.1 Command operation window

・Model information area
The area shows model information of the power supply with which you are communicating now.

・Operating state area
The area shows state and alarms of the power supply with which you are communicating now.

・Command operating area
You can change the power supply output, startup time, etc.

・Monitor area
The area shows the output voltage, input voltage, etc. in a chart or numerical value by using the power supply monitor function.

4.2 Model information area

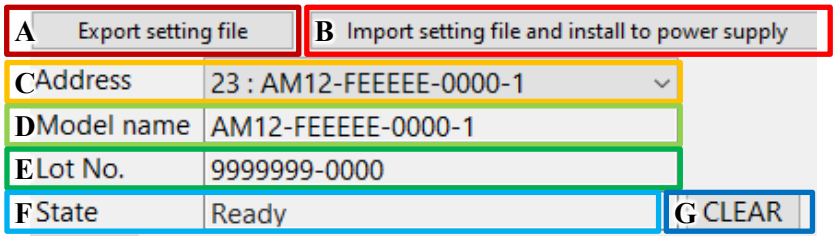


Figure 4.2 Model information area

A "Export setting file"

C-Talk gets the internal settings of the power supply and saves them in a file.

<How to use>

Click the button to display the window for selecting the save destination of the power supply settings file.

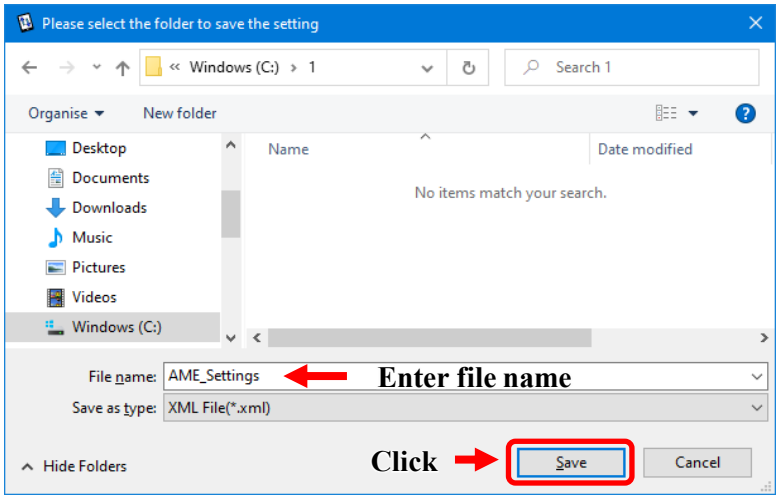
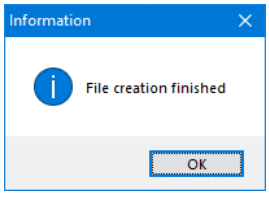


Figure 4.3 Power supply settings file save destination selection window

Enter the file name and click "Save" button to save the power supply settings file. When the saving is completed, the message "File creation finished" is displayed.



When the power supply settings file has been created in the save folder, the process is complete.

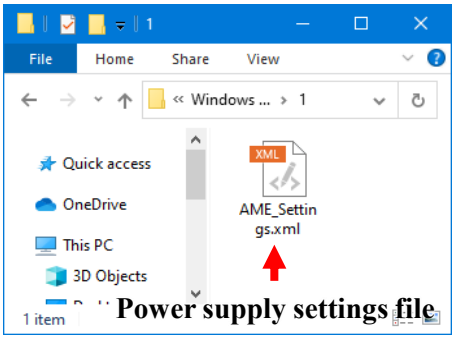


Figure 4.4 Saved power supply settings file

B "Import setting file and install to power supply"

C-Talk loads the power supply settings from the file saved by A "Export setting file". And it writes the loaded settings to the power supply. The settings can only be written if the power supply is the same as the model in the file. You can use this function when you want to write the changed settings to other power supplies.

*** If the C-Talk major version (Ver.1.x / Ver2.x) is different from that the power supply setting file is created, C-Talk cannot read the file.**

<How to use>

Click the button to display the window for selecting the power setting file.

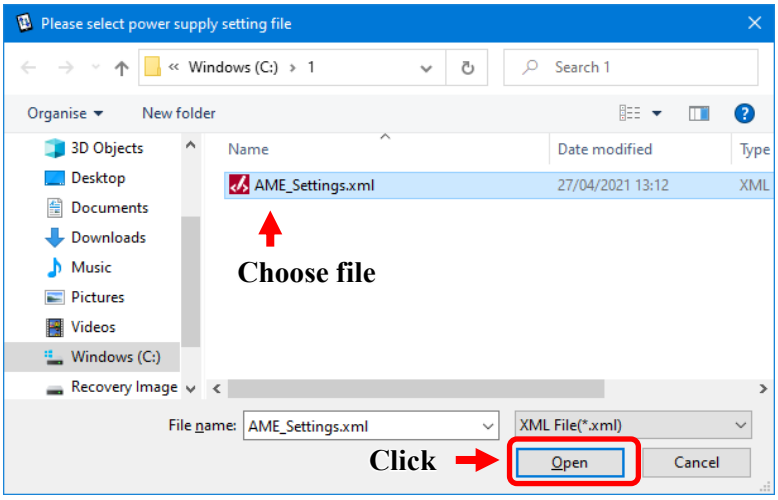


Figure 4.5 Power supply settings file selecting window

After selecting the power supply settings file and click "Open" button, C-Talk starts to write the settings to the power supply. In the case of AME series, the settings are written for each module. (Fig. 4.6) When the writing is completed, "OK" is displayed in State box (Fig. 4.6).

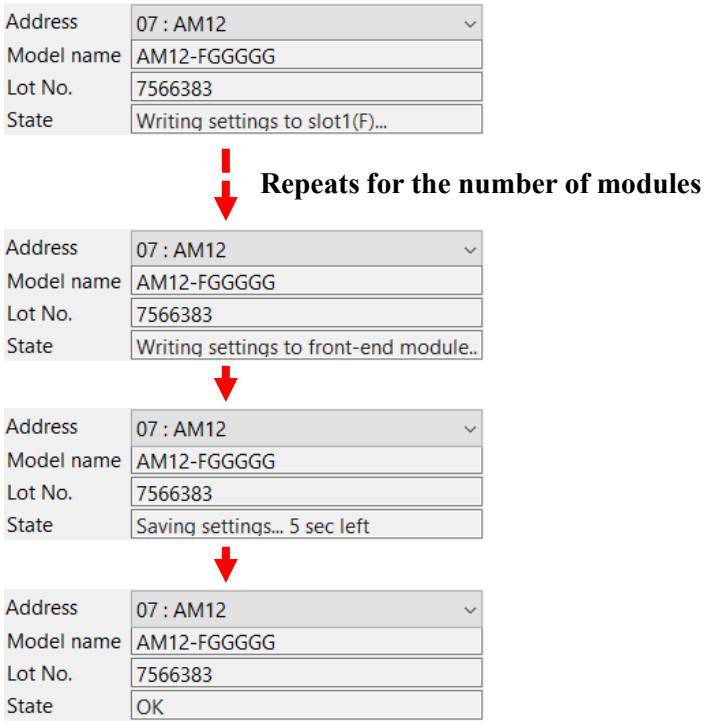


Figure 4.6 Writing the settings to power supply (for AME series)

C "Address"

It shows the address of the power supply to communicate with.

If you select multiple power supplies during the initial setup, the power supply with the smaller address will be set first. You can switch the power supply to communicate with by changing the combo box.

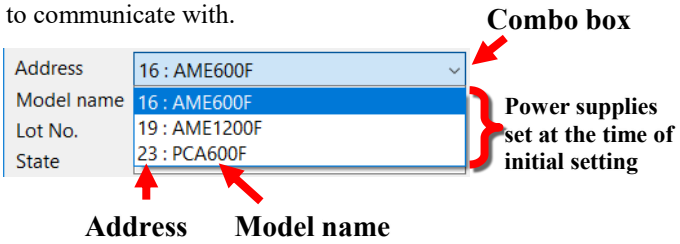


Figure 4.7 Switching the power supply for communication

D "Model name"

It shows the model name of the power supply.

The last 6 characters (administration alphanumeric characters) are displayed only for PMBus communication.

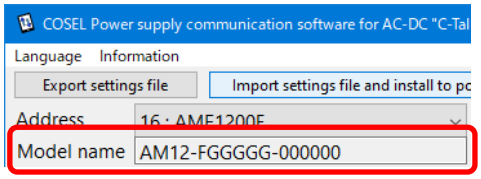


Figure 4.8 Model name

E "Lot number"

It shows the lot number of the power supply.

The last 4 digits (serial number) are displayed only for PMBus communication.

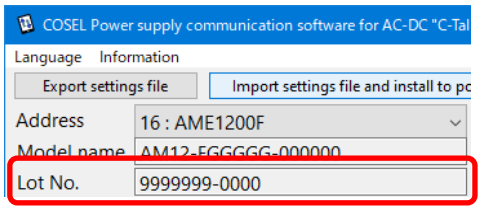


Figure 4.9 Lot number

F "State"

It shows the communication state and command execution results.

G "CLEAR"

Clears contents of F "State".

4.3 Operating state area

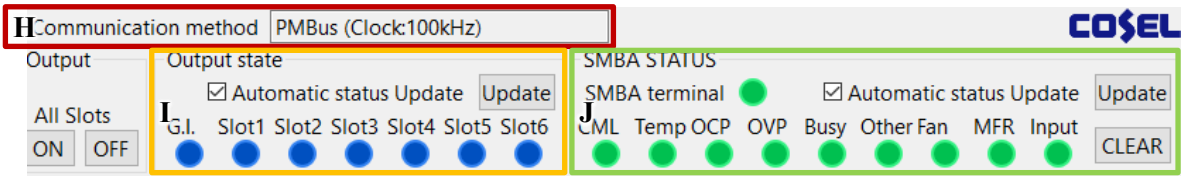


Figure 4.10 Operating state area

H "Communication method"

It shows the communication method you are using.

I "Output state"

It shows the ON / OFF state of the power output

Table 4.1 List of output state

Display		State
	Blue	Output ON
	Gray	Output OFF
	Black	Slot is blank or R slot Or there is no response by communication

If "Automatic update" is checked, the output state will be updated at regular intervals.
C-Talk acquires and displays the output ON / OFF state at the time of clicking "Update" button.

J "SMBA STATUS"

It is displayed only when the communication method is PMBus. (If the method is Extended-UART, it is not displayed.) It indicates the internal status of the power supply. For the meaning of each item, refer to "PMBus Manual" for each power supply.

Table 4.2 List of SMBA STATUS

Display		Status
	Green	No abnormality
	Red	Abnormality occurs

If "Automatic update" is checked, SMBA STATUS will be updated at regular intervals.
C-Talk acquires and displays SMBA STATUS at the time of clicking "Update" button.
Clicking "CLEAR" button sends the "CLEAR_FAULTS" command to reset the SMBA. If the abnormal condition continues, the display will not be cleared.

4.4 Command operating area

K "Command category tabs"

Click each tab to switch the available commands.
See Table 4.3 for an overview of the command category of each tab.

L "Store setting to power supply"

The contents set by the command are written to the non-volatile memory inside the power supply.
For details, refer to "6.1 the set value after input power off".

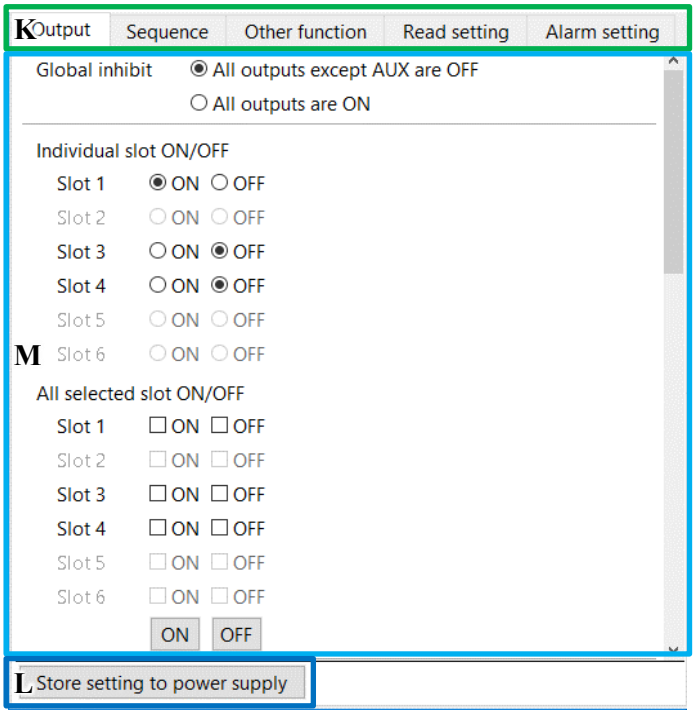


Figure 4.11 Command operation area

Table 4.3 Overview of the command category of each tab.

Display	Overview
Output	You can turn the output on / off and set the output voltage.
Sequence	You can set the start / stop delay time and the output voltage change rate.
Other function	You can set the other functions and the startup / shutdown input voltage.
Read setting	You can read power supply settings.
Alarm setting	You can read the internal status of the power supply and set the alarm mask. (This tab is shown when you use PMBus.)

M "Commands list"

It shows the available commands. You can execute a command by clicking a button. Commands that require a numerical value are executed by clicking "Set" button after entering a numerical value.
Simply entering a number will not execute the command.

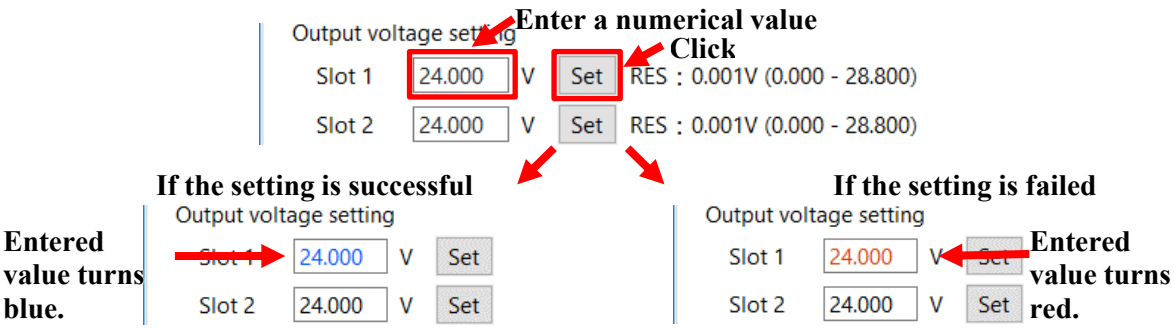


Figure 4.12 Example of command execution that requires a numerical value

When a radio button is clicked, the command is executed.

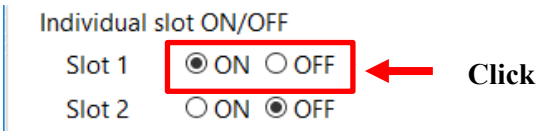


Figure 4.13 Example of radio button command execution

Commands that have check boxes are executed by clicking button such as "ON" or "OFF" after checking them.
Simply checking a check box will not execute the command.

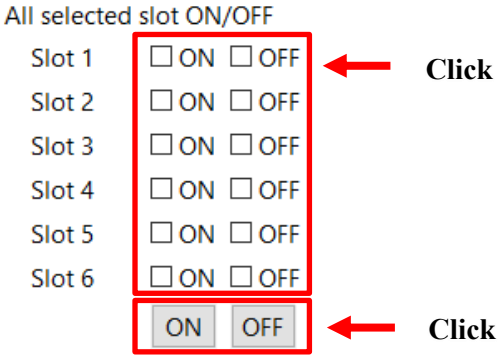


Figure 4.14 Example of check box command execution

Read-only commands are executed by clicking "Read" button.
The edit box that displays the results is read-only and has a cream background.

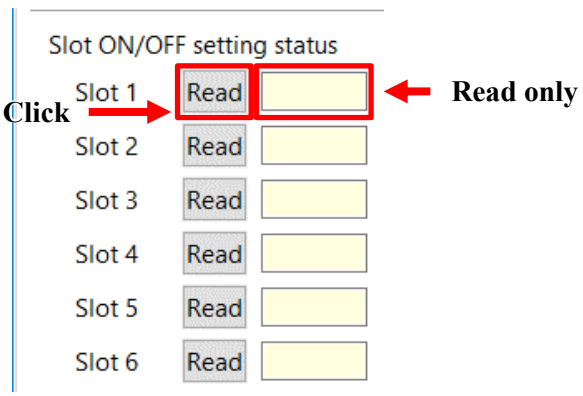


Figure 4.15 Example of execution of read command

4.5 Monitoring area

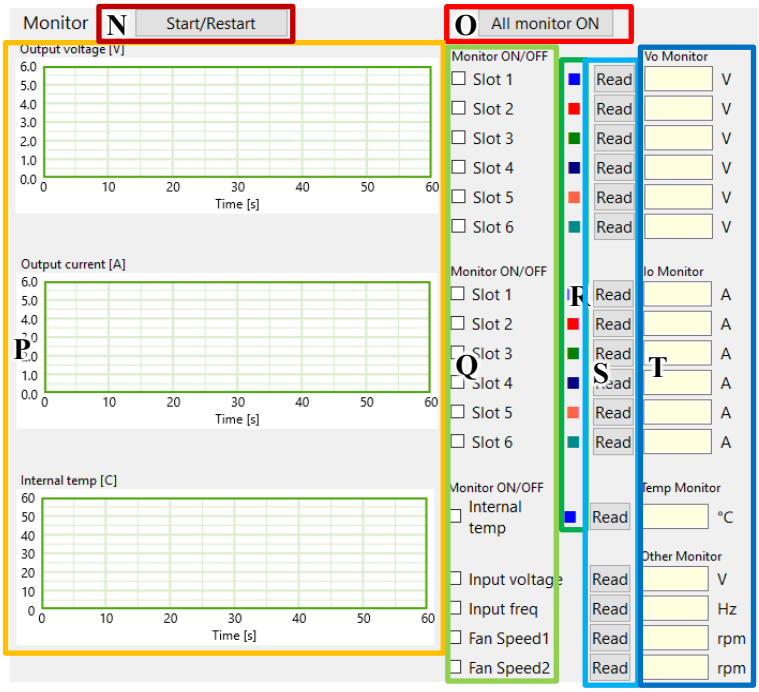


Figure 4.16 Monitoring area

N "Start / Restart" / "Stop"

Clicking the button, for the items checked in Q "Monitor ON / OFF", C-Talk gets the monitor value from the power supply and updates P "Chart" and T "Monitor Value" once every second (Up to once every 4 seconds for AME series with Extended-UART). Click it again to stop updating the chart.

O "All monitors ON" / "All monitors OFF"

It turn ON or OFF all check boxes in Q "Monitor ON / OFF" at once.

P "Chart"

Items checked in Q "Monitor ON / OFF" are displayed in a chart. (R "Chart line color")
Only the output voltage, output current, and internal temperature are displayed in the chart.
Items such as "Input V", "Input freq", and "FanSpeed1" are not displayed in the chart.

Q "Monitor ON / OFF"

Set the items to be monitored. For items that have no color setting in R "Chart line color", T "Monitor value" displays only numerical values.

R "Chart line color"

It will be the display color in the chart. It cannot be changed. Items without color setting will not be displayed.

S "Read"

Clicking the button, C-Talk displays the monitor value of the item. The chart is not updated.

T "Monitor value"

The monitor value read from the power supply is displayed.

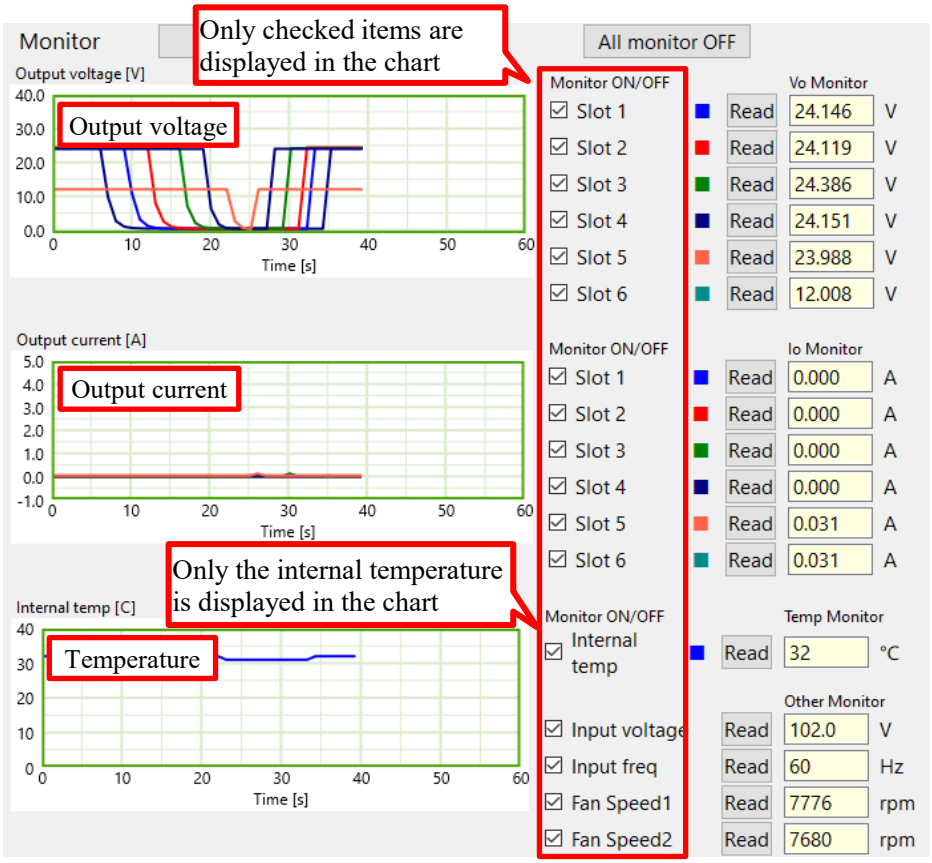


Figure 4.17 Monitor display example

4.6 Blank slots

For configurable power supplies (AME series, RB series), the blank slot is grayed out so that it cannot be operated. For AME series, some commands of a slot that has a 120W module and all commands of the R slot are also grayed out.

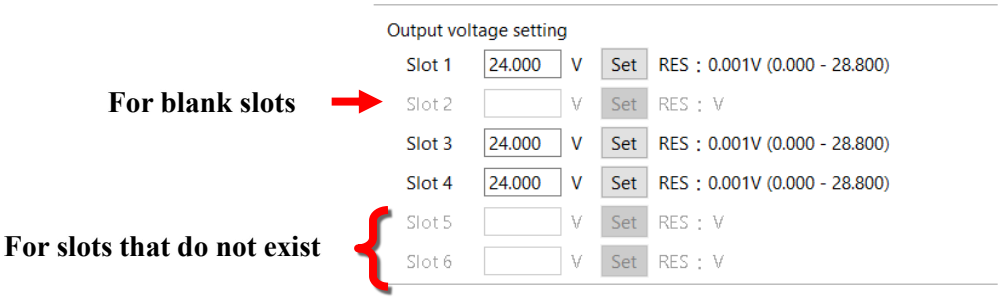


Figure 4.18 Example of grayed out on AME600F

5. Supplementary explanation

5.1 Ramp up rate for constant current

When the constant current operation is set to the 240W module of AME series, you can select the ramp up rate until the constant current value is reached. (Figure. 5.2)

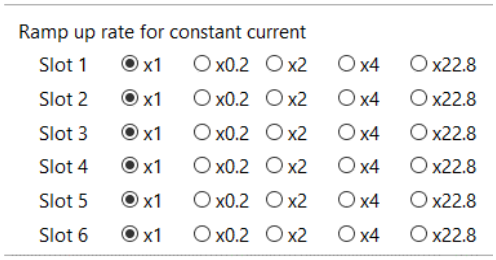


Figure 5.1 AME series constant current ramp-up rate setting

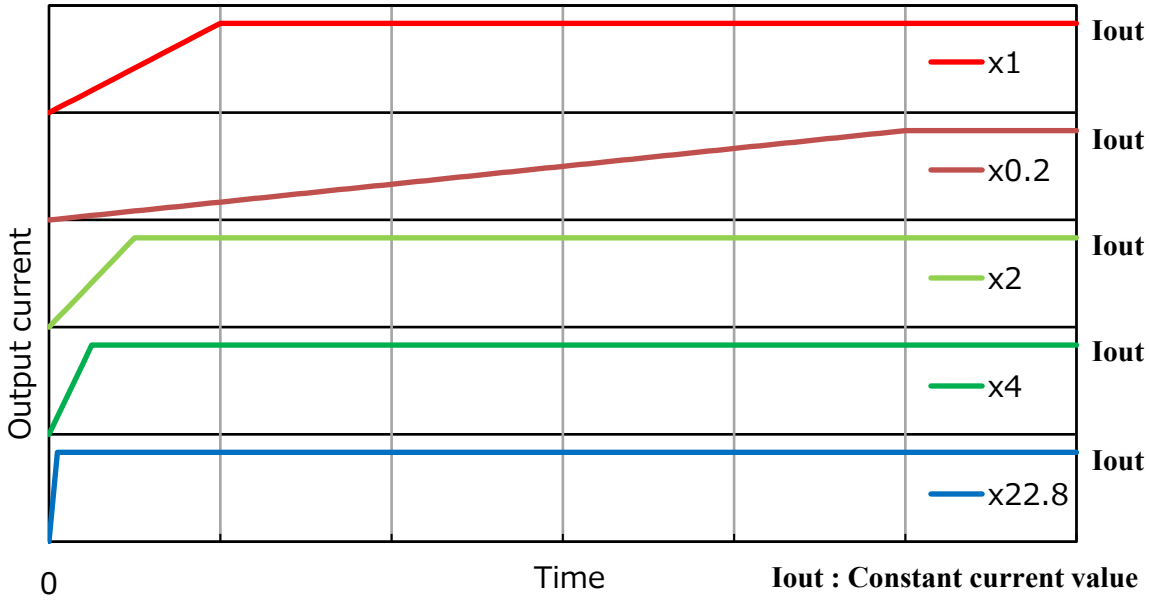


Figure 5.2 Ramp up rate of output current during constant current operation

5.2 Global Inhibit terminal settings

For the function of the GI2 terminal that AME series have, you can select from two types, "GI mode" and "RC mode". The selected mode operates by applying a signal to the GI2 terminal.

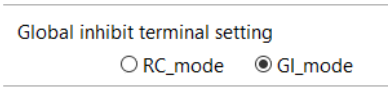


Figure 5.3 AME series GI mode setting

GI mode : The all slots, input modules, and fans stop. Standby power is minimized.
It takes up to 1,000ms to start up.
* The AUX output is available, but requires load derating. (Refer to AME series instruction manuals for details on the load derating of the AUX output.)

RC mode : Only the all slots stop. The input module and fans don't stop.
* The AUX output is available. No load derating is required.

5.3 PR terminal and input voltage LV alarm settings

AME series have a PR terminal that outputs an alarm in the event of an abnormality. The alarm output mode from the PR terminal can be selected from two types, "PR mode" and "PG mode".

PR mode : It outputs the alarm signal when the input module is abnormal, such as when overheat protection is activated or the fan is stopped. You can select the type of alarm signal by setting the alarm mask.
The low input voltage detection can be set in "Low AC Input voltage alarm(PR Mode)".

PG mode : It outputs the alarm signal when the input module is stopped. It also outputs the signal when the input module is stopped in the GI mode of the Global Inhibit. Regardless of the alarm mask setting, it outputs the signal when the input module is stopped.

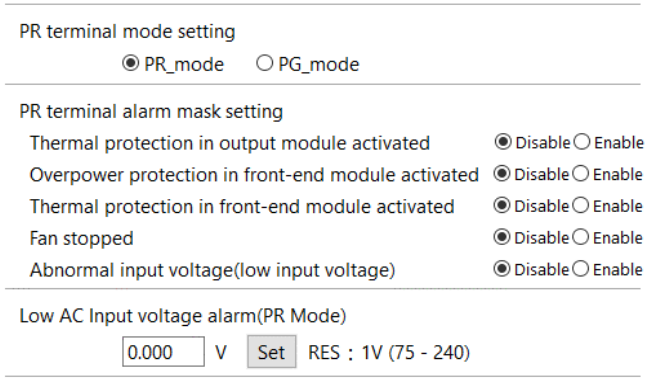


Figure 5.4 AME series PR terminal setting

5.4 Output voltage LV alarm settings

You can set the threshold of the output voltage that the power supply outputs the alarm signal from the LV terminal when the output voltage drops.

5.5 Output voltage HV alarm settings

You can set the threshold of the output voltage that the power supply outputs the alarm signal from the LV terminal when the output voltage rises.

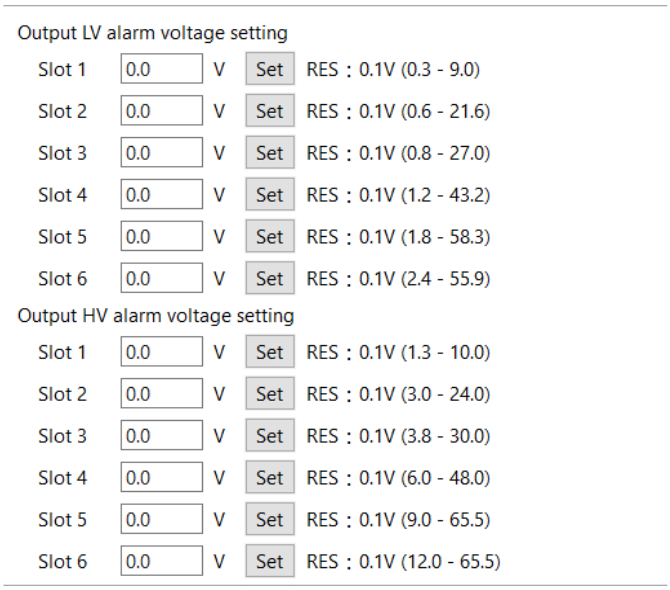


Figure 5.5 AME series output LV / HV alarm voltage setting

5.6 Recover from latch stop

You can release the output stop latch that is activating by a protection such as the overvoltage protection.
Clicking the button, the latch of all outputs will be released all at once. Please release the latch after removing the abnormal condition.



Figure 5.6 Recover from latch stop

5.7 Write protection

If you turn on write protect, it will disable the commands that change the setting.
As an exception, the following can be done:
Turning off the write protection setting
Storing setting to power supply.

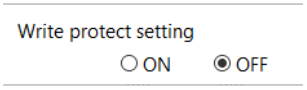


Figure 5.7 Write protection setting

You can cancel write protection by clicking radio button "OFF".

6. Important points

6.1 Setting value after turning off power input

When you turn off the power input, the settings that you set in communication is reset.

To save the settings to the power supply, click the "Store setting to power supply" button.

* Do not turn off the power input for 5 seconds after clicking the button due to write the settings to the power supply.

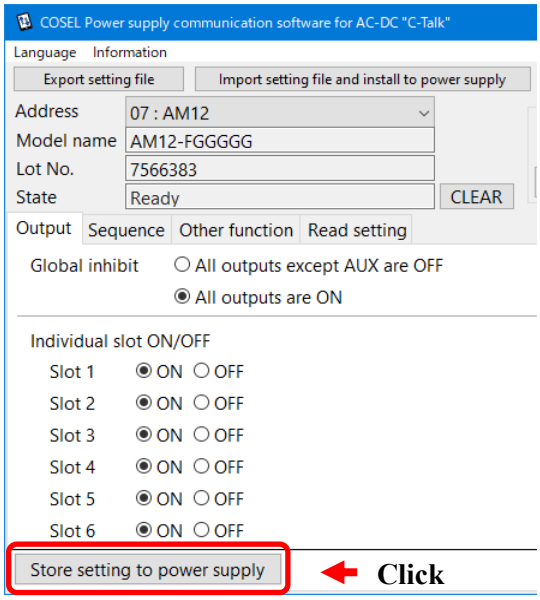


Figure 6.1 "Store setting to power supply" button

6.2 Start-up delay time setting

To set the input startup delay time, enter the numerical value and click the "Set" button, then click the "Store setting to power supply" button.

If you do not click the "Store setting to power supply" button, the delay time will be reset after turning off the power input and the delay time will be the value before the change.

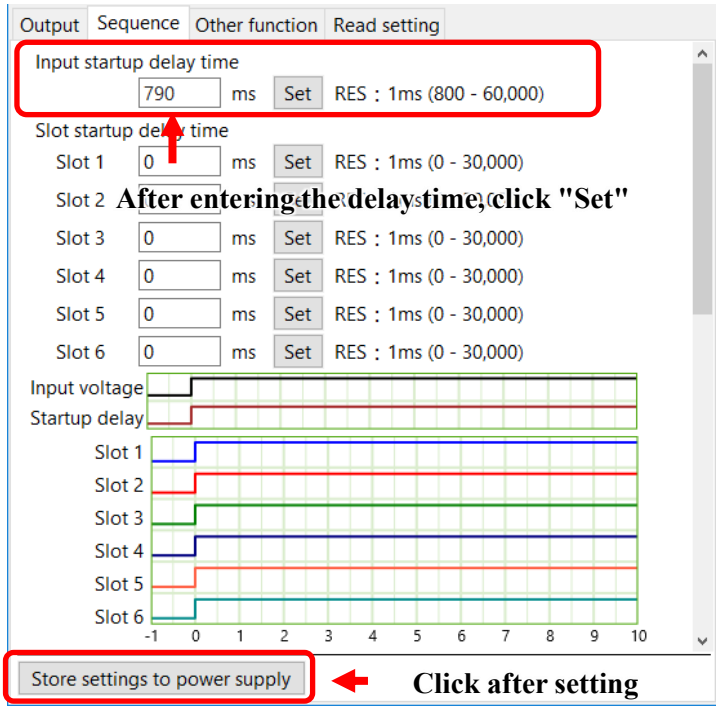


Figure 6.2 Procedure for setting the startup delay time

6.3 The operation when WRITE_PROTECT is enabled

When WRITE_PROTECT is enabled, the following functions are not available.

(1) "Import settings file and install to power supply"

If WRITE_PROTECT is enabled and click "Import settings file and install to power supply", a dialog box will appear asking you to disable WRITE_PROTECT because C-Talk cannot write the settings to the power supply. If you want to use this function, please disable WRITE_PROTECT.

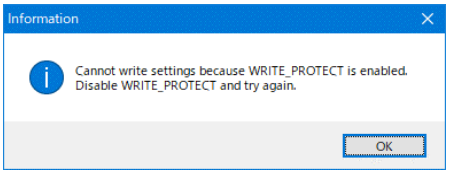


Figure 6.3 Dialog to notify WRITE_PROTECT is enable

(2) "Output status" and "voltage/current monitor" of each slot

In the AME series, when PMBus is selected as the communication method and WRITE_PROTECT is enabled, the command to switch slots cannot be accepted, and C-Talk cannot communicate with each slot. As a result, it cannot acquire the output status and the monitor values of voltage and current.

6.4 Operation when the Global Inhibit is enabled

When Global Inhibit is enabled, C-Talk cannot communicate with each slot. Therefore, you cannot use the commands that acquiring the output status, output monitor or setting output voltage/current.

6.5 Message of "The command was not accepted"

When the communication method is PMBus, "The command was not accepted" may be displayed in "State" after executing the command. In this case, the following causes are considered.

The setting value is out of range.

The setting value is inconsistent with other set values.

Ex) Setting value of lower limit of output voltage exceeds upper limit of output voltage.

Check the setting value to be sent by the command, and then execute the command again.

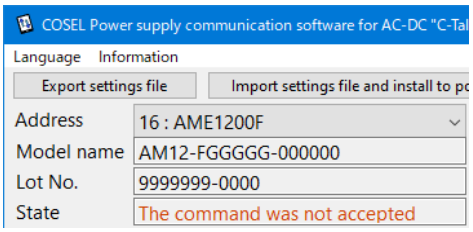


Figure 6.4 "The command was not accepted"

6.6 The initial value of the power supply

The factory default values for the input startup delay time and the upper limit setting value of the constant current limit are set to values outside the setting range.

So once these values are changed, they cannot be restored by executing the setting command.

To restore these values to the factory default values, execute "Restoring a factory default settings". In this case, all values will be set to the factory defaults.

6.7 AME modules with a number at the end of the module code

Modules with a number at the end of the module code (E4, F4, G4, H4, V4, V5) are modules with no number (E, F, G, H, V) whose the output voltage has been adjusted at the factory. Therefore, the rated voltage / current that can be obtained by the communication command from the module code with a number shall be same response as a module code without number.
It is different from the rated voltage / current listed in the catalog.

Ex) Return value that can be obtained from V5 module (rated voltage 100V, rated current 2.25A) or V3 module (rated voltage 65V, rated current 3A) with the following communication command.
Reading the rated voltage -> 75 [V]
Reading the rated current -> 3 [A]
The return value is the same as V module (rated voltage 75V rated current 3A).

6.8 PCA1500F series rated current

The rated current of PCA1500F-24/32/48 differs according to input voltage (AC100V / AC230V). The rated current value that can be obtained by the communication command is the maximum rated current at AC230V regardless of the actual input voltage.

6.9 PCA series I option

PCA with I option supports two communication method, Extended-UART and PMBus. However, only one communication method should be used at a time for normal operation. Do not start two C-Talks and use both Extended-UART and PMBus at the same time.

6.10 Precautions when communicating using a PMBus converter other than C-Bridge I

If you use a PMBus converter other than C-Bridge I, a CML error of SMBA STATUS occurs when the production factory information is acquired. It also occurs when switching the communicating power supply to another by changing address.
This is because the converter dose not support BlockRead for PMBus communication.
The error is cleared by pressing "CLEAR" button of "SMBA STATUS".

A. Revision history

No.	Date	Ver	Page	Note
1	May 25th, 2020	1.0E	-	First edition issued
2	Sep. 17th, 2020	2.0E	1,7	Edited C-Talk hierarchical file structure
3			4	Edited the description of 2.4
4			6	Edited the description of 2.4.2
5			8	Added "3.3.1 Version information"
6			9	Edited due to change of "automatic setting" operation
7				Added description of detection of write protection enabled power supply
8			12,19	Corrected PMBus clock frequency range to 24-400kHz
9			14,17	Added PCA1500F to "Select power supplies to use"
10			23	Added "3.6 Demo Mode"
11			26	Added a note to "Import setting file and install to power supply"
12				Edited due to display changes of "Import setting file and install to power supply"
13			27	Deleted "List of communication state"
14			28	Deleted "Command acceptance timing"
15				Added a description of output status "Black" in "Output State"
16			29	Corrected headings in Table 4.3
17			30	Edited due to changes of numerical input command display
18			31,32	Corrected figures due to change of graph display
19			33	Edited the description of 5.2 "GI mode"
20			36	Edited figure 6.1
21			37	Deleted "6.3 Command acceptance timing"
22				Added "6.3 The operation when WRITE_PROTECT is enabled"
23				Deleted "6.4 Other notes"
24				Added "6.4 Operation when the Global Inhibit is enabled"
25				Added "6.5 About "The command was not accepted""
26				Added "6.6 About the initial value of the power supply"
27			All pages	Edited figures due to addition of "Information" menu
28	Mar. 18th, 2022	2.1E	1	Moved "2.1 Available power supply" to "1.3 Available power supply"
29				Added annotation that P2 option of PCA is not supported
30			2	Added "1.4 Communication converter"
31			1-2	Changed table number from Table 1.x to Table 1.x.x
32			3	Changed "2.4 How to connect the power supply and C-Bridge I (Extended-UART)" to "2.1 How to connect the power supply and converter (Extended-UART)"
33			6	Changed "2.3 How to connect the power supply and C-Bridge I (PMBus)" to "2.2 How to connect the power supply and converter (PMBus)"
34			7	Changed "2.2 How to connect PC and C-Bridge I" to "2.3 How to connect PC and C-Bridge I"
35			9	Added "2.4 How to make a converter using FTDI UB232R"
36			10	Added "2.5 How to make a converter using adafruit 4471"
37			11	Added "2.6 How to make a converter using Sunhayato MM-CP2112B"
38			3-11	Changed figure number from Figure 2.x to Figure 2.x.x
39			13	Corrected version in Figure 3.3.2 to the current version

No.	Date	Ver	Page	Note
40	Mar. 18th, 2022	2.1E	14	Divided "3.5 Selecting power supply" into "3.5 Selecting power supply", "3.6 When setting with" automatic setting "" and "3.7 When setting with" manual setting ""
41				Corrected "If C-Bridge I is~" to "If any converter is~"
42			15	Corrected Figure 3.6.1 due to add display the manufacturer name of the converter.
43				Added double click and enter key description
44				Added description that COM port does not support Extended-UART
45				Divided *2 annotations into *1 and *2
46				Corrected *1 due to change "If C-Bridge I is~" to "If any converter is~"
47				Added *3
48			16	Corrected from "If nothing~" to "If the dialog shown in Figure 3.6.4~". Added Figure 3.6.4
49			17	Added explanation when using general-purpose I/O port as SMBA pin.
50				Added double click and enter key description
51				Divided *3 annotations into *4 and *5
52			18	Corrected from "If nothing~" to "If the dialog shown in Figure 3.6.8~". Added Figure 3.6.8
53			21	Corrected Figure 3.7.3 due to add display the manufacturer name of the converter.
54				Added double click and enter key description
55				Divided *2 annotations into *1 and *2
56				Corrected *1 due to change "If C-Bridge I is~" to "If any converter is~"
57				Added *3
58			24	Added explanation when using general-purpose I/O port as SMBA pin.
59				Added double click and enter key description
60				Divided *3 annotations into *4 and *5
61			25	Added S, T, U, V, V4, V5 modules to Figure 3.7.8
62			26	Added S, T, U, V, V4, V5 modules in Figure 3.7.9
63			28	Added "3.8 Assigning SMBA terminal to general-purpose I/O port"
64			29	Moved "3.6 demo mode" to "3.9 demo mode"
65				Corrected Figure 3.9.1 due to change "RBC series" to "RB series"
66			12-29	Changed figure number from Figure 3.x to Figure 3.x.x
67			33	Added description to "Model name"
68				Added description to "Lot number"
69				Changed Figure 4.8
70				Changed Figure 4.9
71			40	Changed Figure 5.5
72			42	Changed Figure 6.2
73			43	Changed Figure 6.4
74			44	Added "6.7 AME modules with a number at the end of the module code"
75				Added "6.8 PCA1500F series rated current"
76				Added "6.9 PCA1500F series I option"
77				Added "6.10 Precautions when communicating using a PMBus converter other than C-Bridge I"

No.	Date	Ver	Page	Note
78	Aug. 22th, 2022	2.1aE	TOC	Deleted "2.5 How to make a converter using adafruit 4471"
79			2	Deleted No. 3 "4471" in Table 1.4.1
80				Deleted *3. *4 and *5 changed to *3 and *4
81			10	Deleted page "2.5 How to make a converter using adafruit 4471"
82			16	Changed Figure 3.6.5 and Figure 3.6.6
83			23	Changed Figure 3.7.6 and Figure 3.7.7
84			27	Removed converter 4471 in Table 3.8.1. Changed Figure 3.8.1
85				Changed the converter in the description from 4471 to MM-CP2112B
86	Oct. 09th, 2026	2.2E	1	Changed the link to the software download page.
87			2	Changed No. 3 "MM-CP2112B" to "MM-CP2112C" in Table 1.4.1
88				Deleted *3. *4 changed to *3
89			7	Changed the link to the driver download page.
90			10	Changed "MM-CP2112B" to "MM-CP2112C"
91				Deleted the photo of "MM-CP2112B" in "2.5.1 Parts"
92				Deleted the photo of "MM-CP2112B" in Figure 2.5.1
93				Deleted the photo of "Cut" in Figure 2.5.1
94			24	Corrected Figure 3.7.8 due to added 300W output module.
95			25	Corrected Figure 3.7.9 due to added 300W output module.
96			27	Changed "MM-CP2112B" to "MM-CP2112C"