

GREENPOWER

STK/BTB CPS SLAVE

Supported version TOP Design Studio

V1.4.9.84 or higher



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We want to thank our customers who use the Touch Operation Panel.

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Describes how to set the TOP communication.
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Describes how to set up communication for external devices.
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Describes the cable specifications required for connection.
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Refer to this section to check the addresses which can communicate with an external device.

1. System configuration

The system configuration of TOP and "GREENPOWER – STK/BTB CPS Slave" is as follows:

Series	CPU	Communication method	System setting	Cable
GREENPOWER – STK/BTB CPS	Master	RS-485	3.1 Settings example 1 (Page 4)	4. Cable table (Page 10)

■ Connection configuration

- 1:1 connection

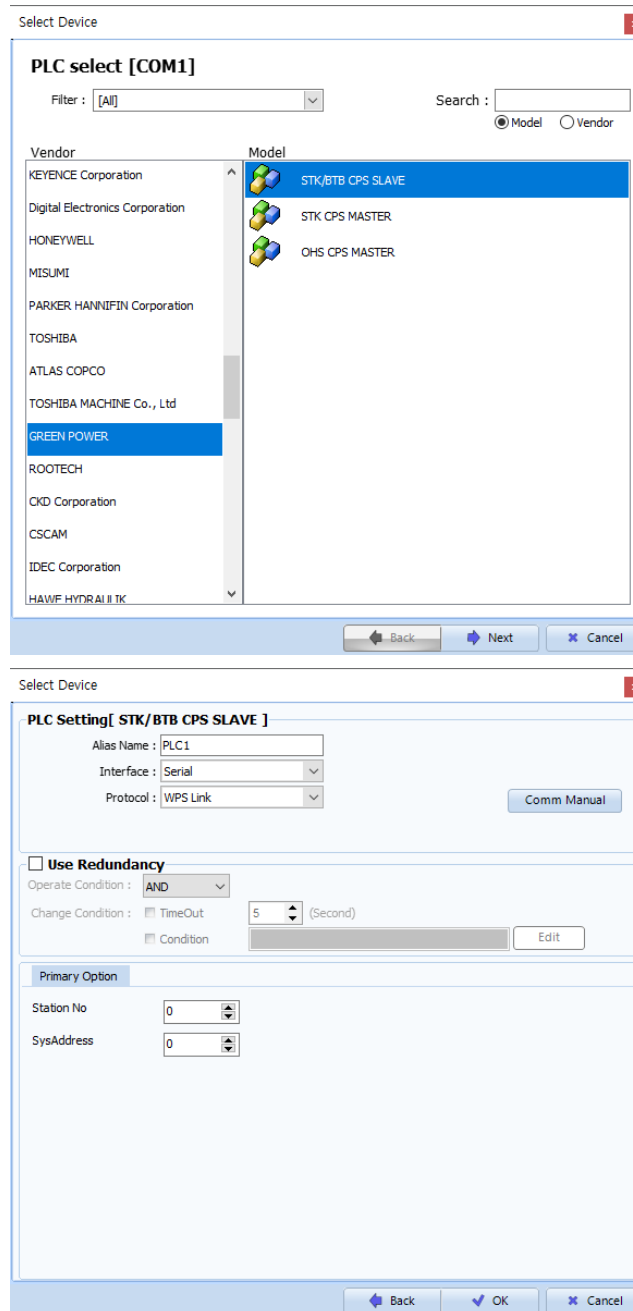


- 1:N connection



2. External device selection

- Select a TOP model and a port, and then select an external device.



Settings		Contents					
TOP	Model	Check the display and process of TOP to select the touch model.					
External device	Vendor	Select the vendor of the external device to be connected to TOP. Select "GREENPOWER".					
	PLC	Select an external device to connect to TOP. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model</th> <th>Interface</th> <th>Protocol</th> </tr> </thead> <tbody> <tr> <td>STK/BTB CPS SLAVE</td> <td>Serial</td> <td>WPS Link</td> </tr> </tbody> </table> <p>Please check the system configuration in Chapter 1 to see if the external device you want to connect is a model whose system can be configured.</p>	Model	Interface	Protocol	STK/BTB CPS SLAVE	Serial
Model	Interface	Protocol					
STK/BTB CPS SLAVE	Serial	WPS Link					

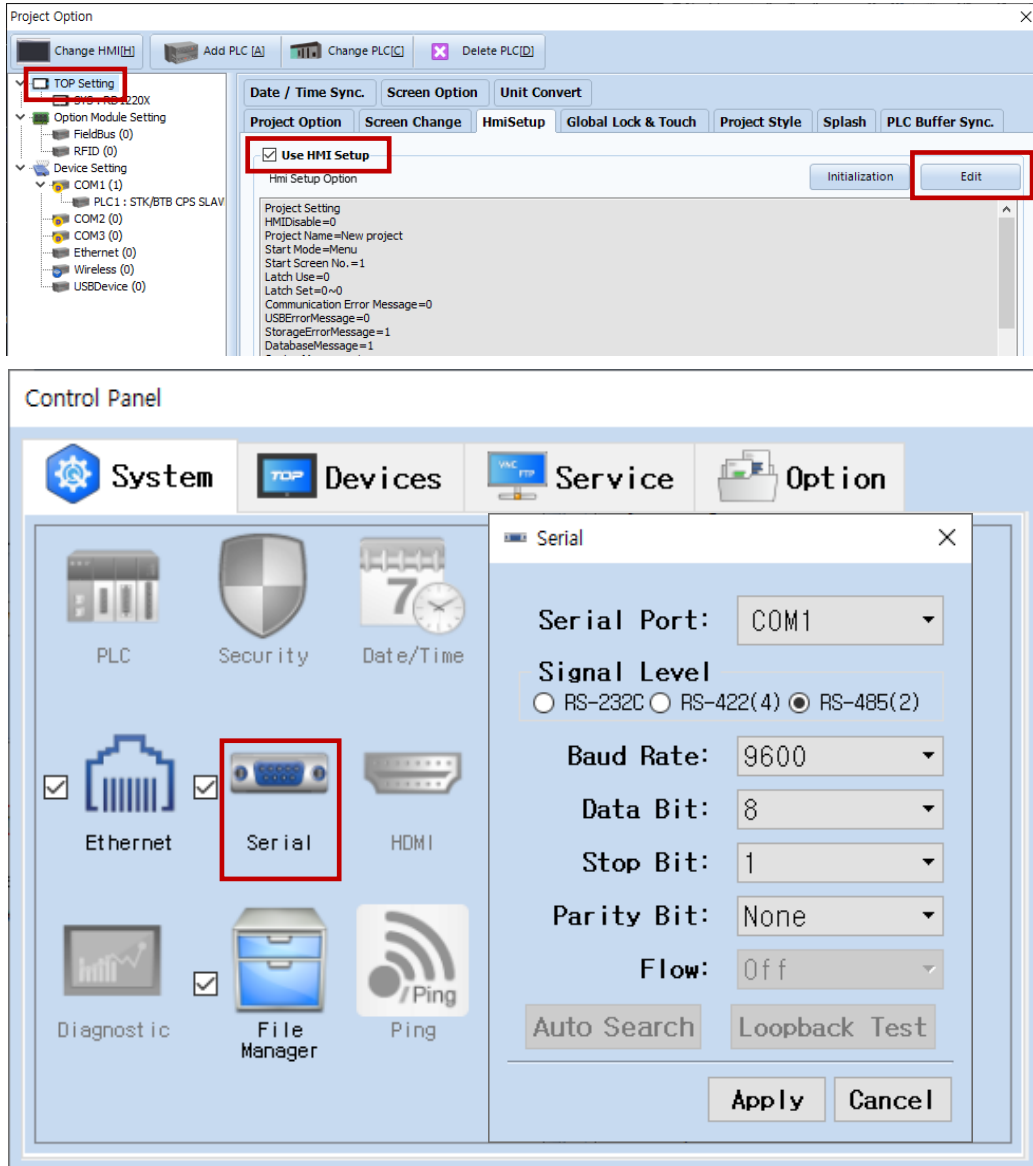
3. TOP communication setting

The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

- [Project > Project Property > TOP Setting] → [HMI Setup > "Use HMI Setup" Check > Edit > Serial]
- Set the TOP communication interface in TOP Design Studio.



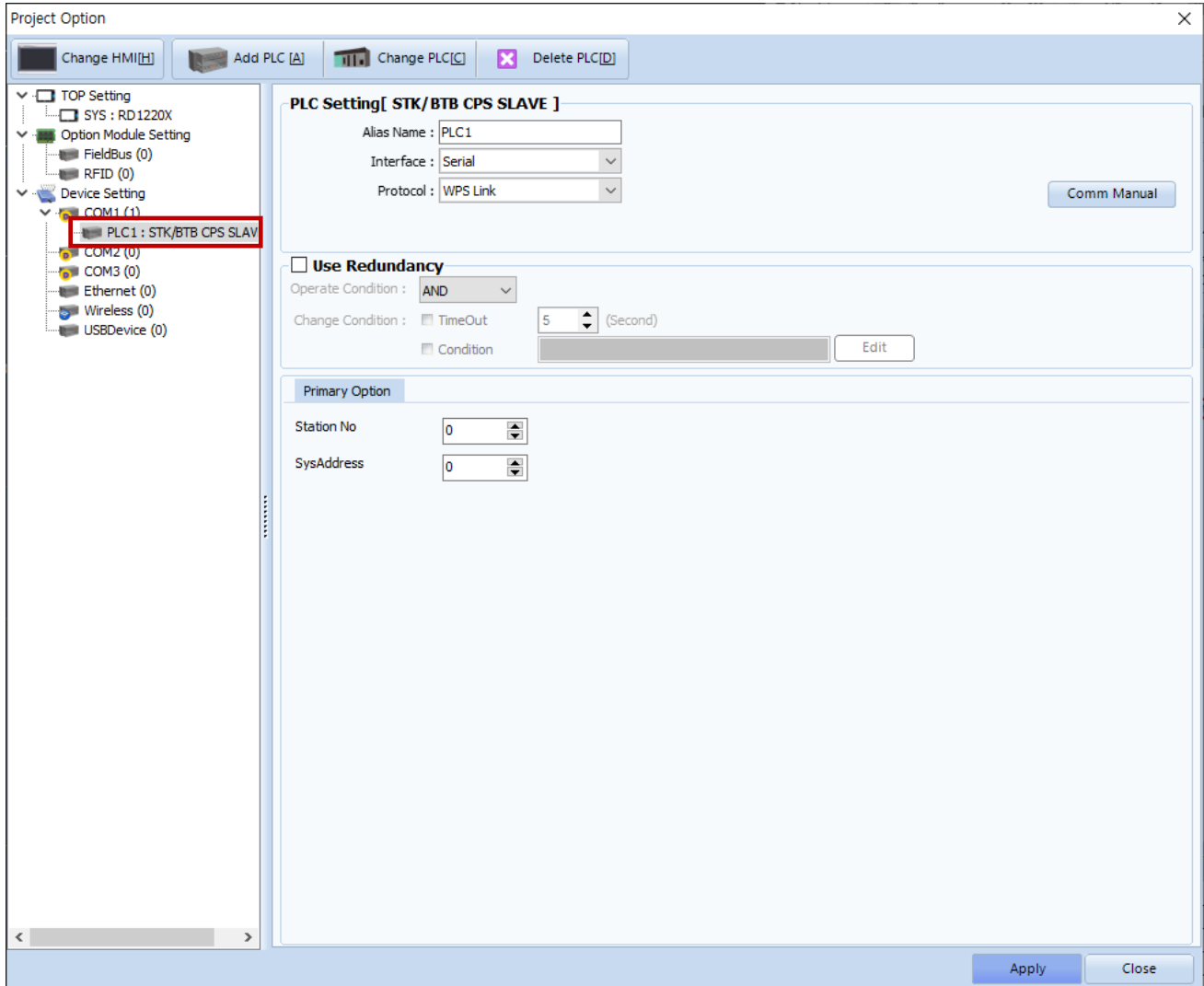
Items	TOP	External device	Remarks
Signal Level (port)	RS-485	RS-485	
Baud Rate		9600	
Data Bit		8	
Stop Bit		1	
Parity Bit		none	

* The above settings are examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.

(2) Communication option setting

- [Project > Project Property > Device Setting > COM > "PLC1 : STK/BTB CPS SLAVE"]
 – Set the options of the STK/BTB CPS SLAVE communication driver in TOP Design Studio.



Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External device selection".
Protocol	Select "WPS Link".	
Station No	Prefix	
SysAddress	Set the data storage internal buffer's start address.	

3.2. Communication setting in TOP

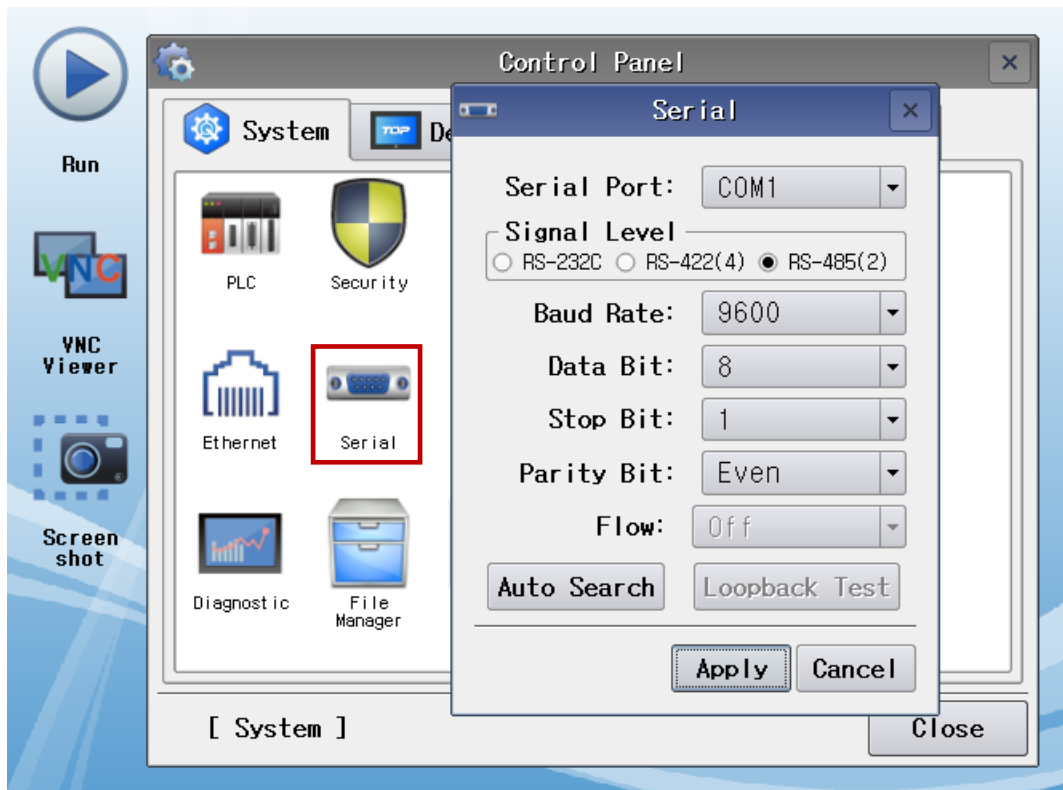
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.



(1) Communication interface setting

- [Main Screen > Control Panel > Serial]



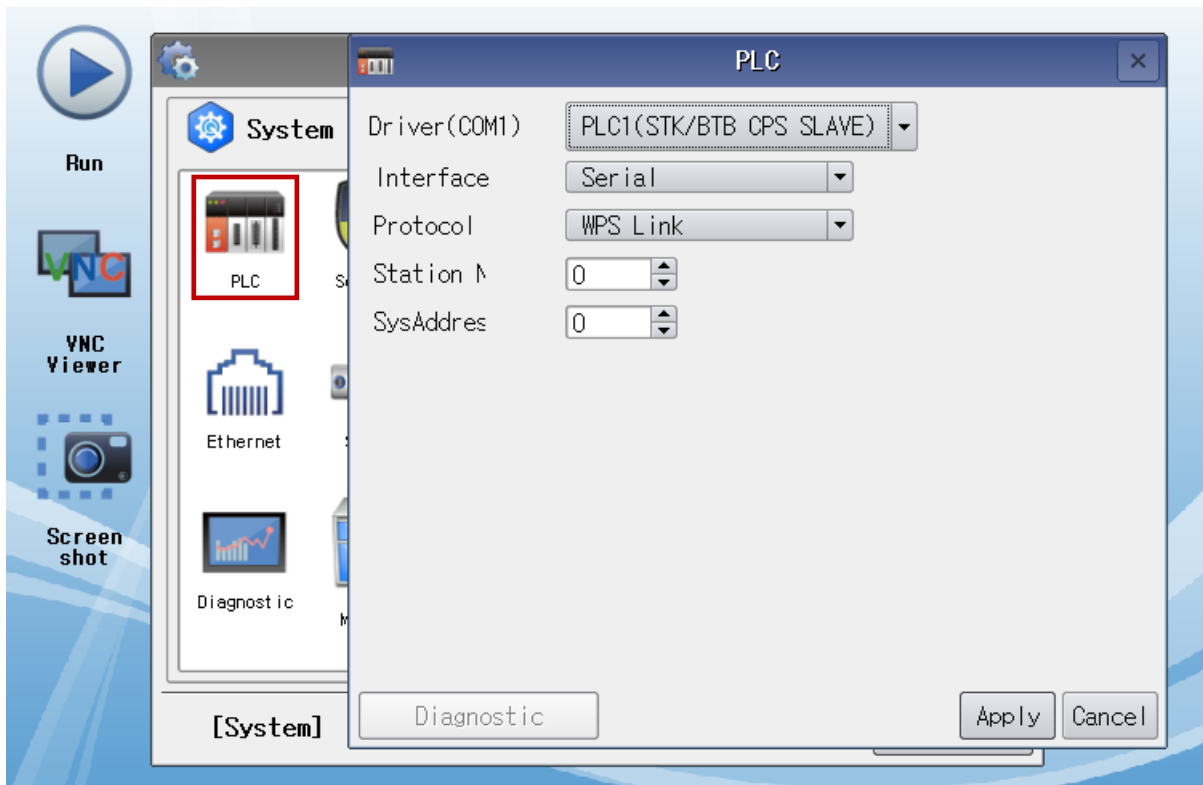
Items	TOP	External device	Remarks
Signal Level (port)	RS-485	RS-485	
Baud Rate	9600		
Data Bit	8		
Stop Bit	1		
Parity Bit	none		

* The above settings are setting examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.

(2) Communication option setting

■ [Main Screen > Control Panel > PLC]



Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External device selection".
Protocol	Select "WPS Link".	
Station No	Prefix	
SysAddress	Set the data storage internal buffer's start address.	

3.3 Communication diagnostics

- Check the interface setting status between the TOP and an external device.
 - Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.
 - Check if the COM port settings you want to use in [Control Panel > Serial] are the same as those of the external device.

- Diagnosis of whether the port communication is normal or not
 - Touch "Communication diagnostics" in [Control Panel > PLC].
 - The Diagnostics dialog box pops up on the screen and determines the diagnostic status.

OK	Communication setting normal
Time Out Error	Communication setting abnormal - Check the cable, TOP, and external device setting status. (Reference: Communication diagnostics sheet)

- Communication diagnostics sheet
 - If there is a problem with the communication connection with an external terminal, please check the settings in the sheet below.

Items	Contents	Check		Remarks	
System configuration	How to connect the system	OK	NG	1. System configuration	
	Connection cable name	OK	NG		
TOP	Version information	OK	NG	2. External device selection 3. Communication setting	
	Port in use	OK	NG		
	Driver name	OK	NG		
	Other detailed settings	OK	NG		
	Relative prefix	Project setting	OK		NG
		Communication diagnostics	OK		NG
	Serial Parameter	Transmission Speed	OK		NG
		Data Bit	OK		NG
Stop Bit		OK	NG		
Parity Bit		OK	NG		
External device	CPU name	OK	NG	5. Supported addresses (For details, please refer to the PLC vendor's manual.)	
	Communication port name (module name)	OK	NG		
	Protocol (mode)	OK	NG		
	Setup Prefix	OK	NG		
	Other detailed settings	OK	NG		
	Serial Parameter	Transmission Speed	OK		NG
		Data Bit	OK		NG
		Stop Bit	OK		NG
Parity Bit		OK	NG		
Check address range		OK	NG		

4. External device setting

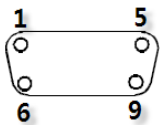
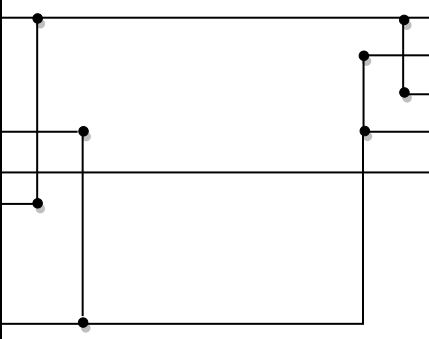
Configure the communication setting of the external device by referring to its user manual.

5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.

(The cable diagram described in this section may differ from the recommendations of "GREENPOWER – STK/BTB CPS SLAVE")

■ RS-485 (1:1 connection)

TOP			Cable connection	PLC		
Pin arrangement* Note 1	Signal name	Pin number		Signal name		
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RDA(+)	1		SDA(+)		
					SDB(-)	
					RDA(+)	
	RDB(-)	4			RDB(-)	
	SG	5			SG	
	SDA(+)	6				
	SDB(-)	9				

***Note 1**) The pin arrangement is as seen from the connecting side of the cable connection connector.

6. Supported addresses

The devices available in TOP are as follows:

The device range (address) may differ depending on the CPU module series/type. The TOP series supports the maximum address range used by the external device series. Please refer to each CPU module user manual and be take caution to not deviate from the address range supported by the device you want to use.

Data	System buffer address	R/W	Size	Description
ID	0	R	16bit	Unit Category
Status	1	R	16bit	Unit status information 0 : STOP 1 : RUN 2 : Fault 3 : Warning 4 : FailOver
Voltage	2	R	16bit	Correction voltage
Voltage	3	R	16bit	Boost voltage
Current	4	R	16bit	Boots current 1
Current	5	R	16bit	Boots current 2
Current	6	R	16bit	Inverter output current
Current	7	R	16bit	Track current
Frequency	8	R	16bit	Output frequency
Temp	9	R	16bit	Converter heat sink temperature
Error code	10	R	16bit	Converter Error Code
Voltage RS	11	R	16bit	Input voltage RS
Voltage ST	12	R	16bit	Input voltage ST
Voltage TR	13	R	16bit	Input voltage TR
Current R	14	R	16bit	Input current R -
Current S	15	R	16bit	Input current S
Current T	16	R	16bit	Input current t -
STK CPS				
Total kw	17	R	16bit	3-phase Total Power
Kwh	18	R	16bit	Wattage
BTB CPS				
Frequency	17	R	16bit	Frequency
Power factor	18	R	16bit	Power factor
Total kW	19	R	16bit	3-phase Total Power
KVAR	20	R	16bit	
kWh	21	R	32bit	Wattage

Cf) 21. KWh is 32 bit data.