JISANG ELECTRIC Co.,LTD
DH,DHD-Series
JISANG Rectifier

Supported version   TOP Design Studio   V4.0 or higher

CONTENTS

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

1. System configuration

The system configuration of TOP and "JISANG Electric Co. – DH, DHD-Series" is as follows:

Series	CPU	Communication method	System setting	Cable
DHD Series DH Series	DHD-R50 DHD-R100 DH-R50 DH-R100 DH-R200 DH-R300 DH-R500 DH-R1000 DH-2000B DH-3000B DH-5000B	RS-232	3.1 Settings example 1 (Page 4)	5.1. Cable table 1 (Page 11)
		RS-422,485	3.2 Settings example 2 (Page 6)	5.2. Cable table 2 (Page 12)

■ Connection configuration

・1:1 (one TOP and one external device) connection – configuration which is possible in RS232C/422 communication.
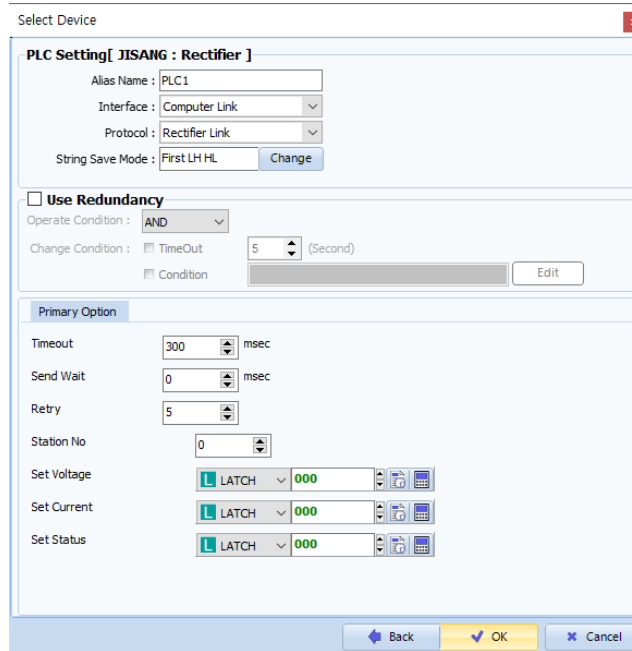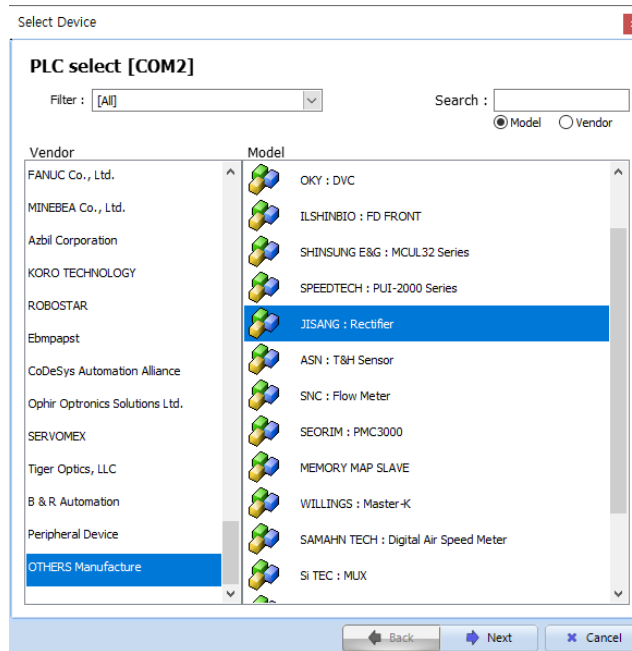

・1:N (one TOP and multiple external devices) connection – configuration which is possible in RS422 communication.
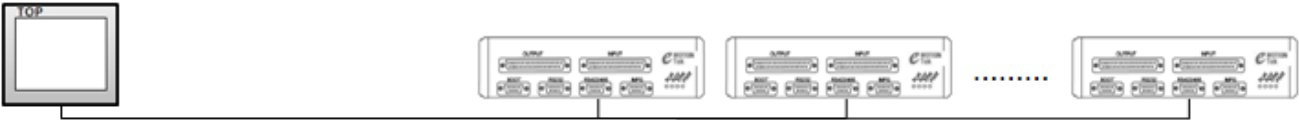
2. External device selection

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

| Settings	Contents
TimeOut (ms)	Response latency after frame request by TOP device
SendWait (ms)	Waiting time prior to frame request by TOP device.
Station No	Target communication device's identification number
Set Voltage	Configure the voltage address for the rectifier The address configured for the target communication device by the TOP The state in which non-volatile data is held by the TOP device by configuring to "LATCH".
Set Current	Configure the voltage address for the rectifier The address configured for the target communication device by the TOP The state in which non-volatile data is held by the TOP device by configuring to "LATCH".
Set Status	Configure the status address for the rectifier Requested status value (1: Current settings, 3: Voltage settings)

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] → [Project Option > "Use HMI Setup" Check > Edit > Serial]

– Set the TOP communication interface in TOP Design Studio.
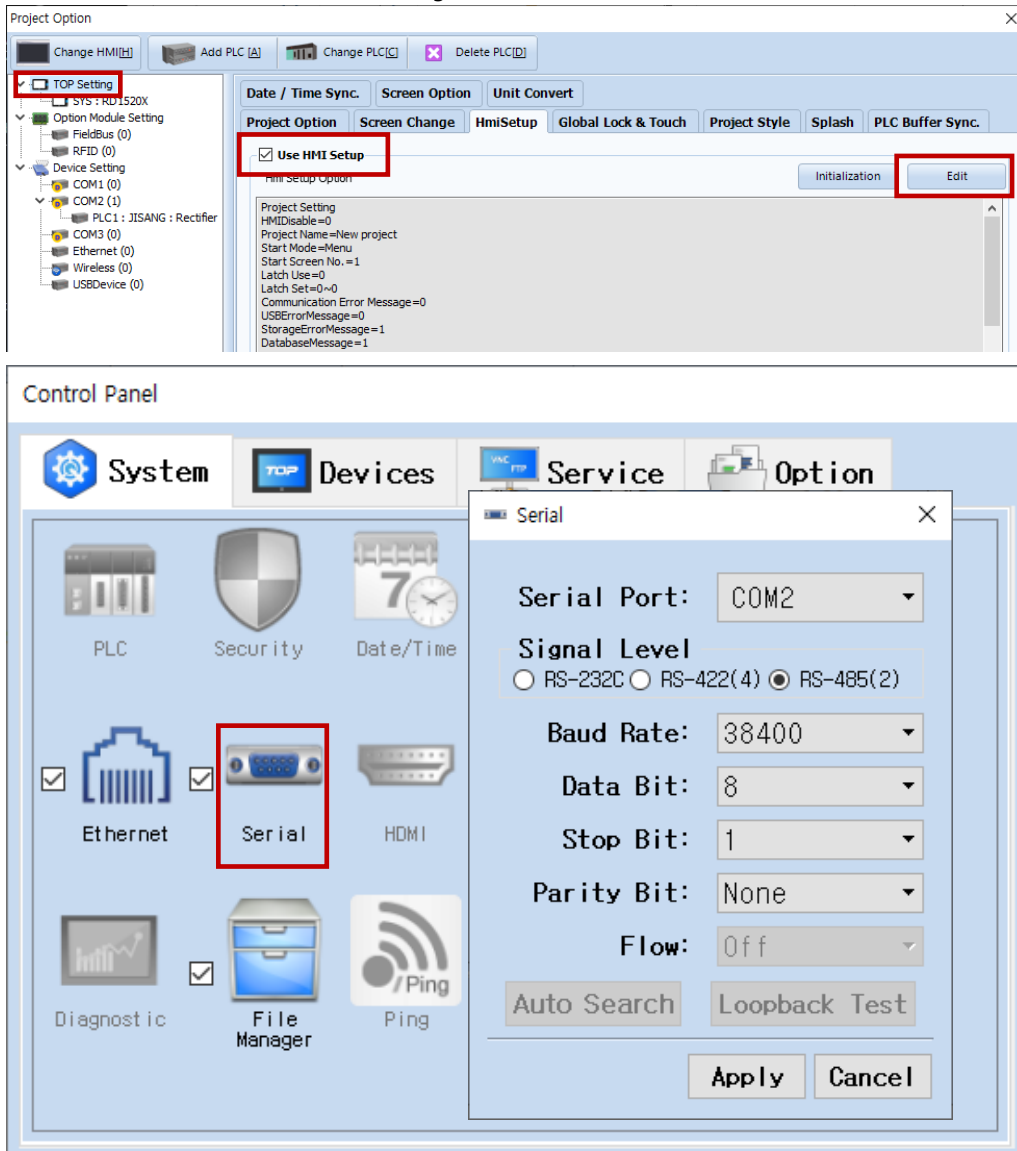
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C/RS-485	RS-232C/RS-485	
Baud Rate	38400		
Data Bit	8		
Stop Bit	1		
Parity Bit	NONE		

* 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 : Others]
  – Set the options of the "Jisang : Rectifier" communication driver in TOP Design Studio.

| Settings	Contents
TimeOut (ms)	Response latency after frame request by TOP device
SendWait (ms)	Waiting time prior to frame request by TOP device.
Station No	Target communication device's identification number
Set Voltage	Configure the voltage address for the rectifier
	The address configured for the target communication device by the TOP
	The state in which non-volatile data is held by the TOP device by configuring to "LATCH".
Set Current	Configure the voltage address for the rectifier
	The address configured for the target communication device by the TOP
	The state in which non-volatile data is held by the TOP device by configuring to "LATCH".
Set Status	Configure the status address for the rectifier
	Requested status value (1: Current settings, 3: Voltage settings)

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 <u>drag</u> it down. Touch "EXIT" in the pop-up window to go to the main screen.

(1) Communication interface setting

■ [Main Screen > Control Panel > Serial]
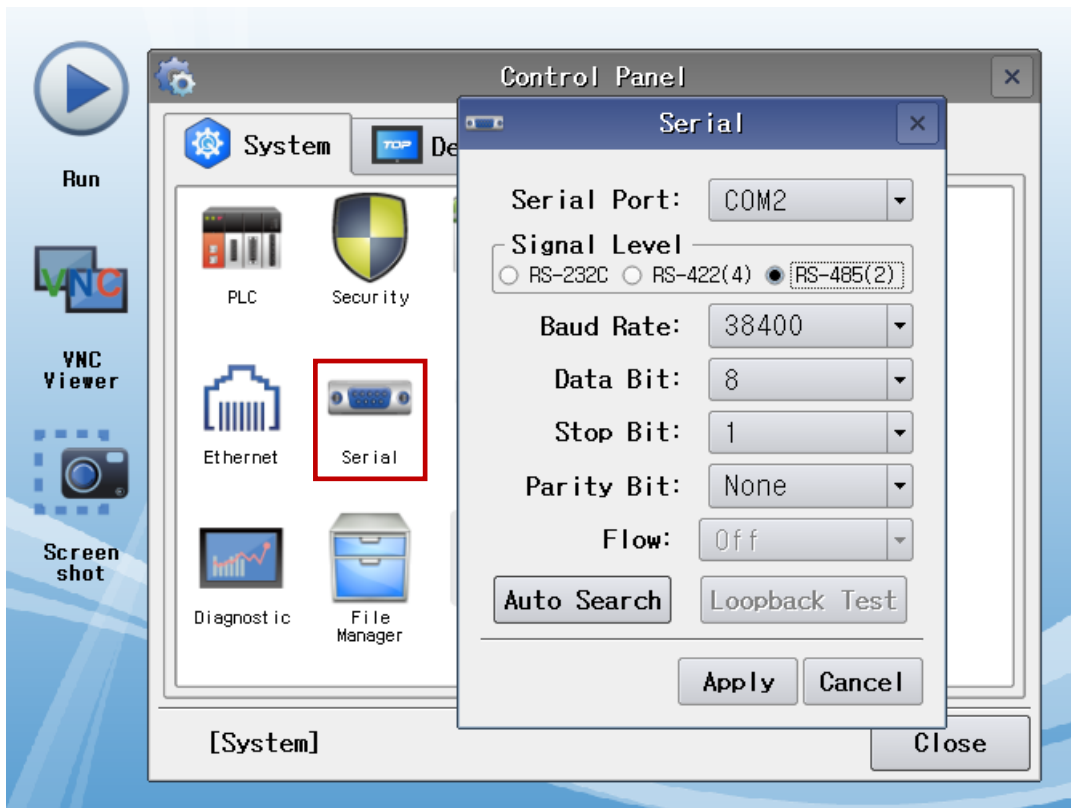
Items	TOP		External device	Remarks
Signal Level (port)	RS-232C/RS-485		RS-232C/RS-485	
Baud Rate	38400			
Data Bit	8			
Stop Bit	1			
Parity Bit	NONE			

* 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]

Settings	Contents
TimeOut (ms)	Response latency after frame request by TOP device
SendWait (ms)	Waiting time prior to frame request by TOP device.
Station No	Target communication device's identification number
Set Voltage	Configure the voltage address for the rectifier
	The address configured for the target communication device by the TOP
	The state in which non-volatile data is held by the TOP device by configuring to "LATCH".
Set Current	Configure the voltage address for the rectifier
	The address configured for the target communication device by the TOP
	The state in which non-volatile data is held by the TOP device by configuring to "LATCH".
Set Status	Configure the status address for the rectifier
	Requested status value (1: Current settings, 3: Voltage settings)

3.3 Communication diagnostics

■ 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	4. External device setting
	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	6. Supported addresses (For details, please refer to the PLC vendor's manual.)

4. External device setting
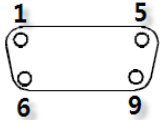
Refer to the vendor's user manual to identically configure the communication settings of the external device to that of the TOP.
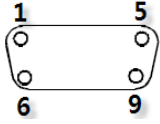
5. Cable table

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

(The cable diagrams described in this section may differ from the external device vendor's recommendations.)

■ RS-232C (1:1 connection)

COM			Cable connection	PLC	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	
	CD	1			
	RD	2		SD	
1 5 / 6 9	SD	3		RD	
	DTR	4		DTR	
Based on	SG	5		SG	
communication	DSR	6		DSR	
cable connector	RTS	7		RTS	
front,	CTS	8		CTS	
D-SUB 9 Pin male (male, convex)		9			

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

■ RS-422 (1:1 connection)

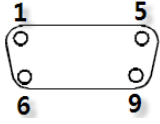| COM			Cable connection	PLC	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	
	RDA(+)	1		SDA(+)	
1 5 / 6 9		2		SDB(-)	
		3		RDA(+)	
	RDB(-)	4		RDB(-)	
Based on	SG	5		SG	
communication	SDA(+)	6			
cable connector		7			
front,		8			
D-SUB 9 Pin male (male, convex)	SDB(-)	9			

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

■ RS-485 (1:1 connection)

COM			Cable connection	PLC	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	
	RDA(+)	1		SDA(+)	
1 5 / 6 9		2		SDB(-)	
		3		RDA(+)	
	RDB(-)	4		RDB(-)	
Based on	SG	5		SG	
communication	SDA(+)	6			
cable connector		7			
front,		8			
D-SUB 9 Pin male (male, convex)	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.

Command	Bit address range	Word address range	Description
VOLTAGE	-	VOLTAGE	Voltage data received from target device
CURRENT	-	CURRENT	Current data received from target device
STATUS	STATUS.0 - .15	STATUS	Status data received from target device

(For more information, refer to the user manual of the ground rectifier.)

- **STATUS value analysis**

Lower bit

		OC	OT	CV	Remote	Operate
0	0	0	0	0	1	1	1
7	6	5	4	3	2	1	0 Bit

0 bit => Operated (high: Exporting, low: No export)

1 bit => Remote (high: Communication control,
low: Local control)

2 bit => (high: CV, low: CC)

3 bit => (high: Error, low: No Normal)

4 bit => (high: Error, low: No Normal)