

## Protocol

1. This product applies MODBUS-RTU communication protocol
2. The device ID is "0x64: 100" (Device ID can be changed)
3. Setting should be by 115,200bps, 8 bits of data, Parity None, and 1 stop for Communication speed
4. It supports only Read Holding Registers (Function Code 3) and Write Single Register (Function Code 6) among the MODBUS function codes.
5. The states of control IO (Brake, Direction, Enable) and variable resistors mounted on the control board can not be confirmed using the "Read Input Register" function. If this code requests read, it is ignored. Also, this can be confirmed using the "Read Holding Registers" function.
6. Table 1 as below describes the registers and functions.

**Table 1**

Reg Index (HEX)	Reg. Name	Description	Read/Write
0001	SET_SPEED_REMOTE	It is the motor speed (duty %) set by REMOTE. 0 ~ 1000 can be input, 1000 means the maximum speed. To adjust the speed in LOCAL, set this value to 1001 or higher. The maximum value is 65535.	R/W
0002	SET_CW_CCW_REMOTE	CW / CCW indicates the location of the control authority. 0 and 1 are REMOTE, and the other values are LOCAL (Board). "0" is the direction of CW, and "1" is the direction of CCW.	R/W
0003	SET_ENABLE_REMOTE	It indicates the position of control of ENABLE(on/off) signal of motor. 0 and 1 are REMOTE, and the other values are LOCAL (Board). "0" is DISABLE(off), "1" is ENABLE(on).	R/W
0004	SET_BRAKE_REMOTE	It indicates the position of the control authority of the BRAKE signal of the motor. 0 and 1 are REMOTE, and the other values are LOCAL (Board). "0" is BRAKE off, "1" is BRAKE on.	R/W
0005	SET_ACC_TIME_REMOTE	It is the acceleration time setting register of the motor. It can be set to 0, 1000 ~ 5000 [msec]. "0" means no acceleration time. If you set 5001 or more, you can adjust the speed in LOCAL.(board)	R/W
0006	SET_DEC_TIME_REMOTE	It is the deceleration time setting register of the motor. It can be set to 0, 1000 ~ 5000 [msec]. "0" means no acceleration time. If you set 5001 or more, you can adjust the speed in LOCAL.(board)	R/W
0007	CUR_SPEED	This is the speed value currently being output.	R
0008	CUR_CW_CCW	This is the CW/CWW value currently being output.	R
0009	SET_SPEED	This is the speed setting value applied on the board.	R
000A	SET_CW_CCW	This is the CW/CWW value applied on the board.	R
000B	SET_ENABLE	This is the ENABLE value applied on the board.	R
000C	SET_BRAKE	This is the BRAKE value applied on the board.	R
000D	SET_ACC_TIME	This is the acceleration time value applied on the board.	R
000E	SET_DEC_TIME	This is the deceleration time value applied on the board.	R

000F	SET_SPEED_LOCAL	This is the speed setting value applied to LOCAL.	R
0010	SET_CW_CCW_LOCAL	This is the CW/CCW value applied to LOCAL.	R
0011	SET_ENABLE_LOCAL	This is the ENABLE value applied to LOCAL.	R
0012	SET_BRAKE_LOCAL	This is the BRAKE value applied to LOCAL.	R
0013	SET_ACC_TIME_LOCAL	This is the acceleration time value applied to LOCAL.	R
0014	SET_DEC_TIME_LOCAL	This is the deceleration time value applied to LOCAL.	R
0015	MOTOR_RPM	This is the rpm value of the motor.	R
0016	MOTOR_CURRENT	This is the current value of the motor.	R
0017	MOTOR_FAULT	This is the fault state of the motor. "0" is Normal, "1" is Fault.	R
0018	SET_CURRENT_LIM	This is the maximum allowable current setting register. 0 to 200, and 990 [/ 10 A] can be set. 990 does not have current limit. (*1) If the set value is exceeded, it becomes a fault state.	R/W
0019	SET_LOCK_TIME	This is the motor's Lock time setting register. A value of 2,000 to 60,000 [msec] can be set. If the set value is exceeded, it becomes the fault state.	R/W
001A	SET_MOTOR_POL_NUM	This is a register that sets the number of poles of the motor	R/W
001B	RESERVED	Reserved area (not used).	R/W
F001	WRITE_PARAM (*2)	Save the currently set parameters to internal memory.	W
F002	INIT_PARAM (*3)	Set the parameter to the factory-set value.	W

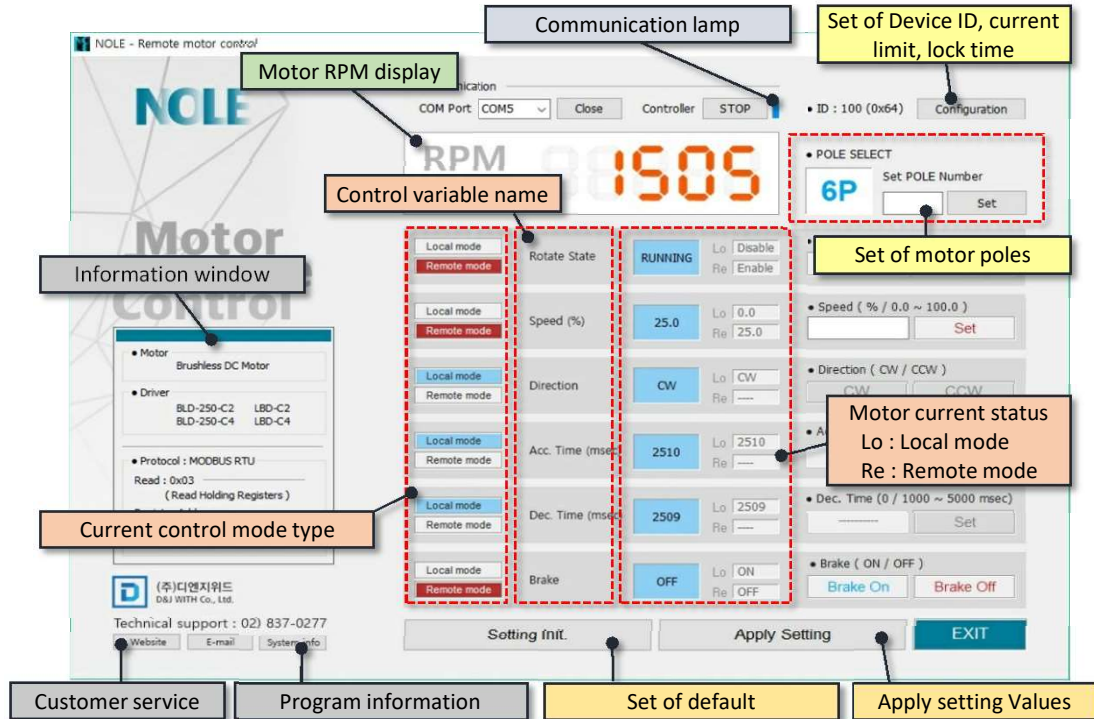
(\*1) We are not responsible for setting the current limit to 990.

(\*2) The register address is 0xF001, and the data must be 0xA1A1 to execute the instruction.

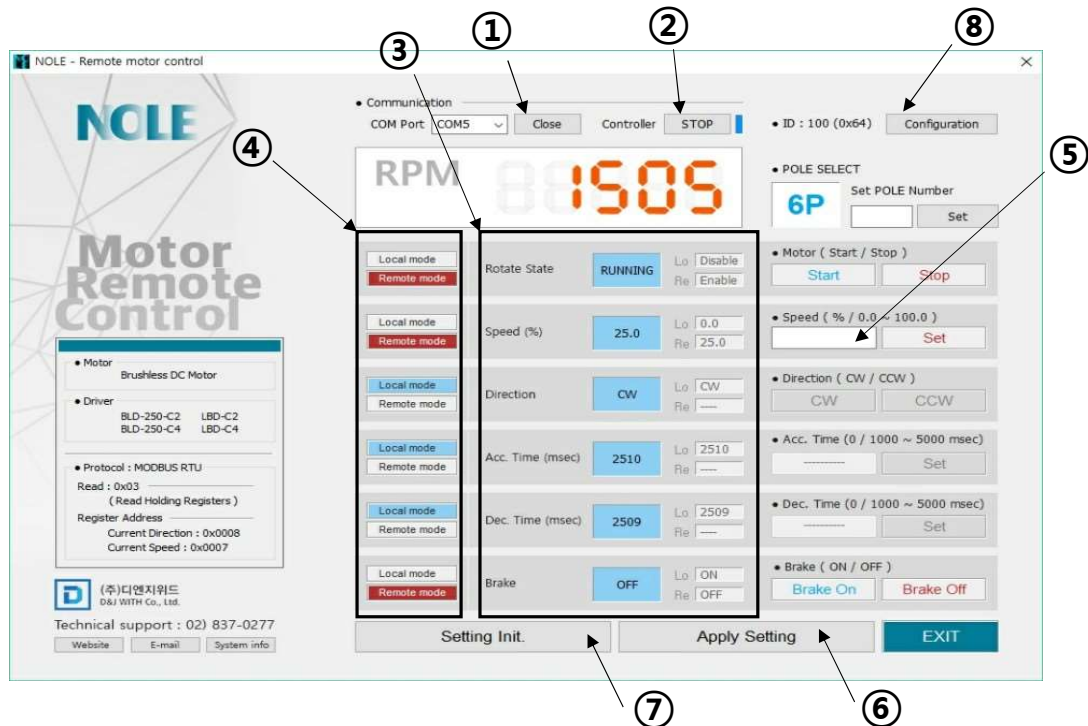
(\*3) The register address is 0xF002, and the data must be 0xA2A2 to execute the instruction.

This is a PC demo program that can directly control BLDC motor using computer.

### Program components



### Program manual



1. Open COM Port (Serial).
2. Start communication with the controller.
3. Check the current status of control.
4. Click the "Remote Mode" checkbox for the action wanted.  
Activate buttons and input field.  
Acc. Time / Dec. Time can be changed only in Remote mode.
5. Enter and change control values
6. Click "Apply Setting" button to save the set control value  
All Remote / Local Type and Value of setting item are saved.
7. If you want to return the saved settings to the initial state, click the "Setting Init." button.
8. Motor setting  
Device ID setting function: PC & Controller  
Settings: Current, Lock time, Max. RPM  
Status check: Current, alarm (Fault), motor RPM

