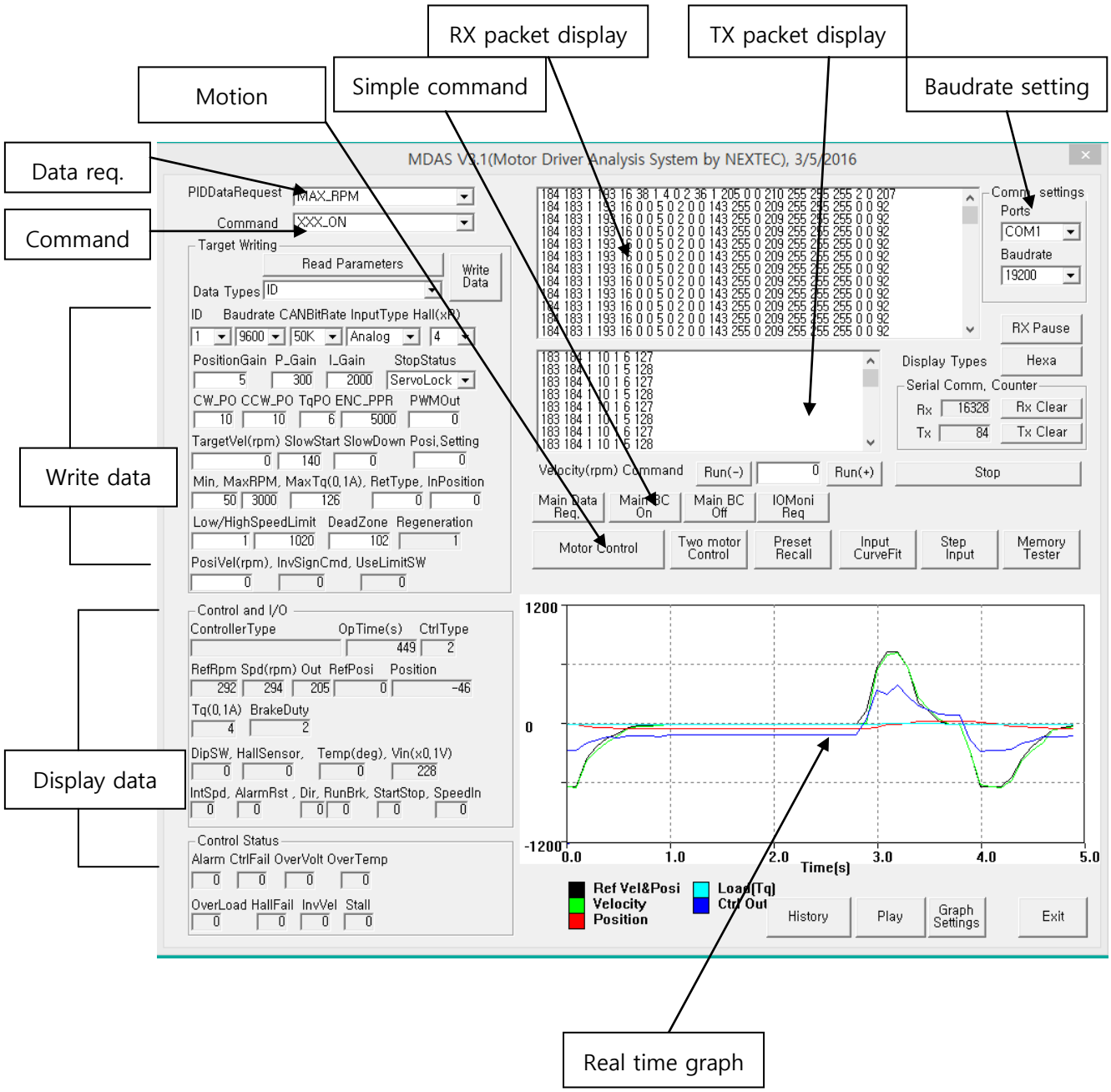
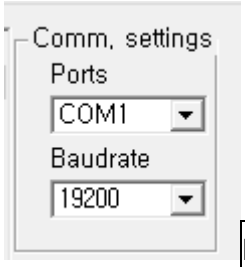
1. Introduction

User manual for MDAS, communication test program on the BLDC/DC motor drivers of NEXTEC.

2. Main subject



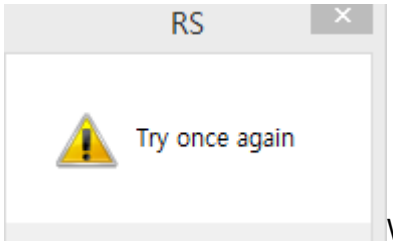
2.1 Commucation settings



Ports: choose comm. port from COM1 to COM9.

Baudrate : choose comm. baudrate, 9600, 19200, 38400, 57600, 115200 for serial commucation(RS485)

The baudrate of DC power controller is 19,200bps, default, and that of AC power controller is 눈 9,600bps.



When user set the ports or buadrate, displayed the warnning, then try once again same setting action

2.2 RX packet display

Display RX packet data in real time.

If user don't want to display that real time packet, press RX Pause button placed right side.

User can see RX packet counter at the left side Serial Comm. Counter window.

To initialize(clear) the packet display window, press Rx Clear button.

To change the displayed packet to the type of Hexa, press Hexa button,

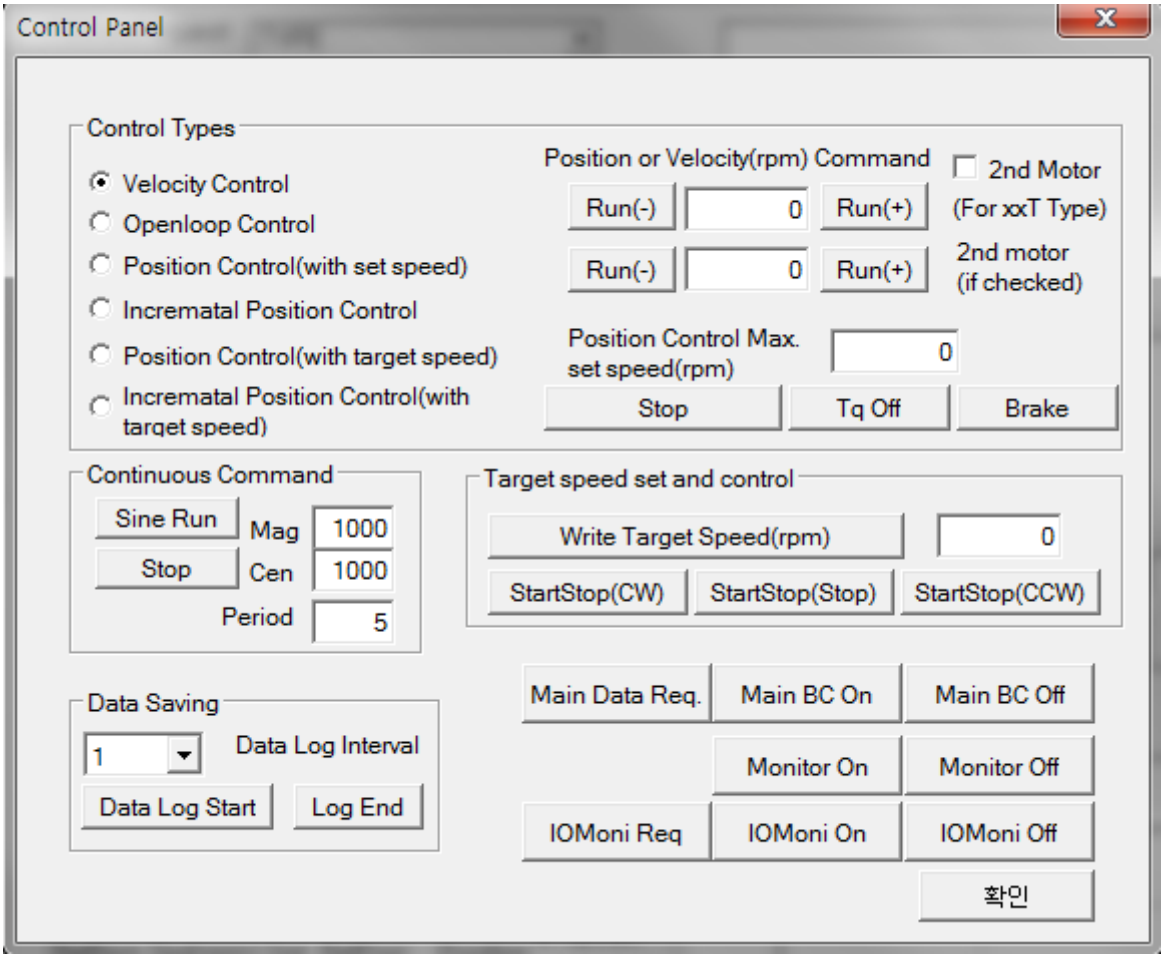
2.3 TX packet display

Display TX packet data in sending MDAS(user) to controller.

User can understand the structure of data packet from that sending packet format.

2.4 Motion control

Motor Control : window for motion command.



Control Types : choose the control type by radio button.

●Velocity Control : speed control, the contents of edit box has unit of rpm(revolution per minute)

●Openloop Control : the range of openloop input is 0~1023(10bits)

●Position Control(with set speed): Position Control Max. Set speed(rpm)

The max. speed is included , when user do not set that max. speed then the controller move to target position with the half of max. speed.

●Incremental Position Control: If the motor position is 100, then the input position is 100, the motor moves to the position of 200

●Position Control(with target speed) : Just send target position, then the max. speed is the target speed set by Write Target Speed(rpm) button

Continuous Command : continuous sinusoidal command about 20 cycles per sec.

Mag : Magnitude of command

Cen: Data center

Period: Period of one cycle of sinusoidal command.

Run(-), Run(+) : input the target speed or position or openloop output according to the control types in the edit box.

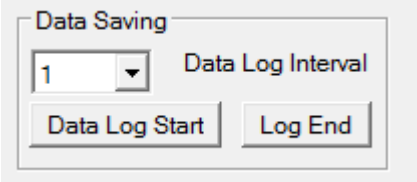
When the control type is positio, the position is 3 times of poles of motor.

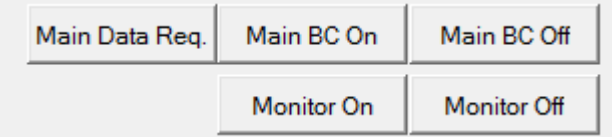
Stop : Stop the motor by solw/start ratio.

Tq Off : Just reset the motor output, the the motor stops naturally.

Brake : Immediately stop the motor by short of motor coils

Data Saving





Broadcasting command(BC) : call the receive packet with the period of 10Hz.

Data Log Start : data Logging start(makes file)

File End : Stop data logging, and make file with the name like 201305161845_2.txt

This name is consist of Year/Date/Time/Minute/Serial number.

And the data logging save order is like, Data number, time, output, reference speed, speed, current, position

DataNum, Time(ms), CtrlOut, RefRPM, RPM, Current(0.1A), Position

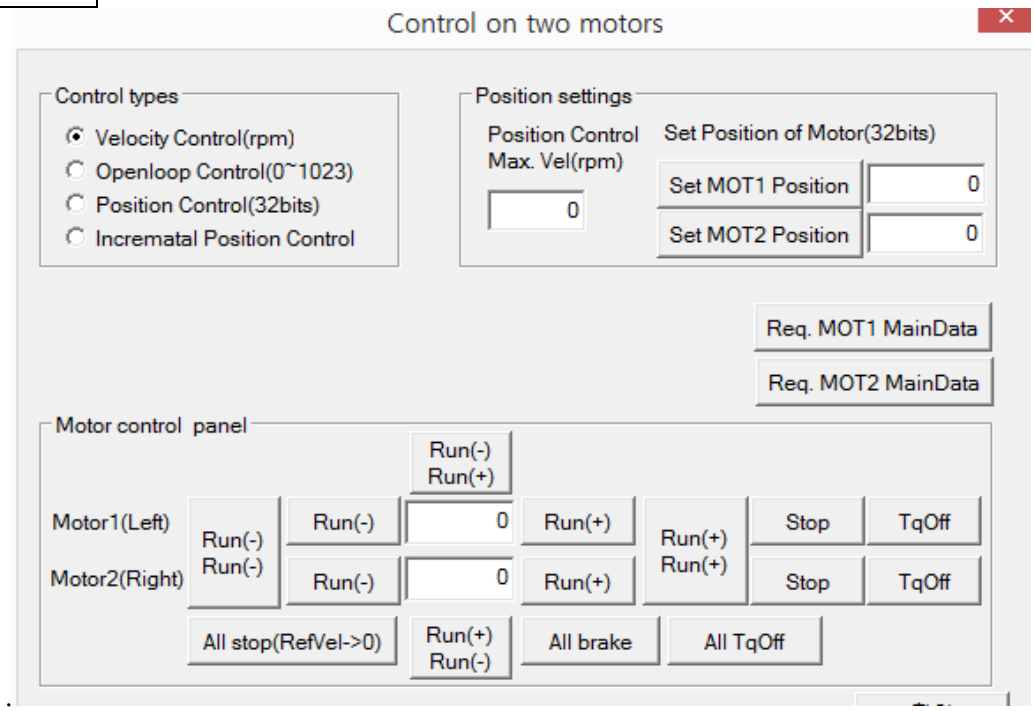
1,60,-800,490,-240,515,32097

2,160,-800,490,-240,515,32018

3,260,-800,490,-240,515,31940

.....

Two Motor Control : To control two motors at the same time, for the controller PNT50, MD750T



2.5 Brief command for broadcasting commucation

Main Data Req : request PID_MAIN_DATA .

Main BC On : start PID_MAIN_DATA broadcasting.

Main BC Off : stop PID_MAIN_DATA broadcasting.

Monitor On : start PID_MONITOR BC

Monitor Off : stop PID_MINITOR BC

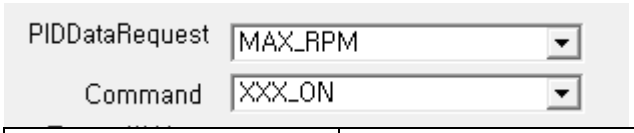
IOMoni On : start PID_IO_MONITOR BC to see the input I/O status.

IOMoni Off : stop PID_IO_MINITOR BC

When use the controller PNT50 or MD750T , to request for the data of 2nd motor, check ☐2nd motor check box.

2.6 Command

Data request combo box, and simple command box.



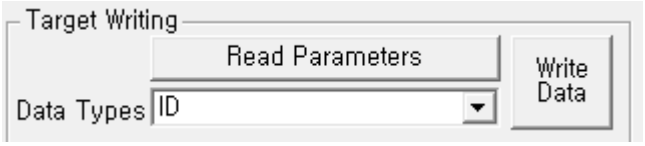
Name	Contents	Remark
PID Data Request/ Request selected PID item(Parameter idetification)	VEL_GAIN	Control gain(Position, Proportional, Integral)
	TYPE	Type of controller
	MAX_LOAD	Max. set current(0.1A unit)
	MAX_RPM	Max. speed
	VOLT_IN	Supply voltate(Vsupply) , unit of 0.1V
	TIME	Time(s) for motor moving
	ENC_PPR	Pulse per revolution on ENCODER
	TAR_VEL	When set the target speed by commucation, not by internal or external variable volume. Use that PID, then the CTRL I/O, start/stop, run/brake, cw/ccw are used with that target speed. If that target speed is zero, then the speed value is that of external volume.
	LOW_SPEED_LIMIT	The normal range of external volume is 0~1023, if user want to change the lowest speed range to 100~1023, then the 100 value is saved to that LOW_SPEED_LIMIT (less than 512)
	HIGH_SPEED_LIMIT	To change the upper range of external volume, use the item.(more than 512)
	SLOW_START	Set the value of SLOW_START(0~1023)
	SLOW_DOWN	Set the value of SLOW_DOWN(0~1023)

For more information, refer to the commucation specification.

Name	Content	Remark
Cmd(Command)/ Simple command like as stop, run, brake, Braodcasting on/off.	ALARM_RESET	Reset alarm.
	POSI_RESET	Position reset(position->0)
	MONITOR_BC_ON	Request monitor broadcasting
	MONITOR_BC_OFF	Stop monitor broadcasting
	FAN_ON	Forced on of FAN
	FAN_OFF	Forced stop of FAN
	CLUTCH_ON	Stop Clutch/Brake
	CLUTCH_OFF	Run Clutch/Brake
	TAR_VEL_OFF	Ignore the target speed set by PID_TAR_VEL
	SLOW_START_OFF	Ignore the slow/start ratio set by PID_SLOW_START, use internal volume SS.
	SLOW_DOWN_OFF	Ignore the slow/down ratio set by PID_SLOW_DOWN, use internal volume SD
	ENC_PPR_OFF	Do not use encoder set by PID_ENC_PPR

For more information, refer to the commucation specification.

2.7 Write data



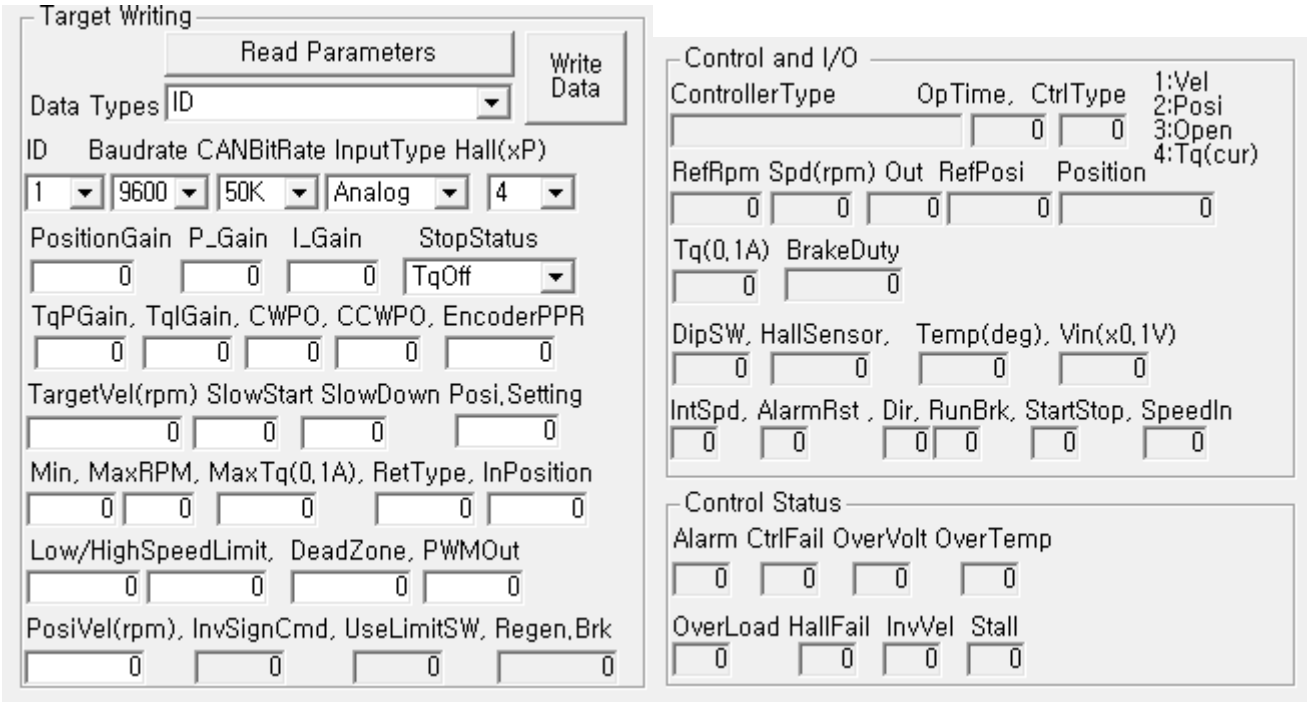
To write data to the controller, at first recommand to read the data from controller.
Press the Read Parameters button, then MDAS read all parameters of controller, and then choose the parameter to write in the combo box, then write target data to the edit box.
And press the Write Data button to write(send packet).

Combo box	내 용	비 고(PID)
Target Writing/ Change parameters	DEFAULT_SET	Reset the parameters with default value.
	ID	Set ID number of controller
	BAUDRATE	Set comm. baudrateRS485)
	GAIN	Set control gain
	INV_SIGN_CMD	Set the inverse of motor direction (when use two motors like as AGV)
	NORMAL_SIGN_CMD	Ignore that INV_SIGN_CMD
	LIMIT_SW_ON	When the command of comm. is activated the input pin. DIR, START/STOP of CTRL is used as limit switch for safety .
	LIMIT_SW_OFF	if user don't want that limit switch function then reset that LIMIT_SW_OFF
	TAR_VEL	To input more accurate target speed, set the target speed by TAR_VEL, then the value of external volume is ignored. But the CTRL I/O, START/STOP, RUN/BRAKE functionality is same.

For more information, refer to the commucation specification.

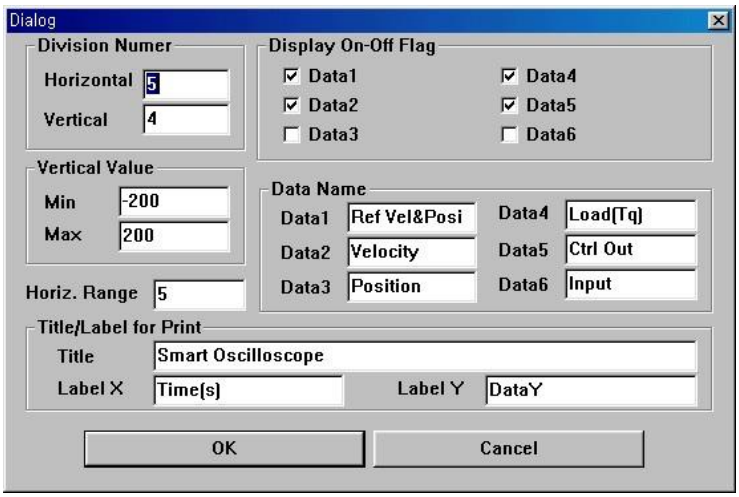
2.9 Data read/write and display

Read/write Real only



2. 10 Set the graph

Change the graphic parameters , vertical range, horizontal grid number, etc



2.11 Display window like as oscilloscope.

Display to the window of broadcasting data, user can observe the control status, output versus input.

Play : Display the graph by input data.

Pause : Pause the display data.

4 History

VERSION	DATE	CONTENTS
V2.7	2016.07.10	First born english manual for MDAS

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