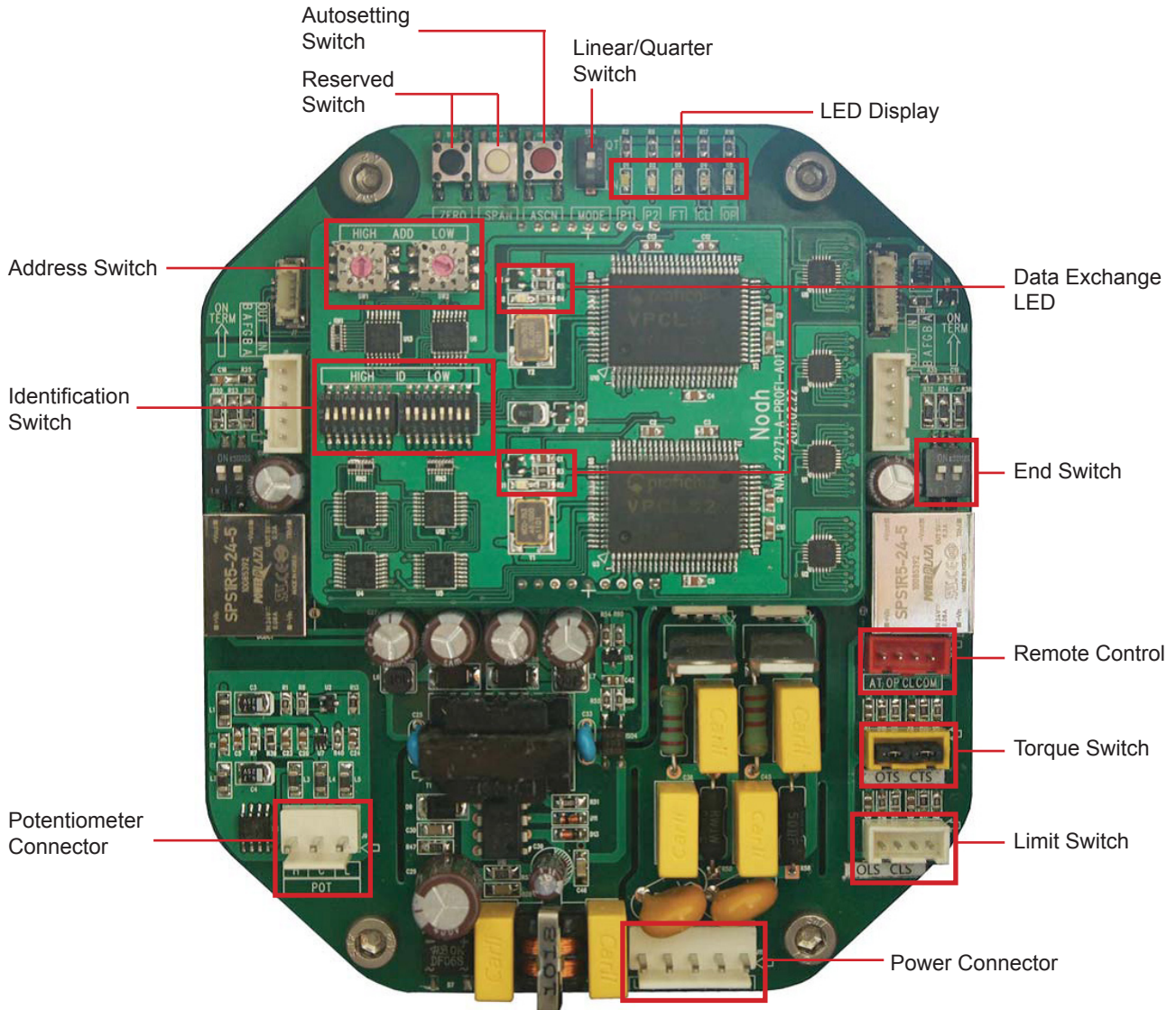


# RCEL Profi-Bus

# Manual

## Profi-Bus Board (NA-Series)



### Connector Spec

Power Connector (5Pin)	Power: AC 85 ~ 265V 50/60Hz
Limit & Torque Switch (8pin)	Full Open / Full Close, Over Torque Limit Switch
Potentiometer Connector (3Pin)	0 ~ 1 K $\Omega$
Profibus Signal Connector (3Pin x 4 EA)	Pin 1: A Line Pin 2: B Line
Control Connector (4Pin)	MANUAL MODE & AUTO MODE

## Setting Switch

### 1. Mode Switch



On: Quarter turn mode  
Off: Linear mode

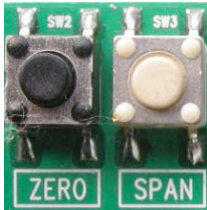
### 2. Autosetting Switch



Press over then 2 seconds :  
run autosetting

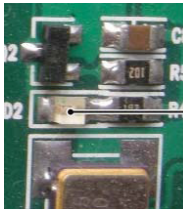
Press over then 2 seconds in progress  
autosetting: cancel au

### 3. Reserved Switch



Reserved for additional more  
function in feature

## Data Exchange LED

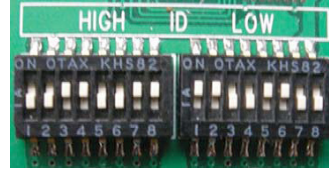


Profibus Data-Exchange Mode

Data Exchange  
LED

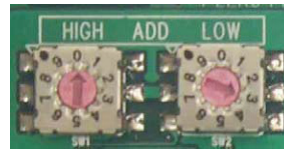
## Profibus Setting

### 1. Mode Switch



ID is factory set:  
Don't change

### 2. Address Switch



High: Digit 10  
Low: Digit 1

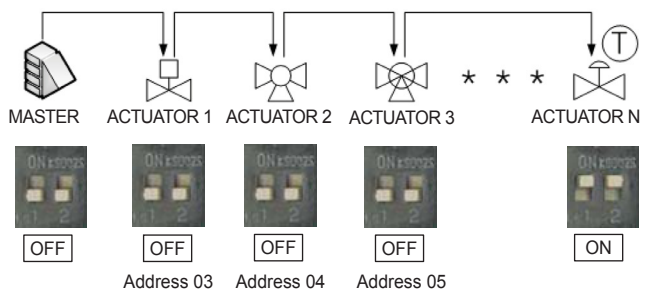
ex) High 0, Low 3  
so address makes 3

### 3. Termination Switch

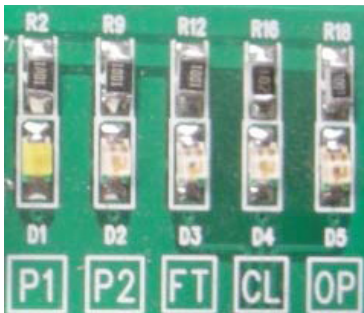


Termination Switch

On: Termination



## Status LED



LED Status					Description
P1	P2	FT	CL	OP	
OFF	OFF	OFF	OFF	OFF	POWER OFF
FLICKER		Don't care			PORT 1 Non Data Exchange
	FLICKER				PORT 2 Non Data Exchange
ON	ON				PORT 1, PORT 2 Non Data Exchange
Don't care		OFF	ON	OFF	FULL CLOSE
		OFF	OFF	OFF	FULL OPEN
		OFF	FLICKER	OFF	CLOSING
		OFF	OFF	FLICKER	OPENING
		ON	FLICKER	OFF	CLOSE TORQUE, ASCN CLOSE
		ON	OFF	FLICKER	OPEN TORQUE, ASCN OPEN
		FLICKER	OFF	FLICKER	LOST POTENTIOMETER SIGNAL
		FLICKER	ON	OFF	OVER OPEN LIMIT
		FLICKER	OFF	ON	UNDER CLOSE LIMIT
FLICKER	OFF	FLICKER	REVERSE POTENTIOMETER CONNECT		

## Actuator Command & Responses

### 1. Control Order: 1 byte command

#### 1.1 Setting command: bit7 = 0, X = Don't care

Bit								Command	
7	6	5	4	3	2	1	0		
0	0	0	x	x	x	0	0	STOP (On/Off Actuator Only)	
						0	1	OPEN (On/Off Actuator Only)	
						1	0	CLOSE On/Off Actuator Only)	
	0	1	x	x	x	0	0	Auto Setting Cancel (PCU Only)	
						1	0	Auto Setting Start (PCU Only)	
	1	0	x	x	x	x	0	0	Set Normal Direction (CW=CLOSE)
							1	0	Set Reverse Direction (CW=OPEN)
	1	1	x	Value				*Note 1)	

\*Note 1) Dead Band setting

A. Bit0 ~ Bit3 makes from 0(0D=00H) to 7.5%(15D=0FH)

B. One step 0.5%

Ex) Bit0 ~ Bit3

1.5% = 03D = 0011B = 03H

5.0% = 10D = 1010B = 0AH

7.5% = 15D = 1111B = 0FH

#### 1.2. Position command: bit7 = 1

Bit								Command
7	6	5	4	3	2	1	0	
1	Value							*Note 2)

\*Note 2)

A. Use only from Bit0 to Bit6 (7 Bits), it makes 0 to 127.

B. Over then 100, controller recognize 100%

C. Example (only use 7Bits)

0% = 128D = 10000000B = 80H

25% = 153D = 10011001B = 99H

50% = 178D = 10110010B = B2H

75% = 203D = 11001011B = CBH

100% = 228D = 11100100B = E4H

### 2. Responses

#### 2.1 1'st byte (Position Byte)

Bit								Command
7	6	5	4	3	2	1	0	
Value								*Note 3)

#### 2.2 2'nd byte (Fault & Setting): X = Don't care

Bit Number								Description
7	6	5	4	3	2	1	0	
0	x	x	x	x	x	x	x	0: Modulating Mode (PCU)
1								1: On/Off Mode
x	0	x	x	x	x	x	x	0: Quarter Turn Mode
	1							1: Linear Mode
x	x	0	x	x	x	x	x	0: Manual Mode
		1						1: Auto Mode
x	x	x	0	x	x	x	x	0: Normal Status
			1					1: Potentiometer Fault Occurrence
x	x	x	x	Value				*See Note 1)

\*Note 3)

A. Use 8Bits, it makes 0 to 25

B. Controller use 0 to 200, 1 step value 0,5%

C. Example

0% = 00D = 00000000B = 00H

25% = 50D = 00110010B = 32H

50% = 100D = 01100100B = 64H

75% = 150D = 10010110B = 96H

100% = 200D = 11001000B = C8H

Auto Setting = 11111111B = FFH

2.3 3'rd byte (Action & Limit Torque)

Bit Number								Description
7	6	5	4	3	2	1	0	
x	0	0	0	x	x	x	x	Stop
	0	0	1					Opening
	0	1	0					Closing
	0	1	1					Full Open
	1	0	0					Full Close
x	x	x	x	x	x	x	0	Normal Status
							1	Open Limit Switch Trip (Full Open)
x	x	x	x	x	x	x	0	Normal Status
							1	Close Limit Switch Trip (Full Close)
x	x	x	x	x	x	x	0	Normal Status
							1	Open Torque Switch Trip (OTS)
x	x	x	x	x	x	x	0	Normal Status
							1	Close Torque Switch Trip (CTS)

### Profibus DP Interface Card Specification

General:	
Input Voltage (Control Board Only)	85 ~ 265 VAC
Operating Temperature	-20°C ~ +70°C
Max Motor Drive Power	250VAC 16A
Profibus-DP:	
	2 Port Profibus Link
Max Nodes	32 Stations (No Repeater) 126 Stations (With Repeater)
Physical Data Link	RS-485, Multi Drop

BAUD RATE	Max Cable Length	Max Cable Length
	(Segment Length)	(With Repeaters)
9.6kBAUD	1,200m	APPROX. 10km
187.5kBAUD	1.000m	APPROX. 10km
500kBAUD	400m	APPROX. 4km
1.5MBAUD	200m	APPROX. 2km

