NPM
Nippon Pulse
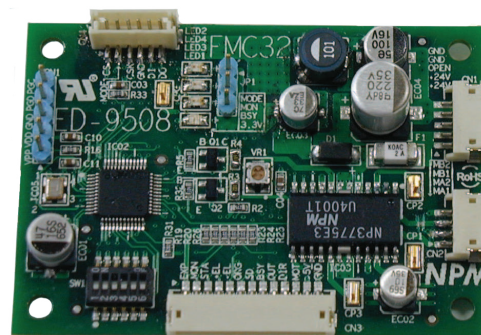### *Your Partner in Motion Control*

FMC32
Control Board

The FMC32, a compact controller with integrated driver, is equipped with a pulse control LSI PCD2112 for controlling a serial bus. Using the FMC32 board with a USB to 4-wire serial conversion unit (PUSB-3503), you can design a series of execution sequence programs and write the designed execution sequence program to the board. The designed execution sequence program can be verified and confirmed on the PC. Users are able to program up to 32 motion profiles with both linear and s-curve patterns.

By using control software, you can monitor the contents of all registers of the PCD2112 in real time. You can use this function to understand the PCD2112 thoroughly.

A CPU is equipped with the FMC32. You can repeat the execution sequence program written to the FMC 32 automatically. If you use a motor and a driver additionally, you can confirm operation in more detail. The FMC32 board has two operational modes, the PC control mode and the standalone control mode.

FMC32, a compact controller with built-in driver			
Input voltage [VM]/Maximum current [A]		DC +24V ±10% / 1.2A	
Integrated driver	Model	NP3775E3	
	Control method	Bipolar constant current operation	
	Excitation method	2 phase excitation (FULL)/1-2 phase excitation (HALF) Selectable by switching SW1 to 4	
	Output current	0.5 A/phase [MAX], changeable by using VR Current-down function after stopped (approximately 50% of setting value) is available.	
	Motor to be used	2 phase bipolar stepper motor	
I/O signal	Input signal	I/F	DC4.5 to 7V photocoupler input, 1KΩ input resistance
		Signal name	MON, STA, +EL, -EL, ORG, SD The ±EL logic can be selected by using DSW1 to 5. The ORG and SD logic can be selected by using software.
	Output signal	I/F	Open collector (74LV07) output Drain applied voltage = 5.5 V MAX
		Signal name	END, PLS, DIR, MOT Built-in driver / output pulses (PCL, DIR) can be selected by using SW 1 to 3.
Operation control IC	Model	PCD2112	
	Reference clock	9.8304 MHz	
	Control method	4-wire serial bus interface	
	Output pulse frequency	2.4 Mpps max	
	Number of positioning pulses	0 to 268,435,455 (28 bits)	
Programming operation	Operation pattern	Available to save up to 32 operation patterns to the nonvolatile memory.	
	Execution sequence program	Available to save up to 256 steps of the execution sequence program to the nonvolatile memory.	
	Create data	Operation pattern and execution sequence program can be designed by the dedicated software. - Process check per operation pattern - Compile program (check descriptive content) - Operation simulation (actual or virtual operation) etc.	
	Save data	Dedicated USB to 4-wire serial conversion unit (PUSB3503)	
Environmental condition	Operating temperature	0 to 50 °C	
	Storage humidity	0 to 80 % RH (No condensation)	
	Storage temperature	-10 to 60°C	
Others	External diameters	65(W) x 45(D) x 17.5(H) [mm]	
	Weight	22g Max (Board only)	
	Cooling method	Natural cooling	
	Accessories	Connector (Housing and connector pin) [JST ZH series] CN1 (for power supply):ZHR-5 CN2 (for motors):ZHR-4 CN3 (for I/O) : ZHR-13 Contact pin: SZH-002T-P0.5 (23 pins)	
	RoHS compatible	This product is compatible with RoHS.	

Features of the FMC32

1. FMC32 can register up to 32 operation patterns (s-curve and linear) and up to 256 steps of execution sequence program in the internal memory and automatically process them in the registered sequence using only the board (without connecting to the PC).

2. To control the operation pattern, the FMC32 board is equipped with the LSI PCD2112 for serial bus pulse control.

3. The FMC32 contains a 2-phase stepper motor driver (NP3775E3) to drive a bipolar stepper motor. The FMC32 has a switch to choose between full step and half step excitation modes.

4. Through the use of a switch, the FMC32 outputs pulses to an external driver.

5. FMC32 contains a DC-DC converter for control power supply, you need only DC +24 to operate this device.

6. Using a dedicated USB to 4-wire serial conversion unit (PUSB-3503), you can write and save operation patterns and execution sequence programs to the nonvolatile memory easily through the USB.

7. If you use the dedicated software, you can design an operation pattern while confirming one operation to be executed. Additionally, you can debug by simulation (actual or virtual operation) after creating the execution sequence program and compiling it (checking the descriptive content).