OMRON

Sysmac Library for NJ/NX/NY Controller

SYSMAC-XR001
MC Test Run Library

Sysmac Library

✔ **Perform precise positioning using an MPG* when teaching and maintaining a machine.**
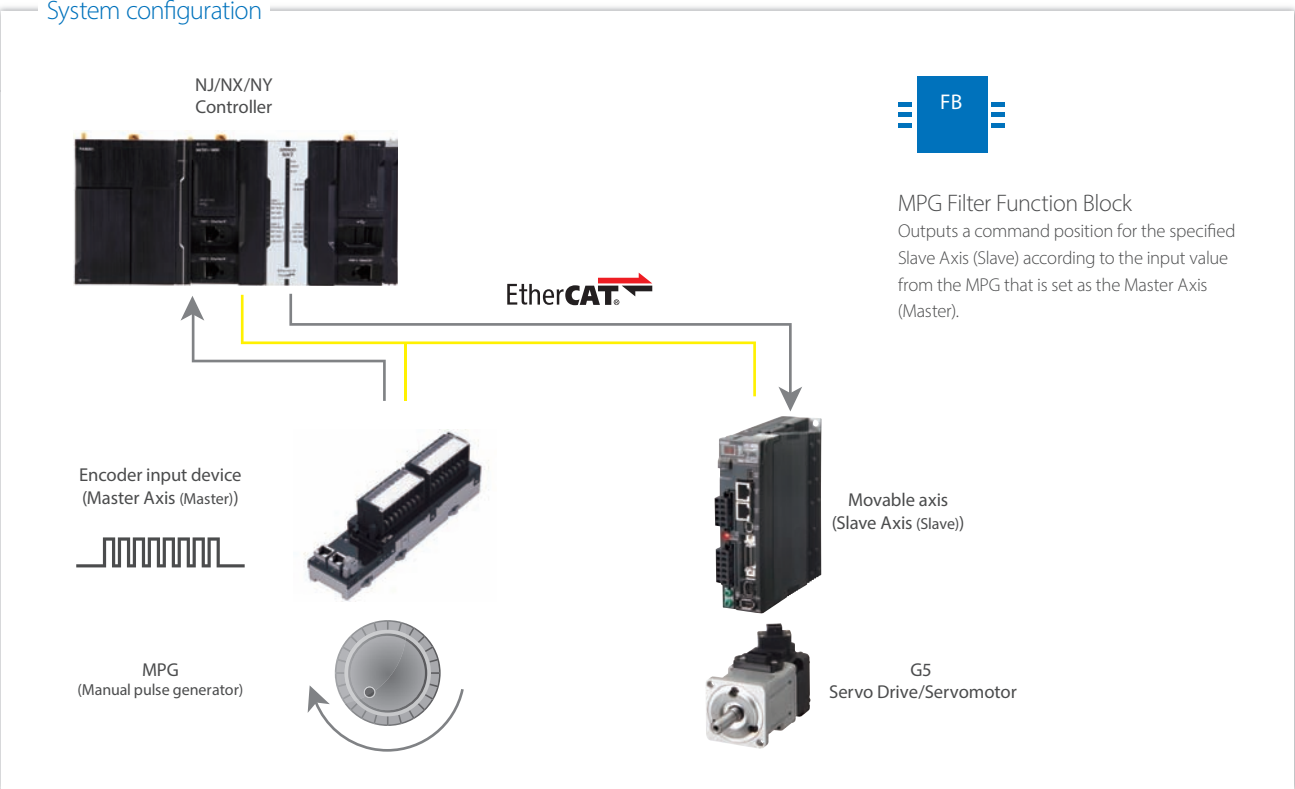
| Issue 1 | A machine vibrates due to fluctuations in the motor rotation speed when the axis is moved using an MPG*. |
| Issue 2 | A complicated filter processing program is required to keep the motor rotation speed constant. |

* MPG is an acronym for manual pulse generator. An MPG is sometimes called a manual handle.

MC Test Run Library offers solution!

Thanks to the MPG Filter Function Block, precise positioning using an MPG can be achieved with simple programming.
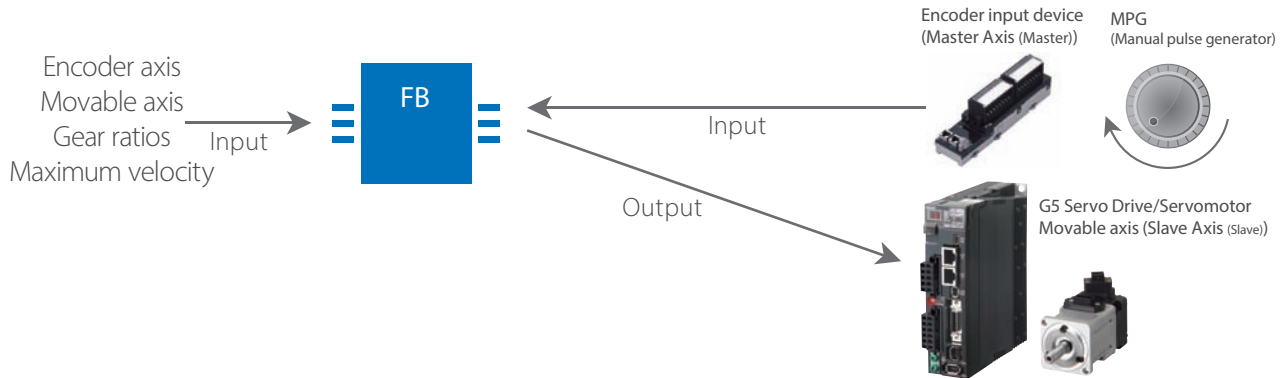
System configuration

NJ/NX/NY
Controller

FB

MPG Filter Function Block
Outputs a command position for the specified Slave Axis (Slave) according to the input value from the MPG that is set as the Master Axis (Master).

EtherCAT.

Encoder input device
(Master Axis (Master))

Movable axis
(Slave Axis (Slave))

MPG
(Manual pulse generator)

G5
Servo Drive/Servomotor

sysmac
always in control

[Example] Manual operation using the MPG Filter Function Block

From
- When an MPG is used, fluctuations in the motor rotation speed cause vibration and noise in the machine.
- A complicated filter processing program is required to keep the motor rotation speed constant.

To
- Precise positioning using an MPG can be achieved with simple programming using the MPG Filter Function Block.
  Input variables specify the gear ratios and maximum velocity.
- The MPG Filter Function Block eliminates the fluctuations in the speed to move the movable axis smoothly, providing precise positioning.

Encoder axis
Movable axis
Gear ratios
Maximum velocity

Input

FB

Input

Output

Encoder input device
(Master Axis (Master))

MPG
(Manual pulse generator)

G5 Servo Drive/Servomotor
Movable axis (Slave Axis (Slave))

Compatible Models

Name	Model	Version
Machine Automation Controller NJ/NX CPU Unit	NX701-1□□□/ NJ101-1□□□	Version 1.10 or later
	NJ501-□□□□/ NJ301-□□□□	Version 1.10 or later
	NX1P2-1□□□□□(1)	Version 1.13 or later
	NX102-□□□□	Version 1.30 or later
	NX502-□□□□	Version 1.60 or later
Industrial PC Platform NY IPC Machine Controller	NY5□□-1	Version 1.12 or later
	NY5□□-5	Version 1.18 or later
Automation Software Sysmac Studio	SYSMAC-SE2□□□	Version 1.14 or higher
G5 Servo Drive with Built-in EtherCAT Communications	R88D-KN□□□-ECT	Version 2.10 or later
Encoder input device	NX-EC□□□□, GX-EC0211/EC0241	Version 2.10 or later
NX-series Pulse Output Unit	NX-PG0□□□	Version 1.10 or later

Function Block (FB) Specifications

Name	FB name	Description
MPG Filter	MPGFilter	Creates a command position for the specified axis according to an MPG input.

Note: Do not use this document to operate the Unit.

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