Mitsubishi MR J3/J4 A

Website: http://www.mitsubishi-automation.com

HMI Setting:

Parameters	Recommended	Options	Notes
PLC type	Mitsubishi MR J3/J4 A		
PLC I/F	RS485 4W	RS232/RS485	
Baud rate	9600	9600~115200	
Parity	Even		
Data bits	8		
Stop bits	1		
PLC sta. no.	0	0~31	

Device Address:

Bit/Word	Device	Format	Range	Memo
B	EIP	DD	0 ~ 31	External input pin status read *3
B	EOP	DD	0 ~ 31	External output pin status read *3
B	SP	D	0 ~ 6	
W	PA	DDDD	1 ~ 1032	Basic Setting *4
W	PB	DDDD	1 ~ 1064	Gain / Filter Setting *4
W	PC	DDDD	1 ~ 1080	Extension Setting *4
W	PD	DDDD	1 ~ 1048	Input / Output Setting *4
W	Status	DD	0 ~ 57	Amplifier Status *1
W	Alarm	D	0 ~ 6	Alarm
W	Alarm_T	D	0 ~ 6	Alarm Time (Hour) *2
W	Mode	D	1 ~ 4	Write Only, Mode Setting *2
W	Speed	D	0 ~ 1	Write Only, Set Current Speed *2
W	Acc	D	0 ~ 1	Write Only, Set Acceleration *2
W	Rotation	D	0 ~ 1	Write Only, Rotation Direction *2
W	End	D	0 ~ 1	Write Only, End *2
W	M_dist	D	0 ~ 1	Write Only, Moving Distance *2
W	Rot_P	D	0 ~ 1	Write Only, Rotation Position *2
W	P_start	D	0 ~ 1	Write Only, Start Positioning *2
W	Cur_Alarm	D	0 ~ 1	Current Alarm
W	PE	DDDD	1 ~ 1064	Extension Setting 2 *4

Bit/Word	Device	Format	Range	Memo
W	PF	DDDD	1 ~ 1048	Extension Setting 3 *4
W	PO	DDDD	1 ~ 1048	Extension Setting 2 *4
W	PS	DDDD	1 ~ 1048	Extension Setting 3 *4
W	PL	DDDD	1 ~ 1048	Extension Setting 2 *4
W	PT	DDDD	1 ~ 1048	Extension Setting 3 *4
DW	POS	DDDD	1 ~ 1255	
DW	SPD	DDDD	1 ~ 1255	
DW	ACT	DDDD	1 ~ 1255	
DW	DCT	DDDD	1 ~ 1255	
DW	DWL	DDDD	1 ~ 1255	
DW	AUX	DDDD	1 ~ 1255	
DW	MCD	DDDD	1 ~ 1255	

Note1： Status information

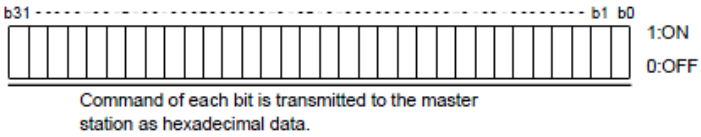
Address	Item
0	Cumulative feedback pulses
1	Servo motor speed
2	Droop pulse
3	Cumulative cmd. Pulses
4	Command pulse frequency
5	Analog speed command voltage
6	Analog torque command voltage
7	Regenerative load ratio
8	Effective load ratio
9	Peak load ratio
10	Instantaneous torque
11	Within one-revolution position
12	ABS conter
13	Load inertia moment ratio
14	Bus voltage
15	Load-side cumulative feedback pulses
16	Load-side droop pulses
17	Load-side encoder information 1
18	Load-side encoder information 2
22	Motor thermistor temperature
23	Motor-side cumu.feedback pulses(before gear)
24	Electrical angle
30	Motor-side / load –side position deviation
31	Motor-side / load –side speed diviation

32	Encoder inside temperature
33	Setting time
34	Oscillation detection frequency
35	Number of tough drive operations
40	Unit power consumption
41	Unit total power consumption

Note2： represents the write-only registers. The usage of this kind of registers is to run Jog Mode and Positioning Mode.
Note3：represents the read-only registers.
Note4：The data in address 1~XX is written to RAM, and the data in address 1001~10XX is written to ROM.

EIP:

The ON/OFF statuses of the input pins are sent back.



Command of each bit is transmitted to the master station as hexadecimal data.

bit	CN1 connector pin
0	43
1	44
2	42
3	15
4	19
5	41
6	16
7	17

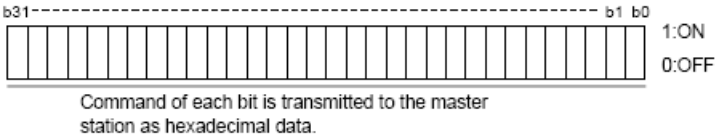
bit	CN1 connector pin
8	18
9	45
10	
11	
12	
13	
14	
15	

bit	CN1 connector pin
16	
17	
18	
19	
20	
21	
22	
23	

bit	CN1 connector pin
24	
25	
26	
27	
28	
29	
30	
31	

EOP:

The slave station sends back the ON/OFF statuses of the output pins.



Command of each bit is transmitted to the master station as hexadecimal data.

bit	CN1 connector pin
0	49
1	24
2	23
3	25
4	22
5	48
6	33
7	

bit	CN1 connector pin
8	
9	
10	
11	
12	
13	
14	
15	

bit	CN1 connector pin
16	
17	
18	
19	
20	
21	
22	
23	

bit	CN1 connector pin
24	
25	
26	
27	
28	
29	
30	
31	

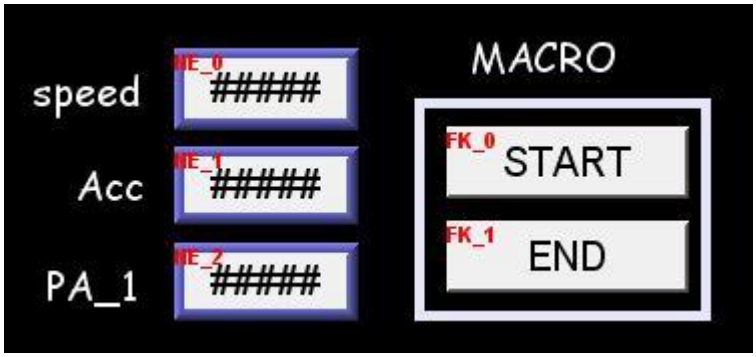
How to use EasyBuilder8000/Easy BuilderPro to run Jog and Positioning Mode

*Jog Mode

To run Jog Mode, please follow the steps listed sequentially:

(1) Set Jog Mode
(2) Set rotation speed
(3) Set acceleration
(4) Set forward / reverse rotation direction
(5) End

The following shows how to run the steps above using Macro in EasyBuilder8000/Easy BuilderPro.



On the editing window of EasyBuilder8000/Easy BuilderPro, the write address of “speed” is set to Local HMI LW0 (the address can be user-defined), and set “Acc” (Acceleration) to LW1.
To run Jog Mode, the communication with the device must be continuous which only allows an interval less than 0.5 seconds, otherwise the motor will be locked. Therefore, in this example, only one register PA_1 is set to read device value.

Macro Demonstration:
a. Start Macro

```
macro_command main()
short speed
short acc
short mode
mode = 1    // This represents Jog Mode.

SetData(mode, "MITSUBISHI MR J3 A", Mode, 1, 1)    // Set driver mode to Jog.

GetData(speed, "Local HMI", LW, 0, 1)    // Save LW0 value to speed.
SetData(speed, "MITSUBISHI MR J3 A", Speed, 0, 1) // Set motor operating speed.
```

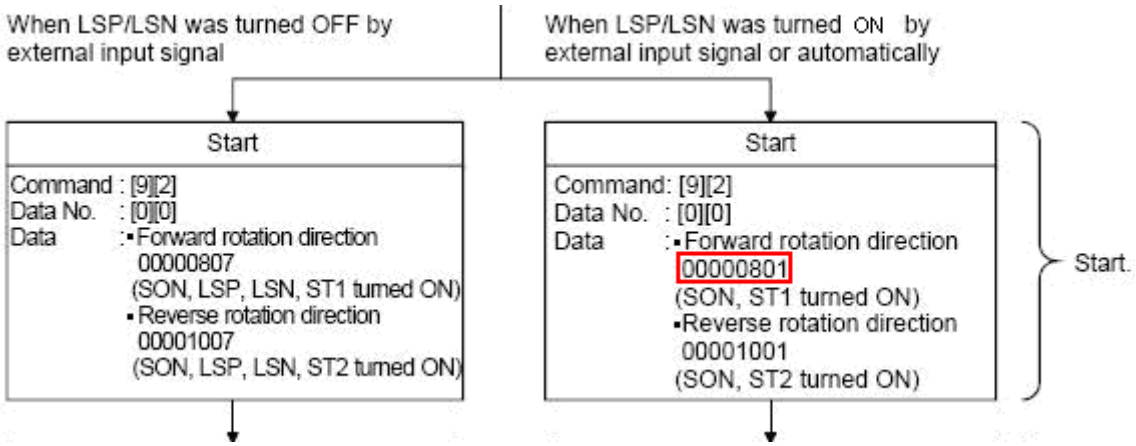
GetData(acc, "Local HMI", LW, 1, 1) //
SetData(acc, "MITSUBISHI MR J3 A", Acc, 0, 1) // Set motor acceleration.

short motion
motion = 0x0801 // Special code, see Note 1.

SetData(motion, "MITSUBISHI MR J3 A", Rotation, 0, 1) // Rotate.

end macro_command

Note 1. Original Factory Manual:



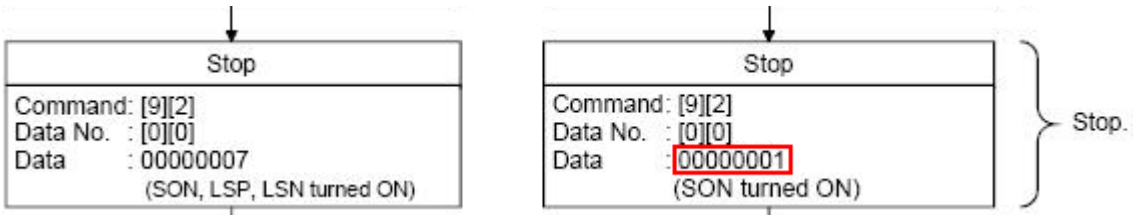
b. End Macro
macro_command main()

short stop
stop = 1 // See Note 2.

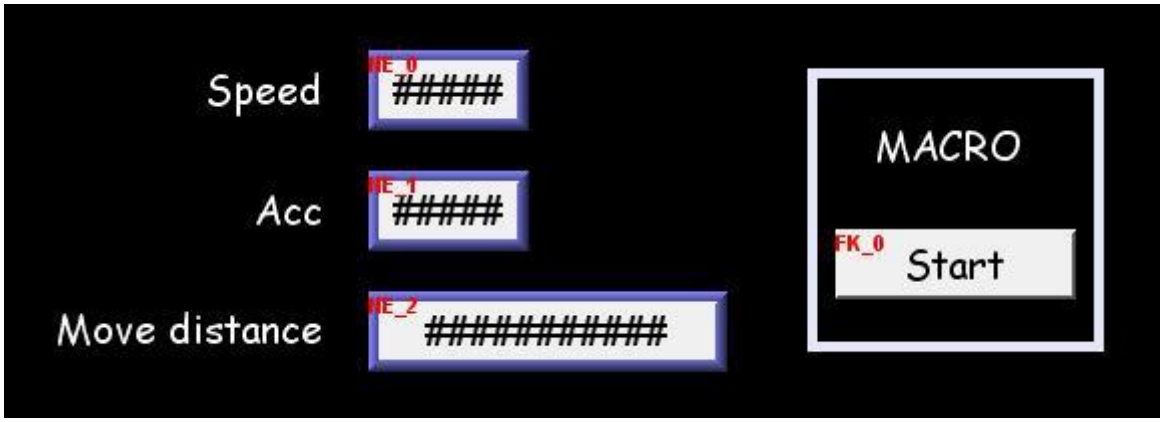
SetData(stop, "MITSUBISHI MR J3 A", End, 1, 1)

end macro_command

Note 2. Original Factory Manual:



*Positioning Mode



On the editing window of EasyBuilder8000/Easy BuilderPro, the write address of “Speed” is set to Local HMI LW2 (the address can be user-defined), and set “Acc” (Acceleration) to LW3, “Move distance” to LW4 (DW format).

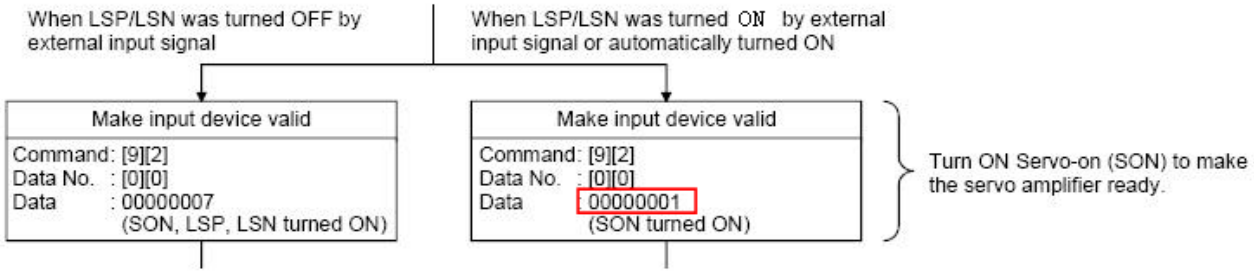
Macro Demonstration:

```
macro_command main()

short mode
mode = 0x2    // Positioning Mode
SetData(mode, "MITSUBISHI MR J3 A", Mode, 1, 1)

short speed
GetData(speed, "Local HMI", LW, 2, 1)
SetData(speed, "MITSUBISHI MR J3 A", Speed, 0, 1)

short acc
GetData(acc, "Local HMI", LW, 3, 1)
SetData(acc, "MITSUBISHI MR J3 A", Acc, 0, 1)

short dist
GetData(dist, "Local HMI", LW, 4, 1)
SetData(dist, "MITSUBISHI MR J3 A", M_dist, 0, 1)

short rot_P
rot_P = 1             // Set to    0: Forward Rotation    1: Reverse Rotation
SetData(rot_P, "MITSUBISHI MR J3 A", Rot_P, 0, 1)

short rotat
rotat = 1     // See Note 3.
SetData(rotat, "MITSUBISHI MR J3 A", Rotation, 0, 1)
```

SetData(rot_P, "MITSUBISHI MR J3 A", P_start, 0, 1) // Start Positioning.

end macro_command

Note 3. Original Factory Manual



Wiring Diagram:

Diagram 1

RS-485 4W

The serial port pin assignments may vary between HMI models, please click the following link for more information.

HMI		PLC
Link		CN3 RS485 4W RJ45 Male
Rx-	← →	4
RX+	← →	5
Tx-	← →	6
Tx+	← →	3
GND	← →	7