

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 |

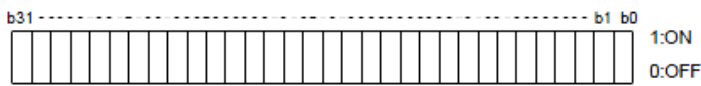
Note2: represents the write-only registers. The usage of this kind of registers is to run Jog Mode and Positioning Mode.

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 | bit | CN1 connector pin | bit | CN1 connector pin | bit | CN1 connector pin |
|-----|-------------------|-----|-------------------|-----|-------------------|-----|-------------------|
| 0 | 43 | 8 | 18 | 16 | | 24 | |
| 1 | 44 | 9 | 45 | 17 | | 25 | |
| 2 | 42 | 10 | | 18 | | 26 | |
| 3 | 15 | 11 | | 19 | | 27 | |
| 4 | 19 | 12 | | 20 | | 28 | |
| 5 | 41 | 13 | | 21 | | 29 | |
| 6 | 16 | 14 | | 22 | | 30 | |
| 7 | 17 | 15 | | 23 | | 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 | bit | CN1 connector pin | bit | CN1 connector pin | bit | CN1 connector pin |
|-----|-------------------|-----|-------------------|-----|-------------------|-----|-------------------|
| 0 | 49 | 8 | | 16 | | 24 | |
| 1 | 24 | 9 | | 17 | | 25 | |
| 2 | 23 | 10 | | 18 | | 26 | |
| 3 | 25 | 11 | | 19 | | 27 | |
| 4 | 22 | 12 | | 20 | | 28 | |
| 5 | 48 | 13 | | 21 | | 29 | |
| 6 | 33 | 14 | | 22 | | 30 | |
| 7 | | 15 | | 23 | | 31 | |

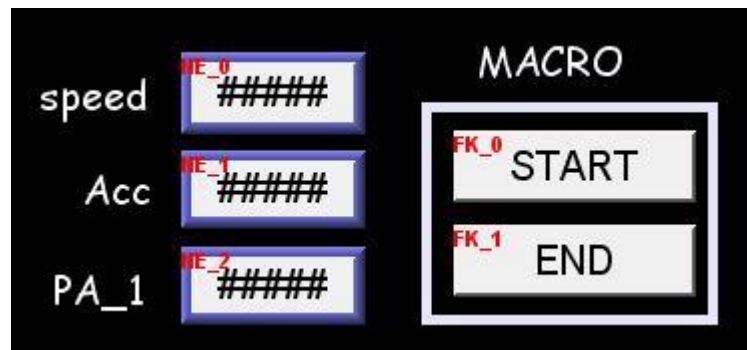
How to use EasyBuilder8000/Easy BuilderPro to run Jog and Positioning Mode

*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.
```

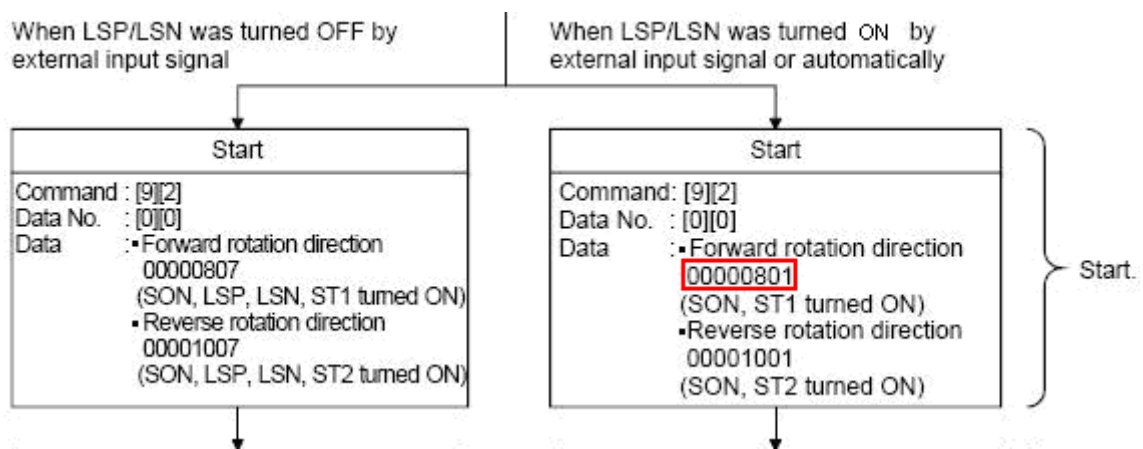
short motion

```
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()
```

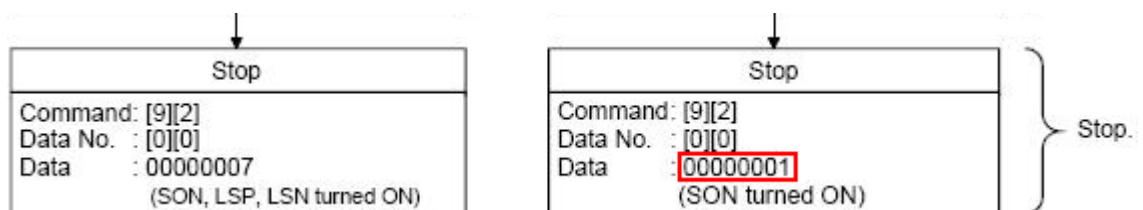
short stop

```
stop = 1 // See Note 2.
```

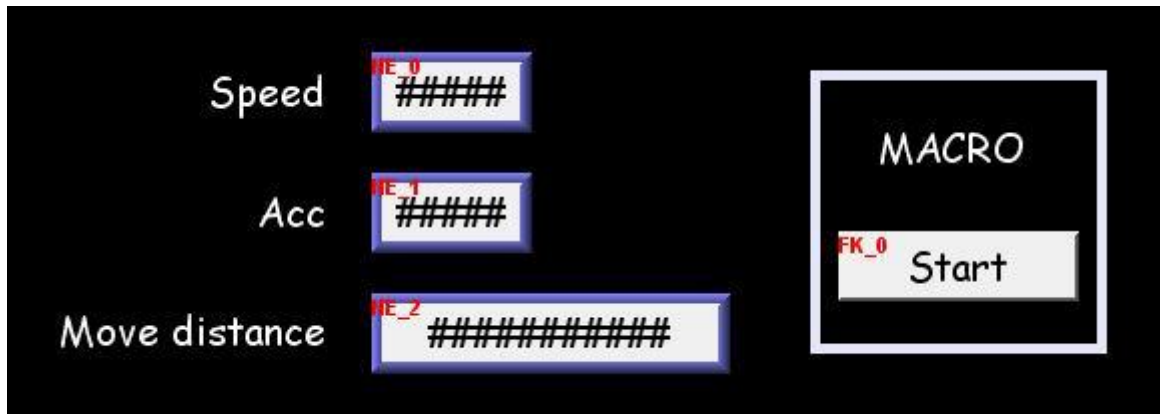
```
SetData(stop, "MITSUBISHI MR J3 A", End, 1, 1)
```

```
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
```

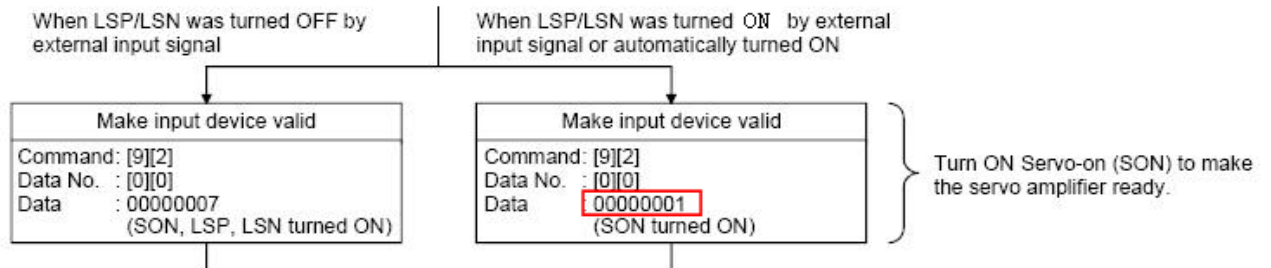
```
rotat = 1 // See Note 3.
```

```
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

| | |
|-------------------|---|
| cMT Series | cMT3151 |
| eMT Series | eMT3070 / eMT3105 / eMT3120 / eMT3150 |
| MT-iE | MT8070iE / MT6070iE / MT8100iE / MT8121iE / MT8150iE |
| MT-XE | MT8121XE / MT8150XE |

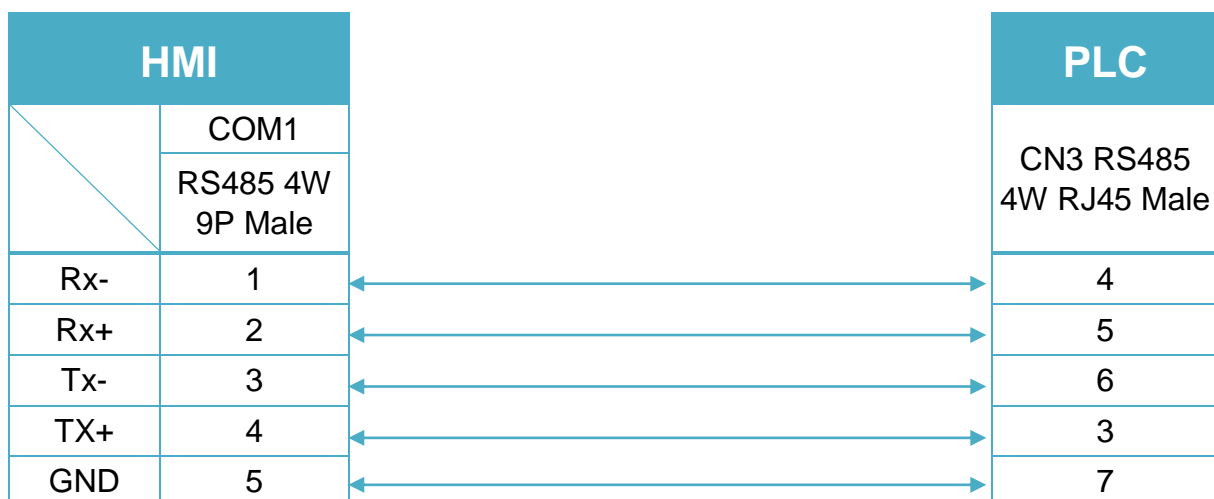


Diagram 2

cMT Series *cMT-SVR / cMT-G01 / cMT-G02 / cMT-HDM / cMT-FHD*

mTV *mTV*

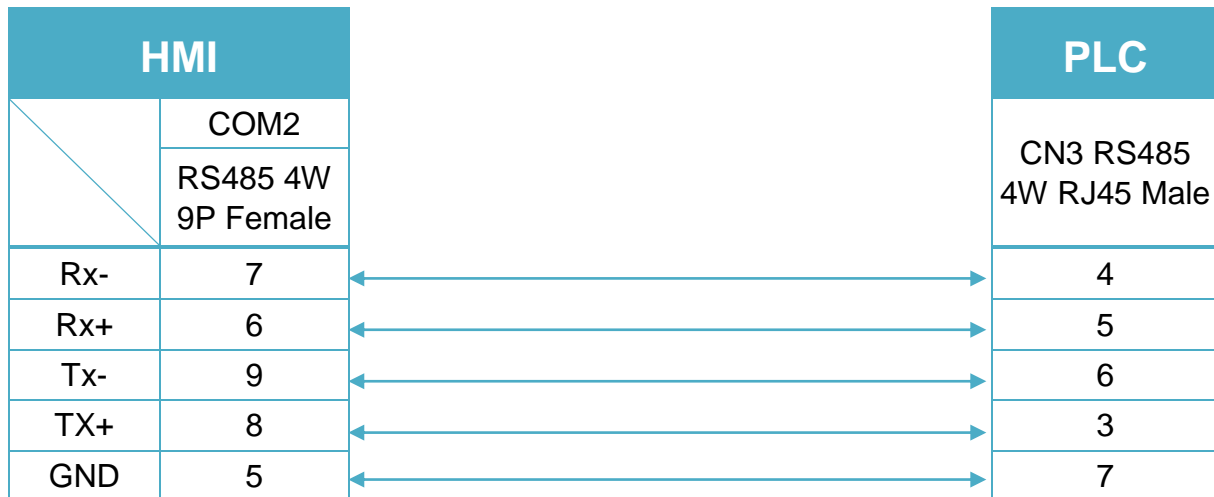


Diagram 3

cMT Series *cMT3071 / cMT3072 / cMT3090 / cMT3103*

MT-iE *MT8071iE / MT6071iE / MT8072iE / MT6072iE / MT8073iE /
MT8101iE / MT8102iE / MT8103iE*

MT-XE *MT8090XE / MT8092XE*

MT-iP *MT6071iP / MT8071iP / MT6103iP / MT8102iP*

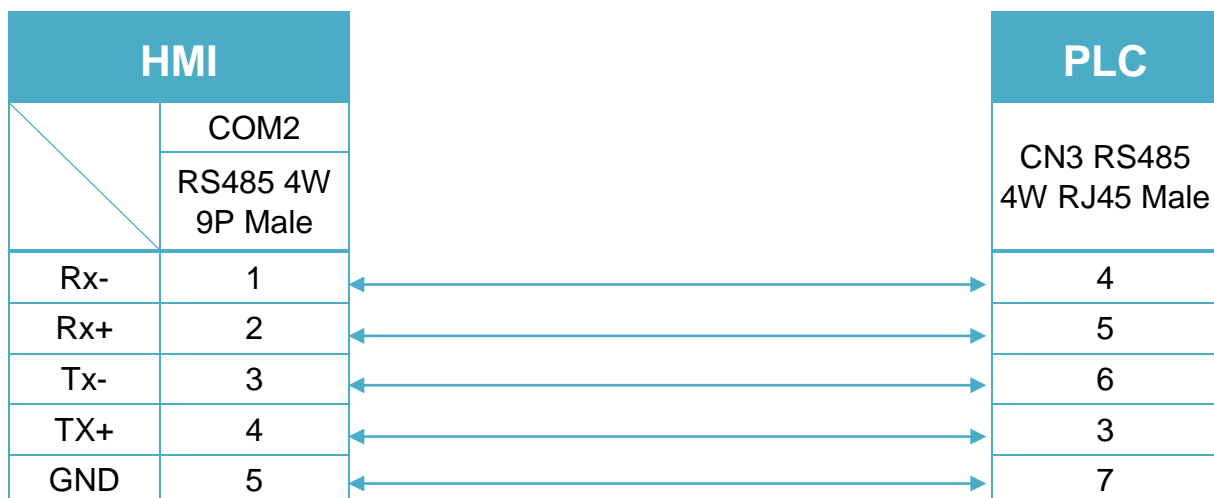


Diagram 4

MT-iE *MT8050iE / MT8053iE*

MT-iP *MT6051iP / MT8051iP*

