

User Manual for Communication

Digital Panel Meter

MP5 Series

MCP-MPC1-V1.2-EN

Thank you for purchasing an Autonics product.

This user manual contains information about the product and its proper use,
and should be kept in a place where it will be easy to access.

Preface

Thank you for purchasing an Autonics product.

Please familiarize yourself with the information contained in the Safety Precautions section before using this product.

This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.

User Manual Guide





- Please familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- A user manual is not provided as part of the product package.
Visit our web site (www.autonics.com) to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, and is subject to change without prior notice.
Upgrade notice is provided through out homepage.
- We contrived to describe this manual more easily and correctly. However, if there are any corrections or questions, please notify us these on our homepage.

Communication Protocol

MP5 Series is accepted to Modbus RTU Protocol.


Users should be aware that it does not support a broadcast command.


User Manual Symbols

| Symbol | Description |
|--|--|
|  Note | Supplementary information for a particular feature. |
|  Warning | Failure to follow instructions can result in serious injury or death. |
|  Caution | Failure to follow instructions can lead to a minor injury or product damage. |
|  Ex. | An example of the concerned feature's use. |
| ※1 | Annotation mark. |

Safety Precautions

- Following these safety precautions will ensure the safe and proper use of the product and help prevent accidents, as well as minimizing possible hazards.
- Safety precautions are categorized as Warnings and Cautions, as defined below:

| | | |
|--|----------------|--|
|  Warning | Warning | Failure to follow the instructions may lead to a serious injury or accident. |
|--|----------------|--|

| | | |
|--|----------------|--|
|  Caution | Caution | Failure to follow the instructions may lead to a minor injury or accident. |
|--|----------------|--|



Warning

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
Failure to follow this instruction may result in fire, personal injury, or economic loss.
- Install on a device panel to use.
Failure to follow this instruction may result in electric shock or fire.
- Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in electric shock or fire.
- Check 'Connections' before wiring.
Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.
Failure to follow this instruction may result in electric shock or fire.



Caution

- When connecting the power/measurement input and relay output, use AWG 24(0.20mm²) to AWG 15(1.65mm²) cable and tighten the terminal screw with a tightening torque of 0.98 to 1.18N·m.
Use proper cables for the rated load current.
Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or product damage.
- Use dry cloth to clean the unit, and do not use water or organic solvent.
Failure to follow this instruction may result in electric shock or fire.
- Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
Failure to follow this instruction may result in fire or explosion.
- Keep metal chip, dust, and wire residue from flowing into the unit.
Failure to follow this instruction may result in fire or product damage.

The specifications of communication manual are subject to change and some models may be discontinued without notice.

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1 Modbus RTU Protocol

Modbus is an industrial protocol developed in 1979 for serial communication between devices. Its functionality has gradually expanded to allow implementation in TCP/IP and UDP environments, and it is now widely used for simple, stable, and efficient communication in various network environments. This protocol has become the standard communication method in industrial automation systems, SCADA (Supervisory Control and Data Acquisition systems), and other industrial networks.

Modbus RTU transmits data in a continuous binary format, making it more efficient and faster than ASCII transmission. The frame structure does not clearly distinguish the start and end, but defines the start and end by leaving a silent interval (3.5 character times) between frames.



For more detailed information about Modbus protocol, refer to the documentation provided by the developer.

1.1 Function Code Frame Structure

1.1.1 01 (0x01) Read Coil Status

Reads the ON/OFF status of output (0X reference, coil) in the slave device.

Request frame (master)

| Frame element | Data size | Description |
|-------------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x01 (Read Coil Status) |
| Starting address | 2-byte | Starting address of the coil to be read |
| Quantity of coils | 2-byte | Number of coils |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a request frame

| Slave address | Function code | Starting address | | Quantity of coils | | CRC check | |
|---------------|---------------|------------------|--------|-------------------|--------|-----------|--------|
| 1-byte | 1-byte | High | Low | High | Low | Low | High |
| | | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte |
| CRC-16 | | | | | | | |

Response frame (slave)

| Frame element | Data size | Description |
|---------------|-----------|---|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x01 (Read Coil Status) |
| Byte count | 1-byte | Number of bytes in the returned data |
| Coil status | N-byte | The status of the requested coils is represented. Each coil's status is represented by 1 bit, and 8 coil statuses are grouped into 1 byte. N = number of coils / 8 If the remainder is not zero when divided by 8: N = N + 1 |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a response frame

| Slave address | Function code | Byte count | Coil status | CRC check | |
|---------------|---------------|------------|-------------|-----------|--------|
| 1-byte | 1-byte | 1-byte | N × byte | Low | High |
| | | | | 1-byte | 1-byte |
| CRC-16 | | | | | |

1.1.2 02 (0x02) Read Input Status

Reads the ON/OFF status of input (1X reference) in the slave device.

Request frame (master)

| Frame element | Data size | Description |
|--------------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x02 (Read Input Status) |
| Starting address | 2-byte | Starting address of the input to be read |
| Quantity of inputs | 2-byte | Number of inputs |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a request frame

| Slave address | Function code | Starting address | | Quantity of inputs | | CRC check | |
|---------------|---------------|------------------|--------|--------------------|--------|-----------|--------|
| 1-byte | 1-byte | High | Low | High | Low | Low | High |
| | | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte |
| CRC-16 | | | | | | | |

Response frame (slave)

| Frame element | Data size | Description |
|---------------|-----------|---|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x02 (Read Input Status) |
| Byte count | 1-byte | Number of bytes in the returned data |
| Input status | N-byte | The status of the requested inputs is represented. Each input's status is represented by 1 bit, and 8 input statuses are grouped into 1 byte. N = number of inputs / 8 If the remainder is not zero when divided by 8: N = N + 1 |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a response frame

| Slave address | Function code | Byte count | Input status | CRC check | |
|---------------|---------------|------------|--------------|-----------|--------|
| 1-byte | 1-byte | 1-byte | N × byte | Low | High |
| | | | | 1-byte | 1-byte |
| CRC-16 | | | | | |

1.1.3 03 (0x03) Read Holding Registers

Reads the binary data of holding registers (4X reference) in the slave device.

Request frame (master)

| Frame element | Data size | Description |
|-----------------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x03 (Read Holding Registers) |
| Starting address | 2-byte | Starting address of the first register to be read |
| Quantity of registers | 2-byte | Number of registers |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a request frame

| Slave address | Function code | Starting address | | Quantity of registers | | CRC check | |
|---------------|---------------|------------------|---------------|-----------------------|---------------|---------------|----------------|
| 1-byte | 1-byte | High 1-byte | Low 1-byte | High 1-byte | Low 1-byte | Low 1-byte | High 1-byte |
| CRC-16 | | | | | | | |

Response frame (slave)

| Frame element | Data size | Description |
|----------------|------------|---|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x03 (Read Holding Registers) |
| Byte count | 1-byte | Number of bytes in the returned data (Number of registers read × 2-byte) |
| Register value | N × 2-byte | The values of the requested registers are represented. Each register is represented by 2 bytes. N is determined by the number of requested registers. |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a response frame

| Slave address | Function code | Byte count | Register value | | CRC check | |
|---------------|---------------|------------|----------------|---------------|---------------|----------------|
| 1-byte | 1-byte | 1-byte | High 1-byte | Low 1-byte | Low 1-byte | High 1-byte |
| CRC-16 | | | | | | |

1.1.4 04 (0x04) Read Input Registers

Reads the binary data of input registers (3X reference) in the slave device.

Request frame (master)

| Frame element | Data size | Description |
|-----------------------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x04 (Read Input Registers) |
| Starting address | 2-byte | Starting address of the first input register to be read |
| Quantity of input registers | 2-byte | Number of input registers |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a request frame

| Slave address | Function code | Starting address | | Quantity of input registers | | CRC check | |
|---------------|---------------|------------------|---------------|-----------------------------|---------------|---------------|----------------|
| 1-byte | 1-byte | High 1-byte | Low 1-byte | High 1-byte | Low 1-byte | Low 1-byte | High 1-byte |
| CRC-16 | | | | | | | |

Response frame (slave)

| Frame element | Data size | Description |
|----------------|------------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x04 (Read Input Registers) |
| Byte count | 1-byte | Number of bytes in the returned data (Number of registers read × 2-byte) |
| Register value | N × 2-byte | The values of the requested input registers are represented. Each register is represented by 2 bytes. N is determined by the number of requested registers. |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a response frame

| Slave address | Function code | Byte count | Register value | | CRC check | |
|---------------|---------------|------------|----------------|---------------|---------------|----------------|
| 1-byte | 1-byte | 1-byte | High 1-byte | Low 1-byte | Low 1-byte | High 1-byte |
| CRC-16 | | | | | | |

1.1.5 05 (0x05) Force Single Coil

Forces a single coil (0X reference) to either ON (0xFF00) or OFF (0x0000) status in the slave device.

Request frame (master)

| Frame element | Data size | Description |
|---------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x05 (Force Single Coil) |
| Coil address | 2-byte | Address of the coil to be forced |
| Force data | 2-byte | Sets or resets the coil. (0xFF00 = ON, 0x0000 = OFF) |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a request frame

| Slave address | Function code | Coil address | | Force data | | CRC check | |
|---------------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|
| 1-byte | 1-byte | High 1-byte | Low 1-byte | High 1-byte | Low 1-byte | Low 1-byte | High 1-byte |
| CRC-16 | | | | | | | |

Response frame (slave)

| Frame element | Data size | Description |
|---------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x05 (Force Single Coil) |
| Coil address | 2-byte | Address of the coil that was forced |
| Force data | 2-byte | The status of the coil is represented. (0xFF00 = ON, 0x0000 = OFF) |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a response frame

| Slave address | Function code | Coil address | | Force data | | CRC check | |
|---------------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|
| 1-byte | 1-byte | High 1-byte | Low 1-byte | High 1-byte | Low 1-byte | Low 1-byte | High 1-byte |
| CRC-16 | | | | | | | |

1.1.6 06 (0x06) Preset Single Register

Writes the binary data to a single holding register (4X reference) in the slave device.

Request frame (master)

| Frame element | Data size | Description |
|------------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x06 (Preset Single Register) |
| Register address | 2-byte | Address of the register to be preset |
| Preset data | 2-byte | Value to be preset |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a request frame

| Slave address | Function code | Register address | | Preset data | | CRC check | |
|---------------|---------------|------------------|--------|-------------|--------|-----------|--------|
| 1-byte | 1-byte | High | Low | High | Low | Low | High |
| | | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte |
| CRC-16 | | | | | | | |

Response frame (slave)

| Frame element | Data size | Description |
|------------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x06 (Preset Single Register) |
| Register address | 2-byte | Address of the register that was preset |
| Preset data | 2-byte | Value preset to the register |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a response frame

| Slave address | Function code | Register address | | Preset data | | CRC check | |
|---------------|---------------|------------------|--------|-------------|--------|-----------|--------|
| 1-byte | 1-byte | High | Low | High | Low | Low | High |
| | | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte |
| CRC-16 | | | | | | | |

1.1.7 16 (0x10) Preset Multiple Registers

Writes the binary data continuously to multiple holding registers (4X reference) in the slave device.

Request frame (master)

| Frame element | Data size | Description |
|-----------------------|------------|---|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x10 (Preset Multiple Registers) |
| Starting address | 2-byte | Starting address of the first register to be preset |
| Quantity of registers | 2-byte | Number of registers to be preset |
| Byte count | 1-byte | Number of bytes for the register values to be preset (Number of registers to be preset × 2-byte) |
| Register values | N × 2-byte | The values of the registers to be preset are represented. N is determined by the number of registers to be preset. |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a request frame

| Slave addr. | Func. code | Starting addr. | | Quantity of registers | | Byte count | Register values | | CRC check | |
|-------------|------------|----------------|--------|-----------------------|--------|------------|-----------------|--------|-----------|--------|
| 1-byte | 1-byte | High | Low | High | Low | 1-byte | High | Low | Low | High |
| | | 1-byte | 1-byte | 1-byte | 1-byte | | 1-byte | 1-byte | 1-byte | 1-byte |
| CRC-16 | | | | | | | | | | |

Response frame (slave)

| Frame element | Data size | Description |
|-----------------------|-----------|--|
| Slave address | 1-byte | Address of the slave device |
| Function code | 1-byte | 0x10 (Preset Multiple Registers) |
| Starting address | 2-byte | Starting address of the first register that was preset |
| Quantity of registers | 2-byte | Number of registers that were preset |
| CRC check | 2-byte | Adds a CRC-16 checksum at the end of the frame to verify data integrity. |

Example of a response frame

| Slave address | Function code | Starting address | | Quantity of registers | | CRC check | |
|---------------|---------------|------------------|--------|-----------------------|--------|-----------|--------|
| 1-byte | 1-byte | High | Low | High | Low | Low | High |
| | | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte | 1-byte |
| CRC-16 | | | | | | | |



Except when downloading parameters with predefined minimum, maximum, or default values based on the input specifications in the PC loader program, it is recommended to use Preset Single Register rather than Preset Multiple Registers when connecting to external devices such as PLCs or graphic panels.

1.2 Exception Handling

In case of a communication error, the slave device sets the highest bit of the received function code to 1 in its response. It then sends only the exception code, without including any data related to the original request.

Exception response frame

| Slave address | Function code + 0x80 | Exception code | CRC check |
|---------------|----------------------|----------------|-----------|
| 1-byte | 1-byte | 1-byte | 2-byte |
| CRC-16 | | | |

Exception codes

| Exception code | Code name | Description |
|----------------|----------------------|--|
| 01 | ILLEGAL FUNCTION | If the command is not supported. |
| 02 | ILLEGAL DATA ADDRESS | If the requested data address is invalid. (e.g. The data address does not exist or the address range is incorrect.) |
| 03 | ILLEGAL DATA VALUE | If the requested data value is invalid. (e.g. The data value is out of the allowable range.) |
| 04 | SLAVE DEVICE FAILURE | If the parameter is locked, communication write is prohibited, or the command cannot be processed correctly. |
| 06 | SLAVE DEVICE BUSY | If the device is in a state where it cannot execute the requested command. |

2 Modbus Mapping Table

2.1 Read coil status (Func 01)

| No(Address) | Func | R/W | Parameter | | Description | Setting range | Note |
|------------------|------|-----|-----------|-----------------------|------------------------|----------------|------|
| 000001(0000) | 01 | R | HH | HH comparative output | Comparative output LED | 0: OFF / 1: ON | |
| 000002(0001) | 01 | R | H | H comparative output | | 0: OFF / 1: ON | |
| 000003(0002) | 01 | R | GO | GO comparative output | | 0: OFF / 1: ON | |
| 000004(0003) | 01 | R | L | L comparative output | | 0: OFF / 1: ON | |
| 000005(0004) | 01 | R | LL | LL comparative output | | 0: OFF / 1: ON | |
| 000006 to 000050 | 01 | R | Reserved | | | | |

2.2 Read input status (Func 02)

| No(Address) | Func | R/W | Parameter | Description | Setting range | Note |
|------------------|------|-----|-----------|-------------|----------------|--------------------|
| 100001(0000) | 02 | R | | RESET(HOLD) | External input | RESET input status |
| 100002(0001) | 02 | R | | BANK | variables | BANK input status |
| 100003 to 100050 | 02 | R | Reserved | | | |

2.3 Read input registers (Func 04)

| No(Address) | Func | R/W | Parameter | Description | Factory default | Note |
|------------------|------|-----|-----------|-------------------------------|-----------------|--|
| 300001 to 300100 | 04 | R | Reserved | | | |
| 300101(0064) | 04 | R | | Product number H | 0 | Dedicated model number |
| 300102(0065) | 04 | R | | Product number L | 0 | |
| 300103(0066) | 04 | R | | Hardware version | 1 | |
| 300104(0067) | 04 | R | | Software version | 1 | |
| 300105(0068) | 04 | R | | Model 1 | "MP" | MP5Y-□5, MP5W-□8 (※MP5W-□9 displayed as MP5W-□8) |
| 300106(0069) | 04 | R | | Model 2 | "5□" | |
| 300107(006A) | 04 | R | | Model 3 | "-□" | |
| 300108(006B) | 04 | R | | Model 4 | "□" | |
| 300109(006C) | 04 | R | | Model 5 | " " | |
| 300110(006D) | 04 | R | | Model 6 | " " | |
| 300111(006E) | 04 | R | | Model 7 | " " | |
| 300112(006F) | 04 | R | | Model 8 | " " | |
| 300113(0070) | 04 | R | | Model 9 | " " | |
| 300114(0071) | 04 | R | | Model 10 | " " | |
| 300115(0072) | 04 | R | Reserved | | | |
| 300116(0073) | 04 | R | Reserved | | | |
| 300117(0074) | 04 | R | Reserved | | | |
| 300118(0075) | 04 | R | | Coil Status Start Address | 0000 | |
| 300119(0076) | 04 | R | | Coil Status Quantity | 0 | |
| 300120(0077) | 04 | R | | Input Status Start Address | 0000 | |
| 300121(0078) | 04 | R | | Input Status Quantity | 0 | |
| 300125(007C) | 04 | R | | Holding Register | 0000 | |

| No(Address) | Func | R/W | Parameter | Description | Factory default | Note |
|------------------|------|-----|-----------|-------------------|--|-------|
| | | | | Start Address | | |
| 300126 to 300200 | 04 | R | Reserved | | | |
| No(Address) | Func | R/W | Parameter | Description | Setting range | Note |
| 301001(03E8) | 04 | R | HH | HH LED Display | 0: OFF / 1: ON | 0-bit |
| | | | H | H LED Display | 0: OFF / 1: ON | 1-bit |
| | | | GO | GO LED Display | 0: OFF / 1: ON | 2-bit |
| | | | L | L LED Display | 0: OFF / 1: ON | 3-bit |
| | | | LL | LL LED Display | 0: OFF / 1: ON | 4-bit |
| 301002(03E9) | 04 | R | PV | Measurement value | -19999 to 99999 | |
| 301003(03EA) | | | | | | |
| 301004(03EB) | 04 | R | DOT | Decimal point | 0: 00000 1: 000)0 2: 00)00 3: 0)000 4:)0000 | |
| 301005(03EC) | 04 | R | UNIT | Time range | 0: 999.99s 1: 9999.9s 2: 99m 59.9s 3: 9h 59m 59s 4: 99999s 5: 999.99m 6: 9999.9m 7: 99h 59.9m 8: 999h 59m 9: 99999m | |
| 301006(03ED) | 04 | R | MODE | Operation mode | 0: F1 / 1: F2 / 2: F3 / to / 14: F15 / 15: F16 | |

2.4 Read holding registers (Func03) / Preset single register (Func 06) / Preset multiple registers (Func 16)

2.4.1 Comparative value settings and peak value check group

| No(Address) | Func | R/W | Parameter | Description | Setting range | Factory default |
|------------------|----------|-----|-----------------|-----------------------------------|---------------|-----------------|
| 400001(0000) | 03/16 | R/W | PStHH Preset HH | HH comparative value | 0 to 99999 | 99999 |
| 400002(0001) | | | | | | |
| 400003(0002) | 03/16 | R/W | PSt H Preset H | H comparative value | 0 to 99999 | 99999 |
| 400004(0003) | | | | | | |
| 400005(0004) | 03/16 | R/W | PSt L Preset L | L comparative value | 0 to 99999※1 | 00000 |
| 400006(0005) | | | | | | |
| 400007(0006) | 03/16 | R/W | PStLL Preset LL | LL comparative value | 0 to 99999※1 | 00000 |
| 400008(0007) | | | | | | |
| 400009(0008) | 03/16 | R/W | hPEK High Peak | High peak value of measured value | 99999※2 | - |
| 400010(0009) | | | | | | |
| 400011(000A) | 03/16 | R/W | IPEK Low Peak | Low peak value of measured value | -19999※2 | - |
| 400012(000B) | | | | | | |
| 400013 to 400050 | 03/06/16 | R/W | Reserved | | | |

※1. In operation modes F8, F10, F14, F15, the setting range is -19999 to 99999

※2. Max./Min. measurement value

2.4.2 Parameter 1 group

| No(Address) | Func | R/W | Parameter | | Description | Setting range | Factory default | | |
|------------------|----------|-----|-----------|----------------|-----------------------------------|--|-----------------|--|--|
| 400051(0032) | 03/06/16 | R/W | MODE | Mode | Input operation mode | 0: F1 / 1: F2 / 2: F3 / to / 14: F15 / 15: F16 | 0 | | |
| 400052(0033) | 03/06/16 | R/W | IN-A | Input A | Sensor type | 0: NPnhF 1: NPnmF 2: NPnIF 3: PNphF 4: PNpmF 5: PNplF | 0 | | |
| 400053(0034) | 03/06/16 | R/W | IN-B | Input B | | | | | |
| 400054(0035) | 03/06/16 | R/W | OUT-T | Output type | Output mode | 0: STARD 1: OUT-H 2: OUT-L 3: OUT-B 4: OUT-I 5: OUT-F | 0 | | |
| 400055(0036) | 03/06/16 | R/W | HYS | Hysteresis | Hysteresis value | 1 to 9999 | 1 | | |
| 400056(0037) | 03/06/16 | R/W | GUArD | Output limit | Output limit function | 0: fDEFY 1: STArT | 0 | | |
| 400057(0038) | 03/06/16 | R/W | STArT | Start limit 設定 | Start compensation timer value | 0.0 to 99.9 | 0.0 | | |
| 400058(0039) | 03/16 | R/W | AUToA | Auto-zero A | Auto-zero time | 0.1 to 9999.9 | 9999.9 | | |
| 400059(003A) | 03/16 | R/W | | | | | | | |
| 400060(003B) | 03/16 | R/W | AUToB | Auto-zero B | | | | | |
| 400061(003C) | 03/16 | R/W | | | | | | | |
| 400062(003D) | 03/06/16 | R/W | MEMO | Memory | Memory retention | 0: OFF 1: ON | 0 | | |
| 400063 to 400100 | 03/06/16 | R/W | Reserved | | | | | | |

2.4.3 Parameter 2 group

| No(Address) | Func | R/W | Parameter | | Description | Setting range | Factory default |
|------------------|----------|-----|-----------|---------------------|---------------------------|--|-----------------|
| 400101(0064) | 03/06/16 | R/W | pBANK | Data bank | Data bank | 0: 1 1: 2 | 0 |
| 400102(0065) | 03/06/16 | R/W | DOT | Dot | Decimal point | 0: 00000 1: 000)0 2: 00)00 3: 0)000 4:)0000 | 0 |
| 400103(0066) | 03/06/16 | R/W | tUNT | Time unit | Time unit | 0: tSEC 1: tMIN | 0 |
| 400104(0067) | 03/06/16 | R/W | tSEC | Time sec | Time range | 0: 99(99 999.99s 1: 999(9 9999.9s 2: 9(5(9 99m 59.9s 3: (5(59 9h 59m 59s 4: 99999 99999s 5: 99(99 999.99m 6: 999(9 9999.9m 7: 9(5(9 99h 59.9m 8: 99(59 999h 59m 9: 99999 99999m | 0 |
| 400105(0068) | 03/16 | R/W | PStHH | Preset HH | HH comparative value | 0 to 99999 | 99999 |
| 400106(0069) | 03/16 | R/W | | | | | |
| 400107(006A) | 03/16 | R/W | PSt H | Preset H | H comparative value | 0 to 99999 | 99999 |
| 400108(006B) | 03/16 | R/W | | | | | |
| 400109(006C) | 03/16 | R/W | PSt L | Preset L | L comparative value | 0 to 99999※1 | 0 |
| 400110(006D) | 03/16 | R/W | | | | | |
| 400111(006E) | 03/16 | R/W | PStLL | Preset LL | LL comparative value | 0 to 99999※1 | 0 |
| 400112(006F) | 03/16 | R/W | | | | | |
| 400113(0070) | 03/16 | R/W | PScaH | Prescale A Mantissa | Prescale A mantissa | 0.0001 to 9.9999 | 6.0000 |
| 400114(0071) | 03/16 | R/W | | | | | |
| 400115(0072) | 03/06/16 | R/W | PScaY | Prescale A Exponent | Prescale A exponent | 00 to 09: +(0 to 9) 10 to 19: -(0 to 9) | 01 |
| 400116(0073) | 03/16 | R/W | PScbH | Prescale B Mantissa | Prescale B mantissa | 0.0001 to 9.9999 | 6.0000 |
| 400117(0074) | 03/16 | R/W | | | | | |
| 400118(0075) | 03/06/16 | R/W | PScbY | Prescale B Exponent | Prescale B exponent | 00 to 09: +(0 to 9) 10 to 19: -(0 to 9) | 01 |
| 400119(0076) | 03/06/16 | R/W | DISpT | Display time | Display cycle | 0: OFF 1:)05 2:)5 3: 1 4: 2 5: 4 6: 8 | 1 |
| 400120(0077) | 03/16 | R/W | COUnB | INB Setting value | Operation mode F16 INB | 1 to 99999 | 99999 |
| 400121(0078) | 03/16 | R/W | | | | | |
| 400122 to 400150 | 03/06/16 | R/W | Reserved | | | | |

※1. In operation modes F8, F10, F14, F15, the setting range is -19999 to 99999

2.4.4 Parameter 3 group

| No(Address) | Func | R/W | Parameter | Description | Setting range | Factory default |
|------------------|----------|-----|-----------|------------------------------------|--|-----------------|
| 400151(0096) | 03/16 | R/W | FS-H | Full scale High | High-limit value of PV transmission output Setting range varies by model and operation mode*1 | 99999 |
| 400152(0097) | | | FS-L | Full scale Low | | 0 |
| 400153(0098) | 03/16 | R/W | MA | mA | Transmission output spec. 0: 4-20(mA) 1: 0-20(mA) | 0 |
| 400154(0099) | | | ADDR | Unit address | | 1 |
| 400155(009A) | 03/06/16 | R/W | BPS | Bits per sec | Communication Speed 0: 2400 1: 4800 2: 9600 3: 19200 4: 38400 | 2 |
| 400156(009B) | 03/06/16 | R/W | PRTY | Parity bit | Communication parity bit 0: NONE 1: EVEN 2: ODD | 0 |
| 400157(009C) | 03/06/16 | R/W | STP | Stop bit | Communication stop bit 0: 1 1: 2 | 1 |
| 400158(009D) | 03/06/16 | R/W | RSwT | Response waiting time | Communication response waiting time 5 to 99(ms) | 20 |
| 400159(009E) | 03/06/16 | R/W | COMW | Communication write enable/disable | 0: DISA 1: ENA | 0 |
| 400160(009F) | 03/06/16 | R/W | LOC | Lock | Lock 0: OFF 1: LOc0 2: LOc1 3: LOc2 4: LOc3 | 0 |
| 400161(00A0) | 03/06/16 | R/W | Reserved | | | |
| 400162(00A1) | 03/06/16 | R/W | | | | |
| 400163 to 400200 | 03/06/16 | R/W | | | | |

※1. High-limit/low-limit setting value of PV transmission output.
(varies by model and operation mode)

| Series | Operation mode | Setting range |
|--------|------------------------------------|------------------------|
| MP5Y | F1, F2, F7, F9, F11, F12, F13, F16 | 0 to 99999 |
| | F3, F4, F5, F6 | 0.01 to set time range |
| MP5W | F8, F10, F14, F15 | -19999 to 99999 |

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* Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.