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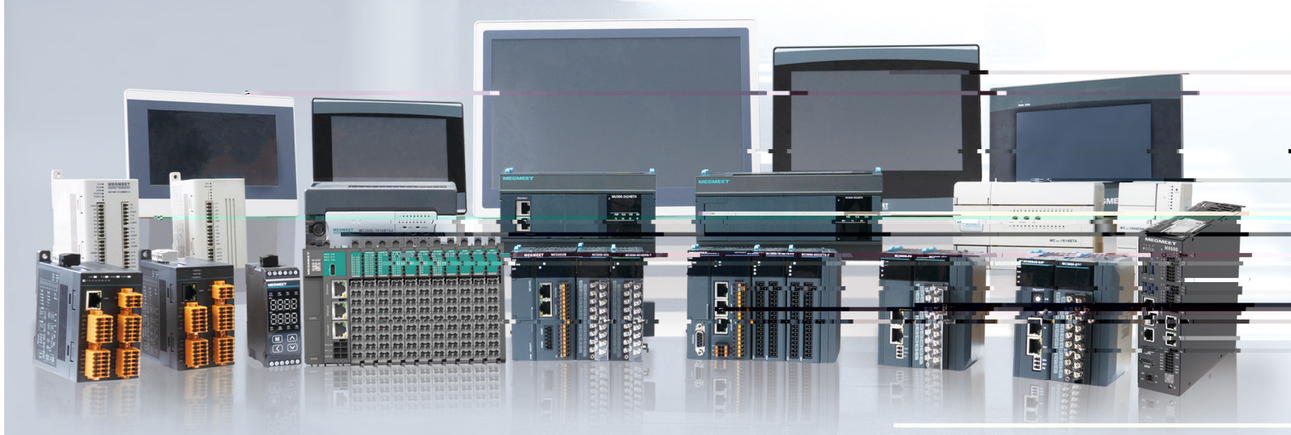
# CONTROL SYSTEM

## SELECTION BROCHURE

PLC Thermostat HMI



Global Leading Solution Provider In Electrical Automation

# Contents


## Medium PLC

MX600 Series
MC8000 Series*
MC6000 Series
MC5000 Series

## Small PLC

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MU200 Series
MC700 Series
MC280/MC200E Series
MC200 Series
MC100 Series

## Remote I/O Module

MR400 Series
MC5000S Series

## Temperature Controller

MQT Series
MTC/MTCW/MTCV Series
MTCE Series
MCAS Series
MDT Series

## Cable List

Cable List

## HMI

MZ800 Series

MX600 series intelligent controller breaks through the 256-axis μs-level synchronous control, supports EtherCAT, EtherNET / IP, ProfiNet and other bus protocols, and the redundant architecture ensures 99.999 % extreme condition stability. It covers high-precision scenarios such as lithium battery winding, semiconductor, photovoltaic, etc., and synchronously meets the ms-level sequential control requirements of 3C assembly, five-axis machining and high-speed packaging.

## Product Feature

[redacted]

[redacted]

- Support 16-axis/250us, 64-axis/500us and 256-axis/2ms sync cycles, and 20us jitter to ensure high-precision control.

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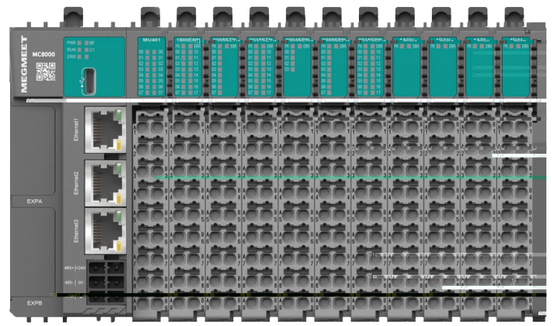
MC8000 series product is a new generation of high-performance and cost-effective medium PLC based on the mOPAX platform of MEGMEET. It is fully compatible with the IEC61131-3 programming specification and supports LD, ST, SFC, CFC, FBD, and IL programming languages; adopts the blade-type module design, and supports multi-core processor. Based on multi-bus protocols such as EtherCAT and Profinet, a multi-axis motion control system is constructed, to meet the high-speed response requirements of intelligent devices.




## Product Feature

### Strong expansion & networking

- Expand up to 32 modules, support the expansion of digital, analog, CAN, RS485, RS232, etc.
- Full protocol compatibility, support Modbus/ EtherCAT/EtherNet IP/Profinet and others.

### Reliably excellent performance

- Four-core A55 processor, communication, logic and algorithm are completely independent.
- 8*200K high-speed input, 8*200K pulse output (single pulse, pulse + direction, AB phase, FWD+REV, etc.)

### Precise Multi-axis control

- 1ms/16-axis sync, support 16/32/64-axis EtherCAT control

### Flexible & convenient operation

- 12mm machine body, saving space
- PUSH In terminal, easily wiring and replacing without tools

### Ultra-large capacity

- Support 10M program capacity, 20M data capacity, 512KB retention, for complex logic and data processing

conforms to PLCopen specification and IEC61131-3 standard.

Built-in 200KHz high-speed I/O(8 * DI+8 * DO)

16MB program capacity, 16MB data capacity, 256MB storage capacity, 64KB+4KB retention on power down

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■ μ
■ Based on pulse output: 2M difference 100K collector, 8PO expansion, control up to 38 pulse axis

and 100K-step standard program executes no more than 2.2ms

320K-step program capacity, 2M Byte C language, 2M Byte data capacity

MC5 0 0 0 E A 16

0 Bus controller
1 Pulse controller
2 General controller

0 Cluster terminal
1 Euroblock

M: MECHATROLINK-III*
C: CANopen*
P: Profibus*

B: 4-axis collector 200K pulse output

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E-gear and other control function, to achieve high-speed operation and efficient communication, flexible configuration and

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- Support 8-channel 200K high-speed pulse output and single-phase pulse count, or 4-channel 100K AB-phase, CW/CCW, pulse+direction
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- μ
- Communication port: 1*EtherCAT+2*EtherNet,
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MU200 new generation of small PLC uses ARM+FPGA dual-core processor for the powerful processing function,

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- Support up to 12-channel 200K high-speed pulse output
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- Convenient hardware configuration
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※MC280-specific function

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- Program capacity: 12K
- μ

- Input filter protection and power loss protection

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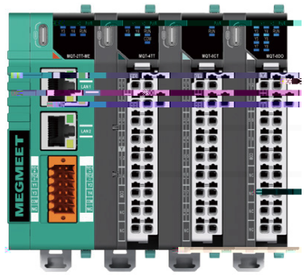
modules flexibly and integrating internal intelligent PID algorithm; it has the advantages of cascade, high precision,

- High precision:
- High performance:
- Strong function:
- Simple installation:
- Complete module:




| Item | Description | |
|---|---|---|
| Power supply | 24VDC -15% ~ 20% | |
| Signal input | Input type | Thermocouple K J E N T R B For all channel |
| | | Thermal resistance Pt100 JPt100 Cu100 Ni120 For all channel |
| | Precision | Thermocouple 0.15% Full scale + cold compensation |
| | | Thermal resistance 0.3% Full scale |
| | Sampling cycle | 25ms/channel 100ms/8 channels 100ms/4 channels |
| Control output | Output form | Transistor output (SSR drive output), relay output, current output, voltage output |
| | Control action | Manual, ON / OFF, single PID, heating & cooling PID, position proportional PID |
| Alarm output | Alarm form | 14 alarms, such as upper and lower limit alarm, deviation alarm and so on. |
| | Output form | Transistor and relay output (output state can be directly controlled by writing registers) |
| | Output channel | 8 channels |
| Digital input | Input form | Transistor input |
| | Input channel | 4 channels |
| Control cycle | 0.1s - 10s or 1s - 100s | |
| Acquisition channel | 4 channels and 8 channels | |
| Isolation | Exist between power and communication, power and channel, communication and channel, channel and channel | |
| Communication port | RS485/Modbus-TCP/EtherNet/EtherCAT/Profinet | |
| Generals | Ambient temperature | Working: -20 ~ 60 °C, storage: -40 ~ 70 °C |
| | Ambient humidity | Working: 10 ~ 90 % RH (no condensation), keeping: 5 ~ 95 % RH (no condensation) |
| | Altitude | Below 2000m |
| | Protection level | IP20 |
| C & S | Conform to IEC/EN 61326-1 For use in industrial locations CE | |

| Model | Acquisition channel | Temperature control output | Alarm output | Input type |
|---|---|---|---|---|
| Communication module | | | | |
| MQT-2TT-ME | 2-CH | Modbus TCP/IP/Ethernet | Transistor(4-CH) | TC |
| MQT-2RT-ME | 2-CH | Modbus TCP/IP/Ethernet | Transistor(4-CH) | RTD |
| MQT-2TT-ET | 2-CH | EtherCAT | Transistor(4-CH) | TC |
| MQT-2RT-ET | 2-CH | EtherCAT | Transistor(4-CH) | RTD |
| MQT-2TT-RS | 2-CH | Modbus RS485 | Transistor(4-CH) | TC |
| MQT-2RT-RS | 2-CH | Modbus RS485 | Transistor(4-CH) | RTD |
| MQT-2TT-PN | 2-CH | Profinet | Transistor(4-CH) | TC |
| MQT-2RT-PN | 2-CH | Profinet | Transistor(4-CH) | RTD |
| Temperature control module | | | | |
| MQT-4TT | 4-CH | Modbus RS485 | Transistor(4-CH) | TC |
| MQT-4TA | 4-CH | Modbus RS485 | Analog(4-CH) | TC |
| MQT-4TR | 4-CH | Modbus RS485 | Relay(4-CH) | TC |
| MQT-4RT | 4-CH | Modbus RS485 | Transistor(4-CH) | RTD |
| MQT-4RA | 4-CH | Modbus RS485 | Analog(4-CH) | RTD |
| MQT-4RR | 4-CH | Modbus RS485 | Relay(4-CH) | RTD |
| Expansion module | | | | |
| MQT-8DI | 8-CH | 8-channel digital input | - | Digital (8-CH) |
| MQT-8DO | 8-CH | 8-channel digital output | Digital (8-CH) | - |
| MQT-8CT | 8-CH | 8-channel current detection | - | Transformer current |
| MQT-8DM | 8-CH | 4-channel digital input, 4-channel digital output | Digital (4-CH) | Digital (4-CH) |
| MQT-8AI | 8-CH | 8-channel analog current input | - | Analog (8-CH) |
| MQT-8AV | 8-CH | 8-channel analog voltage input | - | Analog (8-CH) |
| MQT-8AO | 8-CH | 8-channel analog output | Analog (8-CH) | - |

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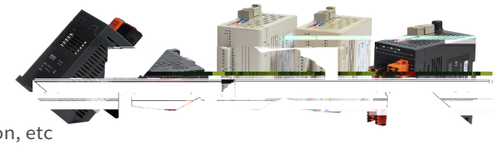
MTC/MTCW/MTCV series products are multi-channel and high-precision temperature controllers, which are suitable for various occasions of temperature control. Its main feature is compatible with TC and RTD, high measure accuracy; high integration (one module supports up to 12 channels of temperature control and 16 channels of measurement), space saving, easy data exchange, remote monitoring, and high cost performance.



**Dedicated software:** Provide special software - MtcCompanion

**Dual-PID function:** Heating&cooling dual-PID control function, 14 alarms like upper and lower limits, deviation, etc

**High precision** Intelligent self-tuning and multi-stage temperature setting functions to achieve high-precision temperature control

**Multi-way control** Integrated multi-channel temperature control to centralize data management

**Easy exchange** Data exchange easily between thermostat and PLC, thermostat and HMI, thermostat and computer through Ethernet and serial port

| Item | | Description |
|---|---|---|
| Power supply | | 24VDC -15% ~ 20% |
| Signal input | Input type | Thermocouple K J E N T R B For all channel |
| | | Thermal resistance Pt100 JPt100 Cu100 Ni120 For all channel |
| | Precision | Thermocouple 0.2% Full scale + cold compensation Thermal resistance 0.3% Full scale) |
| | Sampling cycle | 25ms/channel 100ms/8 channels 100ms/4 channels |
| | Output form | Transistor output (SSR drive output), relay output, current output, voltage output |
| Control output | Control action | Manual, ON / OFF, single PID, heating & cooling PID, position proportional PID |
| | Alarm form | 14 alarms, such as upper and lower limit alarm, deviation alarm and so on. |
| Alarm output | Output form | Transistor and relay output (output state can be directly controlled by writing registers) |
| | Output channel | 8 channels |
| IO input | Input form | Transistor input |
| | Input channel | 4 channels |
| Control cycle | | 0.1s - 10s or 1s - 100s |
| Acquisition channel | | 4 channels and 8 channels |
| Isolation | | Exist between power and communication, power and channel, communication and channel, (MTCV)channel and channel |
| Communication port | | MTC/MTCV: One isolated RS485 serial port; support MODBUS slave and MCBUS slave protocol<br>MTCW: One isolated + one non-isolated RS485 serial port, one Ethernet port; support MODBUS slave protocol |
| Generals | Ambient temperature | Working: -20 ~ 60 °C, storage: -40 ~ 70 °C |
| | Ambient humidity | Working: 10 ~ 90 % RH (no condensation), keeping: 5 ~ 95 % RH (no condensation) |
| | Altitude | Below 2000m |
| | Protection level | IP20 |
| C & S | | Conform to IEC/EN 61326-1 For use in industrial locations UL61010-1 CE UL |

## MTC series

| Model | Acquisition channel | Tee в р а т ў ىقي | א כ ، r ، A (/ | |
|---|---|---|---|---|
| MTC-04-NT | 4-CH | Transistor (4-CH) | Flag bit | TC, RTD |
| MTC-08-NT | 8-CH | Transistor (8-CH) | Flag bit | TC, RTD |
| MTC-04-NTT | 4-CH | Transistor (4-CH) | Transistor(8-CH), flag bit | TC, RTD |
| MTC-04-NTR | 4-CH | Transistor (4-CH) Relay (8-CH) | Relay(8-CH), flag bit | TC, RTD |
| MTC-04-NVT | 4-CH | Transistor (4-CH)<br>Current(8-CH 0-20mA or 4-20mA)<br>Voltage(8-CH 0-1V 0-5V 0-10V or 1-5V) | Transistor (4-CH) | TC, RTD |

## MTCW series (Ethernet 2*RS485)

| | | | | |
|---|---|---|---|---|
| MTCW-04-NTT | 4-CH | Transistor (4-CH) | Transistor (4-CH), flag bit | TC, RTD |
| MTCW-04-NI | 4-CH | Current (4-CH 0-20mA or 4-20mA) | Flag bit | TC, RTD |
| MTCW-04-NV | 4-CH | Voltage (4-CH 0-1V 0-5V 0-10V or 1-5V) | Flag bit | TC, RTD |
| MTCW-08-NN | 8-CH | - | Flag bit | TC, RTD |
| MTCW-08-NI | 8-CH | Current (8-CH 0-20mA or 4-20mA) | Flag bit | TC, RTD |
| MTCW-08-NV | 8-CH | Voltage(8-CH 0-1V 0-5V 0-10V or 1-5V) | Flag bit | TC, RTD |
| MTCW-08-NTT | 8-CH | Transistor (8-CH) | Transistor (8-CH), flag bit | TC, RTD |
| MTCW-12-NT | 12-CH | Transistor (12-CH) | Flag bit | TC, RTD |
| MTCW-16-NN | 16-CH | - | Flag bit | TC, RTD |
| MTCW-08-CT | 8-CH | Transistor (8-CH) | Flag bit | Current transformer (8-CH)<br>TC, RTD |
| MTCW-08-NTD | 8-CH | Transistor (8-CH heating, 8-CH cooling) | - | TC, RTD |

## MTCV series (Channel isolation RS485

| | | | | |
|---|---|---|---|---|
| MTCV-16-NT | 16-CH | Transistor (16-CH) | Flag bit | TC, RTD |
| MTCV-08-NT | 8-CH | Transistor (8-CH) | Flag bit | TC, RTD |

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MTCE series product, as a multi-channel high-precision EtherCAT temperature controller, are adapted to various mainstream master stations. Its main feature is compatible with thermocouples and thermal resistors, high measurement accuracy, feature-rich, user-friendly. It has the characteristics of high integration, space saving, easy data exchange, remote monitoring, and high cost performance.

**Networking capacity** EtherCAT

**High precision** Measure accuracy: full scale of ±0.15 % ; control accuracy: ±0.2°C

**High performance** 0.1s sampling cycle, and 1ms synchronization cycle; a single module can operate PID control and simple logic operation, and monitor analog value

| Item | | Description |
|---|---|---|
| Power supply | | 24VDC -15% ~ 20% |
| Signal input | Input type | Thermocouple K J E N T R B For all channel |
| | | Thermal resistance Pt100 JPt100 Cu100 Ni120 For all channel |
| | Precision | Thermocouple 0.15% Full scale + cold compensation |
| | | Thermal resistance 0.3% Full scale |
| | Sampling cycle | 25ms/channel 100ms/8 channels 100ms/4 channels |
| Control output | Output form | Transistor output (SSR drive output) |
| | Output channel | 10 channels |
| | Control action | Manual, ON / OFF, single PID, heating & cooling PID, position proportional PID |
| Alarm output | Alarm form | 14 alarms, such as upper and lower limit alarm, deviation alarm and so on. |
| | Output form | Transistor output (SSR drive output) |
| | Output channel | 10 channels |
| Control cycle | | 0.1s - 10s or 1s - 100s |
| Acquisition channel | | 10 channels |
| Isolation | | Exist between power and communication, power and channel, communication and channel, channel and channel |
| Communication port | | EtherCAT |
| Generals | Ambient temperature | Working: -20 ~ 60 °C, storage: -40 ~ 70 °C |
| | Ambient humidity | Working: 10 ~ 90 % RH (no condensation), keeping: 5 ~ 95 % RH (no condensation) |
| | Altitude | Below 2000m |
| | Protection level | IP20 |
| C & S | | Conform to IEC/EN 61326-1 For use in industrial locations CE |

| Model | Acquisition channel | Temperature control output | Alarm output | Input type |
|---|---|---|---|---|
| MTCE-10T-NT | 10-CH | Transistor | Flag bit | TC |
| MTCE-10R-NT | 10-CH | Transistor | Flag bit | RTD |

MCAS series temperature controller takes the lead in realizing the self-tuning PID and calibration parameters of cascade control in the industry based on the advanced self-tuning and self-learning control algorithm, which greatly simplifies the debugging of complex cascade control.

**Cascade control** A single module supports 4-channel cascade temperature control

**High performance** 0.1s sampling cycle

**High precision** Measure accuracy: full scale of ±0.15 % ; cascade control accuracy: ±0.5

| Item | | Description |
|---|---|---|
| Power supply | | 24VDC -15% ~ 20% |
| Signal input | Input type | Thermocouple K J E N T R B For all channel |
| | | Thermal resistance Pt100 JPt100 Cu100 Ni120 For all channel |
| | Precision | TC 0.15% Full scale + cold compensation RTD 0.3% Full scale |
| | Sampling cycle | 25ms/channel 100ms/8 channels 100ms/4 channels |
| Control output | Output form | Transistor output (SSR drive output) |
| | Output channel | 4/8 channels |
| | Control action | Manual, ON / OFF, single PID, heating & cooling PID, position proportional PID |
| Alarm output | Alarm form | 14 alarms, such as upper and lower limit alarm, deviation alarm and so on. |
| | Output form | Transistor output (SSR drive output) |
| | Output channel | 4/8 channels (Transistor) |
| Control cycle | | 0.1s - 10s or 1s - 100s |
| Acquisition channel | | 6/8 channels |
| Isolation | | Exist between power and communication, power and channel, communication and channel, channel and channel |
| Communication port | | One isolated + one non-isolated RS485 serial port, one Ethernet port; support MODBUS slave protocol |
| Generals | Ambient temperature | Working: -20 ~ 60 °C, storage: -40 ~ 70 °C |
| | Ambient humidity | Working: 10 ~ 90 % RH (no condensation), keeping: 5 ~ 95 % RH (no condensation) |
| | Altitude | Below 2000m |
| | Protection level | IP20 |
| C & S | | Conform to IEC/EN 61326-1 For use in industrial locations UL61010-1 CE UL |

| Model | Acquisition channel | Temperature control output | Alarm output | Input type |
|---|---|---|---|---|
| MCAS-06-NI | 6-CH | Current (6-CH 0-20mA or 4-20mA) | Flag bit | TC, RTD |
| MCAS-06-NV | 6-CH | Voltage (6-CH 0-1V 0-5V 0-10V or 1-5V) | Flag bit | TC, RTD |
| MCAS-08-NI | 8-CH | Current (6-CH 0-20mA or 4-20mA) | Flag bit | TC, RTD |
| MCAS-08-NV | 8-CH | Voltage (8-CH 0-1V 0-5V 0-10V or 1-5V) | Flag bit | TC, RTD |
| MCAS-08-NTT | 8-CH | Transistor (8-CH) | Transistor (8-CH), flag bit | TC, RTD |

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