



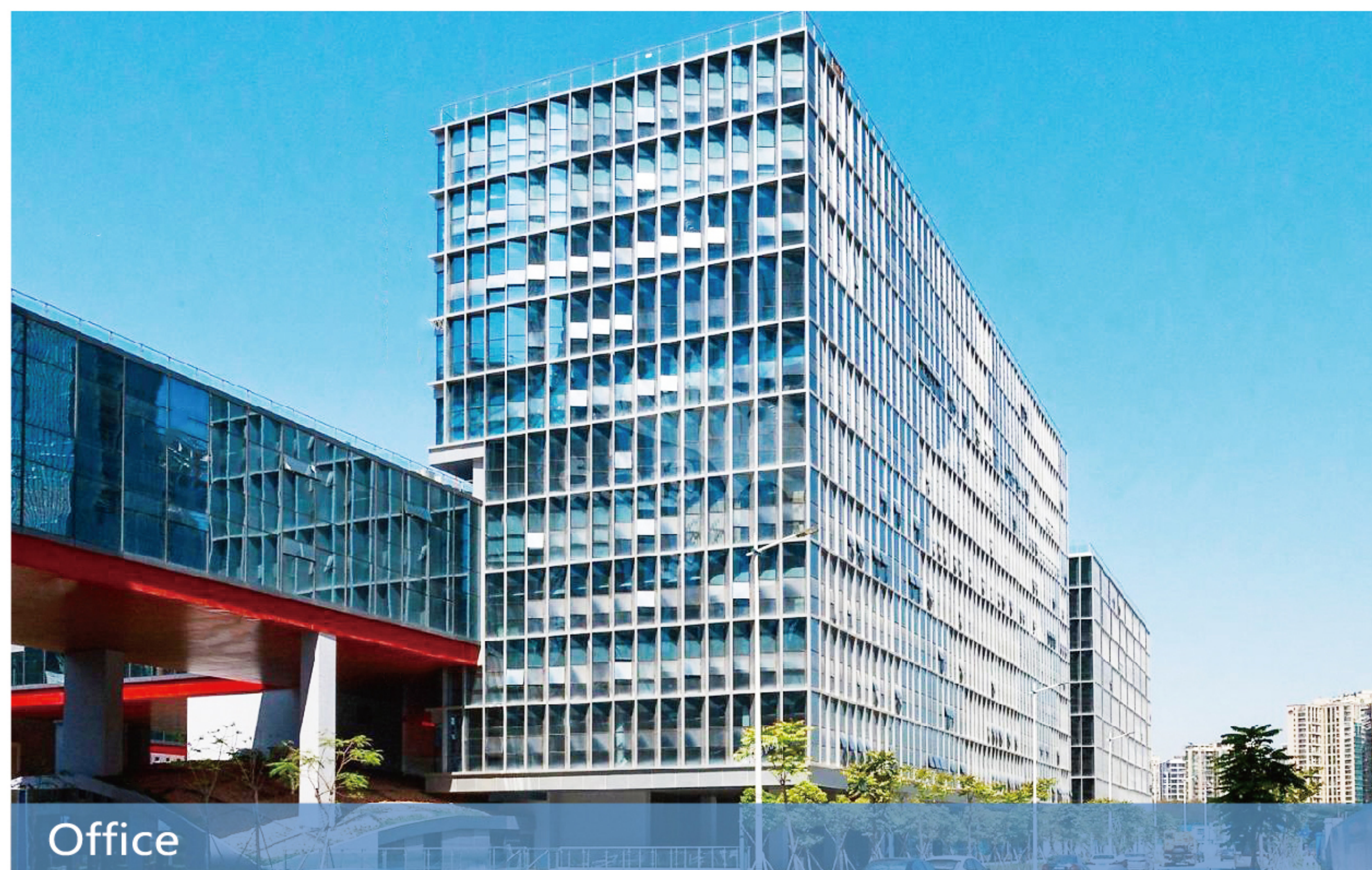
QM3G Series HMI PLC All-in-one

With a brand-new automation control concept

Version 2022.05



Factory



Office

BRAND STORY

The predecessor of Coolmay Technology is Coolmay apparel, which initially started with the production of lace machines. This kind of device is low value but it is difficult for users to make after-sales budgets. In addition, they lacked professional maintenance technology, which made after-sales maintenance difficult. If any problem, they had to come to the manufacturer for help, which caused cost increasing for both parties. How great it would be if after-sales problems could be solved without door-to-door service!

Coolmay decided to develop one controller to solve this problem, and created the first HMI/PLC all-in-one in China in 2006. The all-in-one integrates the functions of PLC and HMI, including the highly integration of logic control, analog input and output, high speed counting, high speed pulse, communication, etc.. It supports arc interpolation and linear Interpolation. This device made after-sales maintenance very simple and greatly reduced the maintenance cost of the entire equipment. Users do not need to have professional technology but just simply replace the all-in-one if any problem.

Soon after entering the market, the actual effects of the product emerged. After using the all-in-one machine, the after-sales problem that a certain textile equipment manufacturer could not solve for many years was solved instantly, which reduced 90% after-sale cost.

This made Coolmay determine to engage in the all-in-one industry more firm. It is this force that drives Coolmay to embark on a new path of automation control concept.

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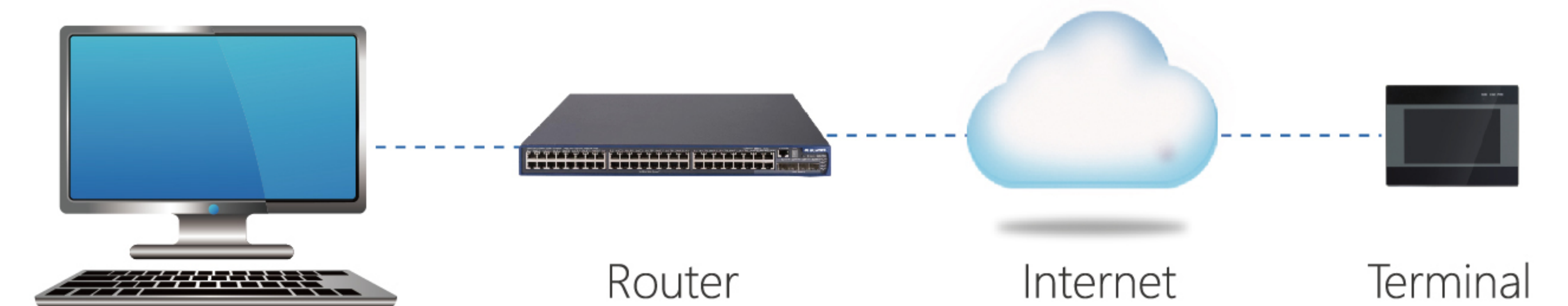
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Functions and features



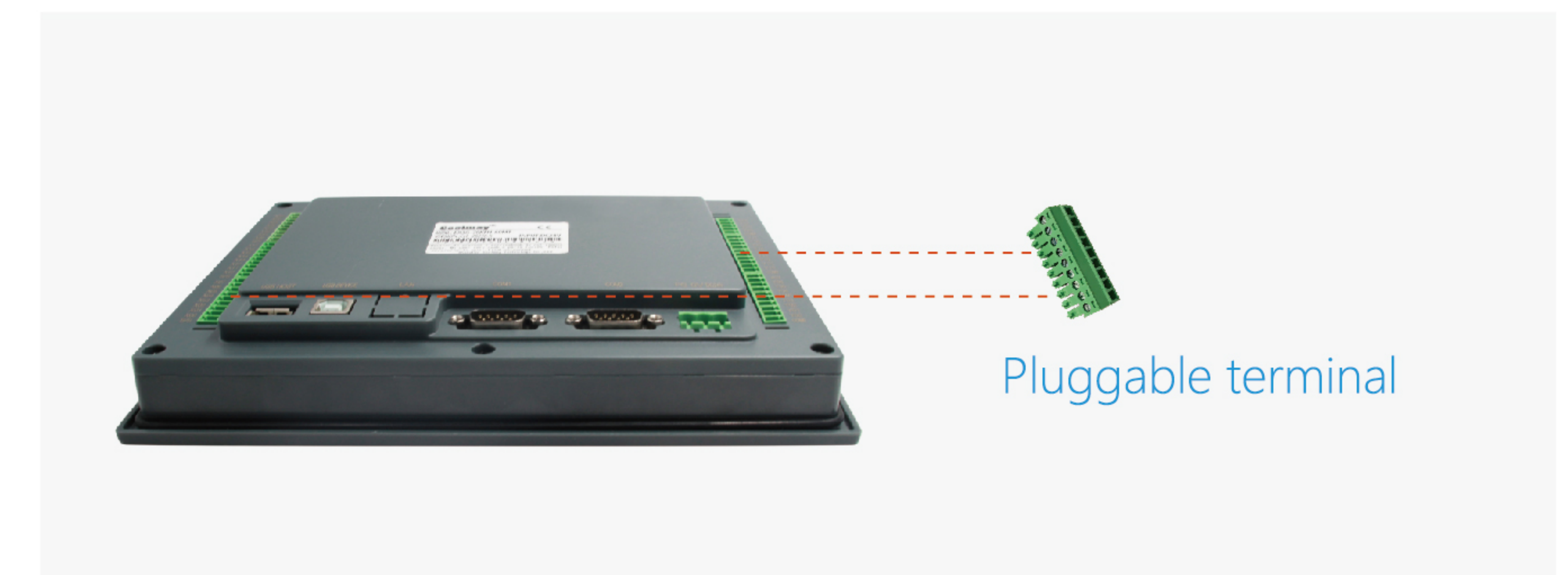
No after-sale cost

- Based on an all-in-one design, all control elements are integrated into one unit, and the product uses pluggable terminals.
- Users only need to replace the all-in-one machine to solve the problem, simple and convenient.
- All maintenance can be carried out remotely, without the need for professional technicians to come to service, thereby saving travel expenses.



No after-sale labor cost

- All maintenance problems of the device can be completed by the user without the need of professional after-sales personnel.



No development cost

- Coolmay research and development does not require software development, only hardware design, no personnel and material costs.

High development efficiency

| Research and development fast

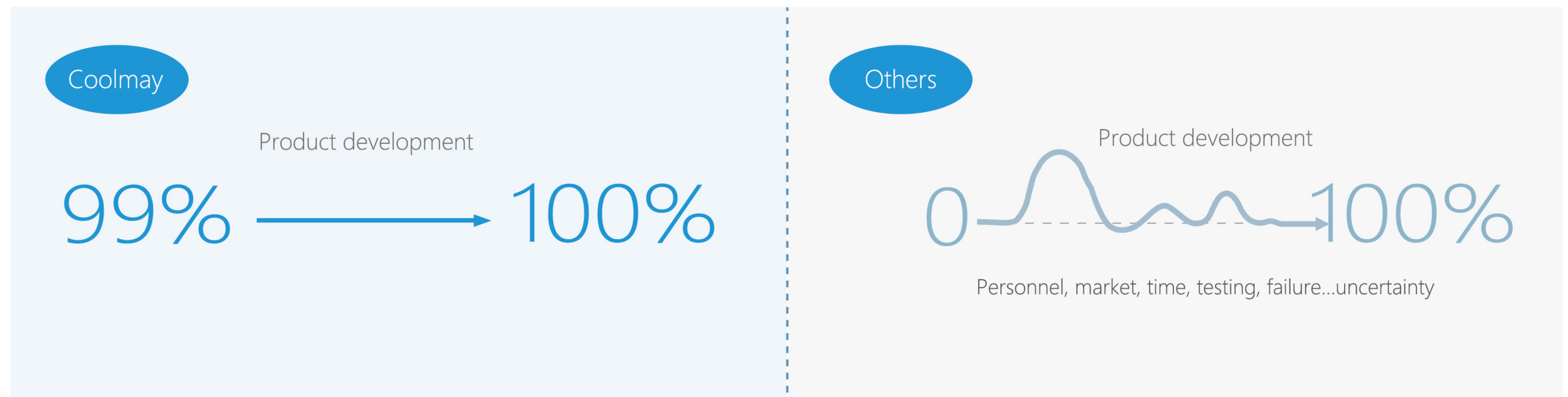
- Normal project development must start from the first code, but Coolmay only needs to adjust the hardware slightly. Under normal circumstances, it can be completed within a week.

| Stable and reliable, can be put into production quickly

- All products have been tested by the market for more than ten years, and the reliability has been recognized by customers.

| Reduce uncertainty

- General development requires multiple experiments to succeed. With 15 years of technology precipitation, Coolmay can make it less time.



Highly integrated, new experience

QM3G series all-in-one machine

- Integrate logic control, analog input and output, and HMI functions in one.
- Support high-speed counting, high-speed pulse, integrated communication ports.
- Support arc and linear interpolation.
- Support G code (under development).



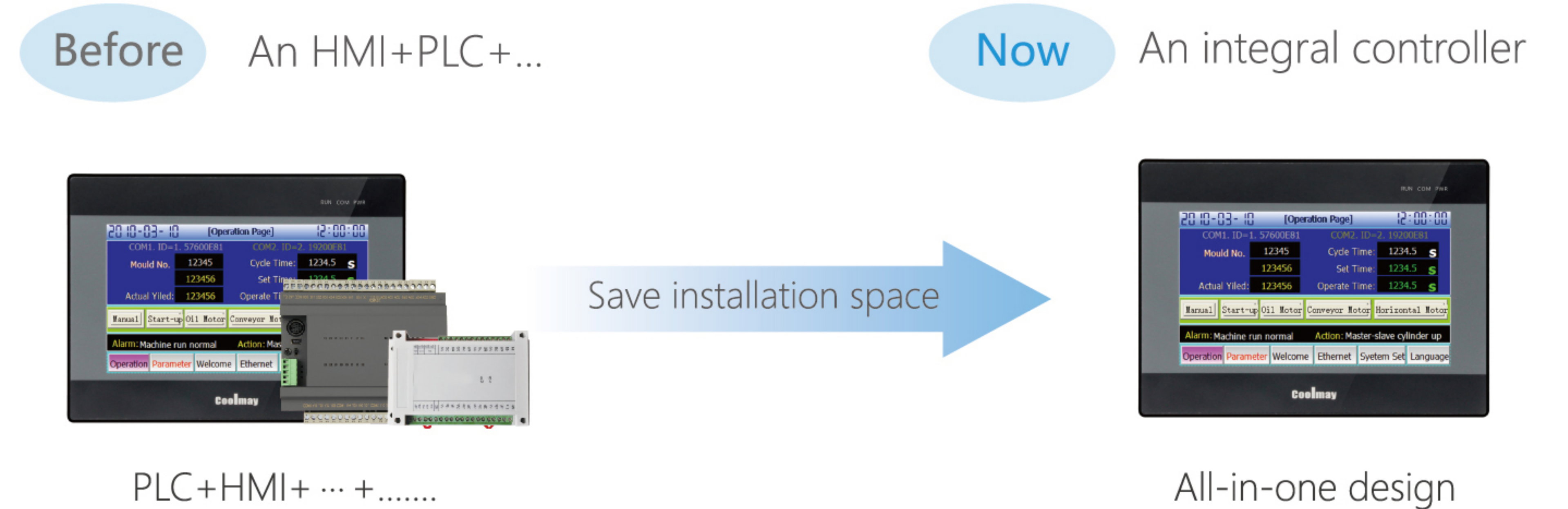
Customized panel as per users' requirements

- No-logo panel: The front panel can be customized without any logo.
- Customized panel: Customized services are supported if changing the line structure and button position or are required.



Compact structure design, save installation space

- Coolmay creates high-performance industrial all-in-one, which can save users time and cost, improve efficiency, and enhance the competitiveness of enterprises.



Flexible installation

- Support gesture operation, users can swipe up, down, left, and right to switch pages and experience a true all-in-one machine.
- Can be installed vertically or horizontally according to the actual situation on site.

Swipe up, down, left and right



Portrait display or installation

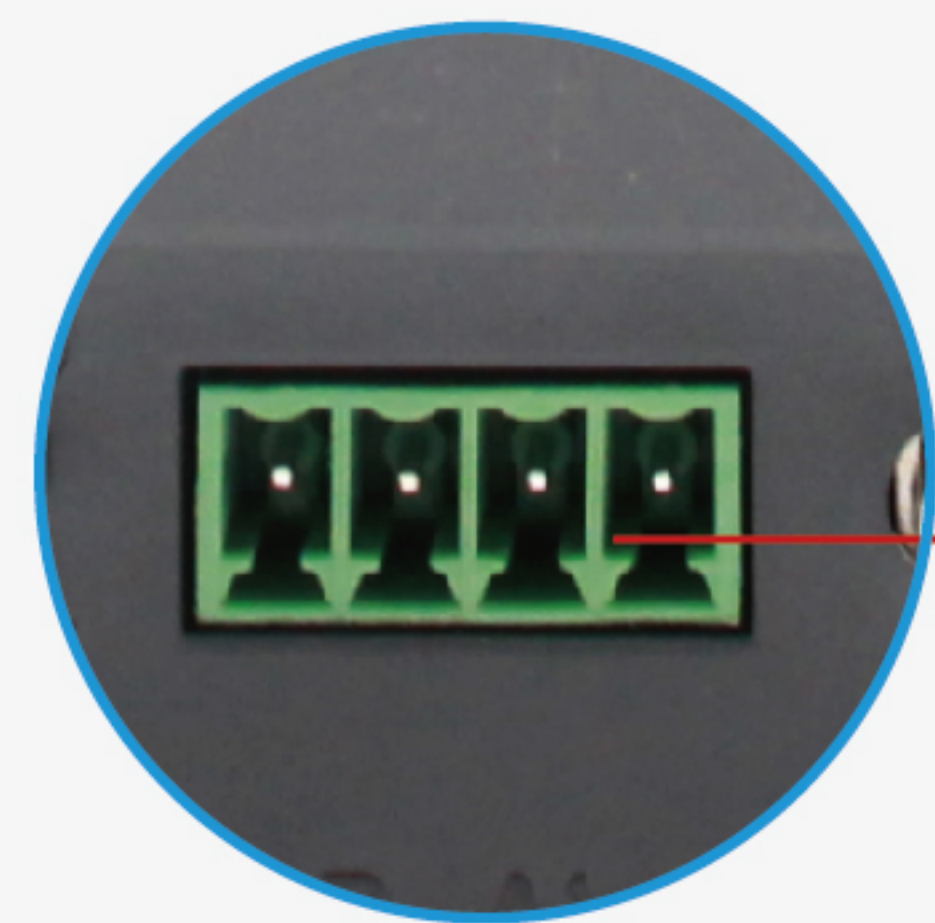


Embedded installation schematic



PLC introduction

Coolmay PLC applied military-grade 32-bit chips, with nanosecond-level running speed and strong anti-interference ability. Both input and output adopted optocoupler isolation. It integrates analog input and output modules, and RS485, RS232 communication modules, which is a brand-new control concept in terms of function, cost and convenience.



RS485

| Industry customization, no development fee

- More than 15 years in the automation industry, no development cost for customizations.

| Eliminating engineering

- Multiple functions
- Highly integrated digital, analog, high-speed counting, high-speed pulse, communication ports

| Motion control function

- Up to 8 high-speed pulses
- Circular arc, linear interpolation
- Support G code (under development)

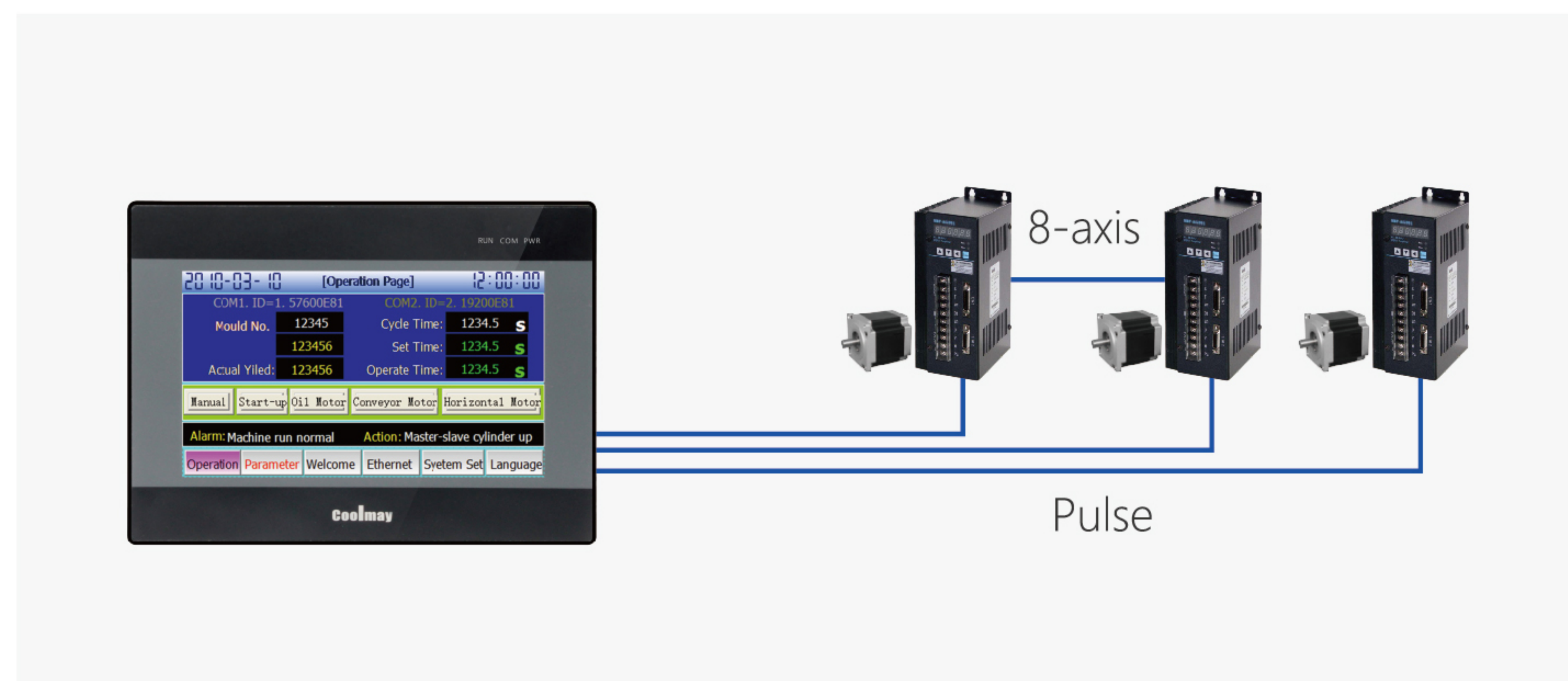
| Communication function

- Support two RS485 communication ports, both of which support Modbus communication protocol
- Support RS232 communication port
- Support CAN port (2.0A/B)
- Support WIFI

High-speed processing capability

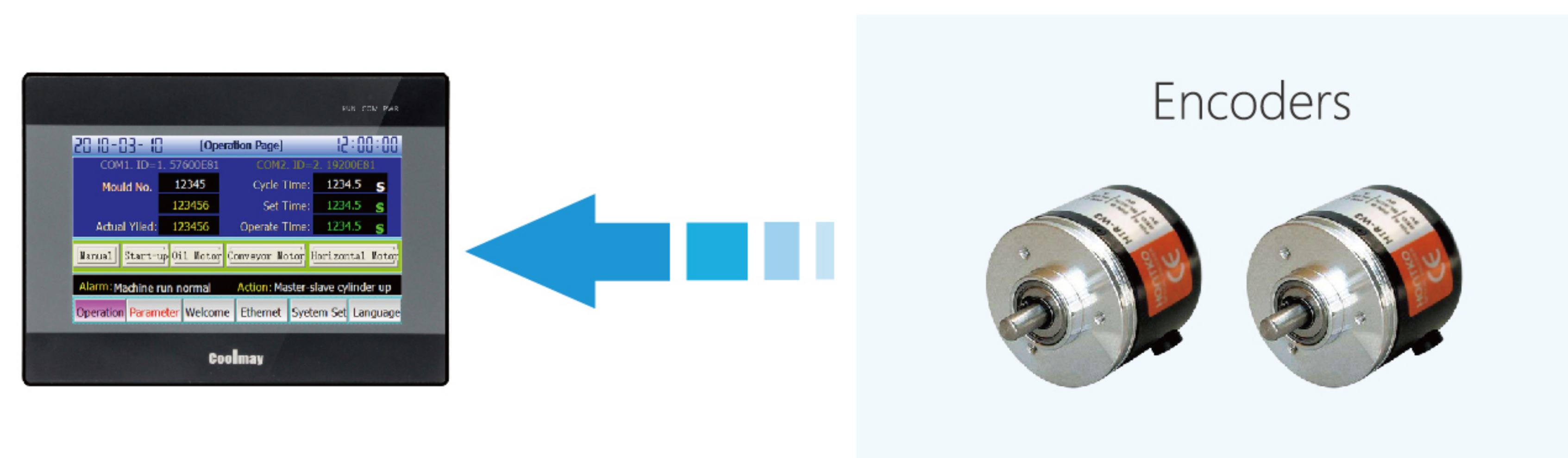
| Positioning control - high-speed pulse

- Transistor output CPU: 8-axis, Y0-Y3 is 100KHz, Y4-Y7 is 10KHz.
- Support positioning, can quickly complete the positioning function, up to 8 axis.
- Each axis control is realized by instructions, PLC program is highly readable and easy to maintain.



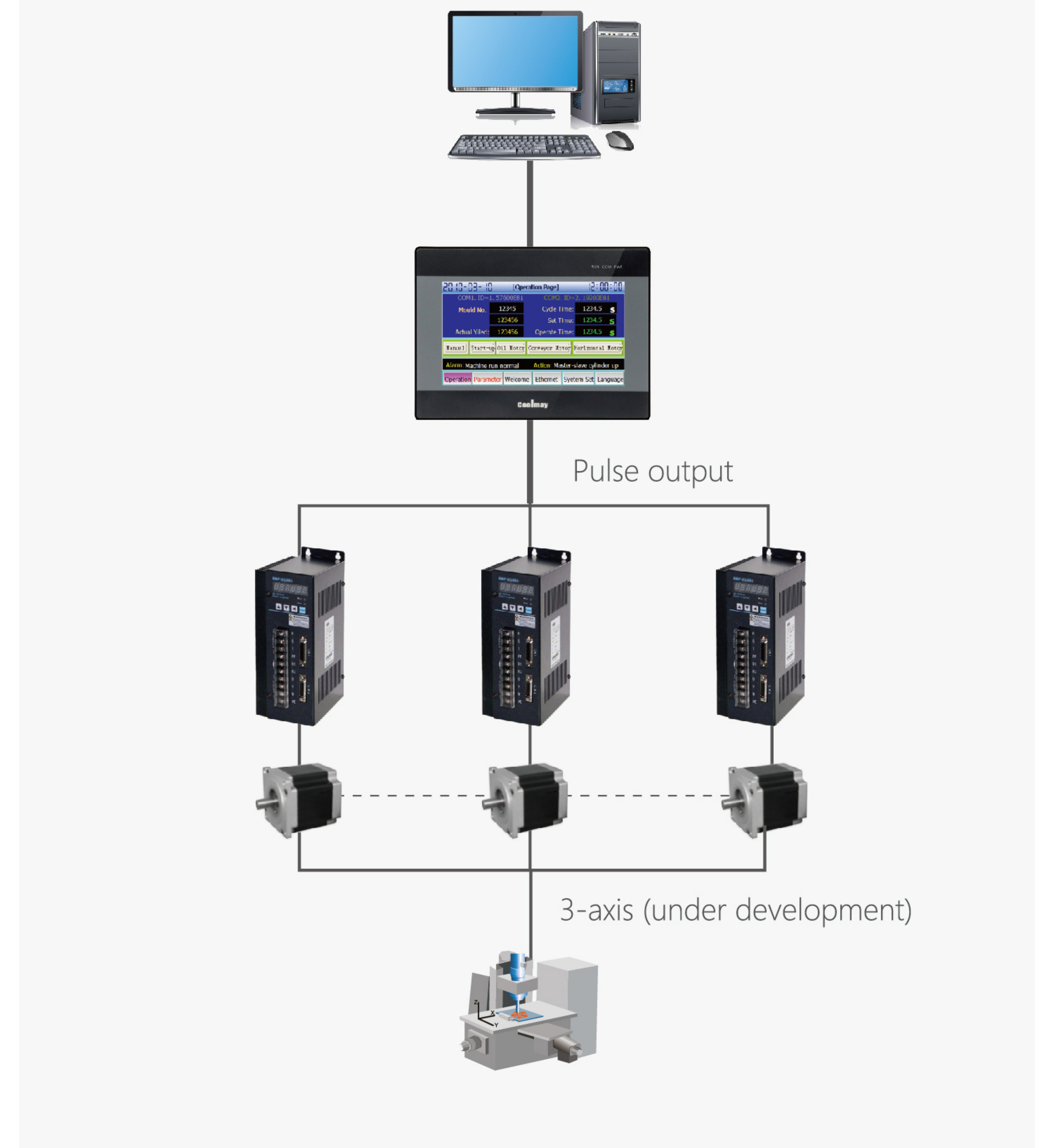
| High-speed counting input

- Real-time high-precision monitoring: 6 channels of 60 KHz, which can be directly connected to the encoder to count the input of the encoder.
- Up to 6 external input interrupts.



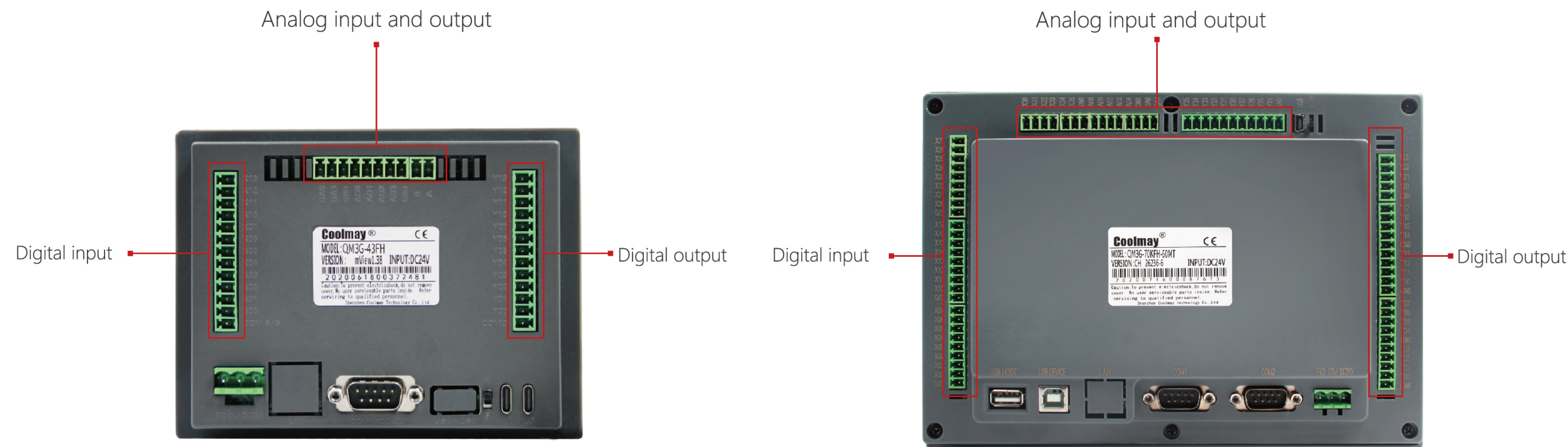
| Motion control

- Specify Y0, Y1 for continuous interpolation. Support Z axis (under development)



Rich analog acquisition function

- Up to 16 channels of analog input, optional for temperature, current and voltage; up to 8 channels of output, optional current and voltage; 12-bit accuracy of analog input and output.
- Analog supports PID self-tuning.



Analog

| Model | QM3G-43FH/50FH | | QM3G-70FH/HD | QM3G-70KFH/100FH |
|--------|--|--|---|------------------|
| Analog | Analog input type: E/K/S/T/J type thermocouple (support negative temperature)/PT100/PT1000/NTC10K/NTC50K/NTC100K/0-10V/0-5V/0-20mA/4-20mA or mixed type and other special specifications (7 inch and 10 inch optional -5V~5V and -10V~10V) | | | |
| | Analog output type: 0-10V/0-5V/0-20mA/4-20-mA or mixed type optional | | Analog output type: 0-10V/ 0-5V/ 0-20mA/4-20mA/-5-5V/-10-10V optional (each negative voltage occupies two DA) | |
| | Up to 4AI 2AO | | Up to 12AI 8AO | Up to 16AI 8AO |

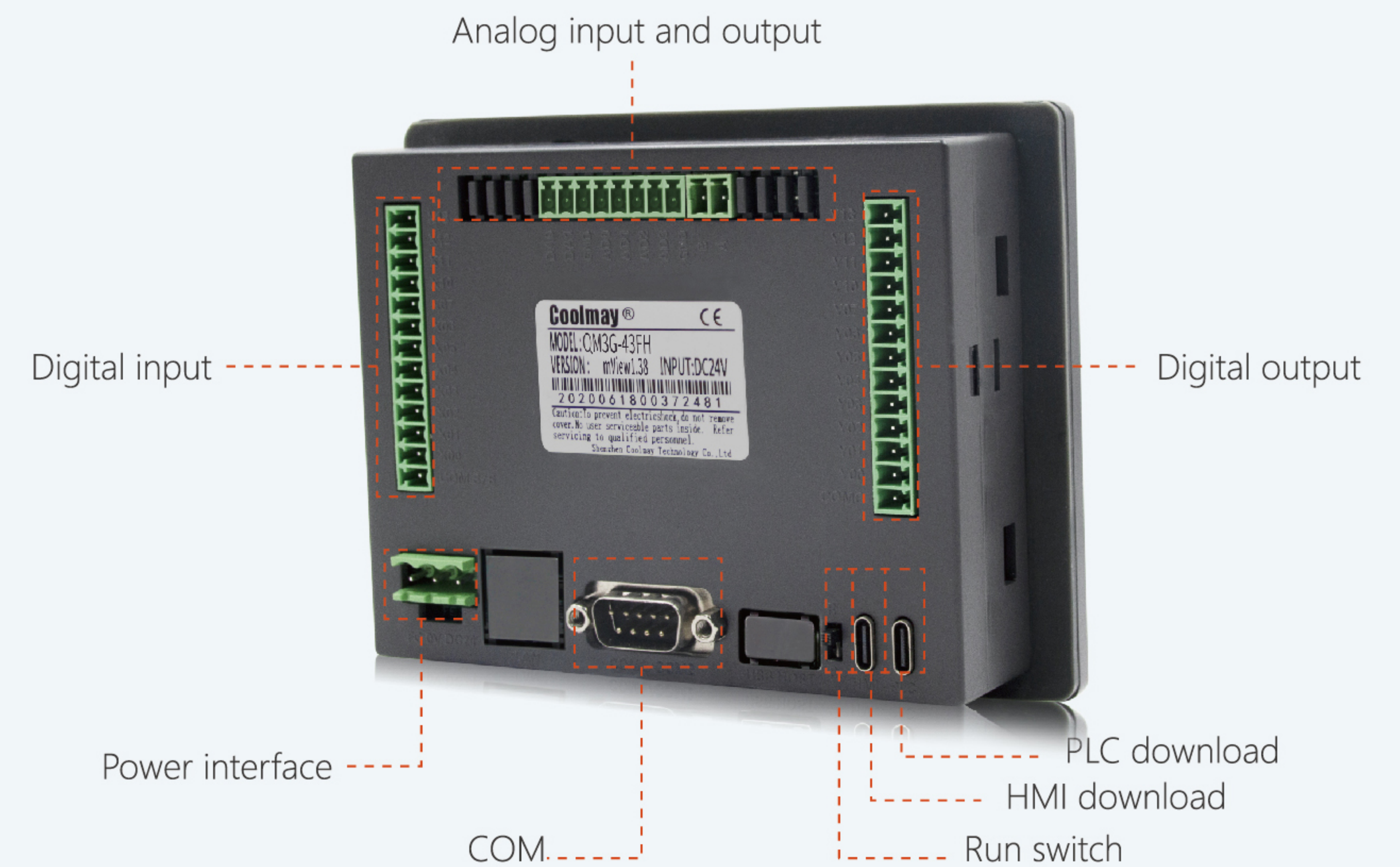
Rich appearance interface

- Supports communication with standard Modbus protocol, and can connect multiple controllers supporting Modbus protocol in the same device, such as PLC, frequency converter, servo drive, instrument, etc.
- Supports micro printers, so as to realize real-time printing of data sharing and collecting curves.

I QM3G-70FH



I QM3G-43FH/50FH



I QM3G-70KFH/100FH



Powerful programming port function

| Based on Type-C/Type-B port, mini USB port, program download is quick and time-saving

The USB interface conforms to the USB specification and uses a commercially available USB cable, which can perform high-speed data transmission and greatly shorten the download time.



| Multi-function design of programming port

Through the USB penetration function of the touch screen, HMI and PLC programming use the same programming cable, users do not need to change repeatedly, all only need one cable.



QM3G series

| Penetration communication function

The penetrating communication function provided by HMI is to use PLC programming software on the computer, and connect to the PLC through the human-machine interface connected to the computer and PLC. In this way, PLC programs can be monitored, uploaded, and downloaded.

The connection between PC and HMI is USB (virtual serial port), and the connection between HMI and PLC is serial connection. For the convenience of debugging, the PC can directly download or monitor the PLC program through the HMI to improve work efficiency.



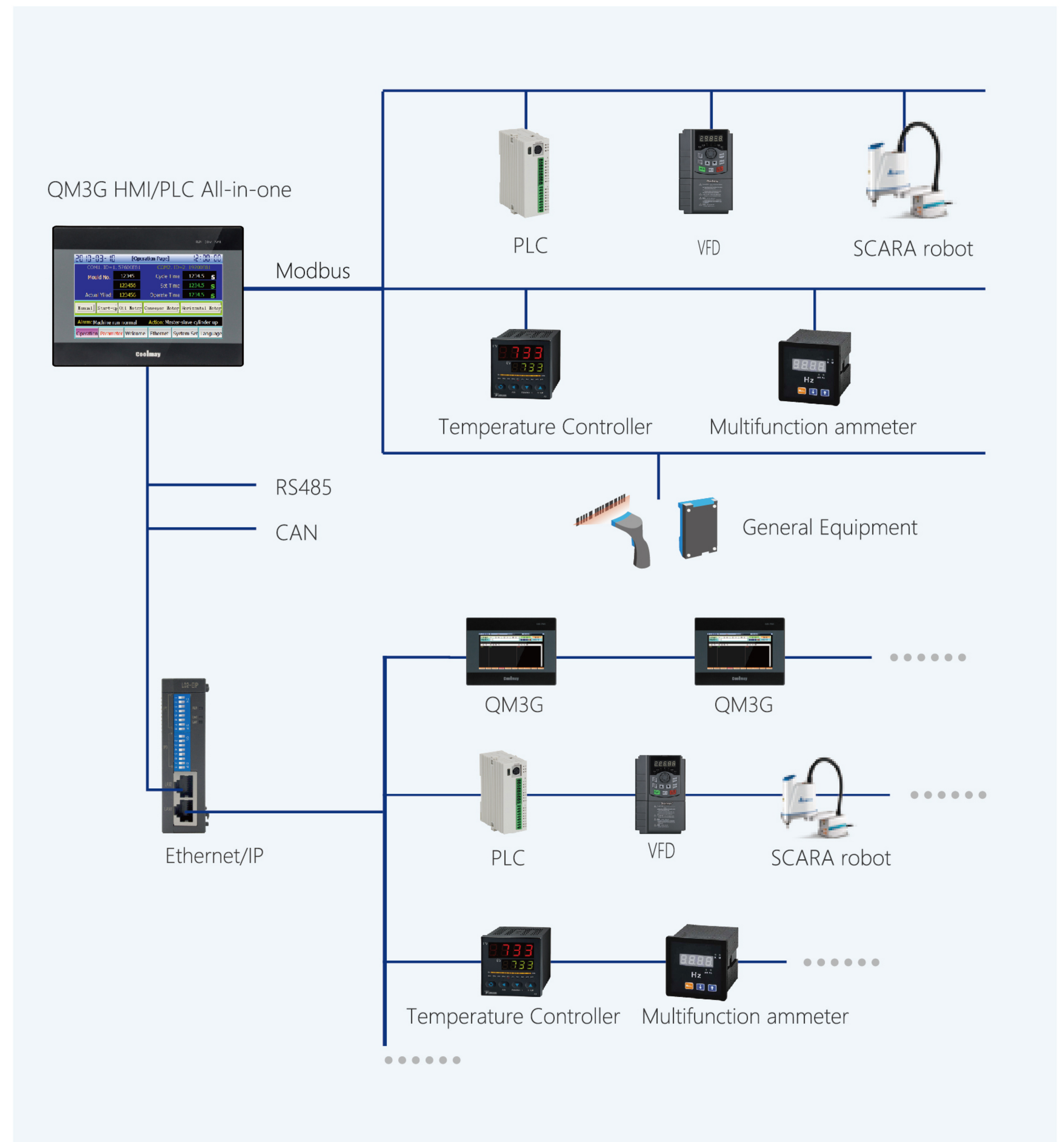
Upload and download program, monitor

QM3G series host

- Can add 2 RS485, support Mitsubishi programming port protocol, Modbus protocol, Freeport protocol, Mitsubishi BD board protocol, support N:N protocol, easily realize PLC inter-connection and communication with external equipment such as human machine interface and inverter.
- Can add 1 CAN port, support CAN2.0A, CAN2.0B, Modbus and Freeport protocol, can easily realize multi-channel interconnection.
- Can add 1 high-speed Ethernet interface, support Mitsubishi programming port protocol, Modbus TCP/UDP protocol, Ethernet/IP protocol.

Ethernet/IP

- The communication bus protocol uses the standard Ethernet/IP communication bus. QM3G HMI/PLC all-in-one support Ethernet/IP protocol slaves, which can be easily connected with PLCs or industrial computers that support Ethernet/IP protocol to achieve barrier-free connection.



Human machine interface (HMI)


Superior performance, extraordinary quality

- Onboard 408MHz high-performance 32Bit industrial-grade CPU: fast running speed, high data processing efficiency, strong anti-interference ability.
- Original built-in PLC function (optional) to realize internal communication.
- 65K color TFT, new high-brightness, high-contrast display LCD, providing colorful operation interface
- Optional WiFi, 802.11b/g/n wireless communication standard protocol.
- Conveniently realize the upload/download function of configuration software through the network cable.
- Support cloud service platform.

mView1.38 programming software



Multiple sizes: 4.3", 5.0", 7.0", 10", 15"

| | | | |
|---|----------------|------------------|----------------------|
|  | TFT LCD screen | 480*272 | 400cd/m ² |
|  | TFT LCD screen | 800*480 | 300cd/m ² |
|  | TFT LCD screen | 800*480/1024*600 | 300cd/m ² |
|  | TFT LCD screen | 1024*600 | 300cd/m ² |

mView1.38 is simple to program, easy to use, and powerful

"mView1.38" is a set of stable and reliable human machine interface programming software for industrial occasions. Independent and original system design, running speed increased by 200%, memory usage reduced by 50%. The screen is intuitive and easy to grasp, and the usage is similar to commonly used file editing software. You can easily make charts, histograms, various button displays and other functions with the mouse.

Powerful functions, including complete industrial environment requirements, such as recipe functions, data recording, historical data management, historical trend graphs, alarm management, etc., as well as advanced grammar checking, gesture page changing, password management and data protection, macro commands, HMI Program simulation...etc.

Supports many communication protocols; it can communicate with more than 200 PLCs and controllers on the market.



Multiple languages

Chinese, English, Thai...Programming
Support hundreds of languages to display



Powerful function

Engineering conversion ability
Data scheduling function



Sound output

Set the button sound and alarm sound by yourself
Import and export sound files

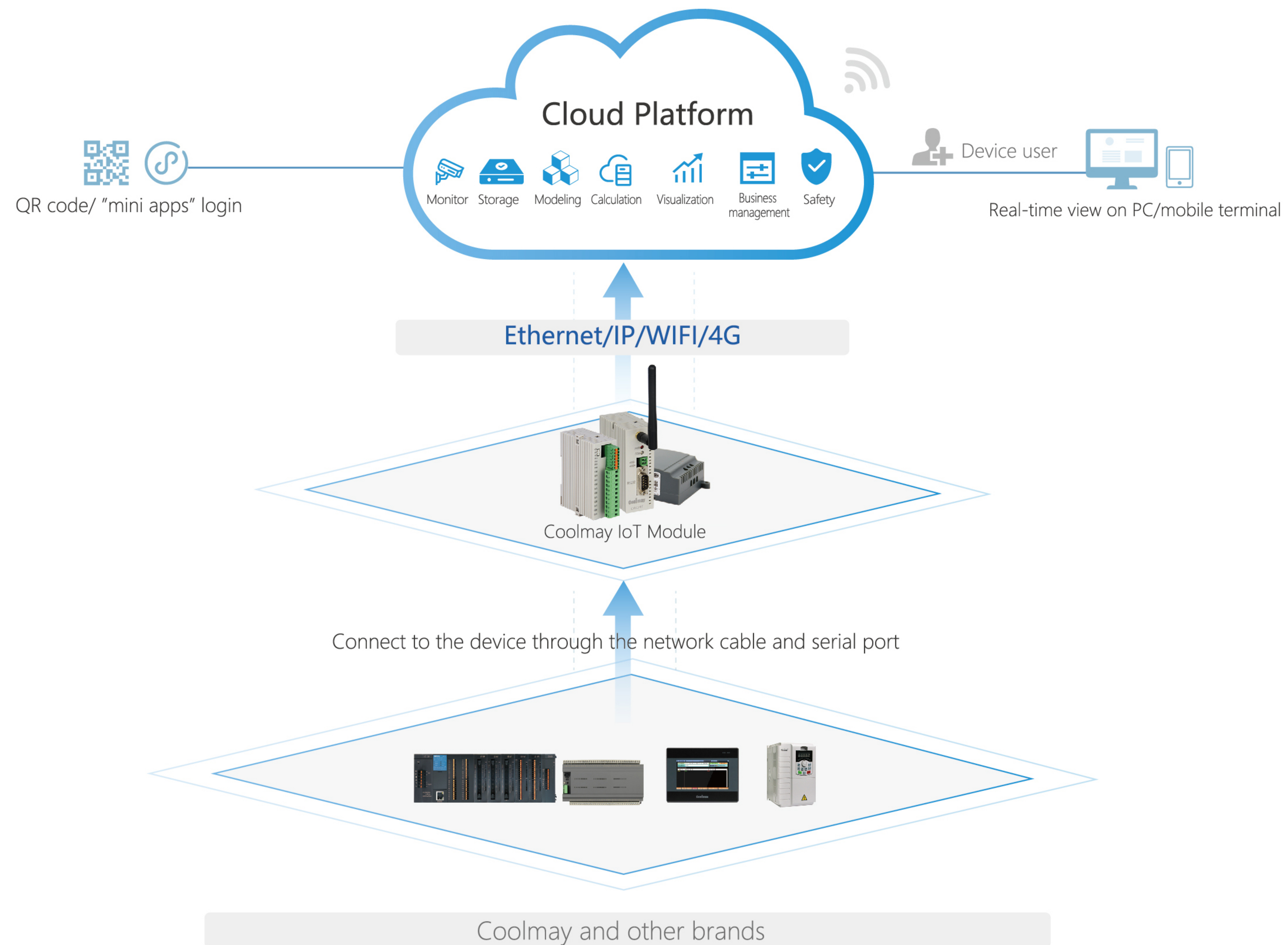


Customized screen

Personalized screen,
program customization

Coolmay cloud platform

The cloud platform is an IoT system that can complete terminal device data collection, real-time control, alarm push, group management, configuration design, video monitoring and other functions in one stop.

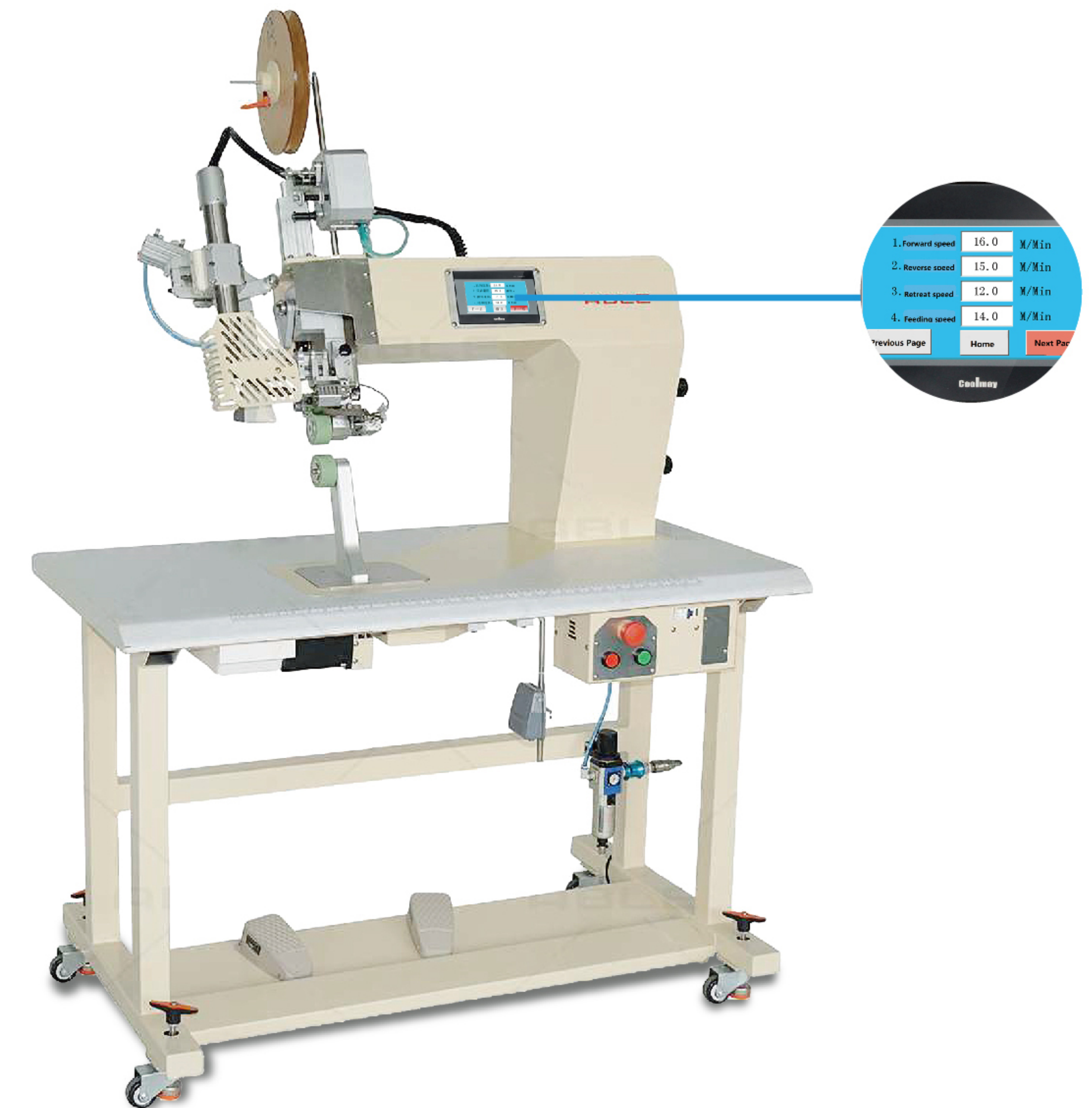


Example solution

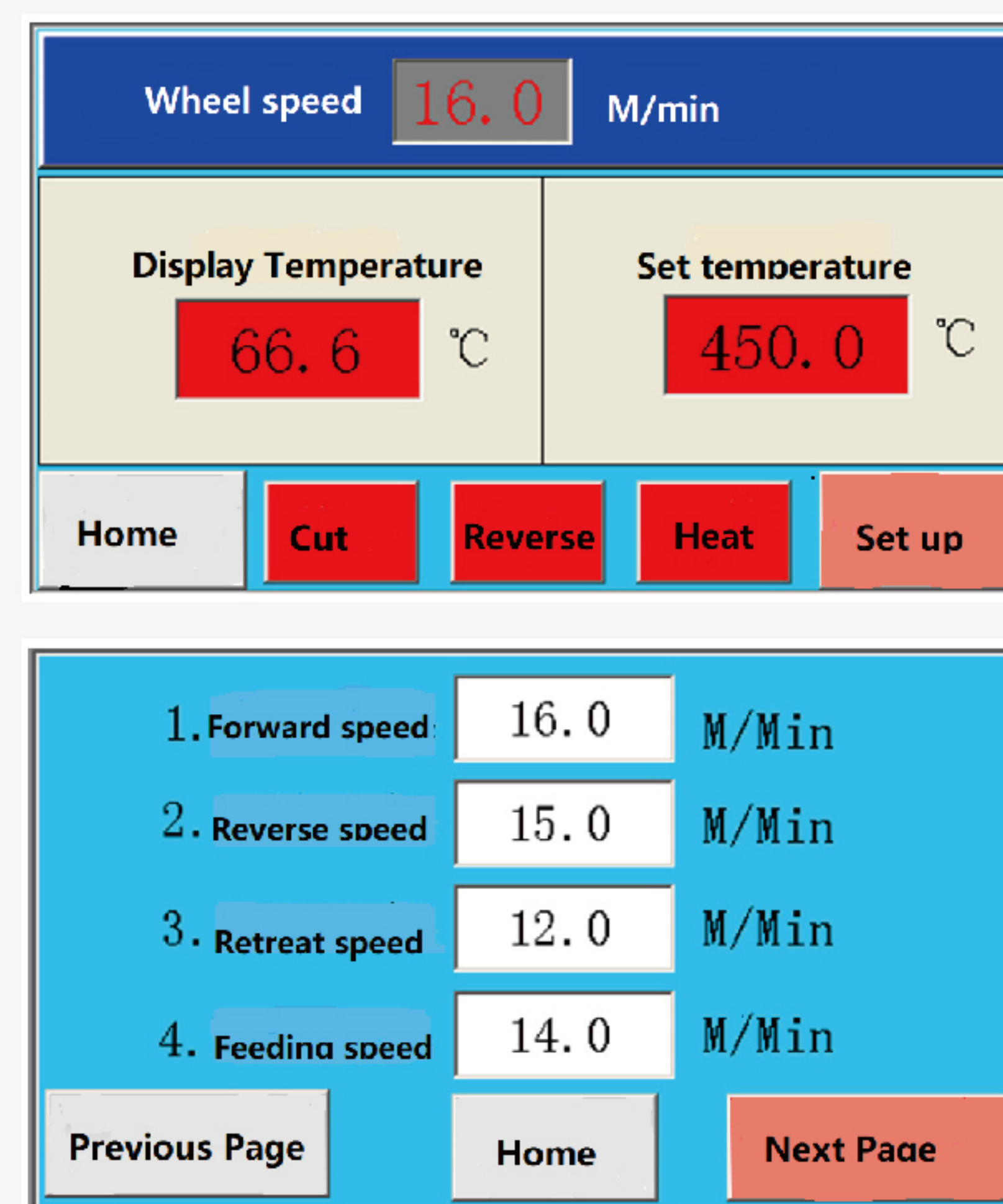
Hot air seam sealing machine solution

| Mechanical characteristics

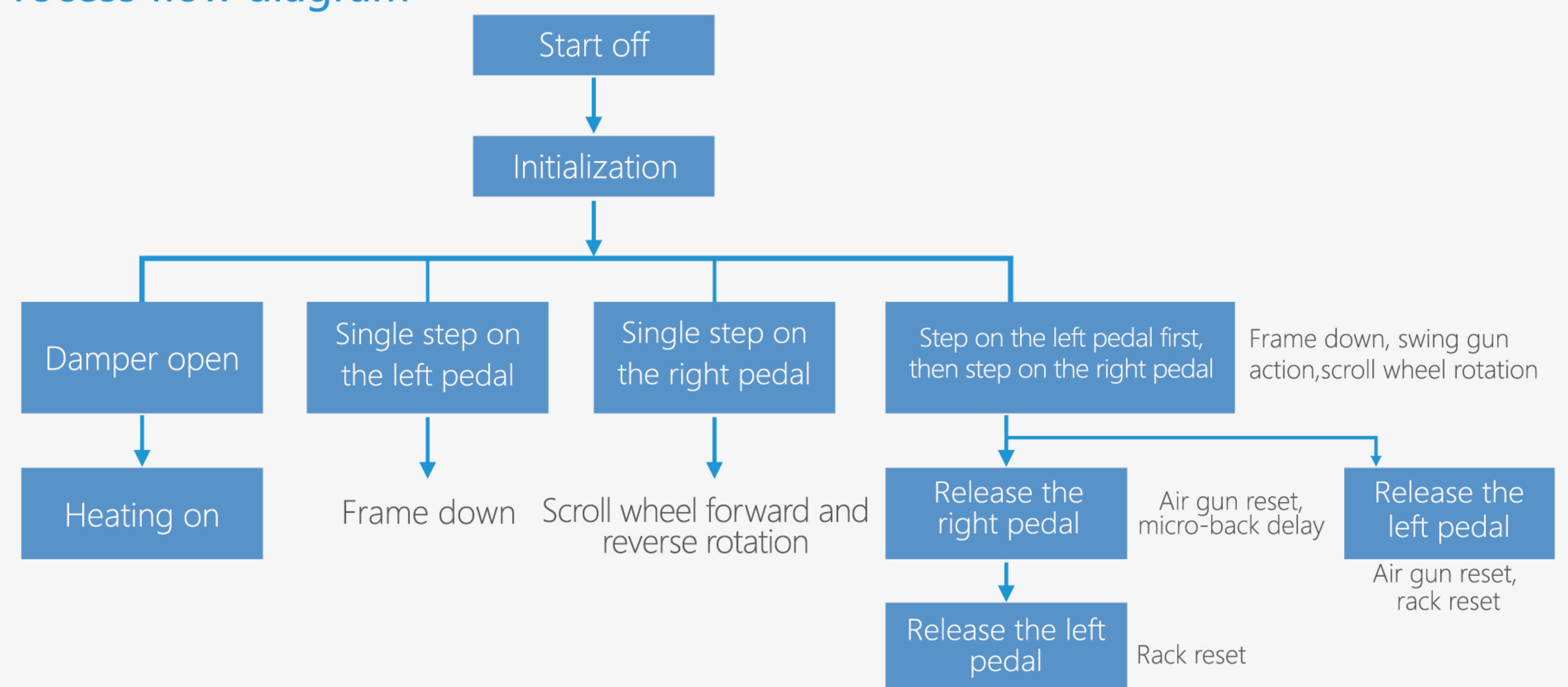
- Different speed adjustment of upper and lower wheels is suitable for different elastic materials.
- Fitting program segments (lead, middle, and end) setting parameters are more flexible.
- Intelligent tape feeding mechanism, the glue strip fits smoothly, and the size can be flexibly controlled for elastic materials.
- The movement trajectory of the composite nozzle makes the temperature of the belt start and the intermediate stop process more even, and the product is better.
- New appearance design, wider operating space.
- PLC programming control system, simple and stable operation.



| System main interface



| Process flow diagram



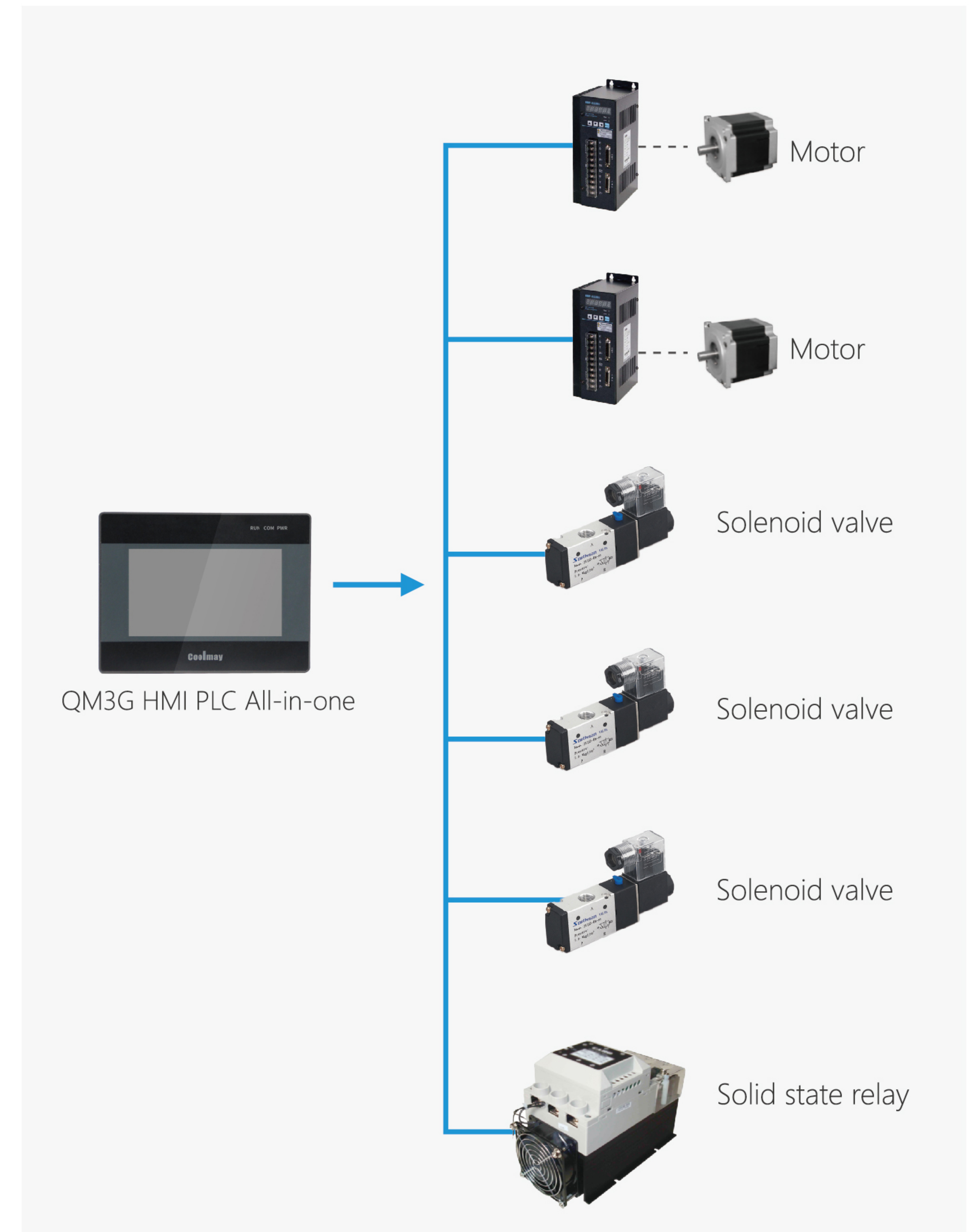
| System Feature

- Coolmay QM3G HMI PLC all-in-one can control DC motor speed (PWM).
- Coolmay QM3G HMI PLC all-in-one can control the speed of two stepping motors (up to 8 channels can be controlled).
- Automatic compensation, automatic micro push, reduce press belt blank.
- Automatic tape cutting, tape feeding, automatic tape tail completion, reducing material loss.
- With 2 high-precision thermocouple temperature control inputs.
- Automatic temperature control, high stability performance, temperature upper limit alarm design, protect heating wire.
- Up to 12-30 groups of transistor output switching control solenoid valves (10 times more durable than relays).
- Optional 4.3 inch, 5 inch, 7 inch, 10 inch HMI touch screen.
- Possesses continuous and stable operation capability throughout the day (24 hours).

| Application scenario



| System topology diagram

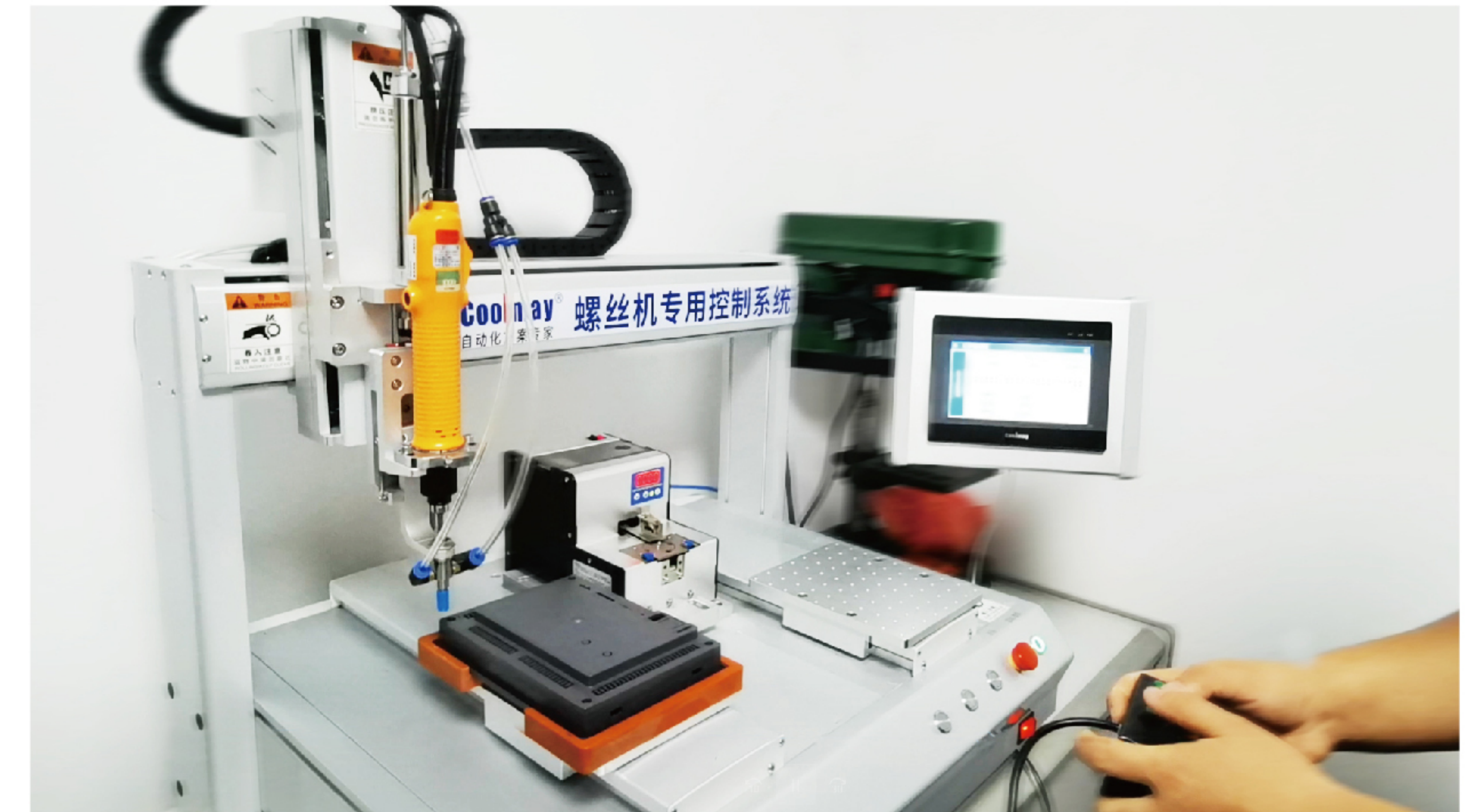


Example solution

Auto-screwdriving machine solution

Mechanical characteristics

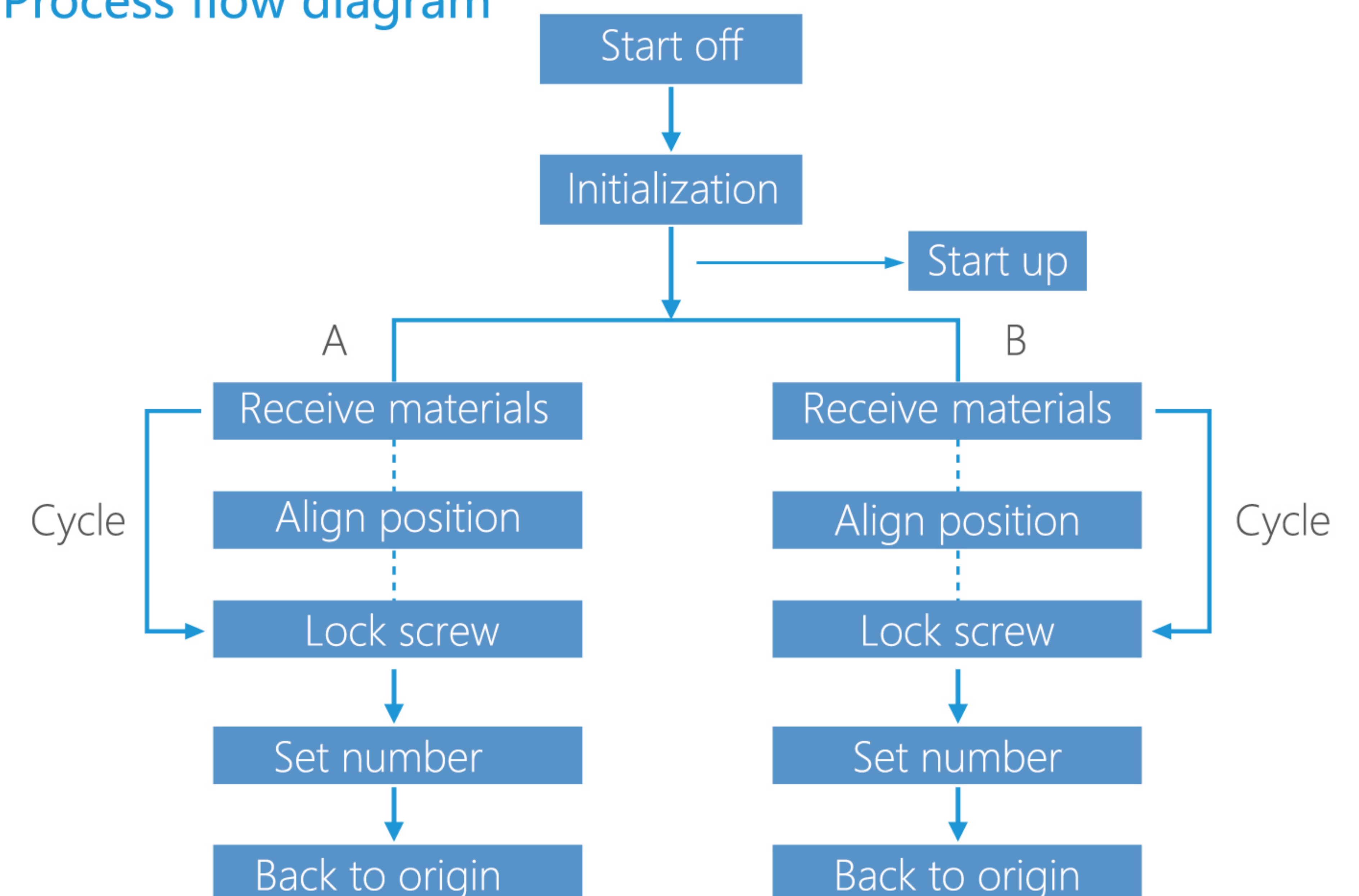
- XY workbench and online 1-4 axis are optional; lock multiple screws at the same time, which can replace multiple labor.
- According to the requirements of the lock screw product, the appropriate torque adjustment range is configured, and the torque can be adjusted separately for each axis.
- High degree of automation, easier to replace products, just call out the corresponding program.
- Highly integrated, it can be equipped with a variety of manipulators such as locking screws, soldering, dispensing, handling, assembly, etc.
- Programming is easier, just write the motion trajectory and modify the motion parameters, and the employees can quickly master the operation and debugging.
- The machine is equipped with leak lock/floating lock/sliding teeth and other lock failure detection and alarm.
- Quality is trustworthy, professional engineers carry out personalized design and debugging according to products, and dedicated after-sales service.
- High efficiency, high stability, high quality, realizing high intelligent and unmanned operation of screw locking operation.



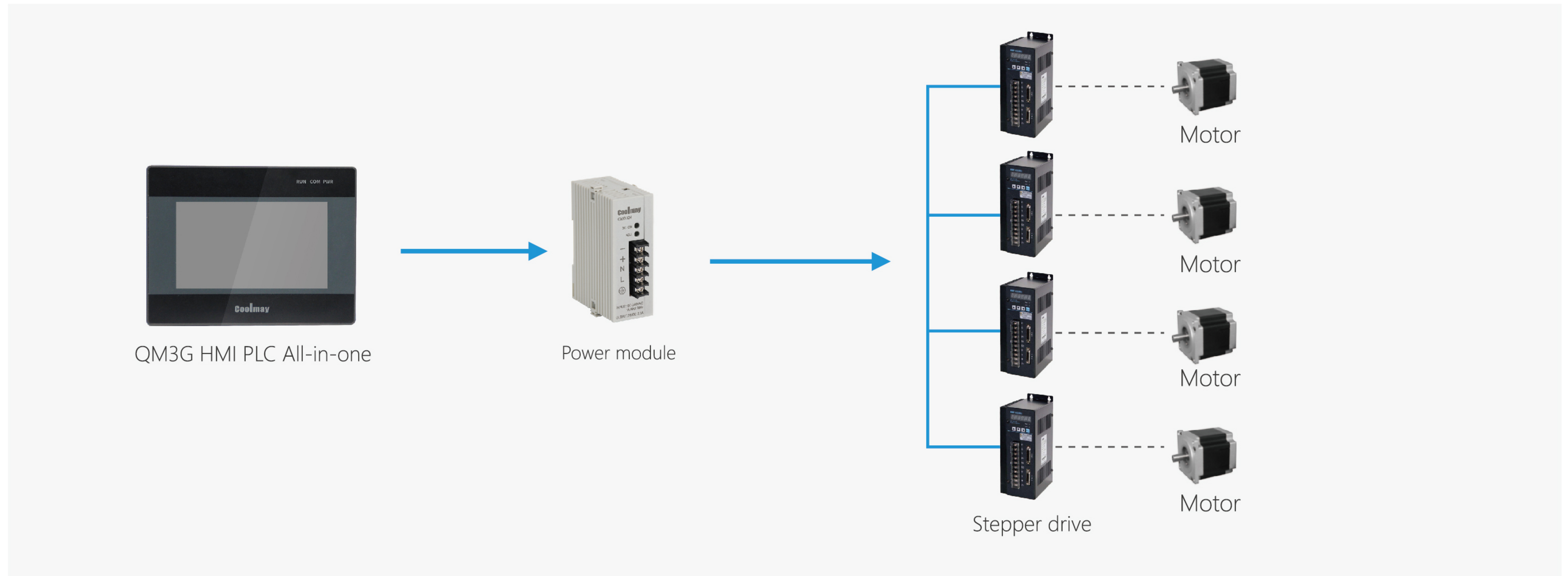
System main interface



Process flow diagram



I System topology diagram



I System Feature

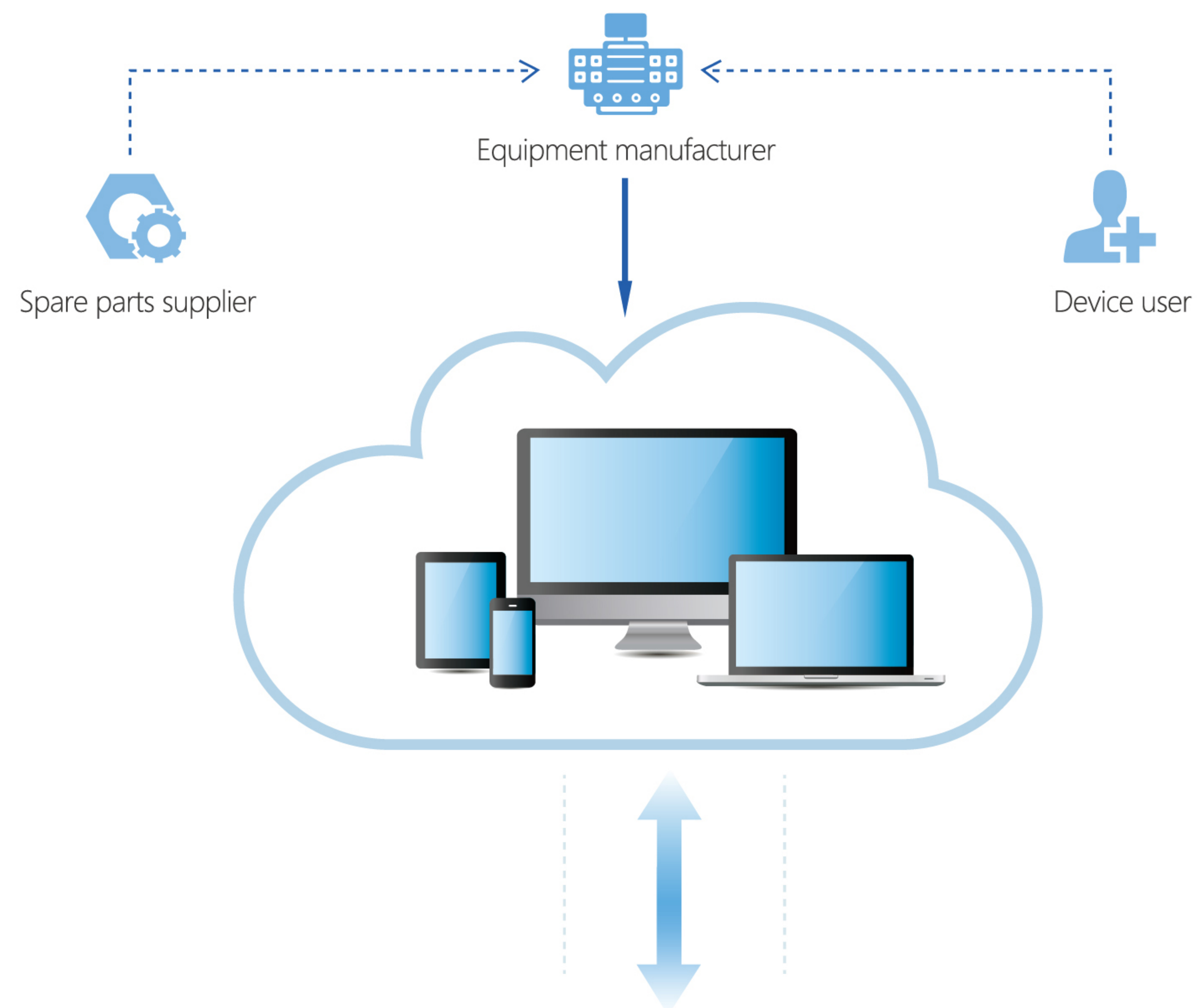
- CM100 screw machine control system has 4 motor control axes, which can support gantry type four-axis automatic locking screw control; meet the needs of existing gantry type automatic locking screw control schemes.
- The hand-held alignment of CM100 uses a simple editor to make programming easier and clearer.
- CM100 adopts QM3G all-in-one control scheme, with powerful calculation and flexible customization capabilities, short speed refresh time, and superior motion control acceleration and deceleration performance.
- CM100 motion control motherboard has 32M storage space, can store 40 screw machine control processing files, each file can store 30 solder processing programming points, with a visual display.

I Application scenario

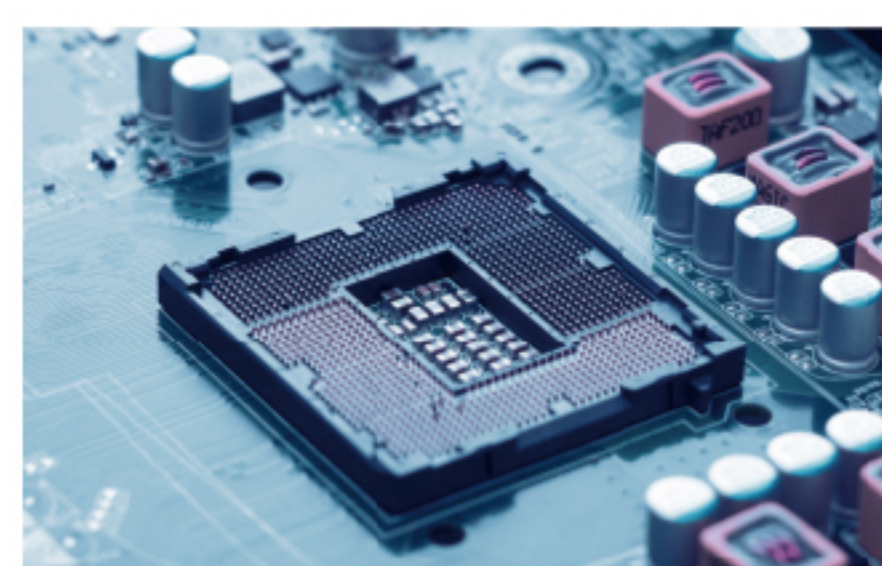


Application scenario

Food packaging machinery, electronic manufacturing equipment, printing machinery, textile machinery, medical machinery, testing machinery, wind power equipment, engineering machinery, plastic machinery, tobacco machinery, agriculture, forestry and animal husbandry (aquaculture), environmental protection equipment, automobile manufacturing, AGV trolleys, logistics storage equipment...



Food packaging industry



Electronics manufacturing



Textile industry



Medical industry



Printing industry



Livestock breeding



Environmental protection industry



Warehousing logistics

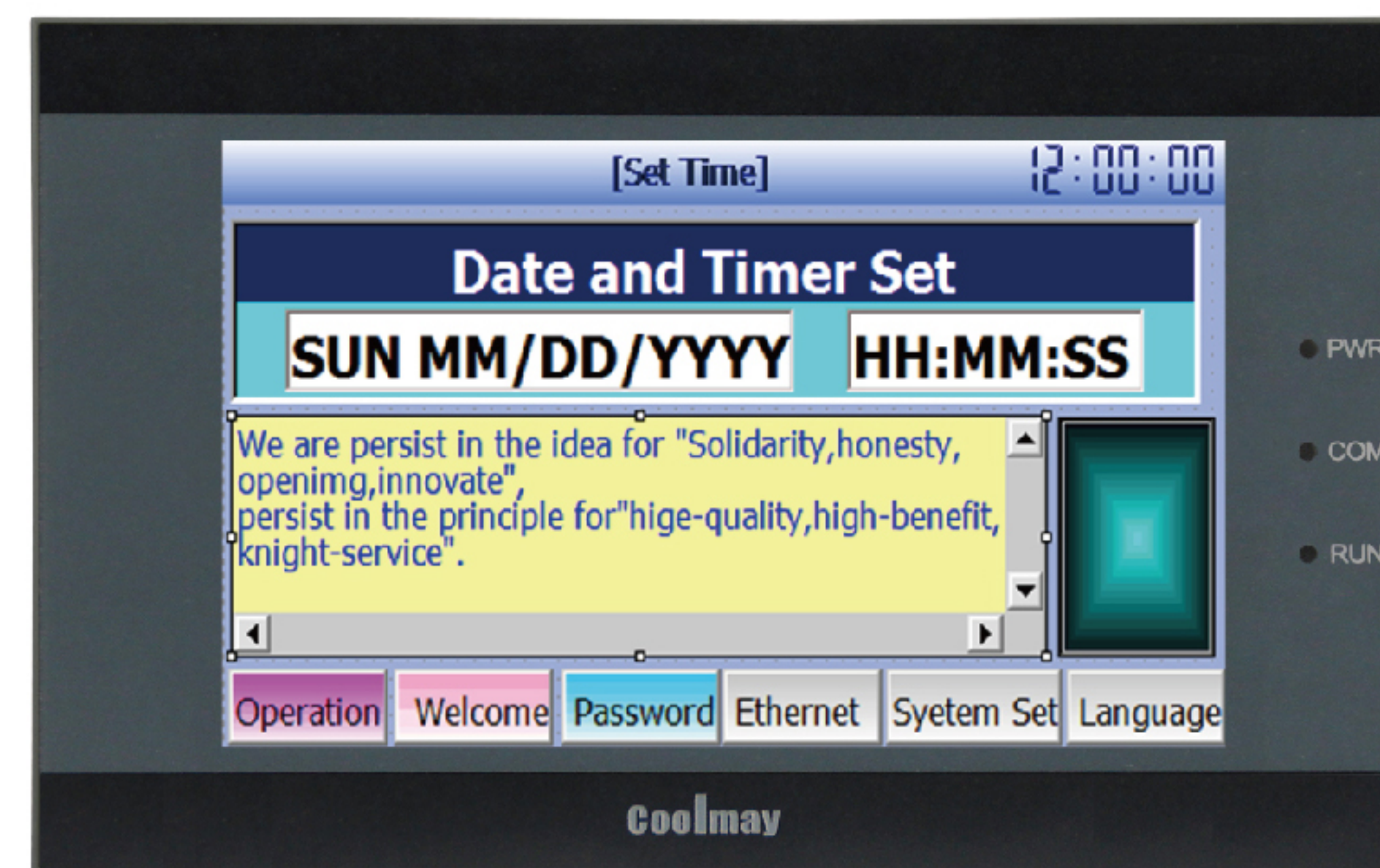


Product models

QM3G HMI PLC All-in-one



QM3G-43FH



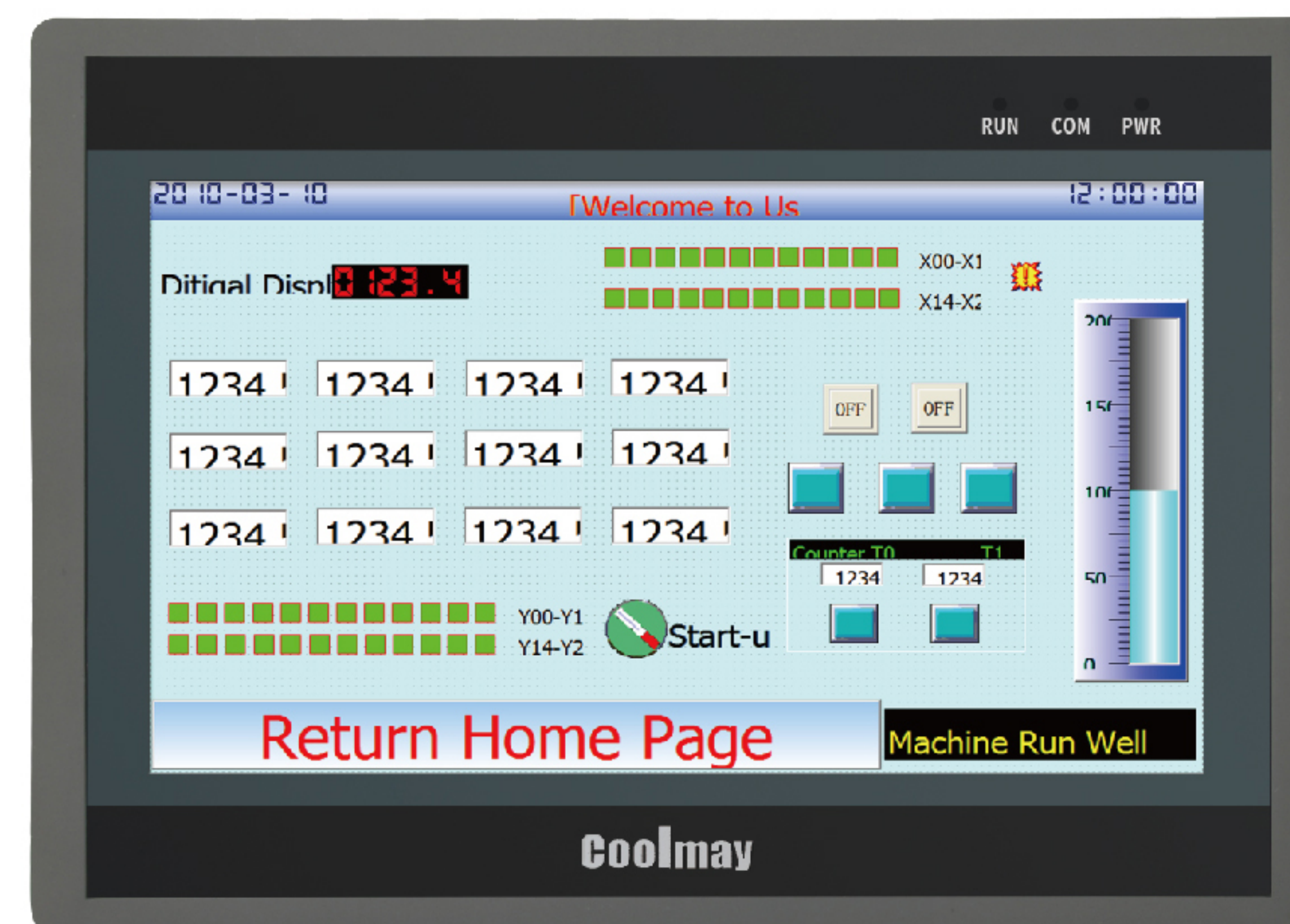
QM3G-50FH



QM3G-70FH



QM3G-70KFH



QM3G-100FH



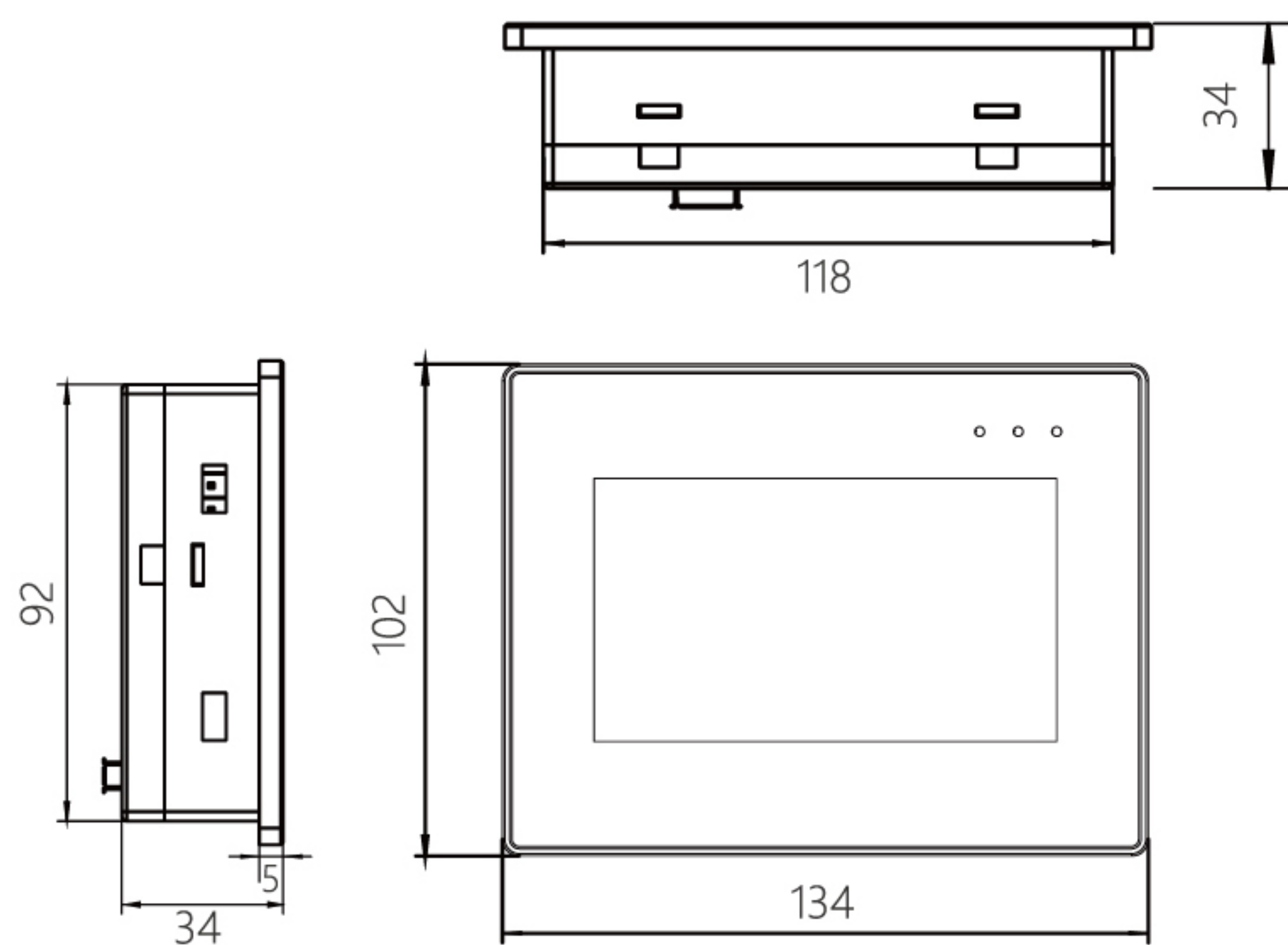
Specifications and parameters

| Model | QM3G-43FH | QM3G-50FH | QM3G-70FH/HD | QM3G-70KFH | QM3G-100FH |
|---------------------|---|------------------------------|---|---|------------------------------|
| Display screen | 4.3 "TFT LCD screen | 5 "TFT LCD screen | 7 "TFT LCD screen | 7 "TFT LCD screen | 10.1 "TFT LCD screen |
| Resolution(pixels) | 480*272 | 800*480 | 800*480/1024*600 | 800*480 | 1024*600 |
| Dimension | 134*102*34mm | 151*96*36mm | 200*146*36mm | 226*163*36mm | 275*194*36mm |
| Cutout size | 120*94mm | 143*86mm | 192*138mm | 217*154mm | 262*180mm |
| Display size | 97*56mm | 108*65mm | 154*87mm | 154*87mm | 222*125mm |
| brightness | 400cd/m² | 300cd/m² | 300cd/m² | 300cd/m² | 300cd/m² |
| Contrast ratio | 400:1 | 400:1 | 400:1 | 400:1 | 400:1 |
| Backlight | LED | LED | LED | LED | LED |
| Display color | 65536 true color | 65536 true color | 65536 true color | 65536 true color | 65536 true color |
| Touch type | 4-wire resistive panel | 4-wire resistive panel | 4-wire resistive panel | 4-wire resistive panel | 4-wire resistive panel |
| Touch accuracy | Length(X)±1.5% Width(Y)±1.5% | Length(X)±1.5% Width(Y)±1.5% | Length(X)±1.5% Width(Y)±1.5% | Length(X)±1.5% Width(Y)±1.5% | Length(X)±1.5% Width(Y)±1.5% |
| ROM (Flash) | NOR Flash 8MB | NOR Flash 16MB | NOR Flash 16MB | NOR Flash 16MB | NOR Flash 16MB |
| RAM | 64MB | 64MB | 64MB | 64MB | 64MB |
| CPU | 408MHz | 408MHz | 408MHz | 408MHz | 408MHz |
| USB Device | USB 2.0*1(Type-C) | USB 2.0*1(Type-C) | USB 2.0*1(Type-C) | USB 2.0*1(Type-B) | USB 2.0*1(Type-B) |
| Serial port | RS-232 | RS-232 | RS-232 or RS-485 | RS-232 or RS-485 | RS-232 or RS-485 |
| | PLC part (compatible with PLC programming software GX Developer8.86 and GX Works 2) | | | | |
| I/O | Max 12DI/12DO | | Max 24DI/20DO(16 MR) | Max 30DI/30DO(28 MR) | Max 30DI/30DO(28 MR) |
| I/O type | Transistor output: low level NPN, COM connected to negative; Relay output: normally open dry contact. Input: passive NPN, common terminal isolation. | | | | |
| DO type | Relay MR or MOS (Relay output: max load 5A/ MOS output: max load 2A) | | Relay (MR) or transistor (MT, Y0-Y3 are MOS) or mixed (MRT)(Relay output: max load 5A/ transistor output: max load 500mA) | | |
| High-speed counting | 6 single-phase 60KHz, or 2 AB (Z) phase 60KHz + 1 AB phase 10KHz | | | | |
| High-speed pulse | Conventional 8 channels: Y0-Y3 is 100KHz, Y4-Y7 is 10KHz; high-speed counting + high-speed pulse≤480KHz | | | | |
| Analog | Analog input type: E/K/S/T/J thermocouple (support negative temperature)/PT100/PT1000/NTC10K/NTC50K/NTC100K/0~10V/0~5V/0~20mA/4~20mA or mixed (7 inch and 10 inch optional -5V~5V and -10V~10V) | | | | |
| | Analog output type: 0-10V/0-5V/0-20mA/4-20mA or mixed optional | | Analog output type: 0-10V/ 0-5V/0-20mA/4-20mA/-5~5V/-10~10V optional (each negative voltage occupies two DA) | | |
| | Max 4AI/2AO | | Max 12AI/8AO | Max 16AI/8AO | Max 16AI/8AO |
| COM port | Default 2 PLC programming ports (1 TYPE-C, faster download speed; 1 RS232 programming port) | | | Default 2 PLC programming ports (1 Mini USB, faster download speed; 1 RS232 programming port) | |
| | Optional 1 RS485 or 2 RS485 COM ports (One of the RS485 is changed from the default 232); Optional WIFI (will occupy the default port 232) | | Optional 1 RS485 or 2 RS485 (RS485 port on HMI and RS232 on PLC will be unavailable) | Optional 1 RS485 or 2 RS485 (one of the RS485 is changed from the default RS232) | |
| | | | Optional CAN port (2.0A/B), network port, WIFI (will occupy the default 232 port) | | |

Dimension

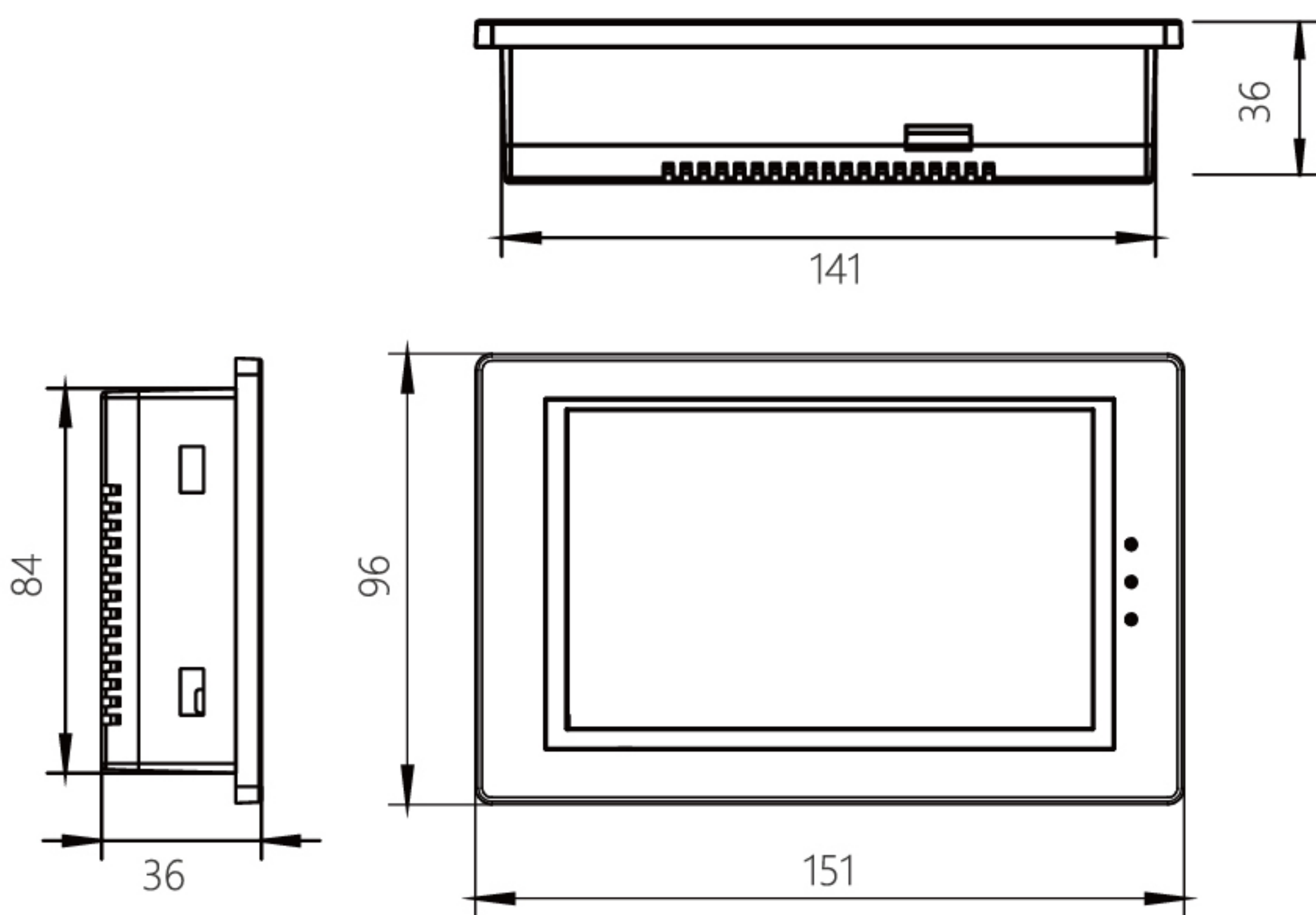
QM3G-43FH

Cutout size: 120*94mm



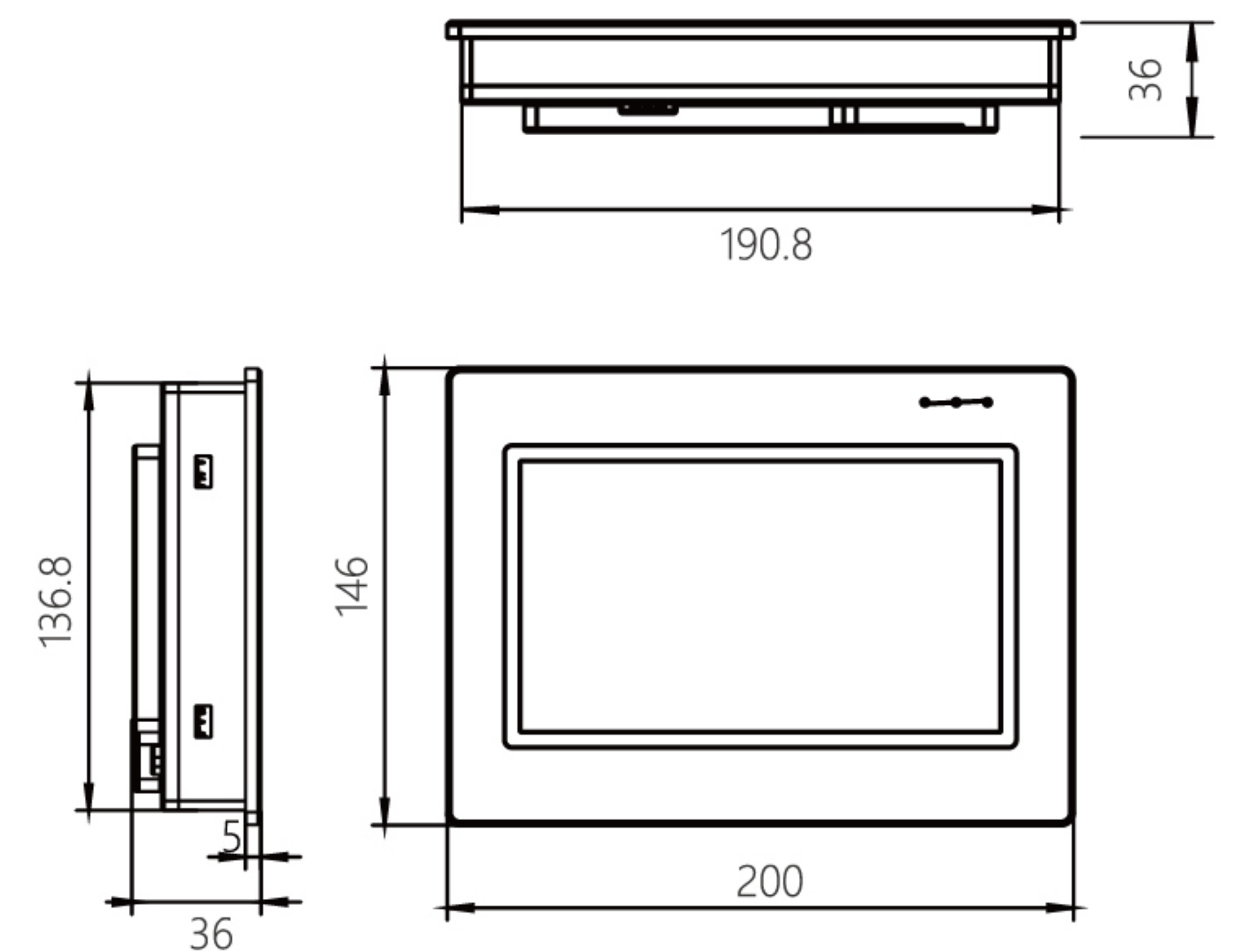
QM3G-50FH

Cutout size: 143*86mm



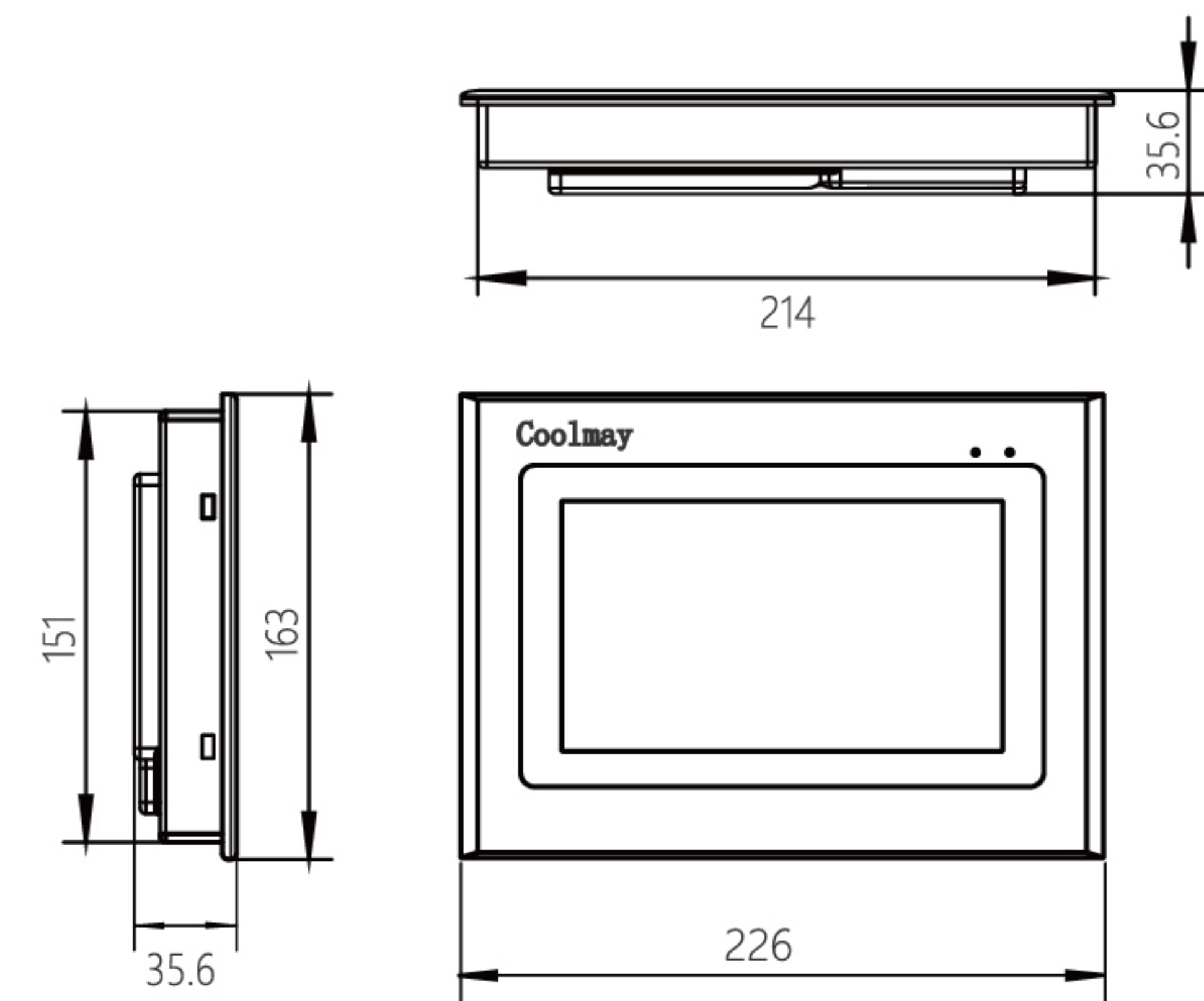
QM3G-70FH/HD

Cutout size: 192*138mm



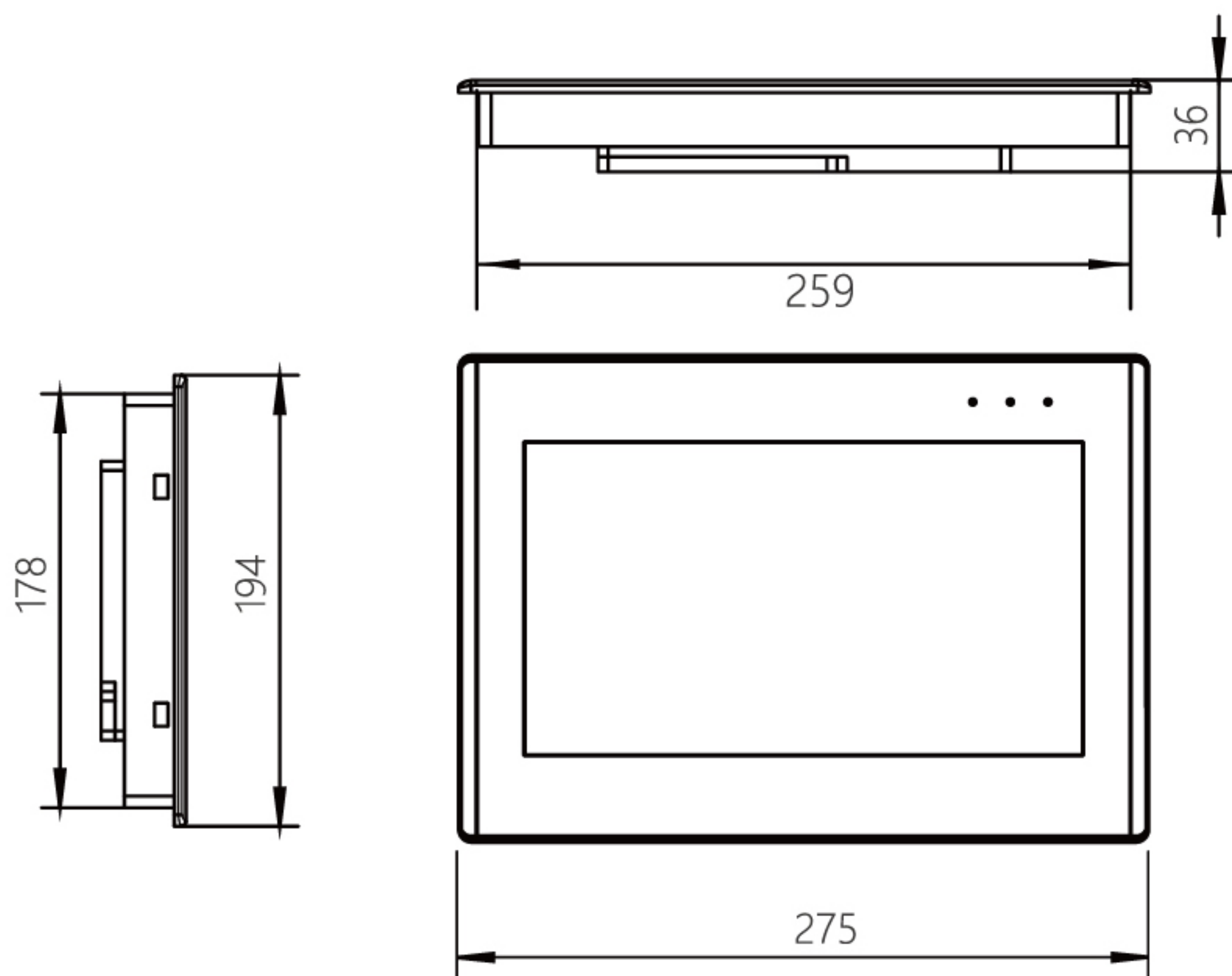
QM3G-70KFH

Cutout size: 217*154mm



QM3G-100FH

Cutout size: 262*180mm



Serve our customers wholeheartedly

Coolmay Technology has multiple branches and service outlets around the world.
Professional service team provides customers with high-quality services.
24 hours online to provide you with services.



AliExpress QR code



Alibaba QR code

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