All-in-One HMI + Programming Controller PLC with 7-inch Touch Screen and Ethernet IO

HE7 Touch Screen Programming Controller

The **WoMaster HE7 Programming Controller** is a compact and powerful all-in-one solution that integrates a 7-inch touch screen HMI with a versatile PLC controller. Designed for industrial automation applications, it supports STEP 7-MicroWIN SMART programming and all S7-200 SMART instructions, offering a familiar development environment for engineers. With its user-friendly interface and seamless integration, the HE7 simplifies system design and reduces wiring and communication complexity.
Equipped with Ethernet and RS485 ports, the HE7 supports multiple protocols including S7 TCP, MODBUS TCP/RTU, GET/PUT, and PPI, allowing for flexible connectivity with SCADA systems and other devices. Its opto-isolated I/O, high-speed pulse output, and real-time clock functions ensure reliable and precise control, even in harsh industrial environments.

Features & Benefits

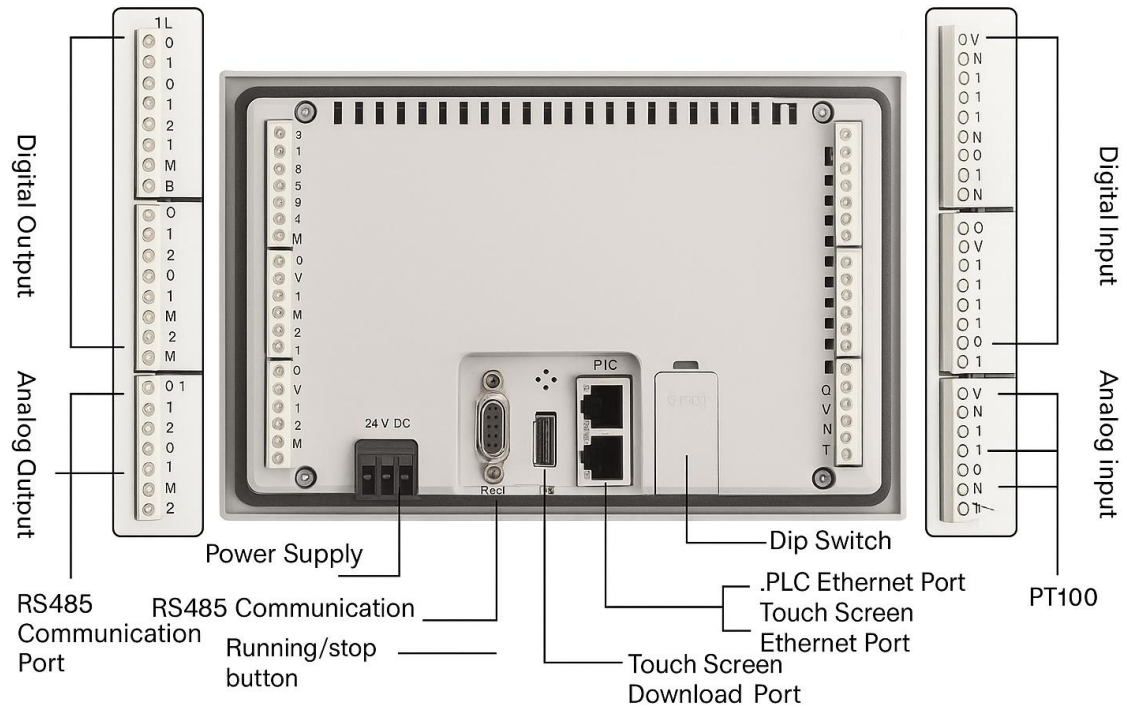
- **Integrated 7-Inch Touch Screen**: Combines control and visualization in a single unit, offering an intuitive interface for real-time monitoring and operation without occupying communication ports.
- **STEP 7-MicroWIN SMART Compatibility**: Fully supports programming with STEP 7-MicroWIN SMART, including all S7-200 SMART instructions, enabling easy migration and development. *(Excludes wizard programming features for motion control, web server, data logging, and PROFINET. OUC and ISO-on-TCP from the communication library are currently unsupported.)*
- **Opto-Isolated I/O Design**: All I/O ports use opto-isolated signal transmission to effectively filter electromagnetic and electrical interference. Inputs support both positive and negative triggering for flexible configuration.
- **Advanced Motion & Time Functions**:
  - **High-Speed Counters** for precise input signal counting.
  - **Dual 100kHz High-Speed Pulse Outputs** for motion control tasks.
  - **Built-in Real-Time Clock** and **Power-Off Data Retention** to ensure reliable operation in critical environments.
- **Versatile Communication Options**:
  - **RS485 Port** with support for PPI, free port protocol, and MODBUS RTU.
  - **Ethernet Port** with support for S7 TCP, GET/PUT, OUC, and MODBUS TCP protocols.
  - Supports up to **6 active and 6 passive simultaneous Ethernet connections**, ensuring compatibility with SCADA, PLCs, and other automation systems.

Specifications

PLC	
Communication	Ethernet port: 1 PLC network port, 1 HMI network port Serial communication port: 2 RS485 ports (port 0, port 1) USB port: 1 USB port
PLC Network Port	Support connection with programming software: 1 programming device (PG) connection Supports OUC connections based on TCP or UDP: 8 active connections and 8 passive connections Supports PUT/GET connections: 8 connections (share connection resources with OUC) Supports S7-TCP connections: 8 connections Support MODBUS TCP protocol, Support S7 Ethernet protocol, do not support PROFINET connection
HMI Network Port	Touch screen program download
USB Port	USB flash drive, touch screen program download
RS485 Port	Support connection with programming software: 1 (USB-PPI cable can be used to establish communication with programming device) Support HMI connection: 4 Support MODBUS RTU, 485 free port, PPI protocol, USS protocol
Data Rate	Ethernet port: 10M/100M adaptive RS485 PPI protocol: support 9600b/s, 19200b/s, 187500b/s RS485 free port protocol supports 2400b/s to 115200b/s
Digital Input	16 Switch contact signal or level signal, positive/negative trigger
Signal Voltage	DC 20~28V with Optocoupler Isolation
Digital Output	MR: Full Relays MT: Full Transistor MRT: Relays + Transistor
Transistors	Q0.0-Q0.3. Maximum current of a single control point is 0.75A Maximum current of the common end is 2.0A
Relay	Maximum current of a single control point is 2.0A Maximum current of the common end is 8.0A
Isolation	Relay: Mechanical insulation Transistor: Optocoupler isolation
Analog Input	4 Voltage (0~10V) or Current (0~20mA)
Input Mode	4-way DIP switch to switch voltage/current
Conversion accuracy	12 bits
error	±8‰ full scale
Analog Output	2 channels. Each channel has two outputs: current and voltage
Output Type	0~10V voltage or 0~20ma current
Conversion accuracy	12 bits
error	±8‰ full scale
PT100	2
Resolution	0.1℃
Error	±1℃
Range	- 50~300℃
Conversion accuracy	16 bit
High-speed counter	Single-phase, AB phase
Signal	PNP/NPN
Pulse frequency	Single-phase counting: 4 channels 200kHz (HS0~HS3) + 2 channels 30kHz (HS4,HS5) AB phase counting: 2 channels 100kHz (HS0,HS2) + 2 channels 20kHz (HS4,HS5)

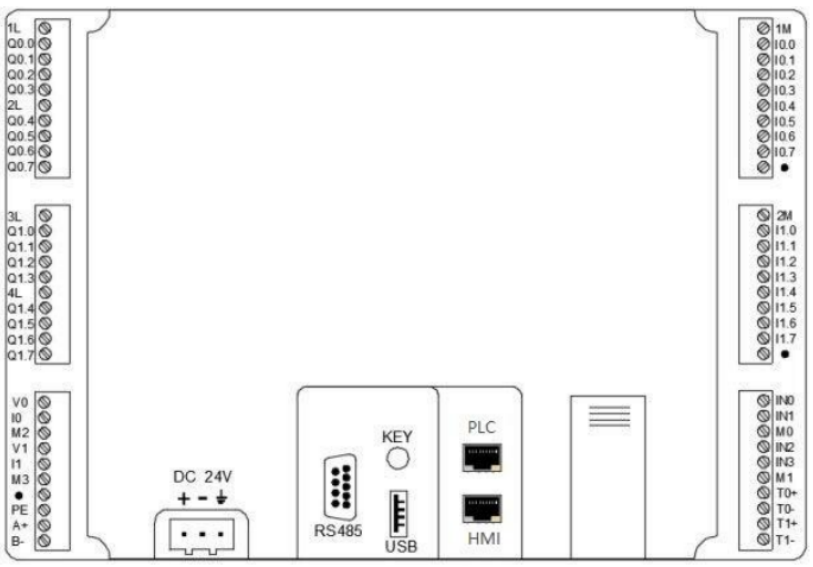
Specifications

Touch Screen	
LCD	7-inch TFT
High Resolution	800*480
Brightness	400
Contrast	500:1
Backlight lifetime	＞30,000 Hours
Display Color	16.7M
Viewing angle	80/80/80/80
Touch Screen Type	4-wire resistive or high-precision capacitive touch panel
Flash	128MB
RAM	128MB
System	
Memory	Program memory 24KB, data memory 16KB, retentive memory 10KB
Real-time clock	Powered by button battery when power is off, button battery is replaceable
Run/Stop	Press the KEY button to control the PLC to stop. The running light is on, indicating that the PLC is in working mode; The stop light is on, indicating that the PLC is in stop mode
Error Warning	When the PLC runs into an error, the error indicator lights up red.
Power supply	20~28V DC, terminal access, with reverse connection protection
Power consumption	10W
Operating temperature	- 10℃~+50℃ (no freezing)
Dimensions (mm)	212*157*41



Interfaces

1L	1-4 digital output common
Q0.0	1st digital output
Q0.1	2nd digital output
Q0.2	3rd digital output
Q0.3	4th digital output
2L	5-8 digital output common
Q0.4	5th digital output
Q0.5	6th digital output
Q0.6	7th digital output
Q0.7	8th digital output
3L	9-12 digital output common
Q1.0	9th digital output
Q1.1	10th digital output
Q1.2	11th digital output
4L	13-16 digital output
Q1.3	13th digital output
Q1.4	14th digital output
Q1.5	15th digital output
Q1.6	16th digital output
Q1.7	1st voltage output
V0	1st current output
I0	Common voltage output channel 1
M1	2nd voltage output
V1	2nd current output
I1	Common voltage output channel 2
M2	No effect
M3	485-PLC programming port, com1
A+	485-PLC programming port, com1
B-	DC 24V power positive pole



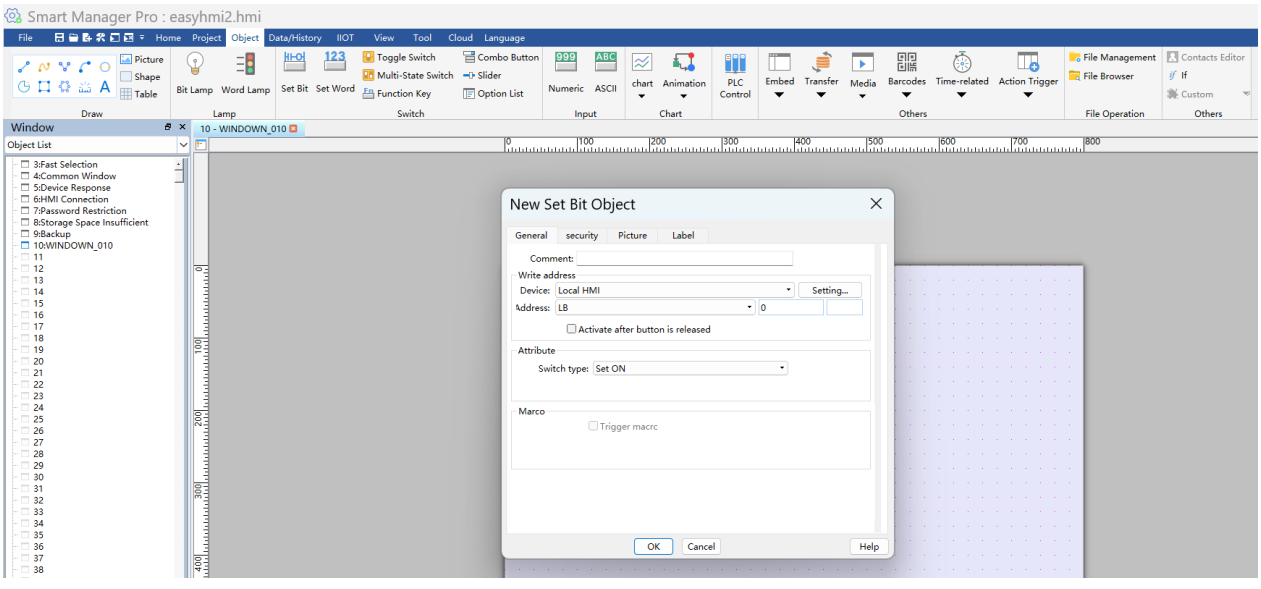
USB	USB port
KEY	PLC run, stop switch button (Press to stop, release to run)

1M	1-8 digital input common
I0.0	1st digital input
I0.1	2nd digital input
I0.2	3rd digital input
I0.3	4th digital input
I0.4	5th digital input
I0.5	6th digital input
I0.6	7th digital input
I0.7	8th digital input

2M	9-16 digital input common
I1.0	9th digital input
I1.1	10th digital input
I1.2	11th digital input
I1.3	12th digital input
I1.4	13th digital input
I1.5	14th digital input
I1.6	15th digital input
I1.7	16th digital input

IN0	1st analog input
IN1	2nd analog input
M0	2 analog input common
IN2	3rd analog input
IN3	4th analog input
M1	3-4 analog input common
T0+	1st temperature input +
T0-	1st temperature input -
T1+	2nd temperature input +
T1-	2nd temperature input -

Management



Model	Digital Input	Digital Outputs	Analog I/O	PT100	RS485	HMI Network PLC Network USB	Counting Single/AB	Pulse
HE7-16MR	8 inputs	8 relay	4 inputs 2 outputs	2	2	1 / 1 / 1	4 / 2	0
HE7-16MRT	8 inputs	4 relay + 4 Transistor	4 inputs 2 outputs	2	2	1 / 1 / 1	4 / 2	2
HE7-24MR	16 inputs	8 relay	4 inputs	2	1	1 / 1 / 1	6 / 4	0
HE7-24MRT	16 inputs	4 relay + 4 Transistor	4 inputs	2	1	1 / 1 / 1	6 / 4	2
HE7-32MR	16 inputs	16 relay	4 inputs 2 outputs	2	2	1 / 1 / 1	6 / 4	0
HE7-32MRT	16 inputs	12 relay + 4 Transistor	4 inputs 2 outputs	2	2	1 / 1 / 1	6 / 4	2

Ordering Information

Model Name	Description
HE7-MC0701NE-16MR	All-in-One HMI PLC 7-inch Touch Screen 8 DI, 8 DO Relays, 4 Analog Inputs, 2 Analog Outputs, 2 PT100, 2 RS485, 1 HMI Ethernet, 1 PLC Ethernet, 1 USB, 6 Counting , 24VDC Power Input
HE7-MC0701NE-16MRT	All-in-One HMI PLC 7-inch Touch Screen 8 DI, 4 DO Relays, 4 DO Transistor, 4 Analog Inputs, 2 Analog Outputs, 2 PT100, 2 RS485, 1 HMI Ethernet, 1 PLC Ethernet, 1 USB, 6 Counting, 2 Pulse, 24VDC Power Input
HE7-MC0701NE-24MR	All-in-One HMI PLC 7-inch Touch Screen 16 DI, 8 DO Relays, 4 Analog Inputs, 2 PT100, 1 RS485, 1 HMI Ethernet, 1 PLC Ethernet, 1 USB, 10 Counting , 24VDC Power Input
HE7-MC0701NE-24MRT	All-in-One HMI PLC 7-inch Touch Screen 16 DI, 4 DO Relays, 4 DO Transistor, 4 Analog Inputs, 2 PT100, 1 RS485, 1 HMI Ethernet, 1 PLC Ethernet, 1 USB, 10 Counting, 2 Pulse, 24VDC Power Input
HE7-MC0701NE-32MR	All-in-One HMI PLC 7-inch Touch Screen 16 DI, 16 DO Relays, 4 Analog Inputs, 2 Analog Outputs, 2 PT100, 2 RS485, 1 HMI Ethernet, 1 PLC Ethernet, 1 USB, 10 Counting , 24VDC Power Input
HE7-MC0701NE-32MRT	All-in-One HMI PLC 7-inch Touch Screen 16 DI, 12 DO Relays, 4 DO Transistor, 4 Analog Inputs, 2 Analog Outputs, 2 PT100, 2 RS485, 1 HMI Ethernet, 1 PLC Ethernet, 1 USB, 10 Counting, 2 Pulse, 24VDC Power Input