

### 1 Installation and Startup Guide

This document covers the installation of cMT-CTRL01 Series HMI, for the detailed specifications and operation, please refer to Datasheet, Brochure and EasyBuilder Pro User Manual. Please read all warnings, precautions, and instructions on the device carefully before use.

#### Install Environment:

Electrical Environment	The HMI product has been tested to conform to European CE requirements. This means that the circuitry is designed to resist the effects of electrical noise. This does not guarantee noise immunity in severe cases. Proper wire routing and grounding will insure proper operation.
Environmental Considerations	<ol style="list-style-type: none"> <li>(1) Make sure that the units are installed correctly and that the operating limits are followed. Avoid installing units in environments where severe mechanical vibration or shocks are present.</li> <li>(2) Do not operate the unit in areas subject to explosion hazards due to flammable gases, vapors or dusts.</li> <li>(3) Do not install the unit where acid gas, such as SO<sub>2</sub> exists.</li> <li>(4) This device should be mounted in the vertical position and for use on the flat surface enclosure.</li> <li>(5) Conform to UL 61010-2-201 safety requirement for use in Pollution Degree 2 Environment.</li> <li>(6) Relative Humidity: 10% ~ 90% (non-condensing)</li> </ol>
Cleaning Considerations	Clean the device using dry cloths. Do not use liquid or spray detergents for cleaning.
IP rating	IP 20
Warning	Protection impairment if used in a manner not specified by the manufacturer. Déficit de protection si utilisé d'une manière non spécifiée par le fabricant.

### 2 Unpacking the Unit

Unpack and check the delivery. If damage is found, please contact the supplier.

**NOTE: Place the operator panel on a stable surface during installation. Dropping it or letting it fall may cause damage.**

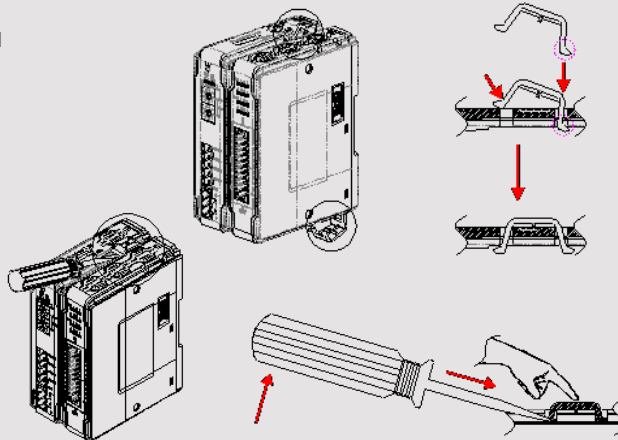
The package includes:

- (1) Installation Instruction, 2-sided A4 \*1
- (2) cMT-CTRL01 \*1
- (3) Power Connector \*1
- (4) Spare Clips \*2

### 3 Installation Instructions

**Clip assembly:** Insert one side of the clip into the hole on the case. Press down firmly in the direction shown in the figure on the right until hearing the clip snap into the case.

**Clip removal:** Insert a flathead screwdriver into the gap on the clip and then lift up the screwdriver.



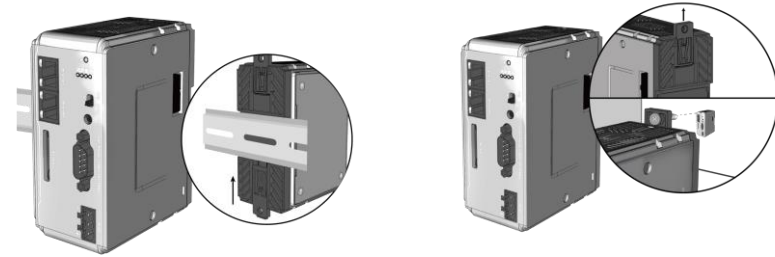
Placing a finger on the clip when lifting the screwdriver can prevent the clip from jumping away. The clip can also be removed directly by hand.

Rail mounting: DIN rail 35mm

Panel mounting: Use two M4 or #8 panhead screws, mounting hole size is 4.6mm

Plan for adequate space around the unit and inside the enclosure, for ventilation and cables. Consider the heat from other devices inside the enclosure. The ambient temperature around the unit must be 0 ~ 55°C

The aluminum flat-sheet at the side of the unit is a heat sink. Please be careful not to touch the heat sink since its heat can rise to 70°C in maximum when the unit is running. Planning for a 3cm space between the aluminum flat-sheet and other devices is recommended.



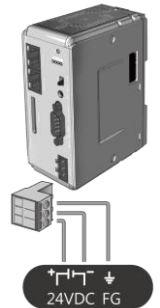
### 4 Power Connections



Power Connector Specifications:  
Wire AWG: 24~12  
Wiring Conductor Minimum Temperature: 75°C  
Screw Torque: 4.5 lbf-in (max.)  
Copper conduct only

Spécifications du connecteur d'alimentation:  
AWG de fil: 24 ~ 12  
Température minimale du conducteur de câblage: 75°C  
Couple de vis: 4.5 lbf-in (max.)  
Conducteur en cuivre seulement

**NOTE: Connect positive DC line to the '+' terminal and the DC ground to the '-' terminal.**



### 5 System Settings

cMT-CTRL01 is equipped with two Ethernet ports, and the default IP address of each port:

LAN1: DHCP (for CODESYS)

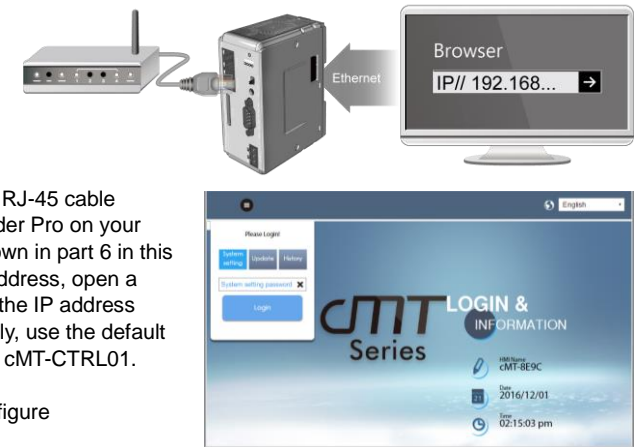
LAN2: DHCP (for Gateway)

Connect through LAN2: Connect

cMT-CTRL01 with your computer using a RJ-45 cable directly, or use a router. Launch EasyBuilder Pro on your computer, open Download window as shown in part 6 in this document to find this cMT-CTRL01's IP address, open a browser on the computer, and then enter the IP address. After connecting cMT-CTRL01 successfully, use the default password "111111" to log in and configure cMT-CTRL01.

Click the System Settings button and configure cMT-CTRL01.

The interface can be used to download or upload project files.



## 6 EasyBuilder Pro Software Settings

Launch EasyBuilder Pro software, select your project file, press F7 shortcut key to open the download dialog box: Select Ethernet > IP tab > Enter your HMI IP > Click Download to download this project file to HMI. ( Please refer to EasyBuilder Pro User Manual for software operation details )

## 7 Communication Connections

**NOTE: 1. COM2 and COM3 [RS485] 2W support MPI 187.5K, please use one at a time.**

**9 Pin, Male, D-sub**  
**COM1 [RS232]**  
**COM2 [RS485]**  
**COM3 [RS485]**

1 2 3 4 5  
6 7 8 9

PIN#	COM1 RS-232	COM2 RS-485		COM3 RS-485 2W
		2W	4W	
1				Data+
2	RxD			
3	TxD			
4				Data-
5	GND			
6		Data+	Rx+	
7		Data-	Rx-	
8			Tx+	
9			Tx-	

## 8 LED Indicators

### L.V LED

L.V LED State	Description
OFF	24V power normal
Blinking	Detect 24V power
ON	24V power error

### IO LED

RUN	ERR	Description
OFF	OFF	Power off or no power
Blinking	OFF	IO initiating
Blinking	ON	IO initiation error
ON	OFF	IO working
ON	Blinking	IO module alarm
ON	ON	IO communication fault
Blinking	Blinking	Exceeds power limitation or too many modules connected.

### CPU LED

RUN	ERR	Description
OFF	OFF	CODESYS STOP
ON	OFF	CODESYS RUN
Blinking	OFF	EBPro or CODESYS scan wink
OFF	ON	CODESYS EXCEPTION
Blinking	Blinking	BOOT

## 9 Reset Button

Press and hold on the Reset button on the unit for more than a certain period of time when the RUN/Stop toggle switch (CODESYS APP switch) is in STOP state:

0~3 seconds: no action

3~10 seconds: ERR indicator blinks -> release Reset button -> soft reboot (reboot PLC and Gateway)

Over 10 seconds: ERR indicator lights up -> release Reset button -> reset to default

The projects, historical data, and CODESYS application stored in the unit are all cleared after pressing this button.

## 10 Battery Replacement

Battery Specification: UL Certification Battery, Type CR1220, Rated 3V, Max. Abnormal Charging Current 10mA, Working Temperature: max. 70°C

Battery replacement shall be performed by qualified personnel only and care must be taken when handling lithium batteries.

### CAUTION



Power

**NOTE:** Make sure that all local and national electrical standards are met when installing the unit. Contact your local authorities to determine which codes apply.

Use power output that meets SELV (Safety Extra-Low Voltage) requirements. The unit can be powered by DC power only, voltage range: 24±20%, compatible with most controller DC systems. The power conditioning circuitry inside the unit is accomplished by a switching power supply. The peak starting current can be as high as 500mA.



Fusing Requirements

If the L.V. LED is not blinking after power up, remove power. A resettable fuse will protect against overcurrent faults in DC circuit and the resetting will take place after a period of time. Check wiring for proper connections and try to power up again.



High Voltage

A resettable fuse will prevent damage for overcurrent condition however it isn't guaranteed. DC voltage sources should provide proper isolation from main AC power and similar hazards.



Emergency Stop

A Hard-wired EMERGENCY STOP should be fitted in any system using an HMI to comply with ICS Safety Recommendations.



Supply Voltage Condition

Do not power the unit and inductive DC loads, or input circuitry to the controller, with the same power supply. Note: The 24 VDC output from some controllers may not have enough current to power the unit.



Wire Routing

- Communication wire length should be minimized (Max: 500m shielded, 300m unshielded).
- Please use twisted pair cables for power wire and signal wire and conform to the impedance matching.
- If wiring is to be exposed to lightning or surges, use appropriate surge suppression devices.
- Keep AC, high energy, and rapidly switching DC power wiring separated from signal wires.
- Add a resistor and capacitor in the parallel connection between the ungrounded DC power supply and the frame ground. This provides a path for static and high frequency dissipation. Typical values to use are 1M Ohm and 4700pF

### DANGER



Hardware Considerations

The system designer should be aware that devices in Controller systems could fail and thereby create an unsafe condition. Furthermore, electrical interference in an operator interface can lead to equipment start-up, which could result in property damage and/or physical injury to the operator.

If you use any programmable control systems that require an operator, be aware that this potential safety hazard exists and take appropriate precautions. Although the specific design steps depend on your particular application, the following precautions generally apply to installation of solid-state programmable control devices, and conform to the guidelines for installation of Controllers recommended in NEMA ICS 3-304 Control Standards.



Programming Considerations

To conform to ICS Safety Recommendations, checks should be placed in the controller to ensure that all writable registers that control critical parts of plant or machinery have limit checks built into the program, with an out-of-limit safe shut down procedure to ensure safety of personnel.

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## Limited Warranty

A copy of the Warranty and Limitation of Liability is contained in the product box. It can also be found on the Maple Systems website.

