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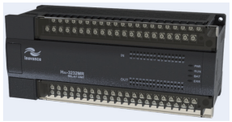
# H2U Series PLC User Manual

Code: 19010034 V2.0



Thank you for purchasing the H2U series programmable logic controller (PLC) independently developed by Inovance Control Technology Co., Ltd. Read the manual carefully to be familiar with the product features and be able to use the product safely.

This manual describes the specification, features and usage of the H2U series PLC. For the developing environment and design method of user programs, see the Autoshop On-line Help of Inovance.

The H2U series PLC has the following features:

- The built-in program memory space reaches up to 16K steps.
- The internal large-capacity power supply can directly apply power to sensors, HMI, and external auxiliary relays.
- It provides multiple high-speed I/O terminals, and has rich motion and positioning control functions.
- It has four independent communication ports and supports various communication protocols including Modbus, facilitating system integration.
- The comprehensive encryption function protects intellectual property rights of the user.
- It comes with fast execution speed and supports up to 128 subprograms and 21 interrupt subprograms. Each subprogram has the parameter call and independent password security functions.

## Safety Information and Precautions

### ■ In Design

**⚠ DANGER**

- Provide a safety circuit outside the PLC in the application so that the control system can still work safely even if external power failure or PLC fault occurs.
- In the external circuit of the PLC, an emergency stop circuit, a protection circuit, an interlock circuit of forward/reverse rotation operation, and position upper/lower limit interlock circuit are necessary to prevent equipment damage
- The PLC is designed for indoor electric environment and is installed in an overvoltage category 2 environment. A lightning protection device must be installed for the power supply system, so that lightening overvoltage is not applied on terminals of the PLC, avoiding damage to the equipment.

### ■ During Installation

**⚠ WARNING**

- Install the PLC in places free from dust, oil smoke, conducting dust, corrosive gas, combustible gas, high temperature, condensation, wind & rain, vibration and shock. In addition, electric shock, fire, malfunction may also cause damage and deterioration to the equipment.
- During screw hole processing and wiring, ensure that no metal filing and cable end fall into the ventilation hole of the controller, because such stuff may cause a fire, fault, or malfunction.
- After installation of the newly purchased PLC is complete, ensure that there is no foreign stuff on the surface of ventilation. Failure to comply may result in poor cooling effect during running, which may lead to a fire, fault or malfunction.
- The installation and wiring must be secure and reliable. Poor contact may cause malfunction.

### ■ At Wiring

**⚠ DANGER**

- Ensure that all power supplies are cut off before installation or wiring.
- During screw hole processing and wiring, ensure that no metal filings or cable end drops into ventilation holes of the controller. Failure to comply may result in a fire, fault or malfunction.
- Perform wiring or plug/remove the cable connector only after power-off. Failure to comply may result in electric shock or damage to the circuit.

**⚠ WARNING**

- Use shielded cables for high-frequency signal input/output in applications with severe interference to enhance anti-interference capacity of the system.
- Suitable earthing connection shall be provided by the end system. The earth wire must be connected only to the earthing point on terminal which is marked with the earth symbol. The earth must be over 2 mm².

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- The specification and installation requirement of external cables must comply with the local safety regulations and related IEC standards. The size in the table below is for recommendation.

| Copper Wire | Cross-section Area | Recommended Code |
|---|---|---|
| AC power wire | 1.0–2.0 mm² | AWG 12, 18 |
| Earthing wire | 2.0 mm² | AWG12 |
| Input signal wire | 0.8–1.0 mm² | AWG18, 20 |

- The terminal of wire must be insulated according to the local safety regulations. Ensure that the insulation distance shall not be reduced when the wire is connected to the terminals. Otherwise, electric shock or damage to circuit may result.

### ■ During Running and Maintenance

**⚠ DANGER**

- Connection or removal of the communication cable, cables of the extension card and cables of the control unit, or other servicing can be performed only after power-off. Failure to comply may result in damage to the equipment or malfunction.
- Operations such as online modification, forcible output, RUN and STOP can be performed only after you read the manual and guarantee safety.

**⚠ WARNING**

- Installation or removal of the extension card can be performed only after power-off.
- Make sure to replace button cell after power-off. If replacement at power-on is required, only authorized electrical technician is allowed to complete replacement within 30 seconds. Failure to comply may result in data loss.
- Treat scrapped PLC as ordinary industrial waste.

## Product Information

### ■ Designation Rules

H2u-3232MRAX-XP
1 2 3 4 5 6 7 8 9

| No. | Name | Description |
|---|---|---|
| 1 | Product information | H: Inovance controller |
| 2 | Series No. | 2U: Second generation of controller |
| 3 | Input points | 32: 32 inputs |
| 4 | Output points | 32: 32 outputs |
| 5 | Module classification | M: Main module of general-purpose controller, P: Positioning controller, N: Network controller, E: Extension module |
| 6 | Output type | R: Relay, T: Transistor |
| 7 | Power supply type | A: 220 VAC (220 VAC by default if null), B: 110 VAC, C: 24 VAC output, D: 24 VDC |
| 8 | Special function | High-speed input/output, analog function |
| 9 | XP auxiliary version | - |

### ◆ Basic Parameters

| PLC Model | Total I/Os | I/O Features (Input Voltage: 24 VDC) | | | | | Order Code |
|---|---|---|---|---|---|---|---|
| | | Total Inputs | Hi-Speed Inputs | Total Outputs | High-Speed Outputs | Output Type | |
| H2U-1010MR-XP | 20 | 10 | 2 x 60 kHz 6 x 10 kHz | 10 | - | Relay | 01022078 |
| H2U-1010MT-XP | | | | | 3 x 100 kHz | Transistor | 01022079 |
| H2U-1616MR-XP | 32 | 16 | 6 x 60 kHz | 16 | - | Relay | 01022040 |
| H2U-1616MT-XP | | | | | 3 x 100 kHz | Transistor | 01022041 |
| H2U-2416MR-XP | 40 | 24 | 2 x 60 kHz 4 x 10 kHz | 16 | - | Relay | 01022048 |
| H2U-2416MT-XP | | | | | 2 x 100 kHz | Transistor | 01022049 |
| H2U-2416MTQ-F01 | | | 6 x 100 kHz | | 5 x 100 kHz | | 01028063 |
| H2U-3624MR-XP | 60 | 36 | 2 x 60 kHz 4 x 10 kHz | 24 | - | Relay | 01022046 |
| H2U-3624MT-XP | | | | | 2 x 100 kHz | Transistor | 01022047 |
| H2U-3232MR-XP | 64 | 32 | 6 x 60 kHz | 32 | - | Relay | 01022050 |
| H2U-3232MT-XP | | | | | 3 x 100 kHz | Transistor | 01022045 |
| H2U-3232MTQ | | | 6 x 100 kHz | | 5 x 100 kHz | | 01022015 |
| H2U-3232MTP | | | - | | 8 x 100 kHz | | 01022061 |
| H2U-4040MR-XP | 80 | 40 | 6 x 60 kHz | 40 | - | Relay | 01022042 |
| H2U-4040MT-XP | | | | | 3 x 100 kHz | Transistor | 01022062 |
| H2U-6464MR-XP | 128 | 64 | 6 x 60 kHz | 64 | - | Relay | 01022043 |
| H2U-6464MT-XP | | | | | 3 x 100 kHz | Transistor | 01022044 |

Note: Total inputs include hi-speed inputs. High-speed input terminals can be used for common inputs. Total frequency of H2U-XP high-speed inputs cannot exceed 70 kHz. Total frequency of H2U-3232MTQ and H2U-2416MTQ high-speed inputs cannot exceed 600 kHz. Total frequency of high-speed inputs of other H2U models cannot exceed 100 kHz.

### ■ General Specifications

| Environment Parameters | | | | Use | Transportation | Storage |
|---|---|---|---|---|---|---|
| Type | | Parameter | Unit | | | |
| Climate condition | Ambient temperature | Low temperature | °C | -5 | -40 | -40 |
| | | High temperature | °C | 55 | 70 | 70 |
| | Humidity | Relative humidity | % | 95 (30 ± 2 °C) | 95 ( 40 ± 2 °C) | - |
| | Air pressure | Low pressure | kPa | 70 | 70 | 70 |
| | | High pressure | kPa | 106 | 106 | 106 |
| Mechanical stres | Sine vibration | Shift | mm | 3.5 (5–9 Hz) | - | - |
| | | Acceleration | m/s² | 10 (9–150 Hz) | - | - |
| | Random vibration | Acceleration spectral density | m²/s³ (dB/Oct) | - | 5–20 Hz: 1.92 dB 20–200 Hz: -3 dB | - |
| | | Frequency range | Hz | - | 5–200 | - |
| | | Vibration direction | - | - | X/Y/Z | - |
| | Shock | Type | - | - | Half-sine | - |
| | | Acceleration | m/s² | - | 180 | - |
| | Dip | Dip height | m | - | 1 | - |

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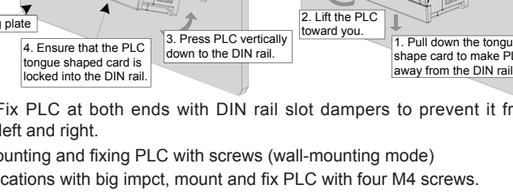
## Mechanical Design




| Model | Total I/Os | Mounting Dimension | | Dimension W × H × D (mm) |
|---|---|---|---|---|
| | | A (mm) | B (mm) | |
| H2U-1010M_ | 20 | 120 | 80 | 130 x 90 x 88 |
| H2U-1616M_ | 32 | 160 | 80 | 170 x 90 x 88 |
| H2U-2416M_ | 40 | 160 | 80 | 170 x 90 x 88 |
| H2U-3624M_ | 60 | 210 | 80 | 220 x 90 x 88 |
| H2U-3232M_ | 64 | 210 | 80 | 220 x 90 x 88 |
| H2U-4040M_ | 80 | 275 | 80 | 285 x 90 x 88 |
| H2U-6464M_ | 128 | 340 | 80 | 350 x 90 x 88 |

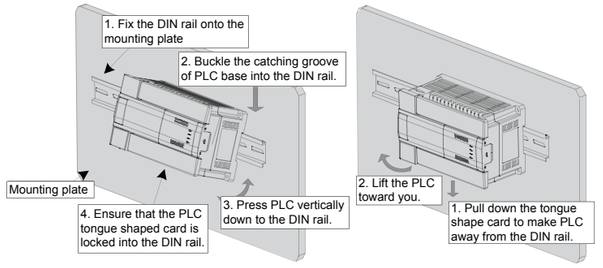
### ■ Requirements on Installation Position

1) Do not remove the paper tape that prevents foreign objects from dropping into the unit during installation. Once installation is completed, remove the paper tape before power-on so as to prevent overheating.
2) To prevent overheating inside the PLC, wall-mount PLC with 300 mm clearance at top and bottom for heat dissipation, as shown in Figure 2.
3) Leave 50 mm or more space between PLC and other devices or structures. Keep PLC far away from high-voltage cables and devices, and power devices.

### ■ Mounting Methods

1) Mounting or removing PLC

Figure 1 Mount or remove PLC

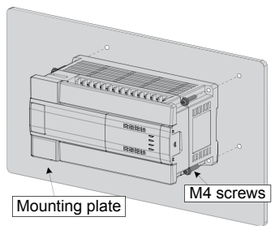



Note: Fix PLC at both ends with DIN rail slot dampers to prevent it from sliding left and right.

2) Mounting and fixing PLC with screws (wall-mounting mode)

In applications with big impct, mount and fix PLC with four M4 screws.

Figure 2 Mount and fix PLC with four M4 screws




## Electrical Design

The following figures show the I/O terminals of the main H2U series PLC unit. The H2U series PLC has different output types, relay and transistor, but has the same terminal configuration.

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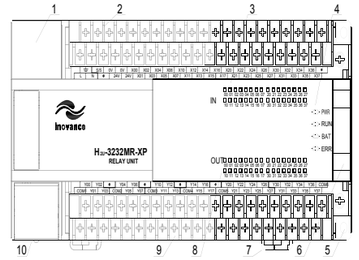
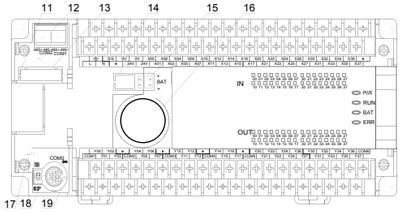
### ■ Product Structure




1. Foldaway
2. Power supply, auxiliary power supply and detachable terminals for signal input
3. Input status indicators
4. Running status indicators

PWR: Power indicator; RUN: Running indicator: Flashing indicates PLC normal running); BAT: Battery low-voltage indicator; ERR: Fault indicator

5. Mounting holes x 4; 6. Cover of extension module interface (R: Relay; T: Transistor) 7. DIN rail slot dampers x 2; 8. Output status indicator LEDs; 9. Detachable terminals for signal output; 10. Cover of user program downloading port (COM0)




11. Special function adapter board knock-down hole (It need be cut off before installation of the board.); 12. Wiring terminal for RS485 communication port (COM1/COM2); 13. Special function extension card and special function adapter board interface; 14. System program downloading port (Unauthorized operation is prevented here.); 15. Battery socket (BAT) (Neber reverse the polarity.); 16. Coin battery (provided by Inovance); 17. Special function extension card and special function adapter board fixed bolts; 18. RUN/STOP switch; 19. User program downloading port (COM0)

### ■ Communication Interface Definition

The H2U series PLC has two communication ports and H2U-XP has four communication ports. The COM0 hardware is standard RS485 and RS422, determined by jumper JP0. If JP0 is connected, RS422 is selected. If JP0 is disconnected, the RS422 and RS485 are compatible. COM0 hardware of H2U-XP is standard RS422, which does not require jumper connection. Otherwise, the PLC cannot work normally.

The terminal interface is mini-DIN8 socket.

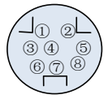



Figure 3 User program downloading port

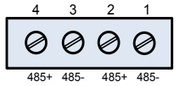



Figure 4 RS485 communication port

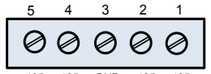



Figure 5 RS485 communication port

Note: Figure 4 is the communication port of H2U-XP. Figure 5 is the communication port of H2U-1010M_XP. COM2 is the COM0 of H2U.

PLC can be connected to PC or HMI through COM0 in the following ways:

1) (JP0 connected): PLC side is RS422 and PC side is USB. PC is connected to the PLC COM0 port via the dedicated USB downloading cable (see Figure 3). (The H2U-XP does not require JP0 connection.)
2) (JP0 connected): PLC side is RS422 and the PC side is RS232. PC is connected to the PLC COM0 port via the dedicated serial port download cable (see Figure 3). (The H2U-XP does not require JP0 connection.)
3) (JP0 disconnected): PLC side is RS485 and PC side is RS485. They are connected through the terminal as shown in Figure 4. The connecting cable is determined by the user.

COM1/COM2 hardware is standard RS485 and is interface terminal. For definition of COM1/COM2 , see Figure 4. They are connected to other devices via on-site wiring by the user. Both support the half-duplex communication mode only. COM3 of H2U-XP can be available through extension card.

| Pin No. | Signal | Description | Pin No. | Signal | Description |
|---|---|---|---|---|---|
| 1 | RXD- | Receive negative data. | 5 | +5V | Provide power supply +5 V to external devices. It is the same with the internal logic +5 V. |
| 2 | RXD+ | Receive positive data. | 6 | CCS | Communication direction control cable |
| 3 | GND | Must be grounded. No electrical connections for 9 and 10 | 7 | TXD+/ RXD+ | Send positive data to external devices. If it is RS485, it can receive positive data. |
| 4 | TXD-/ RXD- | Send negative data to external devices. If it is RS485, it can receive negative data (H2U). | 8 | NC | Non-pin |

## ■ Input Specifications

The internal signal circuit composition and external wiring mode of the H2U Series PLC are desribed here. The terminal names in the wiring example vary with the PLC models.

| Item | | Hi-speed Inputs X0-X5 | General Inputs |
|---|---|---|---|
| Signal input mode | | Sink/Source mode<br>It is sink input when the terminal S/S is shorted to 24V. It is source input when the terminal s/s is shorted to COM. | |
| Electrical parameters | Detection voltage | 24 VDC | |
| | Input resistance | 3.3 kΩ | 4.3 kΩ |
| | Input ON | Input current > 4.5 mA. | Input current > 3.5 mA. |
| | Input OFF | Input current < 1.5 mA | Input current < 1.5 mA. |
| Filter function | Digital filter | X0 to X7 has digital filter function. The filter time should be 0-60 msec. | |
| | Hardware filter | Except X0 to X7, the other I/O terminals are hardware filter. The filter time is about 10 msec. | |
| Hi-speed function | | X0 to X5 can realize functions such as high-speed counting, interrupt and pluse capture.<br>Maximum frequency of X0 and X1 is 100 kHz. (Maximum frequency of H2U-XP is 60 kHz.)<br>Maximum frequency of X2 to X5 is 10 kHz (models of 40/60 I/O terminals).<br>Maximum frequency of X2 to X5 is 100 kHz (models of 32/64/80/128 I/O terminals). (Maximum frequency of H2U-XP is 60 kHz.) | |
| Common connection terminal | | Only a common port S/S | |

S/S connecting to 24V+ or COM determines the Sink or Source input mode. The connecting mode is effective to all input points of the PLC.

## ■ Output Specifications

The H2U series PLC has relay output and transistor output. Their parameters are quite differently. Please select the correct output type so as to avoid misuse. Failure to comply may result in damage to the PLC.

The current of transistor output terminals must be less than the allowable maximum current. If the output current of multiple transistor terminals is greater than 100 mA, they should be evenly arranged but not be arranged adjacently, convenient for heat dissipation.

It is suggested that the output points, which are set to ON simultaneously, do not exceed 70% of total output points for long.

| Item | | Relay outputs | Transistor outputs |
|---|---|---|---|
| Circuit power voltage | | < 250 VAC, or < 30 VDC | 5–24 VDC |
| Circuit insulation | | Relay mechanical insulation | Opto-coupling insulation |
| LED indicator | | When the relay output contact closes, the LED indicator becomes ON. | When the opto-coupling is driven, the LED indicator becomes ON. |
| Leakage current during open circuit | | - | Less than 0.1 mA/30 VDC |
| Min. load | | 2 mA/5 VDC | 5 mA (5–24 VDC) |
| Max. output current | Resistive load | 2A/1 point<br>8A/4 points common port<br>8A/8 points common port | 0.5A/point<br>0.8A/4 points<br>1.6A/8 points |
| | Inductive load | 220 VAC, 80 VA | High speed terminal: 7.2 W/24 VDC<br>Others: 12 W/24 VDC |
| | Lamp Load | 220 VAC, 100 W | High speed terminal: 0.9 W/24 VDC<br>Others: 12 W/24 VDC |
| ON response delay | | 20 ms (max.) | High speed output: 10 μs<br>Others: 0.5 ms |
| OFF response delay | | 20 ms (max.) | |
| High-speed output frequency | | - | 100 kHz per channel (max.) |
| Output common port | | Each group shares a common port and the groups are isolated . | |
| Fuse protection | | Without fuse protection | |

## ■ Internal Equivalent Circuit

PLC has a built-in power supply (24 VDC) to detect user switch status, so you only need to connect input signals of dry contact. OC output type is needed if you connect an active transistor or sensor.

PLC signal input and internal equivalent circuit are shown as Figure 6 below. Circuit of the user and the PLC internal circuit are connected by the terminal. Figure 6 shows the SINK input mode, determined by short connection of the terminal S/S and the terminal 24V.

Figure 6 SINK input mode

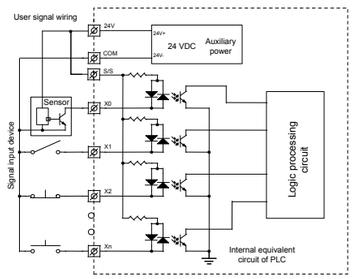
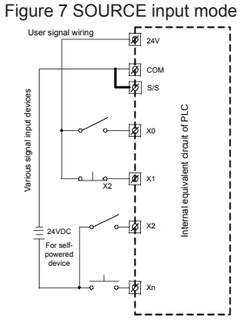


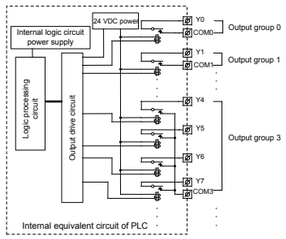

Figure 7 SOURCE input mode





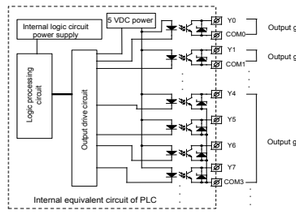

The following figure shows the internal equivalent circuit of PLC in the relay output mode. The output terminals are divided into several groups, and the groups are electrically isolated. The output contacts of different groups are connected with different power circuits.

Figure 8 Internal equivalent circuit of PLC in the relay output mode



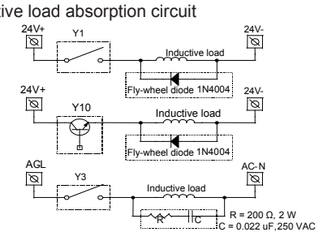

The following figure shows the internal equivalent circuit of PLC in the transistor output mode.The output terminals are divided into several groups, and the groups are electrically isolated. The transistor output can be used for 24 VDC load circuit only.

Figure 9 Internal equivalent circuit of PLC in the transistor output mode




For the inductive load in AC circuit, you need add an RC component instead, and for the inductive load in DC circuit, you need add a freewheeling diode, as shown in the following figure.

Figure 10 Inductive load absorption circuit




## ■ Power Supply Specification

| Item | | Unit | Min. Value | Typical Value | Max. Value | Remark |
|---|---|---|---|---|---|---|
| Rated operating voltage | | VAC | 100 | 220 | 240 | Normal startup and running range |
| Input voltage limit | | VAC | 85 | - | 264 | Derated in the range of 85–100 VAC and 240–264 VAC |
| Input current | | A | - | - | 1 | 85 VAC input, full-load output |
| Input power | | W/VA | - | - | 50/85 | |
| Output voltage | 5V/GND | V | 4.75 | 5 | 5.25 | Output 1 |
| | 24VDD/GND | V | 21.6 | 24 | 26.4 | Output 2 |
| | 24VCC/COM | V | 21.6 | 24 | 26.4 | Output 3 |
| Output current | 5V/GND | mA | - | - | 900 | The sum of capacity load is the internal consumption and the expansion module.<br>The maximum output power shall be the sum of each full load.<br>Natural cooling is adopted. |
| | 24VDD/GND | mA | - | - | 500 | |
| | 24VCC/COM | mA | - | - | 500 | |

Output 3 applies power to sensor. It can also provide external power supply to special function modules. Output 2 provides power supply to the main module and the relay of I/Os of expansion module. Output1 provides power to all modules. During system configuration, make sure that the demand of each power supply does not exceed its maximum capacity.

## ■ Power Supply Capacitance and Expansion Capacity

The main module and active expansion module of PLC provide power supply to expansion modules, extension cards and adapters. The I/O points of expansion modules and the number of special function expansion modules must be within the power supply capacitance of the main module or active expansion module.

For calculation on power supply capacitance, take the following aspects into considerations:

- Each power supply capacitance should be calculated independently.
- The expansion capacity is decided by the smaller power supply capacitance.

For example: 24VDD allows connection of six expansion modules, while +5V only allows connection of eight expansion modules. So the system can only be extended up to six expansion modules.

## ■ Selection of Extension Device

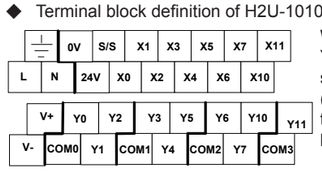
When designing an H2U series PLC system, we must consider the following aspects:

- Total I/Os should be within 256 for a main PLC system.
- Power supply capacitance (see Power Supply Specification)
- main modules and active expansion modules can provide 24 VDC and 5 VDC power supply to expansion modules and special modules. But total power consumption of all expansion units should be restricted within the power supply capacitance of main module or the active expansion module.
- The H2U series PLC can be connected to maximum 8 special modules.



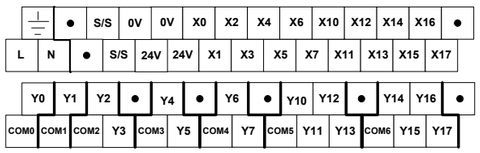
## ■ Terminal Block Definition

◆ Terminal block definition of H2U-1010MR-XP and H2U-1010MT-XP

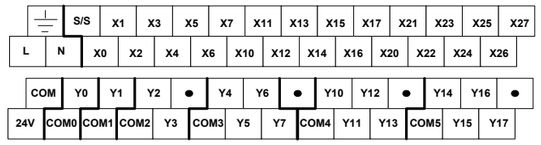



When using H2U-1010MT-XP, Y0, Y1 and Y2 require external power supply. The user can connect 24VDC (24 V ± 20%) power supply to terminals V+ and V-. Terminal V- has been shorted to COM0 internally.

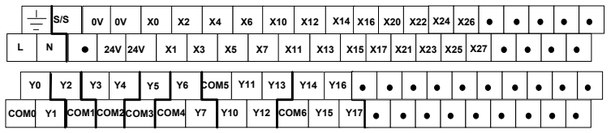
◆ Terminal block definition of H2U-1616MR and H2U-1616MT



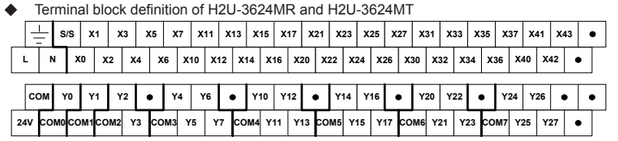

◆ Terminal block definition of H2U-2416MR and H2U-2416MT



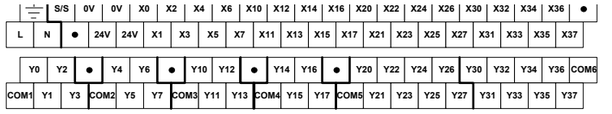

◆ Terminal block definition of H2U-2416MTQ-F01



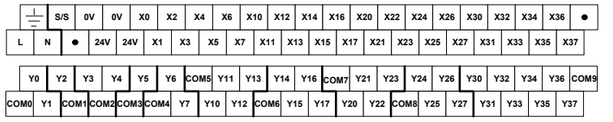

◆ Terminal block definition of H2U-3624MR and H2U-3624MT



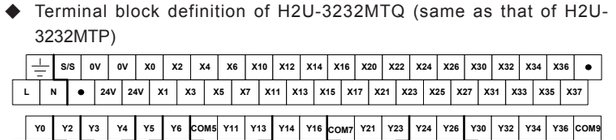

◆ Terminal block definition of H2U-3232MR and H2U-3232MT



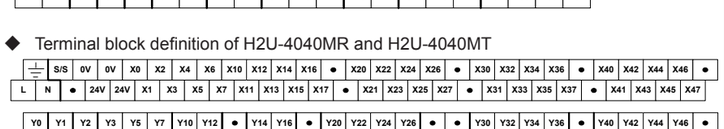

◆ Terminal block definition of H2U-3232MTQ (same as that of H2U-3232MTP)




◆ Terminal block definition of H2U-3232MTQ (same as that of H2U-3232MTP)

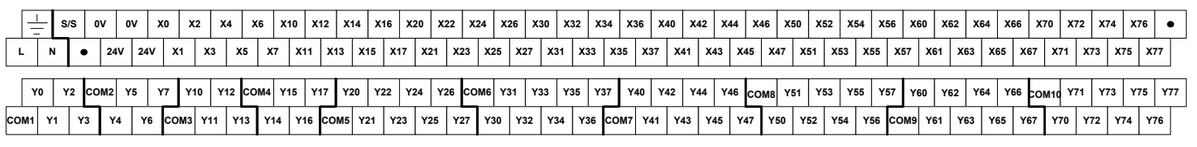



◆ Terminal block definition of H2U-4040MR and H2U-4040MT




◆ Terminal block definition of H2U-6464MR and H2U-6464MT

◆






# Programming

Description of functions of soft components

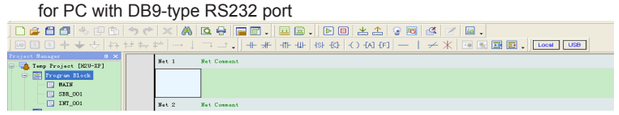
| | | | | |
|---|---|---|---|---|
| Auxiliary Relay (M) | M0 to M499, 500 points (general use) (Note 1) | [M500 to M1023], 524 points (storing) (Note 2) | [M1024 to M3071], 2048 points (storing) (Note 3) | M8000 to M8255, 256 points (special use) |
| State (S) | S0 to S499, 500 points (Note 1), S0-S9 (initialization) | [S500 to S899], 400 points (retentive at power-down) (Note 2) | | [S900 to S999], 100 points (alarm) (Note 2) |
| Timer (T) | T0 to T199, 200 points,100 ms; Subprogram: T192 to T199 | T200 to T245, 46 points,10 ms | [T246 to T249], 4 points, 1 ms (Note 3) | [T250 to T255], 6 points,100 ms (Note 3) |
| 16-bit Up Counter (C) | C0 to C99, 100 points (general use) (Note 1) | | [C100 to C199], 100 points (storing), (Note 2) | |
| 32-bit Counter (C) | 32 bit reversible | | 32 bit high-speed counting reversible, Max.6 points | |
| | C200 to C219, 20 points (general use) (Note 1) | [C220 to C234], 15 points (retentive at power-down) (Note 2) | [C235 to C245], single-phase unidirectional counting input (Note 2) | [C246 to C250], single-phase bidirectional counting input (Note 2) | [C251 to C255], dual-phase counting input (Note 2) |
| Data register D, V, Z | D0 to D199, 200 points (general use) (Note 2) | [D200 to D511], 312 points (storing) (Note 2) | [D512 to D7999], 7488 points (storing) (Note 3) | [D8000 to D8255], 256 points (special use) | V0 to V7, Z0 to Z7, 16 points (indexing) |
| Nesting pointer | N0 to N7, 8 points (main control) | P0 to P127, 128 points (jump subprogram) | I00* to I50*, 6 points (input interrupt pointers) | I6** to 8**, 3 points (timer interrupt pointers) | I010 to I060, 6 points (counting interrupt pointers) |
| Constants | K (Decimal) | 16 bits (-32,768 to 32,767) | | 32 bits (-2,147,483,648 to 2,147,483,647) | |
| | H (HEX) | 16 bits (0 to FFFFH) | | 32 bits (0 to FFFFFFFFH) | |
| | E (floating point) | - | | 32 bits (1175 x 10-41 to 3402 x 1035) | |

The soft components within [ ] are the battery backup area.

- Note 1: Non-battery backup area can be changed into battery backup area via parameter setting.
- Note 2: Battery backup area can be changed into non-battery backup area via parameter setting.
- Note 3: Such permanent battery backup area cannot be changed.

## ■ Programming requirements

1) One PC with Microsoft Windows XP or Windows 7 system
2) Inovance AutoShop (version 2.0 or above) for the purpose of writing and downloading user programs
3) Inovance USB-mini DIN8 download cable or mouse head download cable for PC with DB9-type RS232 port




## Inovance Product Warranty Card

| | | |
|---|---|---|
| Customer information | Address: | |
| | Company name:<br>Postcode: | Contact person:<br>Tel or Email: |
| Product information | Product model: | |
| | Serial No (Attach here): | |
| | Name of supplier who supplied you the unit: | |
| Failure Description (eg. Fault code) | Maintenance personnel: | |