

# Next Generation 220 Series Controller

## Basic Installation instructions v1.6

### 1. Applicable Series Controller

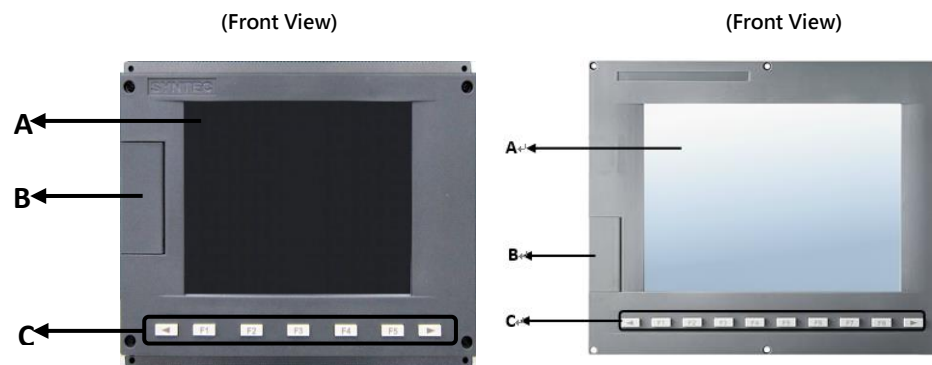
This manual is applicable for the following controllers of the series:

| Serial Number       | Product Name                                                                |
|---------------------|-----------------------------------------------------------------------------|
| F01-220MA-10-SEP    | 220MA Milling Machine Controller_10-inch Split Type                         |
| F01-220MA-10-SEP-S  | 220MA Milling Machine Controller_10-inch Flat Edge Split Type               |
| F01-220MA-10-SEP-ST | 220MA Milling Machine Controller_10-inch Flat Edge Touch Control Split Type |
| F01-220MA-10-STD    | 220MA Milling Machine Controller_10-inch Standard Type                      |
| F01-220MA-15E       | 220MA Milling Machine Controller_15-inch Frameless Split Type               |
| F01-220MA-15-S      | 220MA Milling Machine Controller_15-inch Flat Edge Split Type               |
| F01-220MA-15-S-T    | 220MA Milling Machine Controller_15-inch Flat Edge Touch Control Split Type |
| F01-220MA-5-10-T    | 220MA Five Axis Milling Machine Touch Panel Controller_10-inch Split Type   |
| F01-220MA-5-SEP     | 220MA Five Axis Milling Machine Controller_10-inch Split Type               |
| F01-220MA-5-SEP-S   | 220MA-5 Milling Machine Controller_10-inch Flat Edge Split Type             |
| F01-220MA-5-SEP-ST  | 220MA-5 Milling Machine Controller_10-inch Flat Edge Touch Panel Split Type |
| F01-220MA-5-10-STD  | 220MA-5 Milling Machine Controller_10-inch Standard Type                    |
| F01-220MA-5-15E     | 220MA-5 Milling Machine Controller_15-inch Frameless Split Type             |
| F01-220MA-5-15-15-S | 220MA Five Axis Milling Machine Controller_15-inch Flat Edge Split Type     |
| F01-220MA-5-15-ST   | 220MA Five Axis Milling Machine Controller_15-inch Flat Edge Split Type     |
| F01-220MB-10-SEP    | 220MB Milling Machine Controller_10-inch Split Type                         |
| F01-220MB-10-SEP-S  | 220MB Milling Machine Controller_10-inch Flat Edge Split Type               |
| F01-220MB-10-SEP-ST | 220MB Milling Machine Controller_10-inch Flat Edge Touch Control Split Type |
| F01-220MB-10-STD    | 220MB Milling Machine Controller_10-inch Standard Type                      |
| F01-220MB-15-SEP-S  | 220MB Milling Machine Controller_15-inch Flat Edge Split Type               |
| F01-220MB-15-SEP-ST | 220MB Milling Machine Controller_15-inch Flat Edge Touch Panel Split Type   |
| F01-220MB-15E       | 220MB Milling Machine Controller_15-inch Frameless Split Type               |
| F01-220MB-5-SEP-T   | 220MB Five Axis Milling Machine Touch Panel Controller_10-inch Split Type   |
| F01-220MB-5-SEP     | 220MB Five Axis Milling Machine Controller_10-inch Split Type               |
| F01-220MB-5-SEP-S   | 220MB-5 Milling Machine Controller_10-inch Flat Edge Split Type             |
| F01-220MB-5-SEP-ST  | 220MB-5 Milling Machine Controller_10-inch Flat Edge Touch Panel Split Type |
| F01-220MB-5-STD     | 220MB-5 Milling Machine Controller_10-inch Standard Type                    |
| F01-220MB-5-15-S    | 220MB-5 Milling Machine Controller_15-inch Frameless Split Type             |
| F01-220MB-5-15-ST   | 220MB Five Axis Milling Machine Controller_15-inch Flat Edge Split Type     |

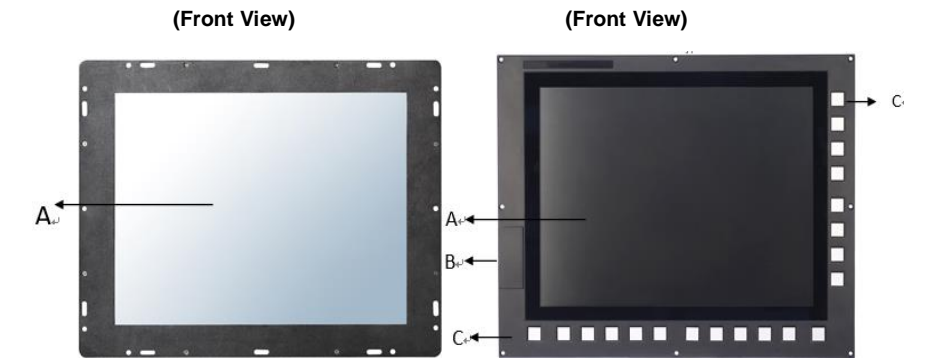
|    |                     |                                                                                     |
|----|---------------------|-------------------------------------------------------------------------------------|
| 30 | F01-220MB-5-15-ST   | 220MB Five Axis Milling Machine Controller_15-inch Flat Edge Touch Panel Split Type |
| 31 | F01-220TB-SEP       | 220TB Milling Machine Controller_10-inch Split Type                                 |
| 32 | F01-220TB-10-SEP-S  | 220TBLathe Controller_10-inch Flat Edge Split Type                                  |
| 33 | F01-220TB-10-SEP-ST | 220TB Lathe Controller_10-inch Flat Edge Touch Panel Split Type                     |
| 34 | F01-220TB-10-STD    | 220TB Lathe Controller_10-inch Standard Type                                        |
| 35 | F01-220TB-15E       | 220TB Lathe Controller_15-inch Frameless Split Type                                 |
| 36 | F01-220TB-15-S      | 220TB Lathe Controller_15-inch Flat Edge Split Type                                 |
| 37 | F01-220TB-15-ST     | 220TB Lathe Controller_15-inch Flat Edge Touch Panel Split Type                     |
| 38 | F01-220TB-5-SEP-S   | 220TB-5 Lathe Controller_10-inch Flat Edge Split Type                               |
| 39 | F01-220TB-5-10-STD  | 220TB-5 Lathe Controller_10-inch Split Type                                         |
| 40 | F01-220TB-5-SEP-ST  | 220TB-5 Lathe Controller_10-inch Flat Edge Touch Panel Split Type                   |
| 41 | F01-220TB-5-15-S    | 220TB Five Axis Lathe Controller_15-inch Flat Edge Split Type                       |
| 42 | F01-220TB-5-15-S-T  | 220TB Five Axis Lathe Controller_15-inch Flat Edge Touch Panel Split Type           |
| 43 | F01-220TB-15SE      | 220TB Lathe Controller_15-inch Narrow Boarder Split Type                            |
| 44 | F01-220MA-15SE      | 220MA Milling Machine Controller_15-inch Narrow Boarder Split Type                  |
| 45 | F01-220MA-5-15SE    | 220MA-5 Milling Machine Controller_15-inch Narrow Boarder Split Type                |
| 46 | F01-220MB-15SE      | 220MB Milling Machine Controller_15-inch Narrow Boarder Split Type                  |
| 47 | F01-220MB-5-15SE    | 220MB-5 Milling Machine Controller_15-inch Narrow Boarder Split Type                |
| 48 | F01-220MA-15SE-T    | 220MA Milling Machine Controller_15-inch Touch Panel Frameless Narrow Boarder       |

### 2. Controller Interface

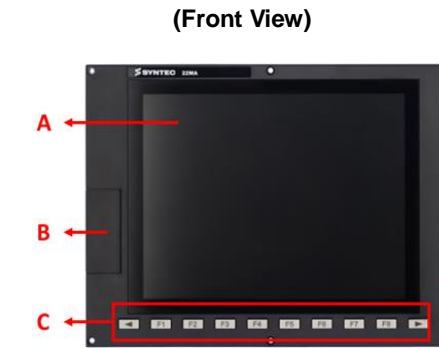
(220 Split Series 8-inch Controller) (220 Series 10-inch Controller /Touch Panel Controller)



(220 Series 15-inch Frameless Controller) (220 Series 15-inch Flat Edge Controller)



(220 Series 10-inch Flat Edge Split Type/ Touch Control Controller)

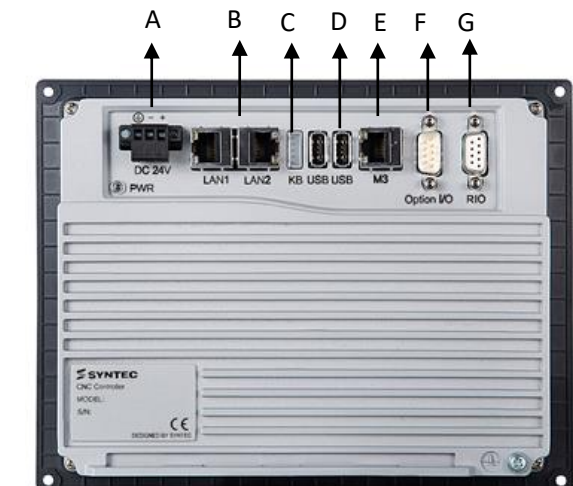


(220 Series 10-inch Flat Edge Standard Type Controller Front View)



|   |                |                |
|---|----------------|----------------|
| A | 8-inch Monitor | Display Window |
| B | Flip Cover     | USB Port       |
| C | Buttons        | Functions      |
| D | Keypad         | Script Input   |

(Back View)

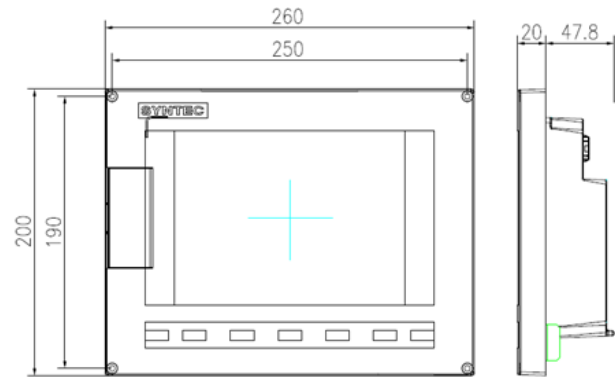


|   |                |                                                                          |
|---|----------------|--------------------------------------------------------------------------|
| A | DC 24V INPUT   | Power Input DC 24V(1A)                                                   |
| B | LAN1&2         | 2 sets of 10/100M Internet Interface                                     |
| C | KeyBoard       | Keyboard Interface                                                       |
| D | USB            | 2 sets of USB2.0 Host                                                    |
| E | Mechatrolink 3 | YASKAWA Serial Servo Communication Interface                             |
| F | Option I/O     | 1 set of SRI & 1 set of RS485                                            |
| G | RIO PORT       | RIO Interface<br>Able to connect to 1 set of HKIO and 1 set of IO module |

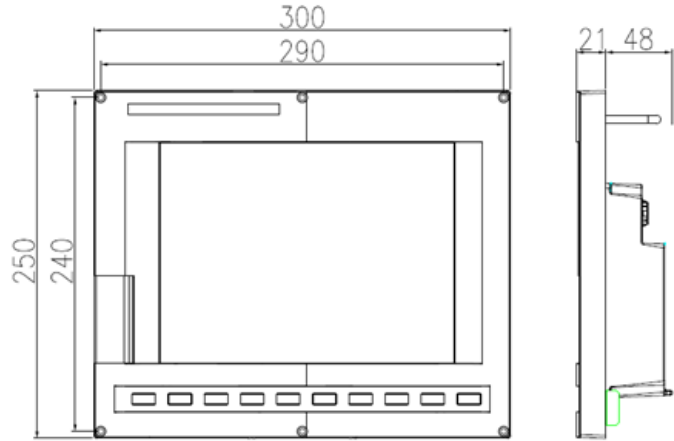
※Notice : To ensure communication quality, the length of USB extension cords in use shall not exceed five meters. Besides, do not charge or supply power via the USB port; otherwise, it may cause controller malfunction.

### 3. Controller Appearance (Unit : mm)

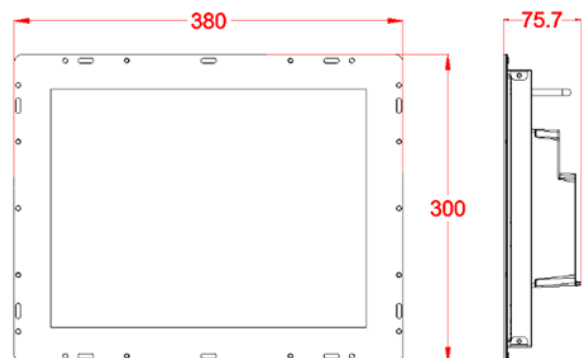
(220 Split Type Series 8-inch Controller)



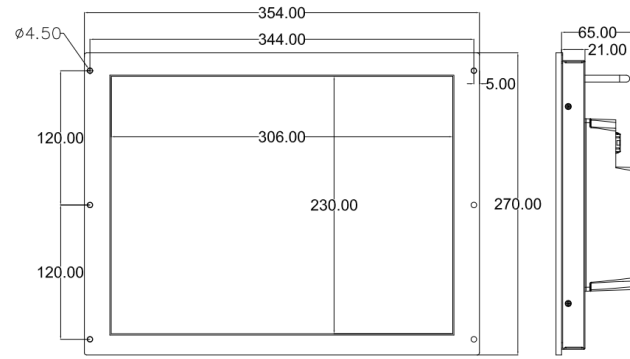
(220 Series 10-inch Controller / Touch Panel Controller)



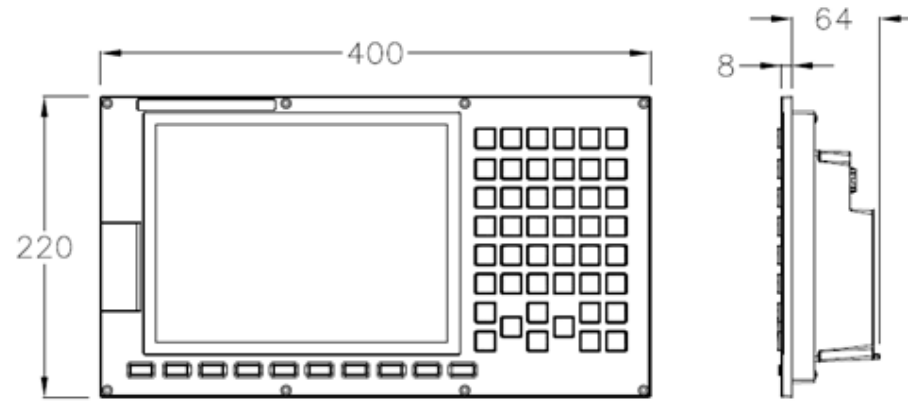
(220 Series 15-inch Frameless Controller)



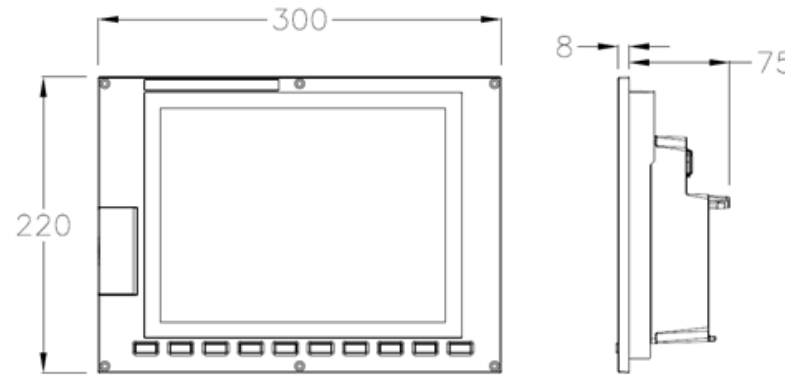
(220 Series 15-inch Narrow Boarder Split Type/  
Touch Panel Narrow Boarder Split Type Controller)



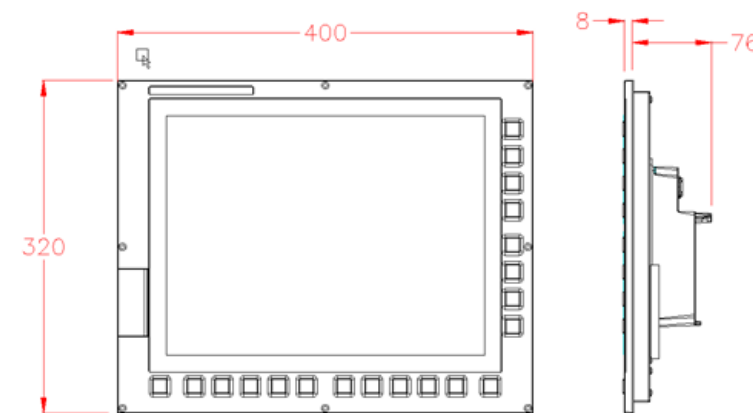
(220 Series 10-inch Flat Edge Standard Type Controller Front View)



(220 Series 10-inch Flat Edge Split Type/ Touch Panel Controller)

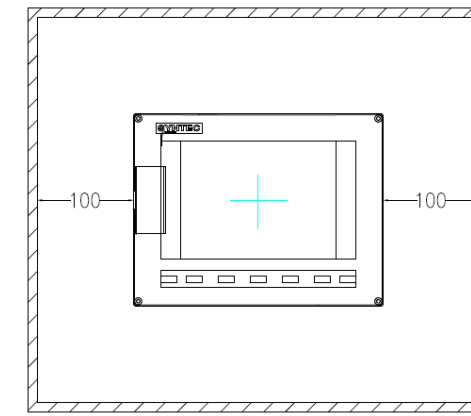


(220 Series 15-inch Flat Edge Controller)

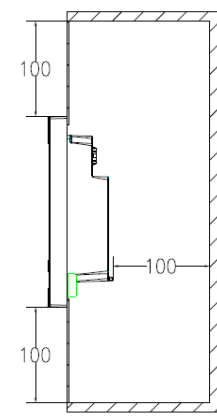


### 4. Suggested Installation Specifications (Unit : mm)

(Front View)



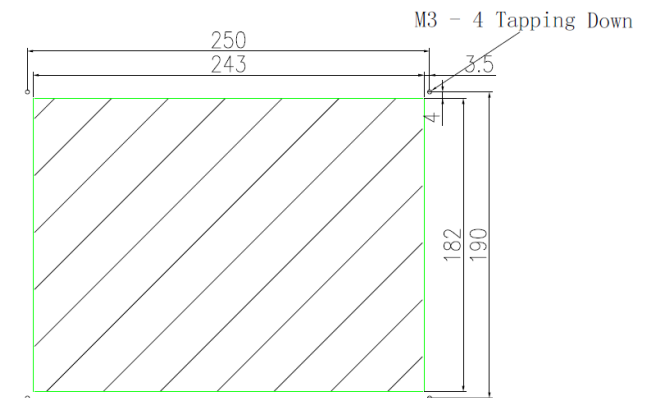
(Side View)



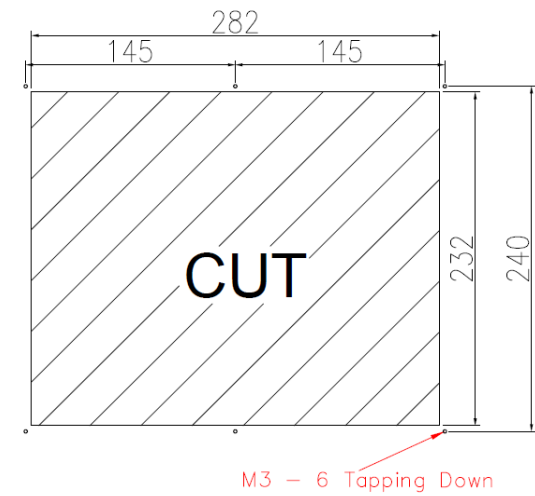
### 5. Mounting Hole Specifications (Unit : mm)

( Controller )

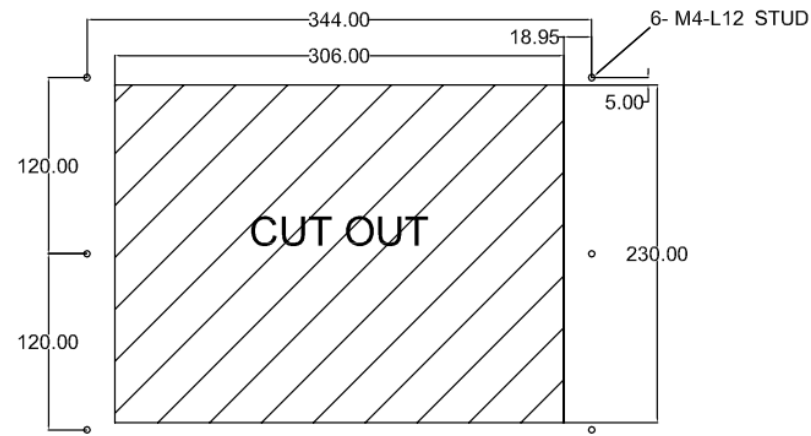
220 Split Series 8-inch Controller



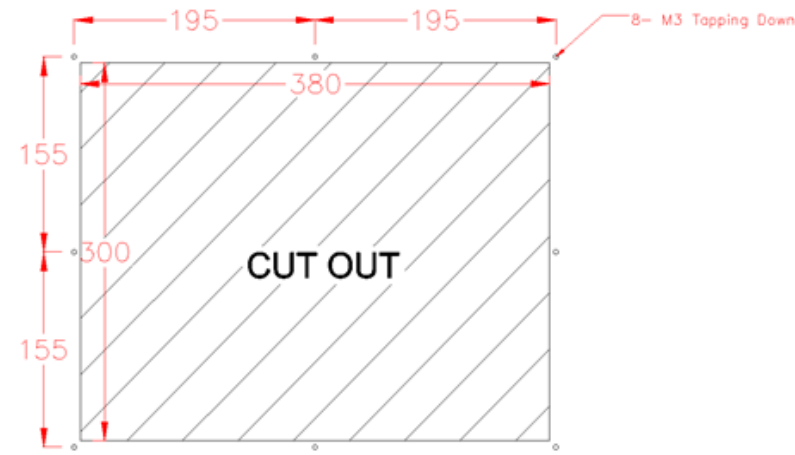
220 Series 10-inch Controller/Touch Panel Controller



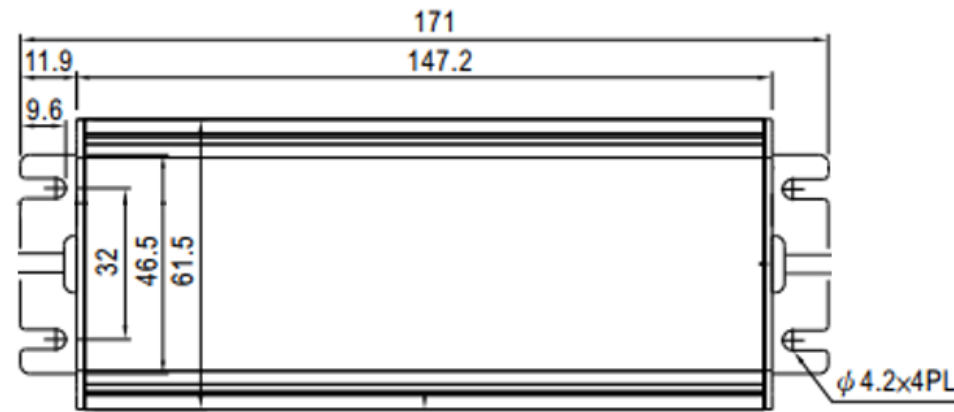
220 Series 15-inch Narrow Boarder Split Type / Touch Panel Split Type Controller)



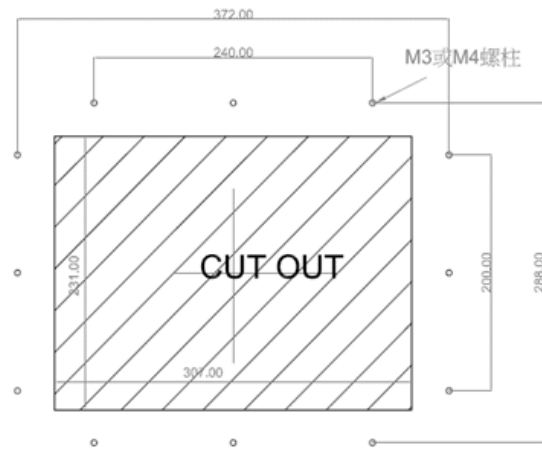
220 Series 15-inch Flat Edge Controller



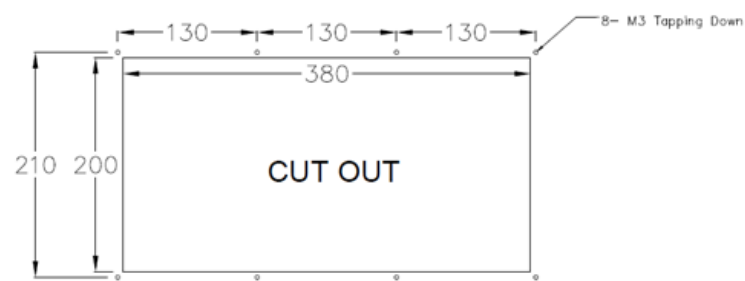
( Adapter )



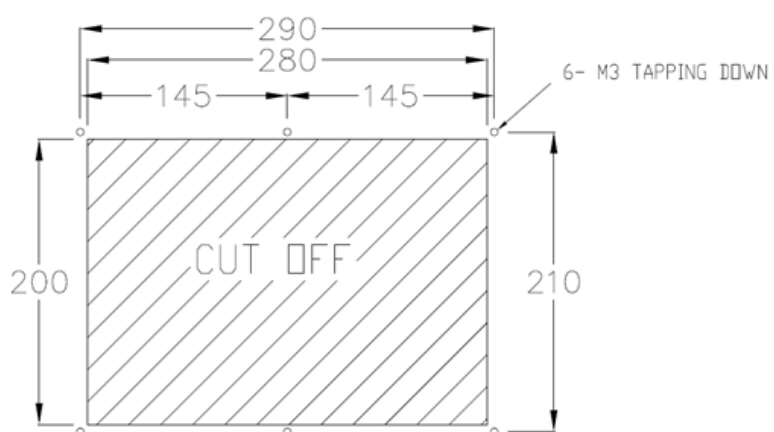
220 Series 15-inch Frameless Controller



220 Series 10-inch Flat Edge Standard Type Controller



220 Series 10-inch Flat Edge Split Type/ Touch Panel Controller

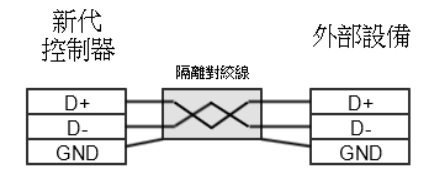


## 7. Interface Definition

Please be careful with the voltage value and the polarities.

### ● Option I/O & SRI Terminal Definition

| SRI/Option I/O | PIN | SIGNAL  | PIN | SIGNAL   |
|----------------|-----|---------|-----|----------|
|                | 1   | SRI5_D+ | 6   | RS485_D- |
|                | 2   | SRI5_D- | 7   | RS485_D+ |
|                | 3   | --      | 8   | --       |
|                | 4   | --      | 9   | 5V       |
|                | 5   | GND     | 10  | --       |



※Notice : Please apply shielded twisted pair when using the RS485 interface. Besides the D+ and D- signal cable, please make sure the air gap is connected to GND on both sides to prevent the RS485 interface from burning down.

### ● RIO Terminal Definition

| RIO | PIN | SIGNAL   | PIN | SIGNAL   |
|-----|-----|----------|-----|----------|
|     | 1   | RIO1-TX+ | 6   | RIO2-TX+ |
|     | 2   | RIO1-TX- | 7   | RIO2-TX- |
|     | 3   | RIO1-RX+ | 8   | RIO2-RX+ |
|     | 4   | RIO1-RX- | 9   | RIO2-RX- |
|     | 5   | --       | 10  | --       |

### ● M3 Terminal Definition

| M3 | PIN | SIGNAL |
|----|-----|--------|
|    | 1   | TX+    |
|    | 2   | TX-    |
|    | 3   | RX+    |
|    | 4   | --     |
|    | 5   | --     |
|    | 6   | RX-    |
|    | 7   | --     |
|    | 8   | --     |

### ● LAN Terminal Definition

| LAN | PIN | SIGNAL |
|-----|-----|--------|
|     | 1   | TX+    |
|     | 2   | TX-    |
|     | 3   | RX+    |
|     | 4   | ---    |
|     | 5   | ---    |
|     | 6   | RX-    |
|     | 7   | ---    |
|     | 8   | ---    |

## 6. Basic Wiring Diagram

