

210-E / 610-E Series Controller

Basic Installation Instructions V1.1

1. Applicable Controller Series:

This manual applies to the controllers below:

Serial Number	Product Name
1	F01-210MA-E-VGA 210MA-E Milling Controller_the Second-Half Split Type
2	F01-210MA-E-5-VG 210MA-E5 Milling Controller_the Second-Half Split Type
3	F01-210MA-E-SEP 210MA-E Milling Controller_10.4-inch Split Type
4	F01-210MA-E-5-SEP 210MA-E5 Milling Controller_10.4-inch Split Type
5	F01-210MB-E-VGA 210MB-E Milling Controller_the Second-Half Split Type
6	F01-210MB-E-5-VG 210MB-E5 Milling Controller_the Second-Half Split Type
7	F01-210MB-E-SEP 210MB-E Milling Controller_10.4-inch Split Type
8	F01-210MB-E-5-SEP 210MB-E5 Milling Controller_10.4-inch Split Type
9	F01-210TB-E-VGA 210TB-E Lathe Controller_the Second-Half Split Type
10	F01-210TB-E-STD 210TB-E Lathe Controller_8-inch Standard Type
11	F01-210TB-E-8-SEP 210TB-E Lathe Controller_8-inch Split Type
12	F01-210TB-E-SEP 210TB-E Lathe Controller_10-inch Split Type
13	F01-210TB-E-5-SEP 210TB-E5 Lathe Controller_10-inch Split Type
14	F01-610MA-E5-VGA 610MA-E5 Milling Machine Controller_the Second-Half Split Type
15	F01-610MA-E-5-SEP 610MA-E5 Milling Machine Controller_10-inch Split Type
16	F01-610MA-E-5-15E 610MA-E5 Milling Machine Controller_15-inch Frameless Split Type
17	F01-610MA-E-5-15E 610MA-E5 Milling Machine Controller_15-inch Frameless Touch Panel Split

2. Interface Specifications

(Front View)

(Second-Half Split Type)

(8-inch Standard Type)

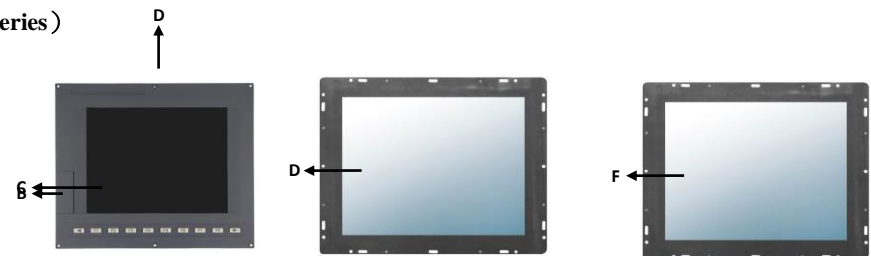
(8-inch Split Type)



(10.4-inch Split Type)

(15-inch Frameless Series)

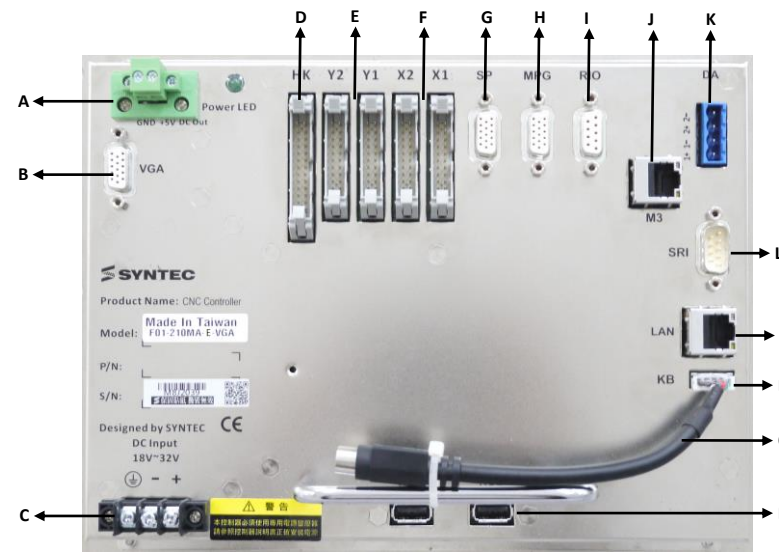
(15-inch Frameless Touch Control Series)



A	Baffle	Monitor Baffle	D	Monitor	Display Area
B	Flip Cover	2 USB Ports inside	E	Keypad	Script Input

C	Function Buttons	Functions correspond to the monitor	F	Touchscreen	Touch Control Area
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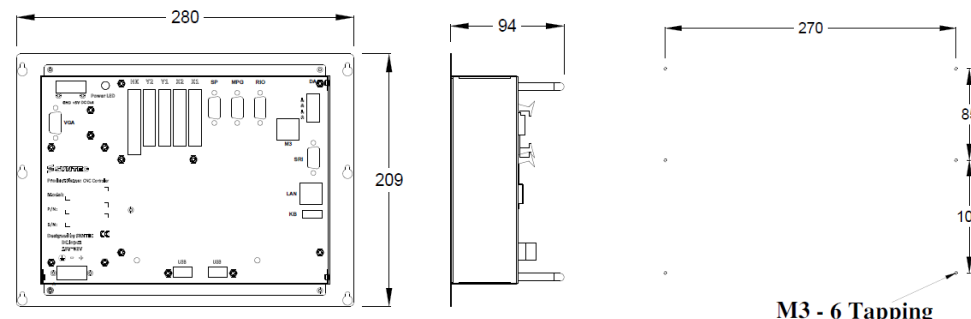
(Back View)



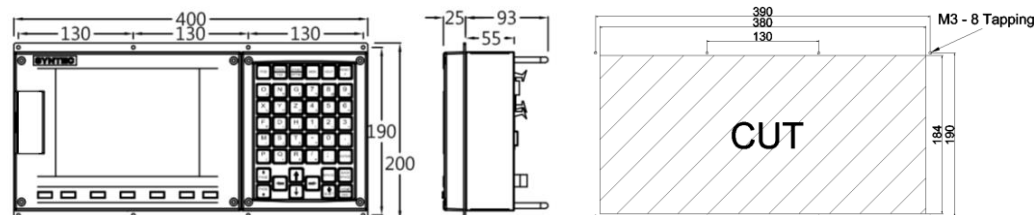
A	DC5V Power Output	DC5V Power output for Syntec HK panel
B	VGA Port	Connect to the monitor interface (VGA only)
C	DC 24V Power Input	Controller working power input
D	HK Port	Connect to Syntec HK panel dedicated interface
E	Y1 · Y2 Port	Output Interface Able to connect to external output termination boards
F	X1 · X2 Port	Input Interface Able to connect to external input termination boards
G	SP Port	Spindle Control Output (Encoder feedback included)
H	MPG Port	MPG input interface (7 sets of I point)
I	RIO Port	Connect to Syntec RIO module interface
J	Mechatrolink 3 Port	YASKAWA Σ-V III Series Servo Communication Interface
K	DA Output Port	Two sets of D/A output interface
L	SRI Port	Connect to Syntec SRI peripheral interface
M	LAN Port	10/100M Internet Interface
N	KB Port	Keyboard interface Able to connect to Syntec character keyboard
O	PS/2 Transfer Port	Able to connect to standard PS/2 keyboard (VGA only)
P	USB Port	Standard USB interface (Do not charge mobile phones via the USB port of the controllers.)

3. External Dimensions and Mounting Hole Specifications (Unit : mm)

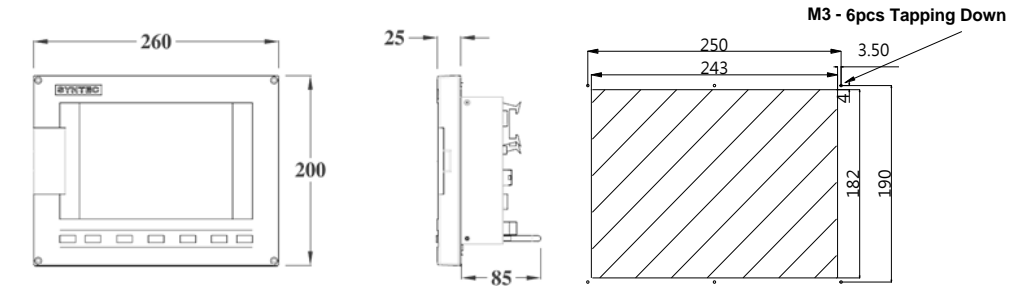
(Second-Half Split Type)



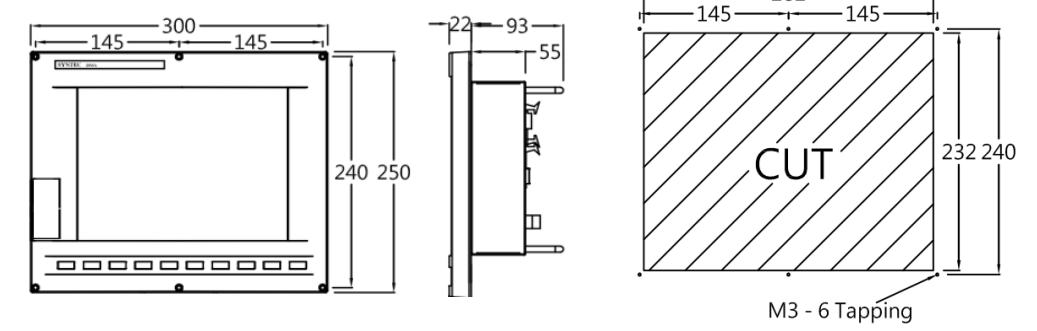
(8-inch Standard Type)



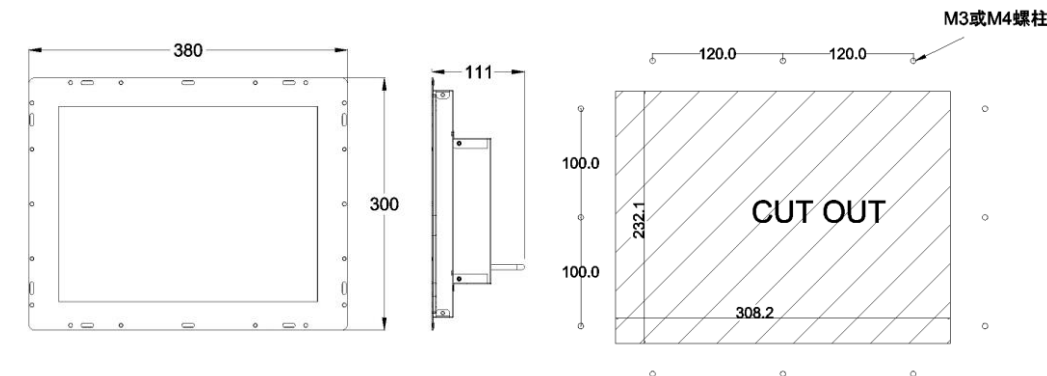
(8-inch Split Type)



(10.4-inch Split Type)



(15-inch Frameless Series & 15-inch Frameless Touch Panel Series)

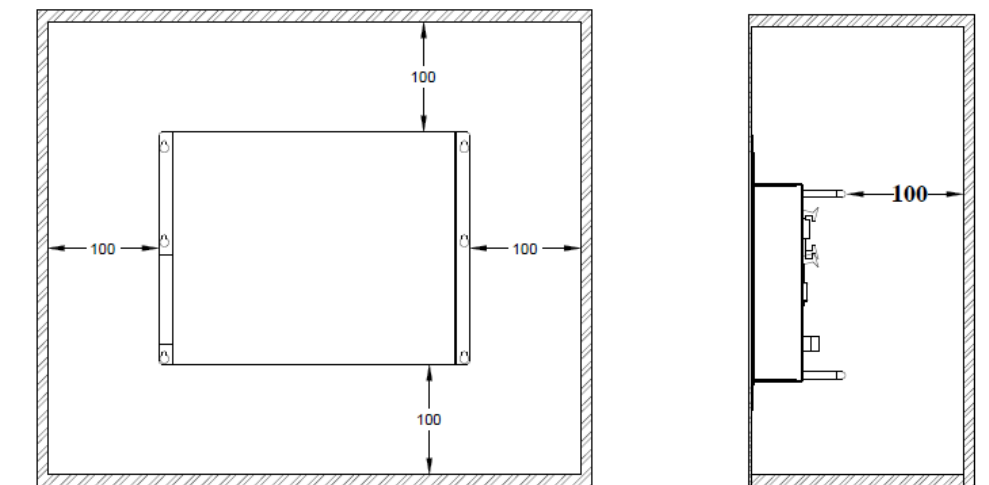


4. Installation Specifications (Unit : mm)

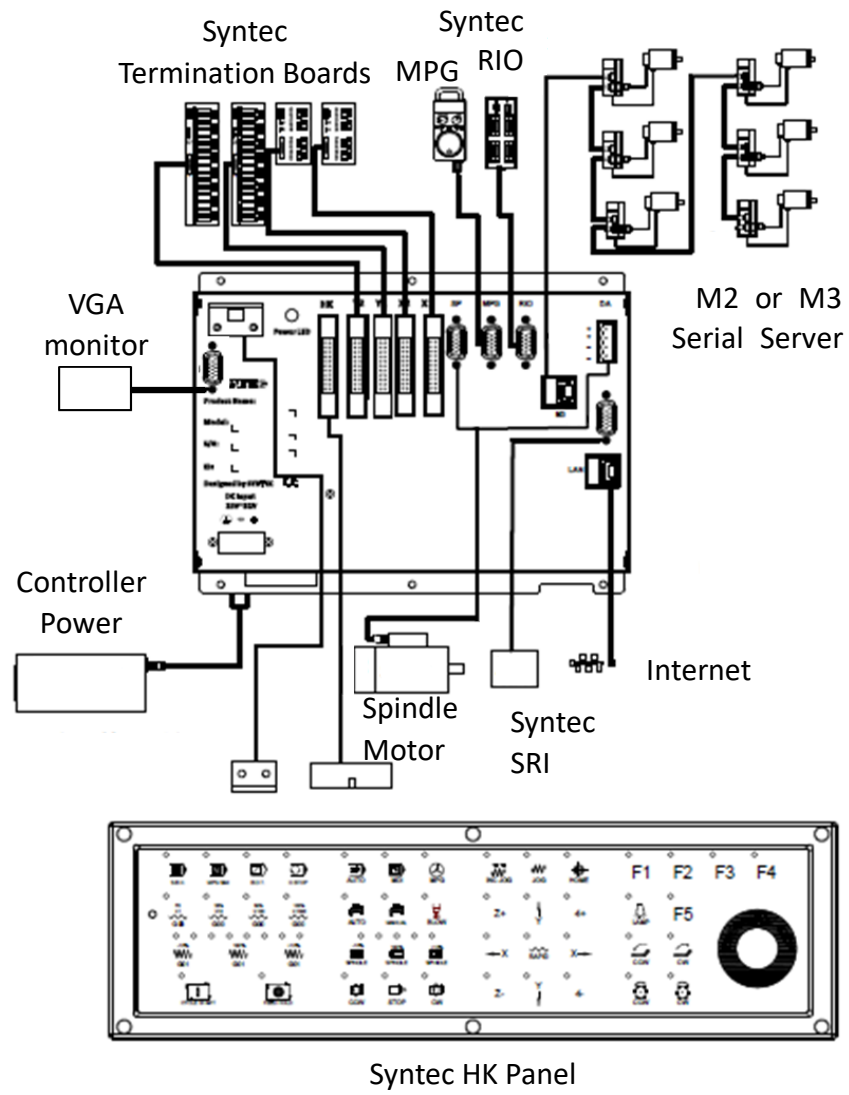
※The measuring point is based on the second half measuring point marked in the graph

(Front View)

(Side View)



5. Basic Wiring Diagram



6. Interface Configurations

Please notice the value and polarities of voltages.

- X1 Connector Arrangement
- X2 Connector Arrangement
- HK Connector Arrangement

X1	PIN	SIGNAL	PIN	SIGNAL
20	19	INPUT8	19	INPUT0
18	17	INPUT9	17	INPUT1
16	15	INPUT10	15	INPUT2
14	13	INPUT11	13	INPUT3
12	11	INPUT12	11	INPUT4
10	09	INPUT13	09	INPUT5
08	07	INPUT14	07	INPUT6
06	05	INPUT15	05	INPUT7
04	03	GND	03	GND
02	01	---	01	---

X2	PIN	SIGNAL	PIN	SIGNAL
20	19	INPUT24	19	INPUT16
18	17	INPUT25	17	INPUT17
16	15	INPUT26	15	INPUT18
14	13	INPUT27	13	INPUT19
12	11	INPUT28	11	INPUT20
10	09	INPUT29	09	INPUT21
08	07	INPUT30	07	INPUT22
06	05	INPUT31	05	INPUT23
04	03	GND	03	GND
02	01	---	01	---

HK	PIN	SIGNAL	PIN	SIGNAL
26	25	---	25	XDI55
24	23	XDI54	23	XDI53
22	21	XDI52	21	XDI51
20	19	XDI50	19	XDI49
18	17	XDI48	17	5V
16	15	GND	15	XDO62
14	13	XDO61	13	XDO60
12	11	XDO59	11	XDO58
10	09	XDO57	09	XDO56
08	07	XDO55	07	XDO57
06	05	XDO53	05	XDO52
04	03	XDO51	03	XDO50
02	01	XDO49	01	XDO48

- Y1 Connector Arrangement
- Y2 Connector Arrangement

Y1	PIN	SIGNAL	PIN	SIGNAL
20	19	OUTPUT8	19	OUTPUT0
18	17	OUTPUT9	17	OUTPUT1
16	15	OUTPUT10	15	OUTPUT2
14	13	OUTPUT11	13	OUTPUT3
12	11	OUTPUT12	11	OUTPUT4
10	09	OUTPUT13	09	OUTPUT5
08	07	OUTPUT14	07	OUTPUT6
06	05	OUTPUT15	05	OUTPUT7
04	03	GND	03	GND
02	01	24V	01	24V

Y2	PIN	SIGNAL	PIN	SIGNAL
20	19	OUTPUT24	19	OUTPUT16
18	17	OUTPUT25	17	OUTPUT17
16	15	OUTPUT26	15	OUTPUT18
14	13	OUTPUT27	13	OUTPUT19
12	11	OUTPUT28	11	OUTPUT20
10	09	OUTPUT29	09	OUTPUT21
08	07	OUTPUT30	07	OUTPUT22
06	05	OUTPUT31	05	OUTPUT23
04	03	GND	03	GND
02	01	24V	01	24V

- M3 Connector Arrangement
- DA Connector Arrangement

M3	PIN	SIGNAL	PIN	SIGNAL
1	2	TX+	5	(空)
2	3	TX-	6	RX-
3	4	RX+	7	(空)
4	8	(空)	8	(空)

DA	PIN	SIGNAL
1	1	1DA+
2	2	1DA-
3	3	2DA+
4	4	2DA-

- SP Connector Arrangement

SP	PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
1	6	A+	6	Z-	11	CW+
2	7	A-	7	ALM+	12	CW-
3	8	B+	8	ALM-	13	CCW+
4	9	B-	9	SERVO-ON	14	CCW-
5	10	Z+	10	SERVO-CLR	15	OUT_COM

- MPG Connector Arrangement

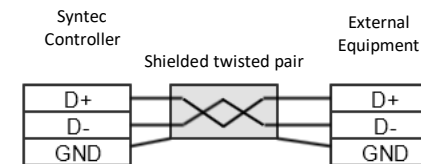
MPG	PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
1	6	MPG_A+	6		11	XDI 60
2	7	MPG_A-	7	XDI56+	12	XDI 61
3	8	MPG_B+	8	XDI 57+	13	XDI 62
4	9	MPG_B-	9	XDI 58+	14	GND
5	10		10	XDI 59+	15	+5V

- RIO Connector Arrangement

RIO	PIN	SIGNAL	PIN	SIGNAL
1	6	RIO_1_Tx+	6	
2	7	RIO_1_Tx-	7	
3	8	RIO_1_Rx+	8	
4	9	RIO_1_Rx-	9	
5				

- SRI Connector Arrangement

SRI	PIN	SIGNAL	PIN	SIGNAL
1	6	SRI5_D+	6	RS485_D-
2	7	SRI5_D-	7	RS485_D+
3	8	--	8	--
4	9	--	9	5V
5	10	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

- VGA Connector Arrangement

VGA	PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
1	6	R	6	GND	11	--
2	7	G	7	GND	12	SDA
3	8	B	8	GND	13	HS
4	9	--	9	--	14	VS
5	10	GND	10	GND	15	SCL