

# 21-E Series Controller

## Basic Installation Instruction V1.1

### 1. Applicable Controller Series:

This manual applies to the controllers below:

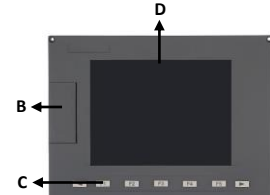
Serial Number	Product Name
1	F01-21MA-E-VGA 21MA-E Milling Controller_the Second Half Split Type
2	F01-21MA-E-8-SEP 21MA-E Milling Controller_8-inch Spilt Type
3	F01-21MA-E-STD 21MA-E Milling Controller_8-inch Standard Type
4	F01-21MA-E-SEP 21MA-E Milling Controller_10.4-inch Split Type
5	F01-21MA-E-15E 21MA-E Milling Controller_15-inch Frameless Split Type
6	F01-21MA-E-15E-T 21MA-E Milling Controller_15-inch Frameless Touch Panel Split Type
7	F01-21TA-E-8-SEP 21TA-E Lathe Controller_8-inch Spilt Type
8	F01-21TA-E-STD 21TA-E Lathe Controller_8-inch Standard Type
9	F01-21TA-E-SEP 21TA-E Lathe Controller_10.4-inch Split Type
10	F01-21TB-E-8-SEP 21TB-E Lathe Controller_8-inch Spilt Type
11	F01-21TB-STD 21TB-E Lathe Controller_8-inch Standard Type
12	F01-21GA-E-SEP 21GA-E Engraving Machine Controller_10.4-inch Spilt Type
13	F01-21GA-E-15E 21GA-E Engraving Machine Controller_15" Framelss Split Type

### 2. Interface Specifications (Front View)

( The Second Half Split Type )

( 8-inch Standard Type )

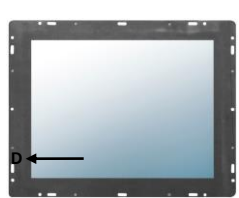
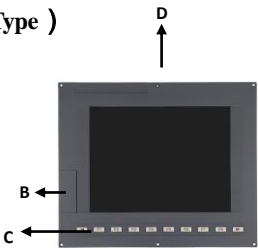
( 8-inch Split Type )



( 10.4-inch Split Type )

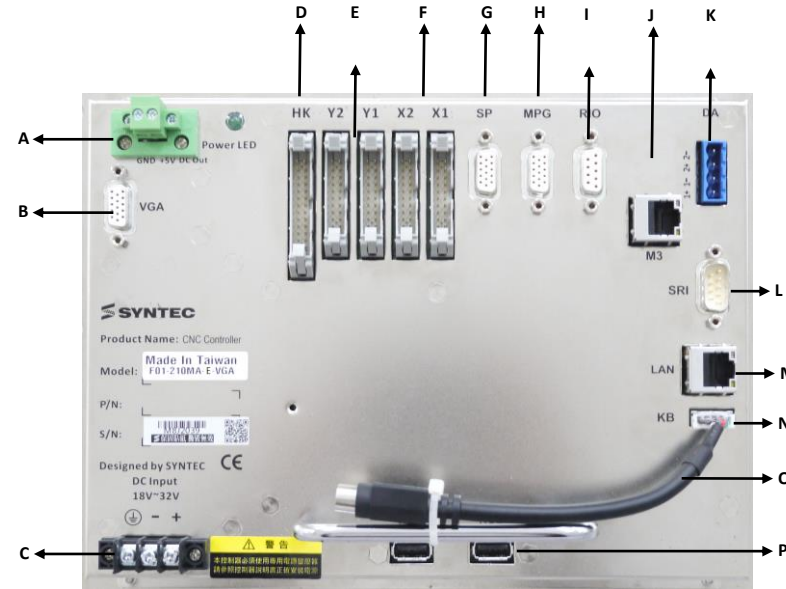
( 15-in Frameless Type )

( 15-inch Frameless Touch Control Type )



A	Baffle	Monitor baffle	D	Monitor	Display area
B	Flip cover	2 USB ports inside	E	Keypad	Script input
C	Function Buttons	Functions that correspond to the monitor	F	Touchscreen	Touch control area

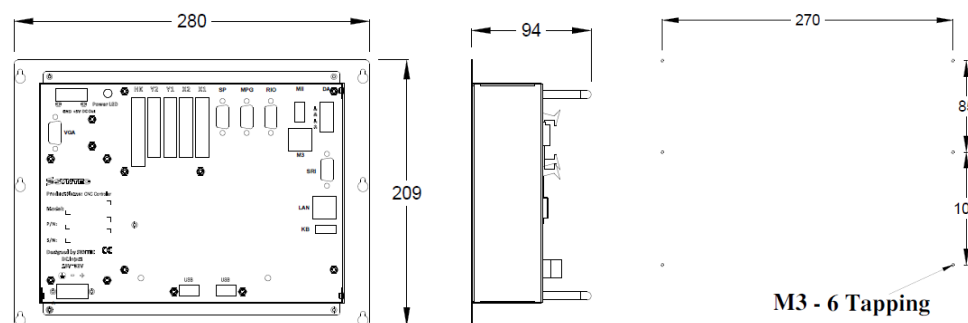
( Rear View )



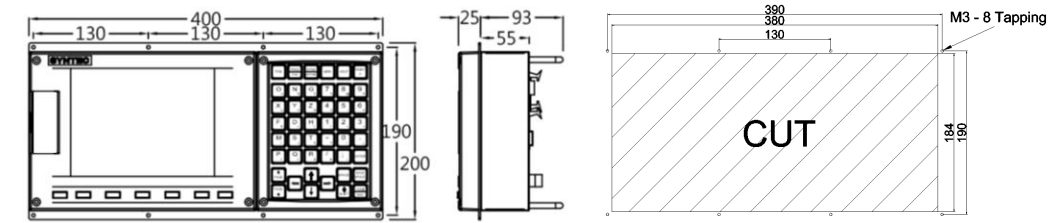
A	DC5V Power Output Port	DC5V Power output for Syntec HK panel VGA
B	VGA Port	Connect to the monitor interface (VGA only)
C	DC 24V Power Input Port	Controller working power input
D	HK Port	Connect to Syntec HK panel dedicated interface
E	Y1、Y2 Port	Output Interface Able to connect to external output termination boards
F	X1、X2 Port	Input Interface Able to connect external input termination boards
G	SP Port	Spindle Control Output (Encoder feedback included )
H	MPG Port	MPG input interface ( 7 sets of I point included )
I	RIO Port	Connect to Syntec RIO module dedicated interface
J	Mechatrolink 3 Port	YASKAWAΣ-V Series III Servo Communication Interface
K	DA Output Port	2 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 the Syntec character keyboard
O	PS/2 Adapter cable	Able to connect to the standard PS/2 keyboard (VGA only)
P	USB port	Standard USB interface (Do not charge mobile phones via the USB port of the controller.)

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

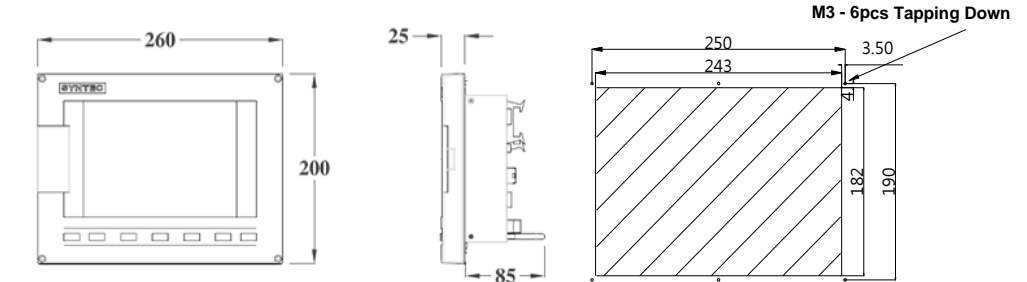
(Second-Half Split Type)



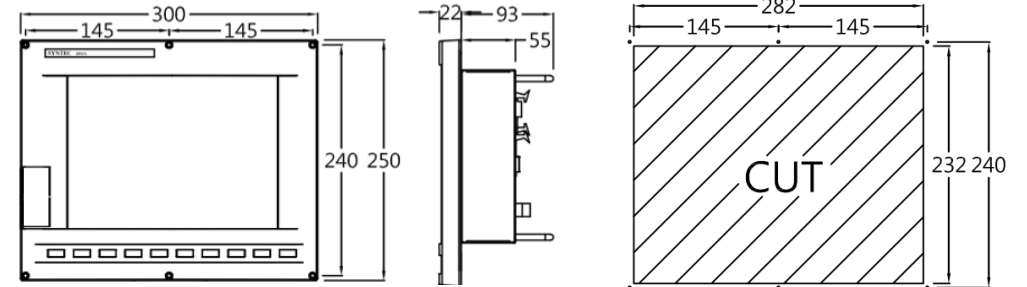
(8-inch Standard Type)



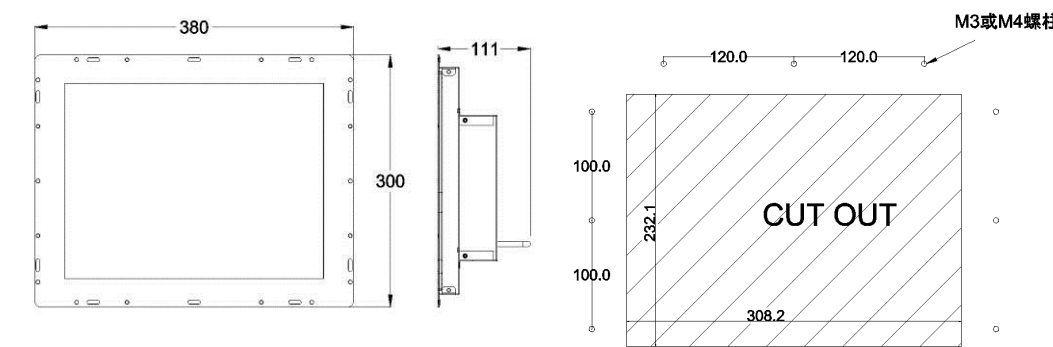
(8-inch Split Type)



(10.4-inch Split Type)



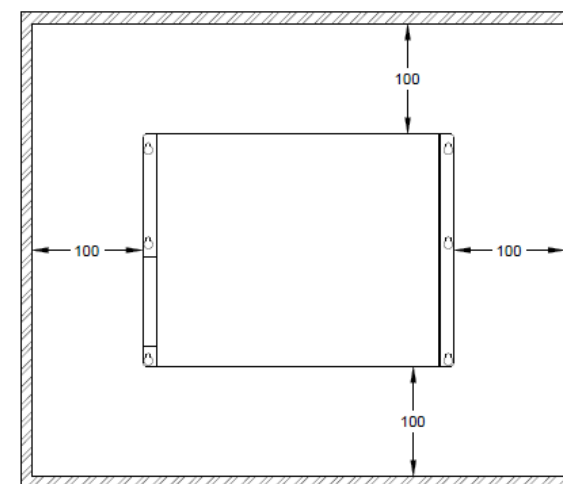
(15-inch Frameless Series & 15-inch Frameless Touch Panel Series)



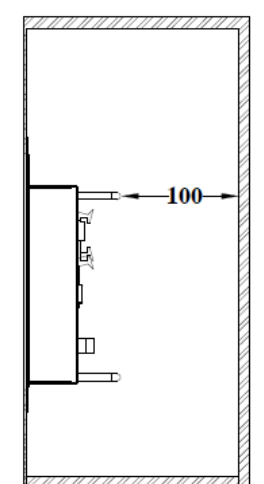
### 4. Installation Specifications ( Unit : mm )

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

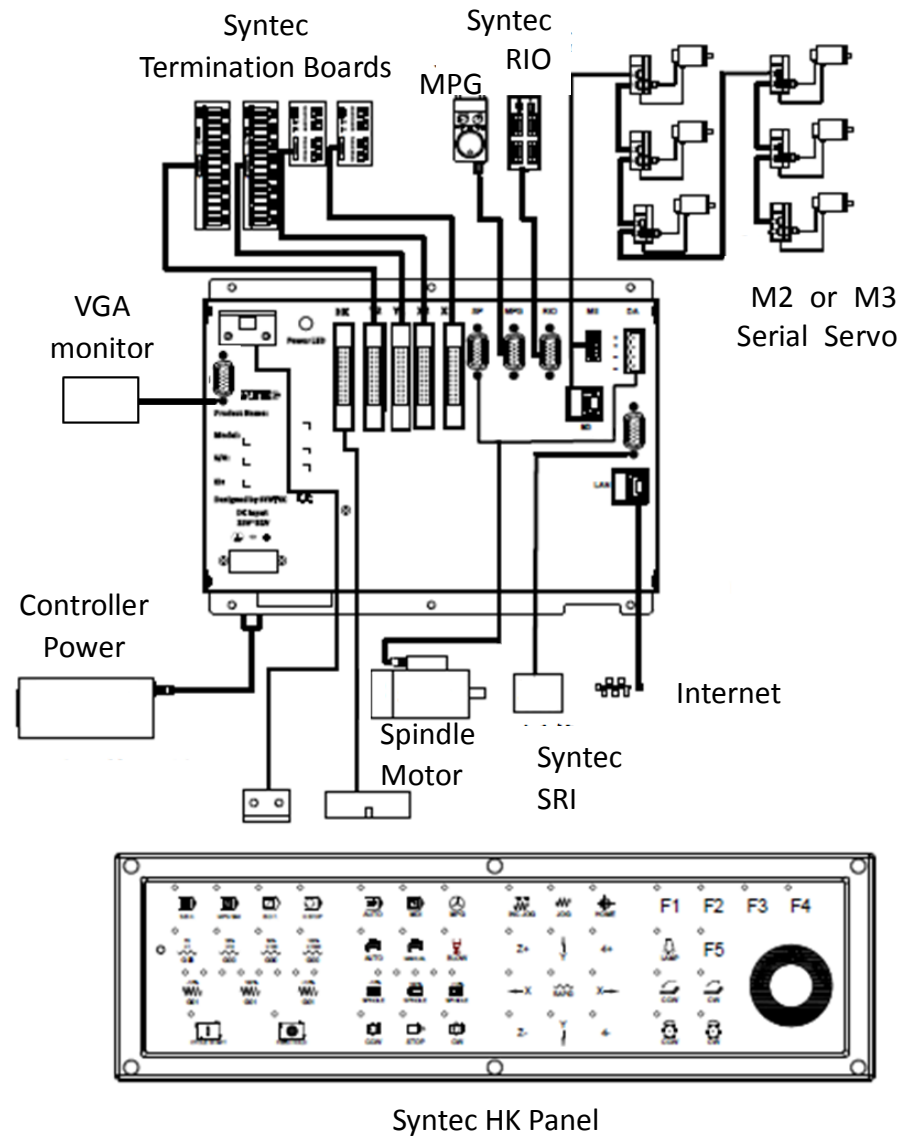
( Front View )



( Side View )



## 5. Simple Wiring Diagram



## 6. Interface Configurations

Be careful with the voltage value and the polarities.

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

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

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

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

- Y1 Connector Arrangement
- Y2 Connector Arrangement

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

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

- MECHATROLINK 3 Connector Arrangement
- DA Connector Arrangement

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

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

- SP Connector Arrangement

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

- MPG Connector Arrangement

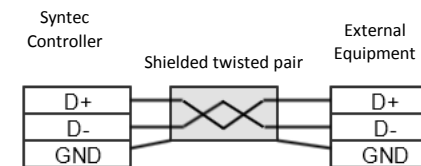
MPG	PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
	1	MPG_A+	6		11	XDI 60
	2	MPG_A-	7	XDI56+	12	XDI 61
	3	MPG_B+	8	XDI 57+	13	XDI 62
	4	MPG_B-	9	XDI 58+	14	GND
	5		10	XDI 59+	15	+5V

- RIO Connector Arrangement

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

- SRI Connector Arrangement

SRI	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.

- VGA Connector Arrangement

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