

**NEW**

# Ultra Low Profile and High Power ! Programmable DC Power Supply

10V to 650V / 750W to 15kW **RE series**



**Compact**

**Low noise**

**Wide Lineup**



## Our original switching technology has realized high power, compact and high efficient Programmable DC power supply RE series.

Minimum heat release coupled with its compactness of 1/10 the size and 1/20 the weight of conventional power supply have enabled high-density mounting. RE's low power consumption contributes to low running cost and environmental issues. Various remote control and monitor functions are standard and digital interface is available as option, which enable RE to support various systems.

The best model can be chosen for your application from wide lineup of 140 models, from 10V to 650V, and 750W to 15kW.

Upgrading of up to 60kW is possible with master / slave option.

### Choose the most suitable model among wide lineup more than 140.

Matusada introduces the new RE series. The RE series DC power supply features a wide range of product outputs between 750W and 15kW and 10V to 650V. With over 140 models to choose from, for example, for same 100V output models, 750W, 1.2kW, 2kW, 3kW, 4kW, 5kW, 7.5kW, 8.4kW, 10kW, and 15kW, 10 models by output power are lined up, you can be assured that there is a power supply with the output to meet your application needs.

This wide product lineup helps eliminate going over your budget in output power. The RE series DC power supply is the smart choice as it helps to reduce cost, space and electricity.

For output ranges >650V, we are pleased to introduce the new REH series of DC power supplies. The REH series offers the stability and reliability of the RE series but features output power ranges of 400W to 1.2kW at outputs of 650V to 1200V.

Depending on your output requirements, Matusada Precision can offer the right power supply at the right price.

Please contact a sales office today and let our experienced sales engineers find the correct power supply for your application needs.

### Typical applications



#### For aging of electrical parts

For testing and aging of semiconductor, capacitors, motor, DC/DC converter, inverter, backlight



#### For automobile electrical parts

For evaluation of motor, electrical device, switch, relay, solenoid, harness and lamp of electrical vehicles.



#### For display devices

For evaluation of display device, communication device or electromagnet.



#### Research, development and other applications

Suitable for various applications such as magnet coils, motor drives and heating.

Output voltage (V)	Output current (A)	Output power (kW)	Model	Ripple (mVrms)	Ripple (mA rms)*1	Dimensions (Refer to P6,7)	Output voltage (V)	Output current (A)	Output power (kW)	Model	Ripple (mVrms)	Ripple (mA rms)*1	Dimensions (Refer to P6,7)	
10	75	750W	RE10-75	10	150	b	80	110	8.8	RE80-110	80	600	h	
	110	1.1	RE10-110	10	220	b		100	7.5	750W	RE100-7.5	20	15	a
	200	2	RE10-200	10	400	d			12	1.2	RE100-12	20	25	a
	300	3	RE10-300	15	600	d			20	2	RE100-20	20	40	c
	400	4	RE10-400	15	800	f			30	3	RE100-30	30	60	c
	450	4.5	RE10-450	30	900	f			40	4	RE100-40	30	80	e
	750	7.5	RE10-750	20	2400	h*2			50	5	RE100-50	40	100	e
	820	8.2	RE10-820	30	3600	h*2			75	7.5	RE100-75	60	600	f
	1000	10	RE10-1000	30	4800	h*2			84	8.4	RE100-84	60	350	h
1200	12	RE10-1200	30	4800	h*2	100	10		RE100-100	100	800	h		
15	50	750W	RE15-50	10	100	a	150		5	750W	RE150-5	30	10	a
	80	1.2	RE15-80	10	160	b		8	1.2	RE150-8	30	20	a	
	120	1.8	RE15-120	10	250	d		14	2.1	RE150-14	25	30	c	
	200	3	RE15-200	10	400	d		20	3	RE150-20	30	40	c	
	250	3.75	RE15-250	15	500	f		27	4	RE150-27	30	55	e	
	300	4.5	RE15-300	15	600	f		33	5	RE150-33	60	70	e	
	500	7.5	RE15-500	30	2500	h		50	7.5	RE150-50	70	100	e	
	560	8.4	RE15-560	30	2500	h		56	8.4	RE150-56	70	100	g	
700	10.5	RE15-700	35	3500	h*2	70		10.5	RE150-70	150	500	h		
20	38	750W	RE20-38	10	80	a		160	100	15	RE150-100	100	200	h
	60	1.2	RE20-60	10	120	a	27		4.3	RE160-27	30	55	e	
	100	2	RE20-100	10	200	d	200	55	8.8	RE160-55	160	200	g	
	150	3	RE20-150	15	300	d		3.8	750W	RE200-3.8	40	10	a	
	200	4	RE20-200	10	400	f		6	1.1	RE200-6	40	15	a	
	250	5	RE20-250	15	500	f		10	2	RE200-10	40	20	c	
	375	7.5	RE20-375	30	1200	h		15	3	RE200-15	40	30	c	
	400	8	RE20-400	20	2400	h		20	4	RE200-20	200	40	e	
	430	8.6	RE20-430	35	2400	h		25	5	RE200-25	200	50	e	
	500	10	RE20-500	35	3800	h*2		37	7.5	RE200-37	200	280	e	
600	12	RE20-600	30	2400	h*2	42		8.4	RE200-42	150	200	g		
30	25	750W	RE30-25	10	50	a		300	50	10	RE200-50	200	380	h
	40	1.2	RE30-40	15	80	a	75		15	RE200-75	200	530	h	
	65	1.95	RE30-65	20	130	d	2.5		750W	RE300-2.5	50	5	a	
	100	3	RE30-100	20	200	d	4		1.2	RE300-4	50	10	a	
	130	3.9	RE30-130	30	260	f	6.5		2	RE300-6.5	50	15	c	
	170	5.1	RE30-170	30	340	f	10	3	RE300-10	50	20	c		
	250	7.5	RE30-250	20	500	f	13	3.9	RE300-13	300	30	e		
	290	8.7	RE30-290	30	700	h	16	4.8	RE300-16	300	35	e		
	350	10.5	RE30-350	30	1800	h	25	7.5	RE300-25	100	50	e		
35	400	12	RE30-400	20	800	h	350	28	8.4	RE300-28	100	50	g	
	22	750W	RE35-22	10	50	a		35	10.5	RE300-35	300	250	g	
	34	1.2	RE35-34	10	70	a		50	15	RE300-50	150	100	g	
	60	2.1	RE35-60	20	120	d		21	7.35	RE350-21	150	100	e	
	85	3	RE35-85	20	170	d		24	8.4	RE350-24	150	100	g	
	115	4	RE35-115	20	230	f	28	9.8	RE350-28	150	100	g		
	140	4.9	RE35-140	30	280	f	42	14.7	RE350-42	150	100	g		
	215	7.5	RE35-215	35	1800	f	500	1.5	750W	RE500-1.5	150	5	a	
	240	8.4	RE35-240	35	2000	h		2.4	1.2	RE500-2.4	150	5	a	
300	10.5	RE35-300	35	2000	h	4		2	RE500-4	150	10	c		
340	12	RE35-340	35	2400	h	6		3	RE500-6	150	15	c		
400	15	RE35-400	35	3000	h	8		4	RE500-8	500	20	e		
40	100	4	RE40-100	30	300	f	600	10	5	RE500-10	500	20	e	
	220	8.8	RE40-220	30	350	h		15	7.5	RE500-15	200	50	e	
	17	765W	RE45-17	18	40	a		17	8.5	RE500-17	200	50	g	
	27	1.2	RE45-27	18	60	a		20	10	RE500-20	500	160	g	
	45	2	RE45-45	30	90	c		30	15	RE500-30	200	100	g	
	66	3	RE45-66	30	130	d		12.5	7.5	RE600-12.5	100	25	e	
	90	4	RE45-90	30	180	f		25	15	RE600-25	100	50	g	
	110	5	RE45-110	45	220	f		650	1.2	750W	RE650-1.2	200	5	a
165	7.5	RE45-165	45	750	f	1.8	1.2		RE650-1.8	200	5	a		
220	9.9	RE45-220	45	1100	h	3	2		RE650-3	200	10	c		
260	11.7	RE45-260	45	1300	h	4.5	2.9		RE650-4.5	200	10	c		
12.5	750W	RE60-12.5	20	25	a	6	3.9		RE650-6	200	15	e		
20	1.2	RE60-20	20	40	a	7.7	5		RE650-7.7	200	20	e		
35	2.1	RE60-35	15	70	c	11	7.5		RE650-11	200	50	e		
50	3	RE60-50	20	100	c	13.5	8.8		RE650-13.5	250	50	g		
67	4	RE60-67	20	135	f	16	10.4		RE650-16	250	50	g		
83	5	RE60-83	30	170	f	23	15		RE650-23	300	100	g		
60	125	7.5	RE60-125	30	350	f								
	140	8.4	RE60-140	30	350	h								
	170	10.2	RE60-170	35	600	h								
	200	12	RE60-200	35	600	h								
	220	13.2	RE60-220	35	600	h								

\*1 Rated output current when output voltage is 10% to 100% of rating.  
 \*2 Height and number of fixing holes are different depending on the model. See P7 for details.

# Specifications

<b>Output control</b>	Local: Constant voltage: 10-turn potentiometer on front panel Constant current: 10-turn potentiometer on front panel Remote: Constant voltage: external control voltage 0 to 10Vdc or external variable resistor 0 to 10kΩ Constant current: external control voltage 0 to 10Vdc or external variable resistor 0 to 10kΩ
<b>Voltage regulation</b>	Line: 0.1% of maximum output (for AC±10% input change) Load: 0.1% of maximum output (for 0 to 100% load change) (for only RE10-1000 and RE10-1200, load regulation is 0.15%)
<b>Current regulation</b>	Input: 0.1% of maximum output (for AC±10% input change) Load: 0.1% of maximum output (for 0 to 100% load change) (for only RE500-1.5,-2.4,650-1.2,-1.8, both line and load regulation are 0.2%)
<b>Stability</b>	0.05%/8Hr of maximum output voltage
<b>Temperature coefficient</b>	200ppm / °C of maximum output voltage 300ppm / °C of maximum output current
<b>Output display</b>	Output voltage: 3-digit digital meter (accuracy is 1%FS±1 dgt) Output current: 3-digit digital meter (accuracy is 1%FS±1 dgt)
<b>Monitor output</b>	Output voltage monitor: 10V / maximum output voltage Output current monitor: 10V / maximum output current
<b>Protections</b>	Over voltage protection (OVP) Output is cut off at a set value. Setting range: 5% to 110% of output voltage Local setting: 1-turn volume on front panel Remote setting: External control voltage of 0 to 10Vdc Reset: Manual recovery by OUTPUT switch or remote switch.  Over temperature protection (OTP) Output is cut off when internal part is heated abnormally. Reset (after the temperature has gone down to normal): Automatic recovery or manual recovery by POWER switch (selectable).  Input brownout (ACF) - Blackout protection Output is cut off when input decreased by 20% or more. Reset (when normal voltage value or recovery from blackout): Manual recovery by OUTPUT switch for blackout protection (re-output protection function). : Automatic recovery when blackout protection is canceled.
<b>Other functions</b>	Remote sensing Remote switch ON/OFF (TTL or external relay) Status signal output (CV, CC, FLT)
<b>Transient response time</b>	Recovery time 1ms (for 70%↔100% load change)
<b>Operation temperature</b>	0 to +50°C (750W to 5.1kW) 0 to +40°C (7.35kW to 15kW)
<b>Storage temperature</b>	-40°C to +85°C
<b>Strage humidity</b>	0 to 80% RH (no condensation)
<b>Dielectric voltage</b>	Between input power supply and power supply, and between output terminals and chassis is AC1500V:1 minute
<b>Accessories</b>	·2.5m input AC cable for 1Ø, 3-conductor type (model of 2.1kW or less) (1) ·Instruction manual (1) ·Remote connector cover (1)

\*Please ask sales offices for 3Ø input AC cable.

## Options

<b>-LCp</b>	Constant power control*1 (Voltage control is eliminated. Limited at maximum rated voltage)
<b>-LOcp</b>	Over current protection (OCP)*2 Cut off the output at set current value. Local setting only. Setting range : 5% to 110% of maximum rated current Local setting : 1-turn volume on front panel Reset : Manual recovery by OUTPUT switch or remote switch
<b>-LGB</b>	GPIB interface board *3*4
<b>-LGob</b>	Optical interface board *3*4 ...Isolated control with optical communication. See catalog of digital control for optical conversion of each interface. (USB/RS-232C/RS-485/GPIB)
<b>-LUs1</b>	USB interface board *3*4

<b>-LIs</b>	Isolated remote control *3 ...Output control signal is isolated from common (=output ⊕) so that floating of control signal is not required when negative output operation or series connection (isolation voltage from output ⊕ is below 250V)
<b>-LMs</b>	Master slave control (models of less than 12kW)*5 ...Maximum of four slave machines can be controlled from one master machine (within the range where total of maximum rating is less than 60kW). Master machine can be controlled not only by standard remote control but also -LGb,- LGob,- LIs.
<b>-LLp</b>	10-turn potentiometer with lock (both voltage and current) ...only for models less than 300V
<b>-LPfc</b>	Power factor correction circuit (3Ø input of 3.75kW to 15kW type only)*6 Size of the case will be different. Contact nearby sales office for more details for this option.
<b>-L(200V)</b>	115V of below INPUT VOLTAGE / CURRENT table to be 100V, 230V / 220V to be 200V. Input current to be 115% for 44h model and 110% for other models of the table.
<b>-L(220V)</b>	115V of below INPUT VOLTAGE / CURRENT table to be 110V and 230V to be 220V. Input current is about 105% of Input current.
<b>-L(240V)</b>	115V of below INPUT VOLTAGE / CURRENT table to be 120V, 230V / 220V to be 220V. Input current to be 95% for 44h model and 90% for other models of the table.
<b>-L(400V)</b>	400VAC±10%input. (only for models 7.5kW and up)*6 Size of the case will be different. Contact nearby sales office for more details for this option.

### INPUT CABLE (separate item)

CABLE TYPE 5	Input cable for AC 1Ø (3-conductor type) 2.5m standard 25A / 250V single phase flying lead
CABLE TYPE 6	Input cable for AC 3Ø (3-conductor type) 10m standard 25A / 250V for RE 1.8kW to 3kW three phase flying lead
CABLE TYPE 7	Input cable for AC 3Ø (3-conductor type) 10m standard 75A / 250V for RE 3.75kW and up three phase flying lead

In case longer cable is needed, suffix length to the part number.  
Increment of meter. <e.g.> 5m : CABLETYPE5(5)

\*1 Not with -LOcp or -LMs option

\*2 Not with -LCp option

\*3 Either -LGB, -LGob, -LUs1 or -LIs can be selected

\*4 See separate catalog for more details.

\*5 Not with -LCp option.

When -LOcp option is equipped, OCP can be set and functioned as single unit only.

\*6 -LPfc and -L(400V) cannot be selected together.

Add above -L mark to the model number when ordering

(e.g) RE10-750-LCpGblpPfc(240V)

(e.g) RE100-100-LGobLpMsOcp(400V) alphabetical, number order.

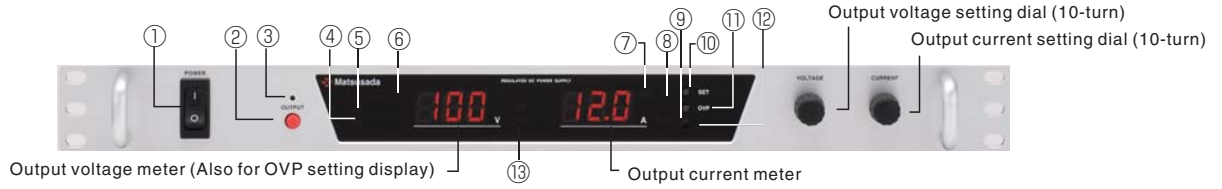
## Input Voltage / Current

MODEL (Output power)	Input voltage (±10% AC50/60Hz)	Phase	Input current			Input current protection					
			When PFC (Typ.)	Normal (Typ.)	Rush (P-P)						
750W to 765W	115V	1	—	12A	60A	Fuse 30A					
	230V			8A							
1.1kW to 1.2kW	115V	1	—	19A	90A		Fuse 30A				
	230V			11A							
1.8kW to 2.1kW	220V	1	—	17A	100A			Fuse 30A			
		3		10A							
2.9kW to 3kW	220V	1	—	25A	100A				Fuse 30A		
		3		14A							
3.75kW to 4kW	220V	3	—	15A	100A					Circuit protector 30A	
				19A							
4.5kW to 5.1kW	220V	3	—	16A	100A						Circuit protector 30A
				23A							
7.35kW to 7.5kW	10V, 15V	220V	3	25A (*)	100A	Circuit protector 60A					
	20V to 60V over 100V										
8kW to 10.5kW	10V, 15V	220V	3	—	100A		Circuit protector 60A				
	20V to 60V over 100V										
11.7kW to 12kW	220V	3	—	36A	150A			Circuit protector 100A			
				46A							
15kW	220V	3	—	34A	150A				Circuit protector 100A		
				44A							
15kW	220V	3	—	32A	150A					Circuit protector 100A	
				41A							
15kW	220V	3	—	40A (*)	150A						Circuit protector 100A
				54A							
15kW	220V	3	—	50A (*)	150A	Circuit protector 100A					
				68A							

(\*) Circuit protector 30A

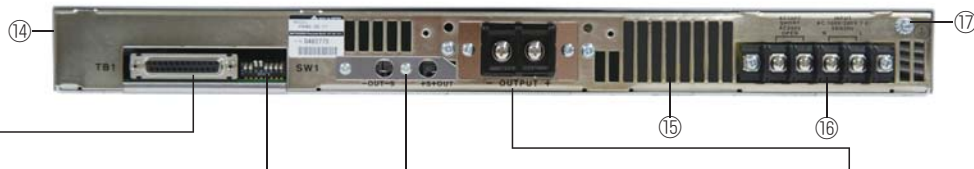
(\*) Circuit protector 60A

## Front



- ① **POWER ON/OFF switch:** This has priority over all operations for safety reasons.
- ② **OUTPUT ON/OFF switch:** This is used for urgent OFF or resume output in remote mode as well as output ON/OFF in local mode. Also used for resetting protection function.
- ③ **OUTPUT ON display LED**
- ④ **Remote programming display:** This lights up during remote control of voltage or current.
- ⑤ **External switch OFF display**
- ⑥ **Fault display (FLT):** This lights up when OVP, OTP or ACF has occurred.
- ⑦ **Remote enable display:** This lights up when controlling by built-in interface board.
- ⑧ ⑨ **Operation mode (constant voltage or constant current)**
- ⑩ **Output preset switch:** This is pressed down when output is being set by digital meter and output setting knob, then OUTPUT switch is turned ON to output.
- ⑪ **OVP setting switch**
- ⑫ **OVP setting volume:** This volume sets OVP setting value that is displayed on voltmeter when is pressed down.
- ⑬ **Communication status display (only when interface board is built in)**
- ⑭ **Only when option**  
 .USB/RS-232C/RS-485/GPIB interface board  
 .Isolate remote program board
- ⑮ **Exhaust hole**
- ⑯ **AC input connector (M4):** M6 type for model over 3.75kW
- ⑰ **GND terminal (M4)**

## Rear

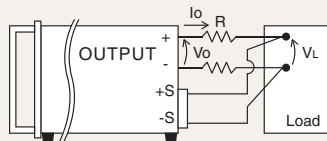


### Function setting switch (SW1)

- **Voltage control**  
 0V to 10V Local ↔ 0Ω to 10kΩ
- **Current control**  
 0V to 10V Local ↔ 0Ω to 10kΩ
- **Over temperature protection**  
 Manual reset ↔ Auto reset
- **Blackout protection**  
 ON ↔ OFF (ON/OFF by AC)

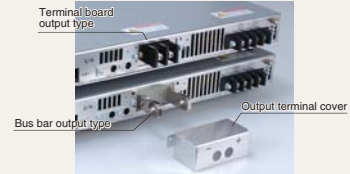
### Remote sensing

Prevents voltage drop down ( $V_o - V_L$ ) due resistance (R) or deterioration of stability by contact resistance (Max 0.5V)



### Output terminal

The form differs depending on the MODEL. Please check which form in Dimension.



### Remote control connector (TB1)

#### Remote/Local change

Each of voltage, current, OVP or all the modes can be switched by relay or TTL signal

MODE	Output relay	TTL
Remote	SHORT	LOW
Local	OPEN	HIGH

#### Remote switch ON/OFF

Output can be turned ON/OFF by relay or TTL signal. Logic of signal can be selected by entering 5V.

Output relay	TTL
SHORT	LOW
OPEN	HIGH

#### Output terminal CV

Vout	Vcon	R
0 to MAX	0Vdc to 10Vdc Input imp. 500kΩ	0Ω to 10kΩ MAX 1mA

#### Output terminal CC

Iout	Icon	R
0 to MAX	0Vdc to 10Vdc Input imp. 500kΩ	0Ω to 10kΩ MAX 1mA

#### Output terminal OVP

Vmax	Vcon
×5 to 110%	0Vdc to 10Vdc Input imp. 20kΩ

#### Output monitor

Output	Vmoni	Imoni
0 to MAX	0Vdc to 10Vdc Output imp. 1kΩ	0Vdc to 10Vdc Output imp. 1kΩ

#### Status output

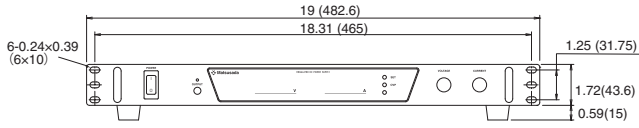
Common is floating in open collector output of common that is common to each. Withstanding voltage 30Vdc sink current 5mA or less.

Turn on when OVP, OTP, ACF  
Turn on when each status.

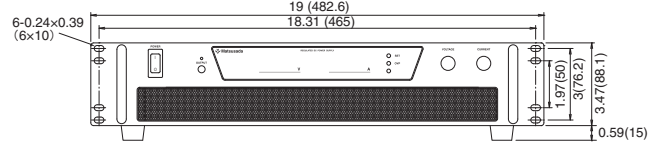
\* Please use TB1 in floating as TB1 and minus output is connected in the internal part.

All models have exhaust hole for forced air cooling on rear panel.  
When mounting on a cabinet where a space of 1.18"(300mm) or more cannot be secured, please arrange a measure such as forced draft vent.

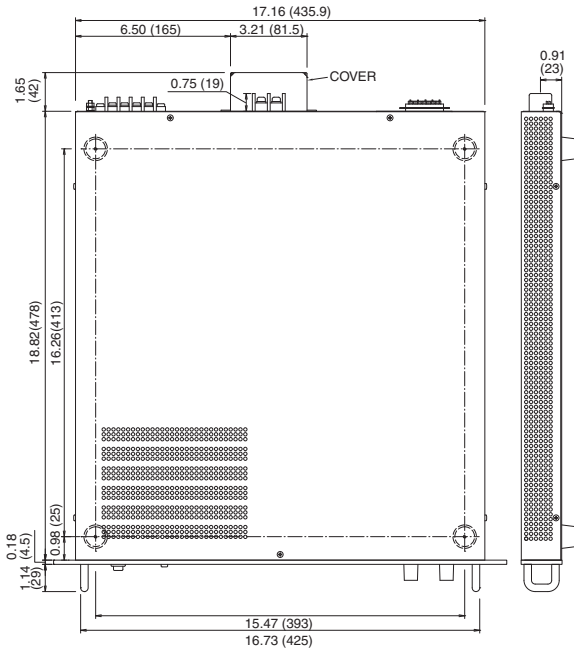
**[1U size]** Inhaling hole is on side of unit.  
Secure more than 4"(100mm) of space.



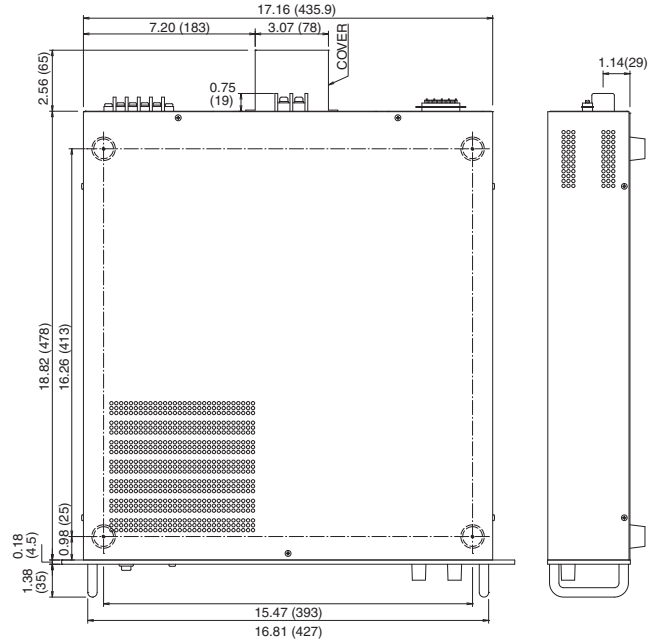
**[2U size]** Inhaling hole is on front panel.  
Secure more than 11.8"(300mm) of space.



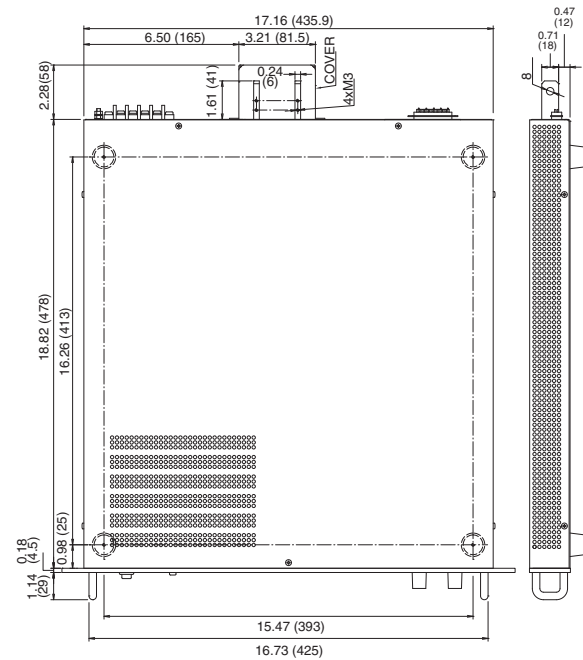
a. Terminal board type



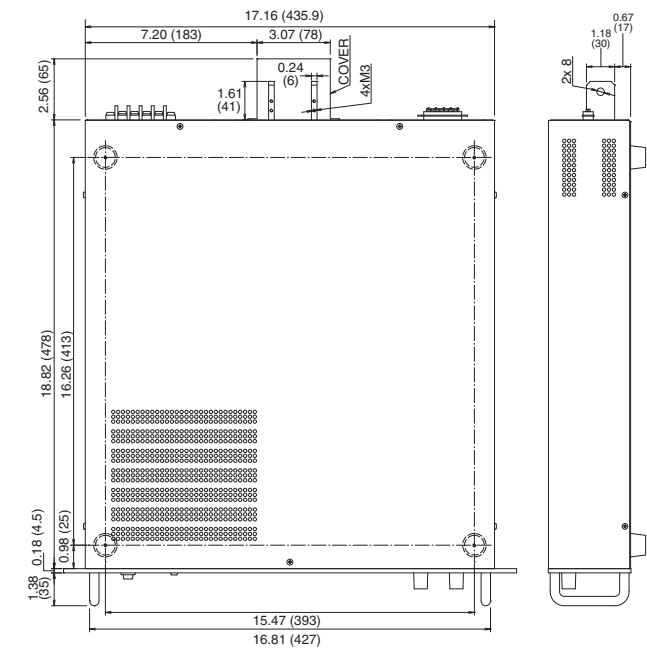
c. Terminal board type



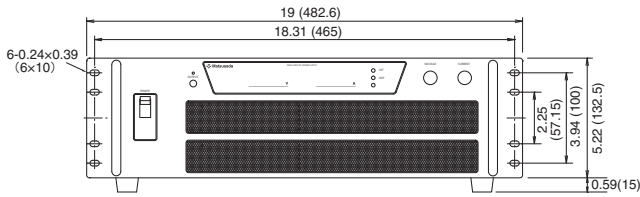
b. Bus bar type



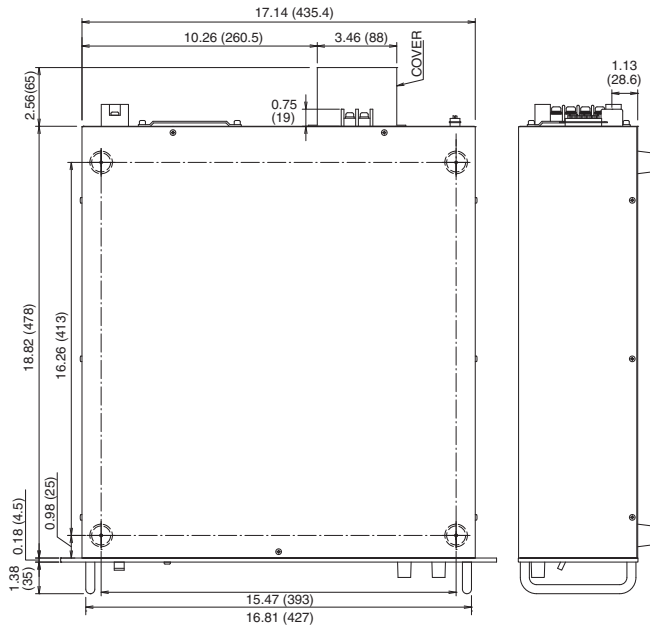
d. Bus bar type



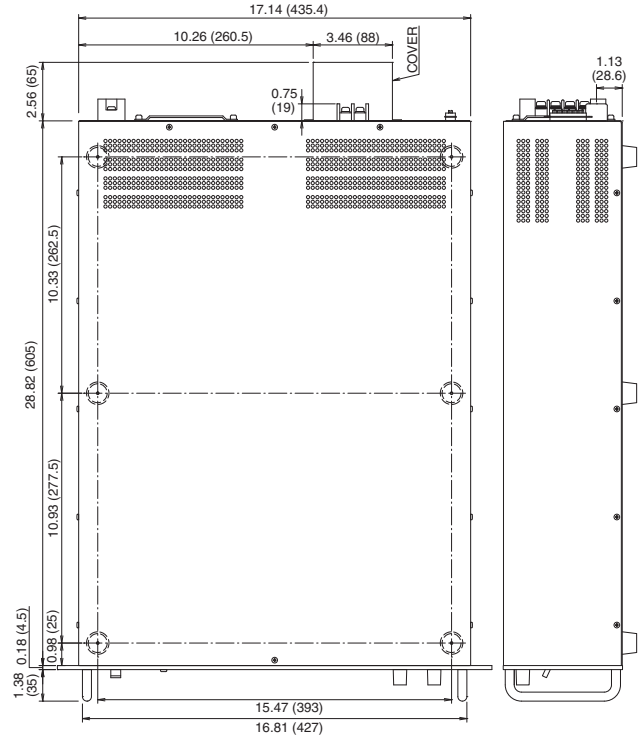
**[3U size]** Inhaling hole is on front panel.  
Secure more than 11.8"(300mm) of space.



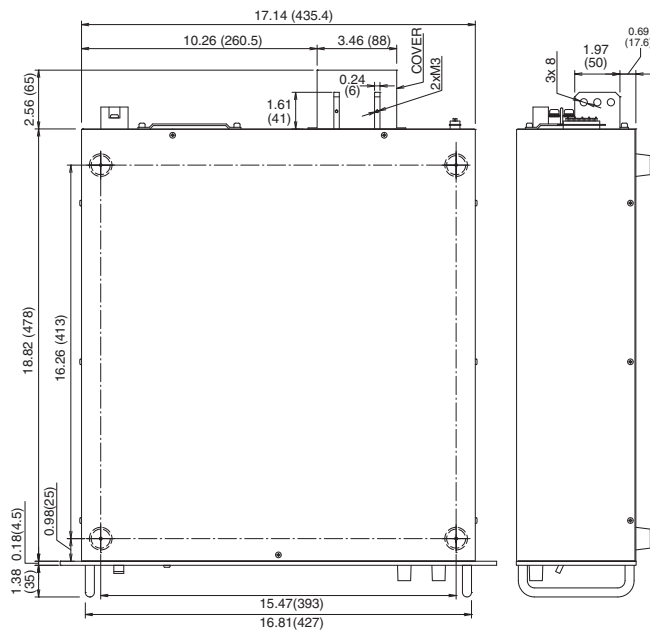
**e. Terminal board type**



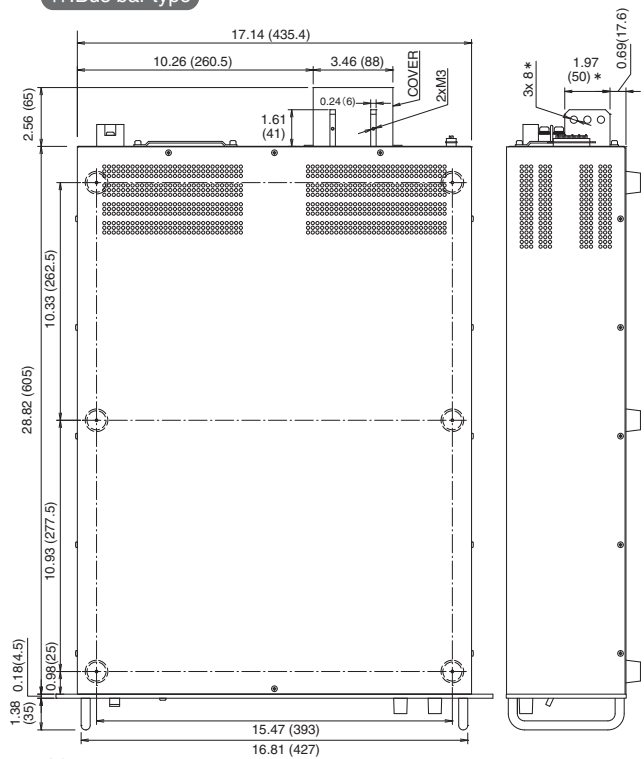
**g. Terminal board type**



**f. Bus bar type**



**h. Bus bar type**



(\*) Height of busbars is 3.86"(98mm), number of holes is 6 for RE10-750, RE10-820, RE10-1000, RE10-1200, RE15-700, RE20-500 and RE20-600.

