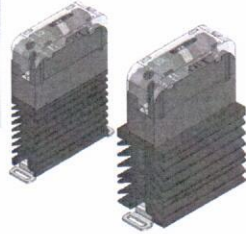


- Minimum Size SCR Unit (W 26mm X H 101mm X D 123mm)
- Alarm detect by a inner C/T
- Alarm and Display by 3 color LED
- Double over temperature detect



Thank you for purchasing **Mini** power regulator. This manual showing usage and installation of product. Please read this manual carefully before using to prevent any danger or accident.

1. Notices for Safety

- Before installing this product, install main power circuit breaker(NFB) and magnetic switch for safety.
- To prevent any electric shock, make sure to connect ground.
- Check out supplying voltage and load current is within the range of recommended rated voltage and current of this product.
- Make sure PCB power, main power and load are firmly connected before supplying main power.
- Installation of a fast-acting fuse is recommended to prevent fire or damage.
- Environments
 - Adjust ventilation and temperature not exceeding operating guarantee temperature of 0°C~40°C. The basis of rated current of the product is 25°C. When temperature is higher then, derate the current.
 - Do not use this product in high humidity place. Recommended humidity is 40~85%RH.
 - Keep away from any product which generates heat.
 - Avoid any place where there is a risk of inflammability, explosiveness, corrosion or conductivity.
- Disassembling or remodeling
 - Never disassemble, remodel or change any component of product voluntarily. If done, product can not be guaranteed its operation and safety.
- Check and repair
 - Before checking the product, turn of main power.
 - Check fastening condition of bolts, nuts and terminals periodically. (Loosened connection generates heat, which can be a cause of wiring damage or a fire).
- Responsibility and guarantee
 - Must preserve notices for safety. If not, no responsibility no guarantee.
 - Unforeseeable usage of product, damage from natural disaster can not be taken any responsibility or guaranteed.
- Please keep this manual in your attention. Manual can be changed without pre-notice for better performance of product.

1

2. Ordering Code

PS - ① ① ① - ② - ③

PS	① Rated Current	② Input Signal	③ Cooling Fan (Option)
PARA	015 : 15A	I : 4~20mA	NONE : Without Fan
MINI TYPE	025 : 25A 040 : 40A	V : 0~10V S : SSR	FN : With Fan (Only for 40A)

※ Above rated current is based on 25°C of ambient temperature. When ambient temperature is over 25°C, derate current. (Nominal) load current should be much less than rated current.

3. Specification

Rated Voltage	50 ~ 500VAC		
Rated Current	15A/25A/40A (Surrounding Temperature less than 25°C)		
Rated Frequency	50/60Hz (Auto Detect)		
Type of Load	Resistive Load		
Minimum Load	1A		
Output Range	Zero-Crossing Control 0 ~ 98%		
PCB Power	DC 10V ~ 30V		
Power Consumption	3W (MAX) / 4.5W (With cooling fan)		
Input Signal	SSR (10~30V)	4~20mA	0~10V
Output Relay	NPN Open collector 2CH (V _{CE} < 30V, I _C ≤ 50mA)		
Control Method	Zero-Crossing control with compensation algorithm		
Cooling	Natural Cooling (40A : Optional Cooling FAN)		
Alarm	OC, Heater Failure, Over Temp. (60°C-Warning/80°C-Alarm), SCR Failure		
Operating Guarantee Temp.	0 ~ 40°C		
Usage Humidity	40 ~ 85%RH (Without condensation)		
Display	3 Color LED		
Fuse	For safety reason, install a fast acting fuse		
Weight	15A, 25A : 295g / 40A : 427g		

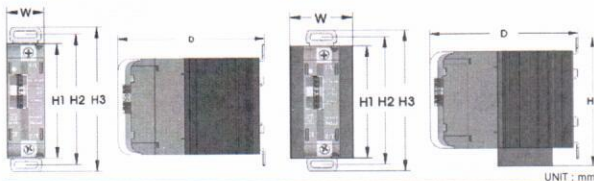
※ Output against input signal will be within ±1% error.

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4. Dimension

• 15A / 25A

• 40A



Rated Current	W	H1	H2	H3	H4 (With FAN)	D
15A	26	80	91	101		123
25A	26	80	91	101		123
40A	45	80	91	101	111	123

5. Installation

- Installation on the panel directly
 - Fixing with M4 screw as shown left.
 - Install product in right vertical direction.
- Installation on Din Rail .
 - Hook upper part ① of bracket on din rail as shown left.
 - Push the product strongly until bottom part of bracket ② is firmly hooked on din rail.
 - When detaching product from din rail, pull up the product in arrow direction and unhook it out.

- When using more than 2 products, keep a distance of more than 8mm between heat sinks.
- Pay attention to temperature rise of the product and install cooling fan to circulate the surrounding air. When the product is placed inside of panel blocked, install cooling fans to ventilate panel. And check the cooling fan periodically if it works well and there is any obstacle to block the ventilation.
- The product is made of switching semiconductor device which generates heat. If ambient temperature of the product is lower, the reliability and life expectancy of product is improved.

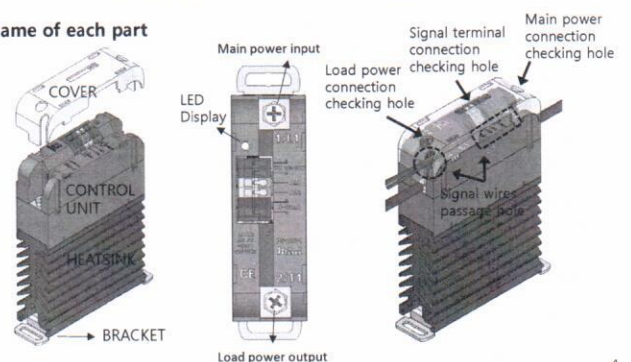
3

6. Pre-Notice for installing product in the panel blocked

- Because of heat generated by other devices, the functional capability of product can be decreased in blocked panel. Make holes on top and bottom of panel and install cooling fans for ventilation.

- Minimum distance
 - Duct or other obstacle to prevent circulation
 - More than 15mm Distance
 - More than 60mm Distance
 - More than 80mm Distance
 - More than 30mm Distance
 - More than 60mm Distance
- Install the product vertically.
- If there is a duct above or under the product, the duct should not cover the half of product as shown picture below for better circulation
- If a duct is too big, put a support beneath the product not to be covered more than half.

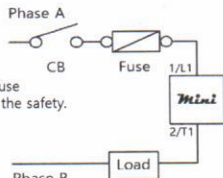
7. Name of each part



4

8. Wiring

※ Install a fast acting fuse before the product for the safety.

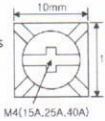


• Fuse recommended

Rated Current	Fuse
15A	35A
25A	50A
40A	80A

(1) Main power input & load power output

• Use SEMS bolts for main power input and load power output as shown picture left.



• O type terminal for main power input and load power output

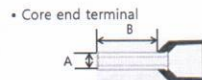
	Outer	Inner
mm		
d < 10		4 < d ≤ 6



1. PCB power +
2. PCB power -
3. Alarm output 1
4. Alarm output 2
5. Input signal +
6. Input signal -

(2) PCB power and input signal

- PCB power (1, 2) : DC 10(+2)~30V
- Alarm output (3, 4) : NPN Open Collector
- Input signal (5, 6) : SSR, 4~20mA, 0~10V



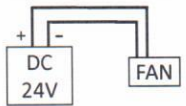
Wire	Dimension		
AWG	mm ²	A(mm)	B(mm)
#20	0.75	1.5	8

• Arrange and tie wires for PCB power and signals up through holes below and right side as shown pictures below.



(3) FAN (Optional)

- Separate power of DC 24V

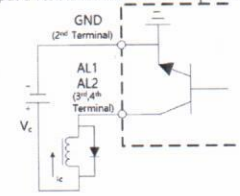
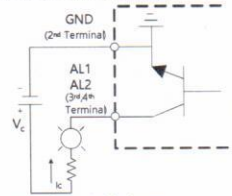


9. Alarm output

• Alarm output is NPN Open Collector type.

• DC Relay
Recommend to put a diode on ends of relay to prevent inverse voltage.

• Lamp or buzzer
For the safety reason(safe from over current), put a resistance before the lamp or buzzer.



Warning!! $V_c < 30V_c \leq 50mA$

10. Display and alarm

Alarm	Explanation	LED	동작	Output
Normal	-	Green Blinking	RUN	-
Stand-By	PCB power is on and no output because of no input signal.	Green On	STOP	-
SCR failure	When input signal is 0% or off, output current is more than 1A	Red Blinking	Output Cut-off	AL1
Over Current	When output is more than 100% of rated current.	Red On	Output Cut-off	AL1
Load Failure	When input signal is more than 40%, output current is less than 1A.	Red and orange blinking by turns	Auto clear	AL2
Main power off	-	-	-	-
Over Temp. 60	Temp. of heat-sink is more than 60°C	Orange Blinking	Output On-going	AL2
Over Temp. 80	Temp. of heat-sink is more than 80°C	Orange On	Output Cut-off	AL1

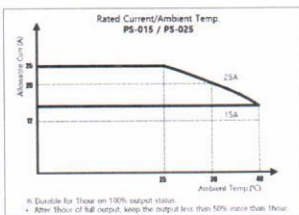
- The speed of green blinking LED is faster in proportion to input signal.
- When AL1(Serious alarm) is on, output is cut off and restart only when PCB power is reset.
- When AL2(Minor alarm) is on, output is still on and alarm is automatically cleared 10 seconds after the cause of alarm is removed.
- Alarm output - AL2(Minor Alarm)

Alarm	Alarm Output
OT 60	High 3초 3초 Low

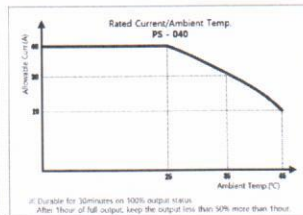
Alarm	Alarm Output
LINE	High
MAIN OFF	-----

11. Ambient temperature and allowable current

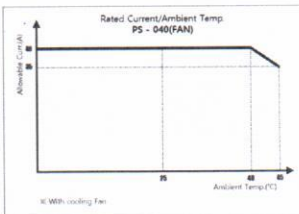
• 15A / 25A



• 40A



• 40A (With FAN)



- Rated current of product is based on ambient temperature of 25°C. Main component is semi-conductor which generates heat when operating.
- If ambient temperature is higher than above standard temperature, please derate the current.

12. Disorder and Mal-function

- Do not drop the product or give it a shock on transportation or installation. A shock to the product can cause mal-function or deterioration of the product.
- Check the status of bolt fastening on main power input and load power output periodically. When any bolt is loosen, it damages wiring and causes fire.
- Never allow overvoltage. Overvoltage causes damage or disorder to the product.
- Do not use the product in places said below.
 - Place where there is electric static or noise.
 - Place where there is strong electric, magnetic field, electromagnetic wave, high voltage or high frequency.
 - Place where there is a lot of dust with conductivity.
 - Place where there is equipment generating high temperature(furnace/heater).
 - Place where there is a lot of vibration.

13. Product warranty & After service

1. Service in warranty period
Warranty period of this product is 1 year from the date of purchase. During warranty period, unpaid- service is valid.
2. Paid-Service
Even in warranty period, cases said below are imposed to pay for services including travelling expenses and service charge.
 - Disorder by user's mistake or mishandling. (Inundation or electric short by mistake)
 - Disorder by user's arbitrary repair or alteration.
 - Disorder caused by a worker's repair who is not PARA-ENT's technician nor a designated one.
 - Disorder caused by different rated voltage or current from the stated on the product.
 - Disorder caused by a user who do not follow any instruction in this manual.
 - Disorder by natural calamities(lightning, fire, damage from sea wind(water), flood, earthquake etc.)
3. Service in abroad
After service for the product limits to only Republic of Korea.
When the product is exported, it should be returned and sent back on user's expenses for the after service no matter what it is within warranty period or not.
 - When placing order, inform us the country where the product will be exported to.
 - PARA-ENT is not responsible for any disorder caused by voltage or frequency difference due to arbitrary export.

14. Pre-caution of manual

1. Please deliver this manual to end-user and ask him to keep it in a place where he can easily find.
2. Revision or copy of this manual partially or totally without pre-confirmation is prohibited.
3. This manual may be revised without pre-notification for improvement of product.

Product	Digital Power Regulator <i>Mini</i>	Model	
Purchase Date		S/N	
Place to purchase			

We appreciate for purchasing *Mini* product.

We promise to supply you with better products in electric power control.



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