

Dimension

L	*	W	*	H
300	*	85	*	41 (1U) mm
11.8	*	3.35	*	1.61(1U) inch

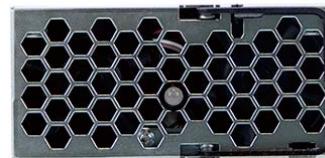


Front

User's Manual



Back


 Power Management
Defined.


UL62368-1



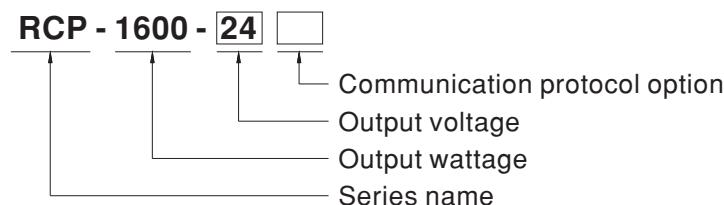
BS EN/EN62368-1 TPTC004


■ Features

- Universal AC input / Full range (Withstand 300VAC surge input for 5 seconds)
- Built-in active PFC function
- High efficiency up to 93%
- Forced air cooling by built-in DC fan
- Output voltage and constant current level programmable
- Built-in OR-ing FET, support hot swap (hot plug)
- Active current sharing up to 8000W for one 19" rack shelf
- Built-in I²C interface, PMBus protocol (Optional CANBus protocol)
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Optional conformal coating
- 5 years warranty

■ Description

RCP-1600 is a 1.6KW single output rack mountable front end AC/DC power supply with a 1U low profile and a high power density up to 25W/inch³. This series operates for 90~264VAC input voltage and offers the models with the DC output mostly demanded from the industry. Each model is cooled by the built-in DC fan with fan speed control, working for the temperature up to 70°C. RCP-1600 provides vast design flexibility by equipping various built-in functions such as the PMBus and CANBus communication protocol, output programming, active current sharing (up to 24000W via three 19" rack shelves, RHP-1U), remote control, auxiliary power, alarm signal, etc. Maximum number that can be monitored by master controller in communication shall be 15 power supplies.

■ Model Encoding / Order Information


※ Note 1: 19" rack shelf, RHP-1U, available. Details available on <http://www.meanwell.com/>

※ Note 2: Control/Monitor unit, RKP-CMU1, available. Details available on <http://www.meanwell.com/>

Type	Communication Protocol	Note
Blank	PMBus protocol	In Stock
CAN	CANBus protocol	By request

SPECIFICATION

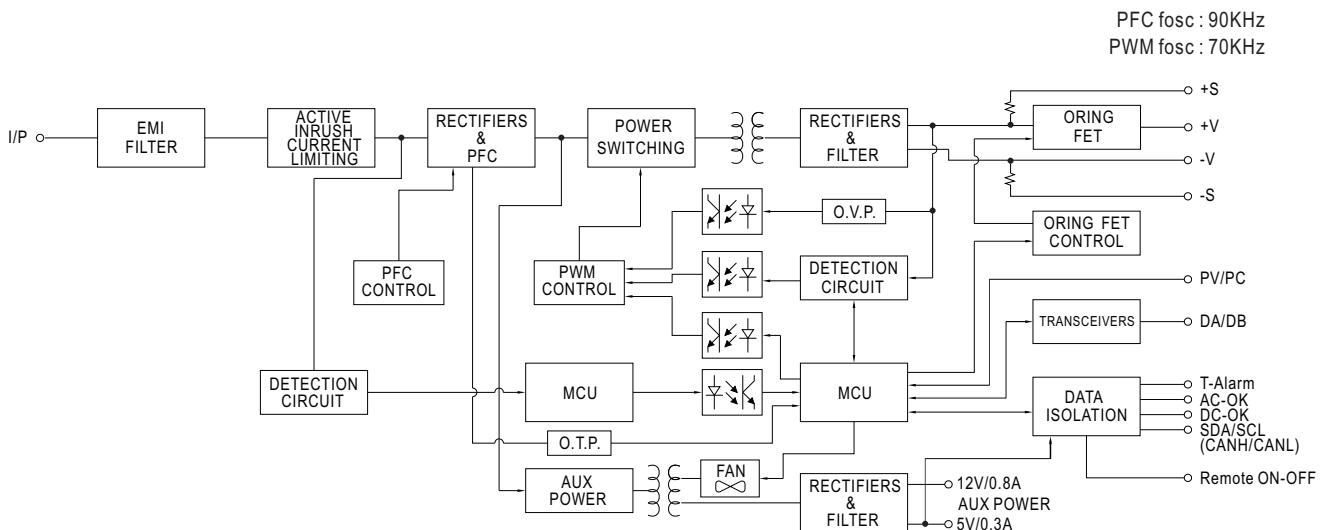
MODEL	RCP-1600-12	RCP-1600-24	RCP-1600-48
OUTPUT	DC VOLTAGE	12V	24V
	RATED CURRENT	125A	67A
	CURRENT RANGE	0 ~ 125A	0 ~ 67A
	RATED POWER	1500W	1608W
	RIPLE & NOISE (max.) Note.2	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE Note.6	11.5 ~ 15V	23.5 ~ 30V
	VOLTAGE TOLERANCE Note.4	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%
	LOAD REGULATION	±0.5%	±0.5%
	SETUP, RISE TIME	1500ms, 60ms/230VAC at full load	
INPUT	HOLD UP TIME (Typ.)	16ms / 230VAC at 75% load	10ms / 230VAC at full load
	VOLTAGE RANGE Note.5	90 ~ 264VAC	127 ~ 370VDC
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	0.97/230VAC at full load	
	EFFICIENCY (Typ.)	88.5%	91%
	AC CURRENT (Typ.) Note.5	14A/115VAC	8A/230VAC
PROTECTION	INRUSH CURRENT (Typ.)	COLD START 35A/230VAC	
	LEAKAGE CURRENT	<1.5mA / 230VAC	
	OVERLOAD	105 ~ 115% rated output power Protection type : Constant current limiting, unit will shut down o/p voltage after 5 sec. re-power on to recover	
FUNCTION	OVER VOLTAGE	15.75 ~ 18.75V	31.5 ~ 37.5V
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover	63 ~ 75V
	OUTPUT VOLTAGE PROGRAMMABLE(PV) Note 6	Adjustment of output voltage is allowable to 40 ~ 125% of nominal output voltage(60~125% for 12V). Please refer to the Function Manual in following pages.	
ENVIRONMENT	OUTPUT CURRENT PROGRAMMABLE(PC) Note 6	Adjustment of constant current level is allowable to 20 ~ 100% of rated current. Please refer to the Function Manual in following pages.	
	REMOTE ON-OFF CONTROL	By electrical signal or dry contact	Power ON:short
	REMOTE SENSE	Power OFF:open. Please refer to the Function Manual in following pages.	
	AUXILIARY POWER	Compensate voltage drop on the load wiring up to 0.5V. Please refer to the Function Manual in following pages.	
	ALARM SIGNAL	5V @ 0.3A, 12V @ 0.8A	Isolated TTL signal output for T-Alarm, AC-OK and DC-OK
SAFETY & EMC (Note 7)	WORKING TEMP.	-30 ~ +70°C (Refer to "Derating Curve")	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)	
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	
SAFETY & EMC (Note 7)	SAFETY STANDARDS	UL62368-1, CAN/CSA C22.2 No. 62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC	I/P-FG:2KVAC
	ISOLATION RESISTANCE	O/P-FG:1.5KVAC (0.5KVAC for 12V)	
	EMC EMISSION	Parameter	Standard
		Conducted	BS EN/EN55032 (CISPR32)
		Radiated	BS EN/EN55032 (CISPR32)
		Harmonic Current	BS EN/EN61000-3-2
		Voltage Flicker	BS EN/EN61000-3-3
	EMC IMMUNITY	BS EN/EN55024, BS EN/EN61000-6-2	
		Parameter	Standard
		ESD	BS EN/EN61000-4-2
		Radiated	BS EN/EN61000-4-3
		EFT / Burst	BS EN/EN61000-4-4
		Surge	BS EN/EN61000-4-5
OTHERS	CONNECTION	Conducted	BS EN/EN61000-4-6
	CONNECTION	Magnetic Field	BS EN/EN61000-4-8
NOTE	VOLTAGE DIPS AND INTERRUPTIONS	Voltage Dips and Interruptions	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods
	MTBF	162.2K hrs min.	Telcordia SR-332 (Bellcore) ; 39.3K hrs min.
	DIMENSION	300*85*41mm (L*W*H)	MIL-HDBK-217F (25°C)
PACKING	WEIGHT	1.87Kg; 6pcs/12.2Kg/1.16CUFT	
	NOTES	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Under parallel operation ripple of the output voltage may be higher than the SPEC at light load condition. It will go back to normal ripple level once the output load is more than 5%. 4. Tolerance : includes set up tolerance, line regulation and load regulation. 5. Derating may be needed under low input voltages. Please check the derating curve for more details. 6. PV/PC functions when users are not operating on PMBus/CANBus. SVR functions when users are neither operating on PMBus/CANBus nor using PV/PC. 7. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 720mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com) 8. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx	



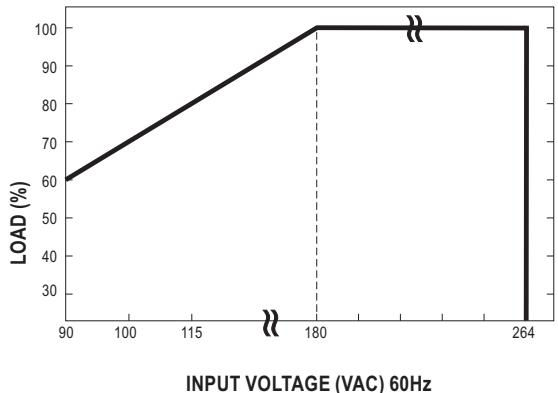
1600W Rack Mountable Front End Rectifier

RCP-1600 series

■ Block Diagram



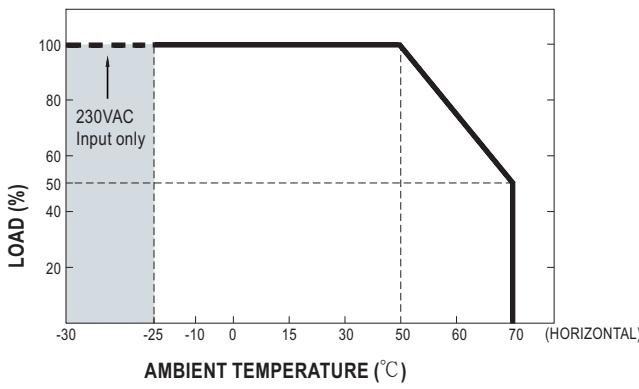
■ Static Characteristics



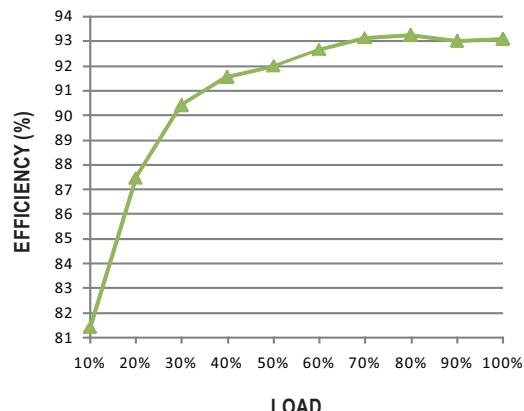
■ Derating Loads vs Input Voltage

INPUT	MODEL	12V	24V	48V
180~264VAC	12V	1500W	1608W	1608W
	24V	125A	67A	33.5A
115VAC	12V	1200W	1286.4W	1286.4W
	24V	100A	53.6A	26.8A
100VAC	12V	1050W	1125.6W	1125.6W
	24V	87.5A	46.9A	23.45A
90VAC	12V	900W	964.8W	964.8W
	24V	75A	40.2A	20.1A

■ Derating Curve



■ Efficiency vs Load (48V Model)



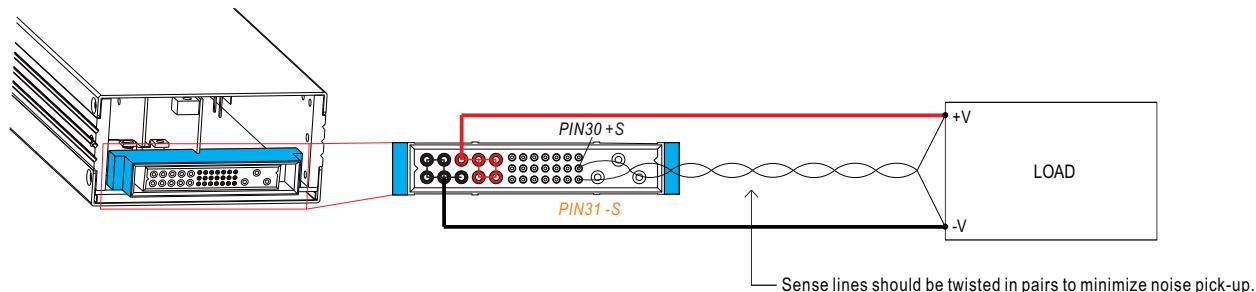
◎ The curve above is measured at 230VAC.

■ Function Manual

1. Voltage Drop Compensation

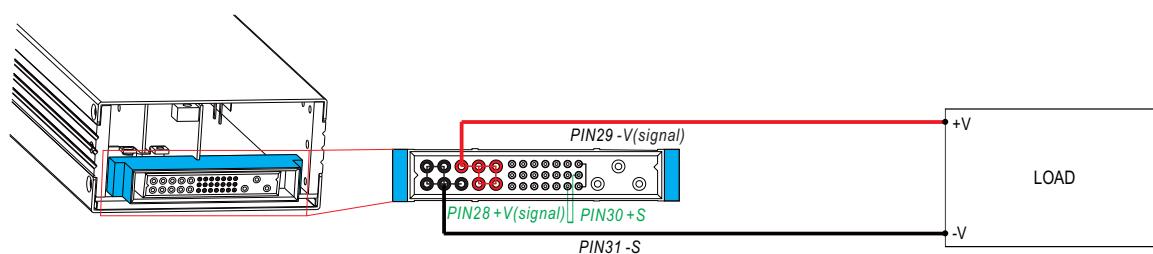
1.1 Remote Sense

※ The Remote Sense compensates voltage drop on the load wiring up to 0.5V



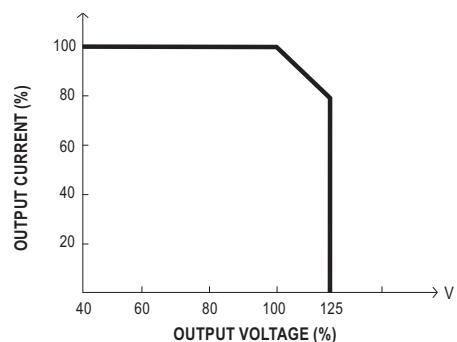
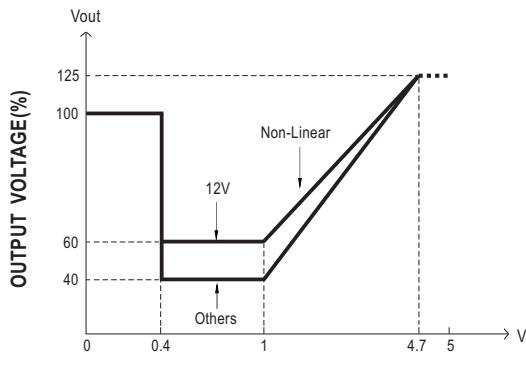
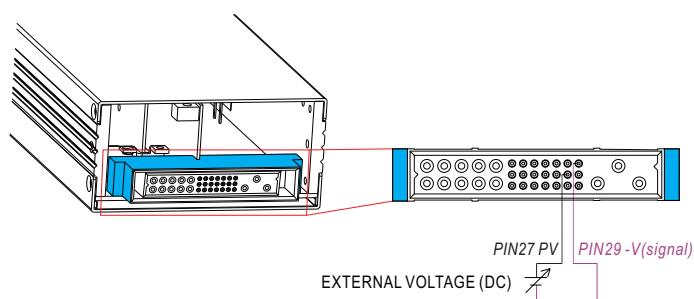
1.2 Local Sense

※ The +S,-S have to be connected to the +V(signal),-V(signal), respectively, as the following diagram, in order to get the correct output voltage if Remote Sense is not used.



2. Output Voltage Programming (or, PV / remote voltage programming / remote adjust / margin programming / dynamic voltage trim)

※ In addition to the adjustment via the built-in potentiometer, the output voltage can be trimmed to 40~125% of the nominal voltage by applying EXTERNAL VOLTAGE.



◎ The rated current should change with the Output Voltage Programming accordingly.

◎ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.

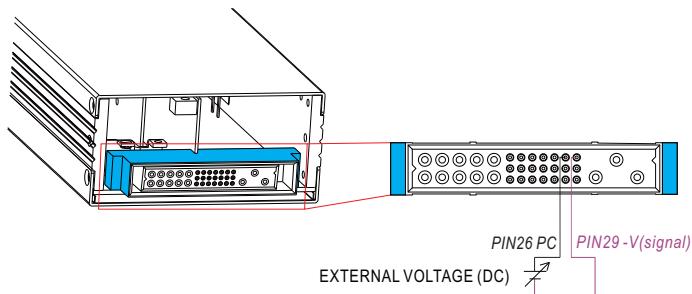


1600W Rack Mountable Front End Rectifier

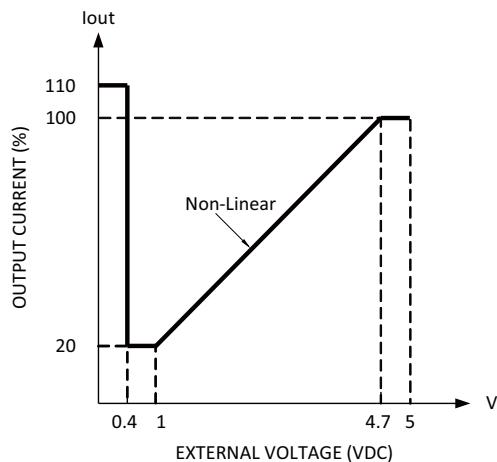
RCP-1600 series

3. Constant Current Level Programming (or, PC / remote current programming / dynamic current trim)

※ The constant current level can be trimmed to 20~100% of the rated current by applying EXTERNAL VOLTAGE.

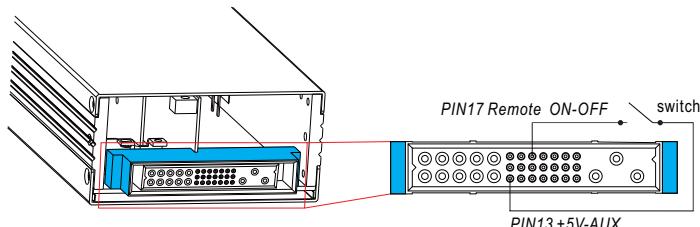


◎ For Remote Sense / Local Sense, please refer to "Voltage Drop Compensation" section.



4. Remote ON-OFF Control

The power supply can be turned ON/OFF individually or along with other units by using the "Remote ON-OFF" function.



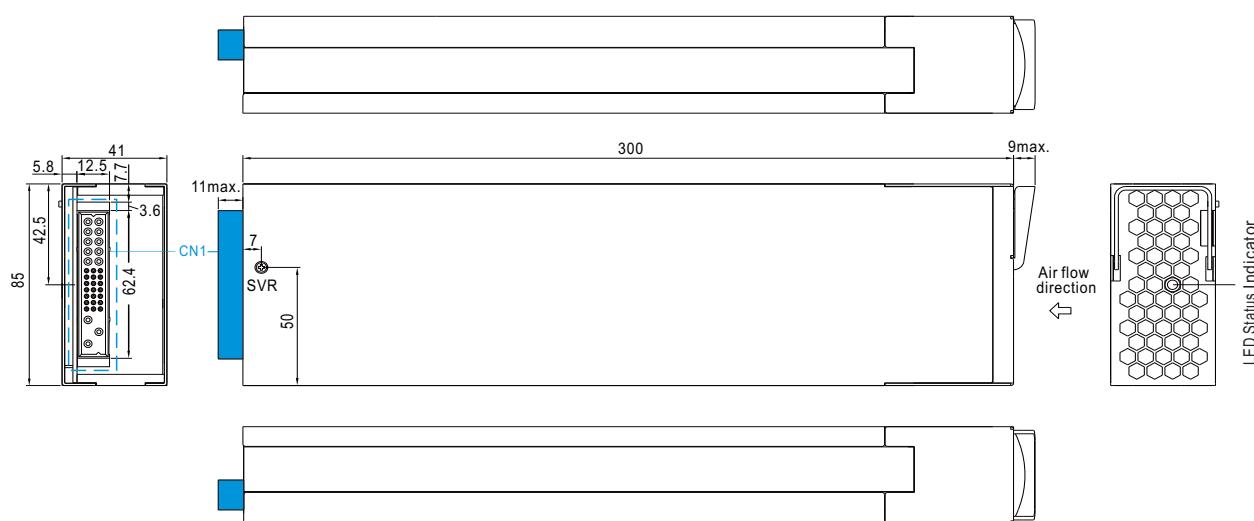
Between Remote ON-OFF and +5V-AUX	Power Supply Status
Switch Short	ON
Switch Open	OFF

5. PMBus Communication Interface

RCP-1600 supports PMBus Rev. 1.1 with maximum 100KHz bus speed, allowing information reading, status monitoring, output trimming, etc. For details, please refer to the Function Manual.

■ Mechanical Specification

Case No.250 Unit:mm



※ LED Status Indicators

LED	Description
Green	The power supply functions normally.
Red	The LED will present a constant red light when the abnormal status (OTP, OLP, fan fail and charging timeout) arises.
Red (Flashing)	The LED will flash with the red light when the internal temperature reaches 60°C; under this condition, the unit still operates normally without entering OTP. (In the meantime, an alarm signal will be sent out through the PMBus interface.)

※ Input / Output Connector Pin No. Assignment(CN1) : Positronic PCIM34W13M400A1



Pin No.	Function	Description
1,2,3,4,6	-V	Negative output terminal.
5,7,8,9,10	+V	Positive output terminal.
11	+12V-AUX	Auxiliary voltage output, 10.8~13.2V, referenced to GND-AUX (pin 12). The maximum load current is 0.8A. This output has the built-in "O-ring diodes" and is not controlled by the Remote ON/OFF control.
12	GND-AUX	Auxiliary voltage output GND. The signal return is isolated from the output terminals (+V & -V).
13	+5V-AUX	Auxiliary voltage output, 4.5~5.5V, referenced to GND-AUX (pin 12). The maximum load current is 0.3A. This output has the built-in "O-ring diodes" and is not controlled by the Remote ON/OFF control.
14	SCL	For PMBus model: Serial Clock used in the PMBus interface. (Note.2)
	CANL	For CANBus model: Data line used in CANBus interface. (Note.2)
15	SDA	For PMBus model: Serial Data used in the PMBus interface. (Note.2)
	CANH	For CANBus model: Data line used in CANBus interface. (Note.2)
16	T-ALARM	High (4.5 ~ 5.5V) : When the internal temperature exceeds the limit of temperature alarm, or when fan fails. Low (-0.1 ~ 0.5V) : When the internal temperature is normal, and when fan normally works. The maximum sourcing current is 10mA and only for output (Note.2)
17	Remote ON-OFF	The unit can turn the output ON/OFF by electrical signal or dry contact between Remote ON/OFF and +5V-AUX. (Note.2) Short (4.5 ~ 5.5V) : Power ON ; Open (0 ~ 0.5V) : Power OFF ; The maximum input voltage is 5.5V.
18	DC-OK	High (4.5 ~ 5.5V) : When the Vout \leq 80% \pm 5%. Low (-0.1 ~ 0.5V) : When Vout \geq 80% \pm 5%. The maximum sourcing current is 10mA and only for output. (Note.2)
19	AC-OK	High (4.5 ~ 5.5V) : When the input voltage is \geq 87Vrms. Low (-0.1 ~ 0.5V) : When the input voltage is \leq 75Vrms. The maximum sourcing current is 10mA and only for output. (Note.2)
20,21,22,23	A3,A2,A1,A0	PMBus / CANBus interface address lines. (Note.1)
24,25	DB,DA	Differential digital signal for parallel control. (Note.1)
26	PC	Connection for constant current level programming. (Note.1)
27	PV	Connection for output voltage programming. (Note.1)
28	+V (Signal)	Positive output voltage signal. It is for local sense; it cannot be connected directly to the load.
29	-V (Signal)	Negative output voltage signal. It is for local sense; and certain function reference; it cannot be connected directly to the load.
30	+S	Positive sensing for remote sense.
31	-S	Negative sensing for remote sense.
32	FG	AC Ground connection.
33	AC/L	AC Line connection.
34	AC/N	AC Neutral connection.

Note1: Non-isolated signal, referenced to [-V(signal)].

Note2: Isolated signal, referenced to GND-AUX.