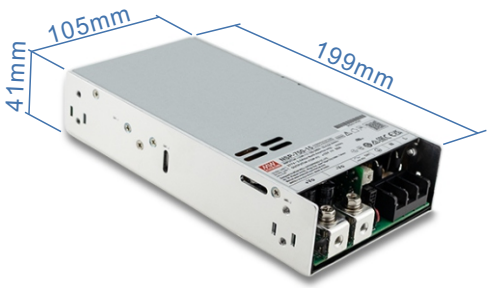
750W AC/DC High Reliable Multi-Industries Encolsed Type Power Supply NSP-750 series



User's Manual
Click Me

IEC62368-1
IEC61558-1/-2-16
IEC61010-1/-2-201
IEC60601-1
IEC60335-1
IEC62477-1

BS EN/EN62368-1
BS EN/EN61558-1/-2-16
BS EN/EN61010-1/-2-201
BS EN/EN60601-1
BS EN/EN60335-1
BS EN/EN62477-1

UL62368-1
UL61010-1/-2-201
ANSI/AAMI ES60601-1

LISTED
UL61010-1

(Note.5) GB4943.1 CNS15598-1 KC62368-1 (By request) IS 13252 (By request Note.7) TPTC004

ECO Automate Industrial Security Network
Telecom Household Medical 2xMOPP BF rated

Features

- 85~305Vac input with PFC(277Vac available)
- No load power consumption <0.75W~1W by R.C.
- Global certificates in multi-fields (ITE 62368-1, Medical 60601-1,Household 60335-1, Industrial 61558-1/2-16/61010-1, Energy converter 62477-1)
- 200% peak power capability(12~60V models)
- High efficiency up to 95%
- -40~+85℃ wide range operation temperature(> +60℃ derating)
- Extremely low leakage current<350μA, 2 x MOPP, suitable for BF medical applications
- Built-in constant current limiting circuit
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC fan with noise <45dB and fan ON/OFF control
- Built-in Remote ON/OFF control/Remote Sense/ DC OK signal
- Over voltage category III (OVC III)
- Operating altitude up to 5000 meters
- Conformal coating
- 5 years warranty

Applications

- Industrial automation machinery/ control system
- Security system
- Mechanical and electrical equipment
- Electronic instruments, equipments orapparatus
- Network equipment
- Telecom devices
- Power sourcing equipment of PoE
- Home automation
- Medical devices
- Charging application

GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

The NSP-750 series is a 750W AC/DC power supply with PFC function, designed for high reliability and suitable for multiple industries. Key features include: compact size (199*105*41 mm) for better space utilization in system installations, ultra-wide input range of 85~305Vac for global compatibility, up to 95% efficiency and low standby power consumption (<0.75W~1W by models) for energy-saving and carbon reduction, constant current design with 200% peak power capability, wide operating temperature range from -40 to +85°C (+60°C at full load), compliance with OVCIII, built-in Remote Control/Remote Sense/DC OK signal, internal PCB coating, complete protections, certifications for multiple safety standards including 62368-1, 60601-1, 61558-1, 60335-1, 62477-1, and 61010-1, as well as 2 X MOPP compliance and extremely low leakage current (<350μA). It is suitable for BF-rated medical equipment and comes with a 5-years warranty, making it a highly cost-effective solution for industrial power supply needs.

Model Encoding

NSP - 750 - 24

- 24: Output voltage (5V/12V/15V/24V/27V/36V/48V/60V)
- 750: Output wattage
- NSP: Series name

MEAN WELL

750W AC/DC High Reliable Multi-Industries Encolsed Type Power Supply NSP-750 series

SPECIFICATION	NSP-750-5	NSP-750-12	NSP-750-15	NSP-750-24	NSP-750-27	NSP-750-36	NSP-750-48	NSP-750-60
OUTPUT								
DC VOLTAGE	5V	12V	15V	24V	27V	36V	48V	60V
RATED CURRENT	100A	62.5A	50A	31.3A	27.8A	20.9A	15.7A	12.6A
CURRENT RANGE	0 ~ 100A	0 ~ 62.5A	0 ~ 50A	0 ~ 31.3A	0 ~ 27.8A	0 ~ 20.9A	0 ~ 15.7A	0 ~ 12.6A
RATED POWER	500W	750W	750W	751.2W	750.6W	752.4W	753.6W	756W
PEAK CURRENT(5 sec.)	N/A	125A	100A	62.5A	55.6A	41.7A	31.3A	25A
PEAK POWER(5 sec.)	N/A	1500W	1500W	1500W	1500W	1500W	1500W	1500W
RIPPLE & NOISE (max.) Note.2	200mVp-p	200mVp-p	200mVp-p	240mVp-p	240mVp-p	240mVp-p	240mVp-p	300mVp-p
VOLTAGE ADJ. RANGE	4.7 ~ 5.5V	10.8 ~ 14V	15 ~ 19V	21 ~ 26V	26 ~ 32V	32 ~ 43V	44 ~ 57V	54 ~ 72V
VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
LOAD REGULATION	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
SETUP, RISE TIME	1500ms, 80ms/115Vac 1000ms, 80ms/230Vac 900ms, 80ms/277Vac							
HOLD UP TIME (Typ.)	16ms at full load							
INPUT								
VOLTAGE RANGE Note.4	85 ~ 305Vac 120 ~ 431Vdc							
NO LOAD POWER CONSUMPTION(Typ.) Remote Power OFF	0.75W/115Vac 0.75W/230Vac 1W/277Vac							
NO LOAD POWER CONSUMPTION(Typ.) Remote Power ON	5W/115Vac 5W/230Vac 5W/277Vac							
FREQUENCY RANGE	47 ~ 63Hz							
POWER FACTOR (Typ.)	PF>0.98/115Vac PF>0.93/230Vac PF>0.9/277Vac at full load							
EFFICIENCY (Typ.)	90%	92%	92%	94%	94%	95%	95%	95%
AC CURRENT (Typ.)	8.2A/115Vac 3.9A/230Vac 3.2A/277Vac							
INRUSH CURRENT (Typ.)	COLD START 20A/115Vac 40A/230Vac 50A/277Vac							
LEAKAGE CURRENT	Earth leakage current <350μA(rms)@277Vac, touch current<100μA(rms) @ 277Vac							
PROTECTION								
SHORT CIRCUIT	5V	Constant current limiting for more than 5 seconds (Vout<30%) and then hiccup mode, recovers automatically after faul condition is removed						
SHORT CIRCUIT	12V ~ 60V	Constant current limiting for more than 5 seconds (Vout<30%) and then shut down o/p voltage, AC re-power on to recover or Hiccup mode, recovery automatically after fault conditon is removed. Depends on the user's wire impedance						
OVERLOAD	5V	105%~150% rated output power; More than 5 seconds and then hiccup mode,recovers automatically after fault condition is removed						
OVERLOAD	12V ~ 60V	Normally works within 105 ~ 200% rated output power for more than 5 seconds and then constant current limiting without shutdown(Vout>30%), recovers automatically after fault condition is removed, or shut down o/p voltage when Vout<30%,AC re-power on to recover						
OVERLOAD	12V ~ 60V	>200% rated power, constant current limiting (Vout>30%)with auto-recovery after fault condition is removed, or shut down o/p voltage when Vout<30%,AC re-power on to recover						
OVER VOLTAGE	5.8 ~ 7.5V	15 ~ 19V	20 ~ 25V	28 ~ 36V	33~ 42V	44 ~ 54V	58~ 70V	73~ 86V
OVER VOLTAGE	Protection type : Shut down o/p voltage, AC re-power on to recover							
OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down							
FUNCTION								
AUXILIARY POWER	5Vaux @ 0.2A Tolerance -15% ~ +15% at main output 20% rated current 12Vaux @ 0.8A Tolerance -15% ~ +15% at main output 20% rated current							
REMOTE CONTROL	POWER ON : short between RC+(pin11)&5V-AUX(pin13) on CN1							
REMOTE CONTROL	POWER OFF: open between RC+(pin11)&5V-AUX(pin13) on CN1							
REMOTE SENSE	Compensate voltage drop on the load wiring up to 0.3V. Please refer to the Function Manual							
DC OK SIGNAL	By phototransistor contact rating(max.):15Vdc/10mA resistive load. Please refer to the Function Manual.							
FAN NOISE(Typ.)	Fan ON/OFF control, RTH3≥50℃±10℃ FAN ON ; RTH3≤40℃±10℃ FAN OFF							
FAN NOISE(Typ.)	45dB							
ENVIRONMENT								
WORKING TEMP.	-40 ~ +85℃ (Refer to "Derating Curve")							
WORKING HUMIDITY	20 ~ 90% RH non-condensing							
STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH non-condensing							
TEMP. COEFFICIENT	±0.05%/℃ (0 ~ 60℃)							

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SPECIFICATION	NSP-750-5	NSP-750-12	NSP-750-15	NSP-750-24	NSP-750-27	NSP-750-36	NSP-750-48	NSP-750-60
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes							
SAFETY & EMC (Note.5&6&7)								
SAFETY STANDARDS	CB IEC62368-1, IEC60335-1, IEC61558-1/-2-16, IEC61010-1/-2-201, IEC60601-1; IEC62477-1 DEKRA BS EN/EN62368-1, BS EN/EN60335-1, BS EN/EN61558-1/-2-16, BS EN/EN61010-1/-2-201, BS EN/EN60601-1(3.2 Version);BS EN/EN62477-1 UL UL62368-1, ANSI/AAMI ES60601-1(3.2 Version),UL61010-1/-2-201 CCC GB4943.1 BSMI CNS15598-1 EAC TP TC 004 SEMI F47 approved; KC/BIS KC62368-1 and BIS IS 13252(Part 1) certified, No stock ,contact sales by request							
ISOLATION LEVEL Note.8	Primary-Secondary: 2xMOPP, Primary-Earth: 1xMOPP, Secondary-Earth: 1xMOPP							
OVER VOLTAGE CATEGORY Note.9	IEC/EN 61558-1/-2-16 (OVC III, altitude up to 2000M) IEC/EN/UL 62368-1 (OVC II , altitude up to 5000M) IEC/EN 60335-1 (OVC II , altitude up to 5000M) IEC/EN/ANSI/AAMI ES60601-1 (OVC II , altitude up to 4000M) IEC/EN/UL 61010-1/-2-201 (OVC II , altitude up to 5000M) IEC/EN 62477-1 (OVC II , altitude up to 5000M)							
SAFETY EXTRA-LOW VOLTAGE(SELV)	IEC/EN 61558-2-16 (SELV, 5 ~ 36V) IEC/EN 60335-1 (SELV, 5 ~ 36V) IEC/EN/UL 62368-1 (SELV/ES1, 5 ~ 36V)							
WITHSTAND VOLTAGE	I/P-O/P:4.2KVac I/P-FG:2.1KVac O/P-FG:1.5KVac							
ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH							

EMC EMISSION

Parameter	Standard	Test Level / Note
Conducted	BS EN/EN55032(CISPR32),CNS 15936,GB/T 9254.1,KS C 9832	Class B
	BS EN/EN55014-1(CISPR14-1)	
	BS EN/EN55011(CISPR11)	Class B
Radiated	BS EN/EN55032(CISPR32),CNS 15936,GB/T 9254.1,KS C 9832	Class B
	BS EN/EN55014-1(CISPR14-1)	
	BS EN/EN55011(CISPR11)	Class B
Harmonic Current	BS EN/EN61000-3-2(IEC61000-3-2),GB 17625.1	Class A
Voltage Flicker	BS EN/EN61000-3-3(IEC61000-3-3)	-----

EMC IMMUNITY

BS EN/EN55035(CISPR35),BS EN/EN61000-6-2(IEC61000-6-2),BS EN/EN60601-1-2(IEC60601-1-2),
BS EN/EN55014-2(CISPR14-2),KS C 9835,SEMI F47 tested at 200Vac

Parameter	Standard	Test Level / Note
ESD	BS EN/EN61000-4-2	Level 4, 15KV air ; Level 4, 8KV contact
Radiated	BS EN/EN61000-4-3	Level 3, 10V/m(80MHz~2.7GHz) Table 9, 9~28V/m(385MHz~5.78GHz)
EFT / Burst	BS EN/EN61000-4-4	Level 3, 2KV
Surge	BS EN/EN61000-4-5	Level 4, 2KV/Line-Line 4KV/Line-Earth
Conducted	BS EN/EN61000-4-6	Level 3, 10V
Magnetic Field	BS EN/EN61000-4-8	Level 4, 30A/m
Voltage Dips and Interruptions	BS EN/EN61000-4-11	>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods

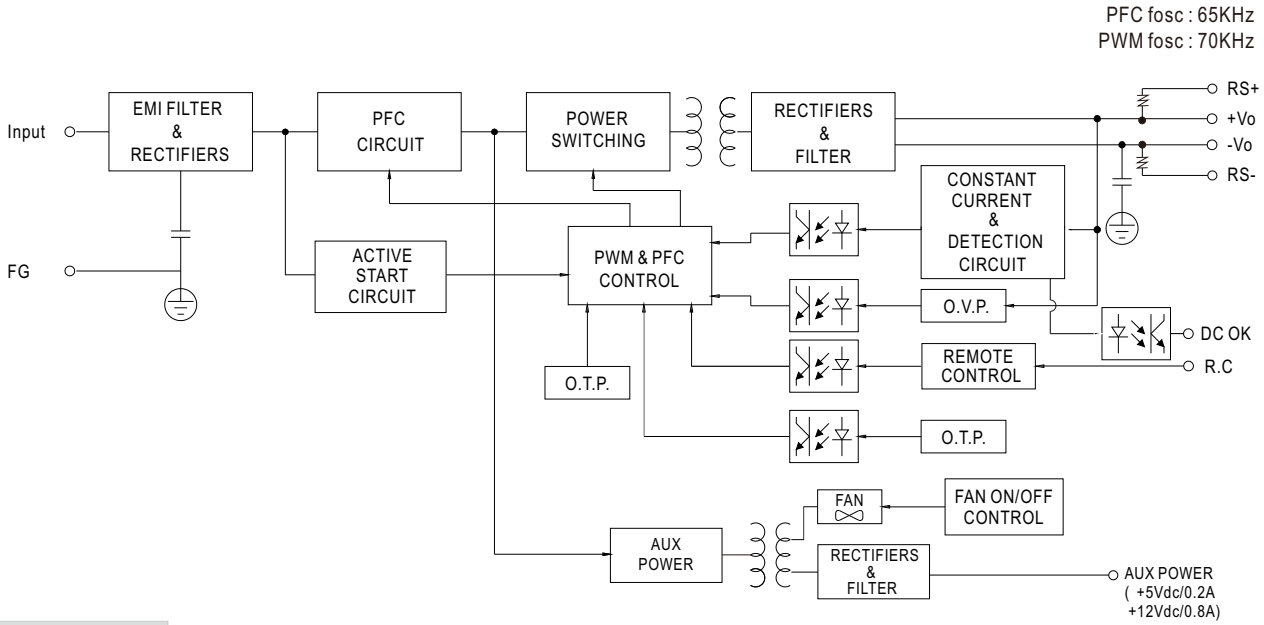
OTHERS	
MTBF	1047.1 K hrs min. Telcordia SR-332 (Bellcore) ; 137.4K hrs min. MIL-HDBK-217F (25℃)
DIMENSION (L*W*H)	**199*105*41mm**
PACKING	1.23Kg;9pcs/12.1Kg/0.63 CUFT

NOTE

1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25℃ 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. Tolerance: includes set up tolerance, line regulation and load regulation.
4. Derating may be need under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.
5. The Regulatory Compliance Mark (RCM) is applied on a voluntary basis. The equipment meets the relevant IEC or AS/NZS standards, or AS/NZS 3820 where applicable. The use of the RCM mark complies with AS/NZS 4417.1.
6. 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 360mm*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 https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)
7. Some factory or model may not have the BIS logo, please contact your MEAN WELL sales for more information.
8. MOPP is suitable for 100-240Vac input only.
9. The ambient temperature derating of 3.5℃/1000m with fanless models and 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft)..

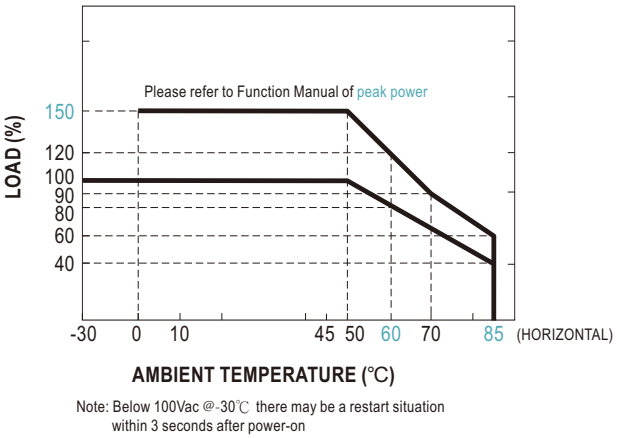
※ Product Liability Disclaimer: For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

■ Block Diagram



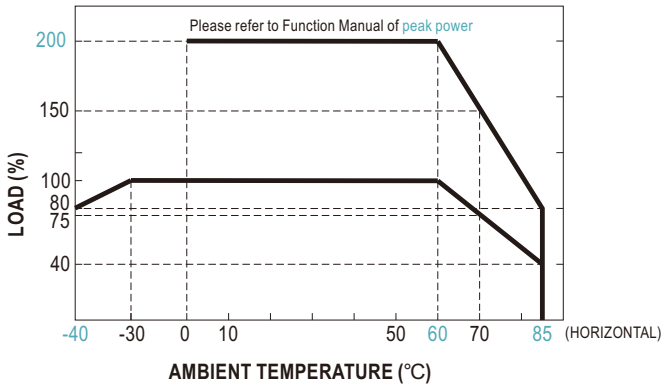
■ Derating Curve

Suitable for 100/110/115/120Vac System
(85~135Vac)

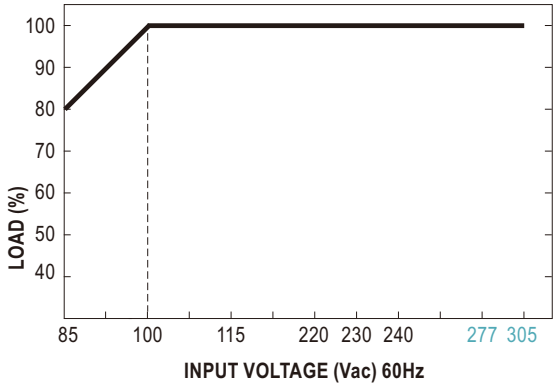


Note: Below 100Vac @-30℃ there may be a restart situation within 3 seconds after power-on

Suitable for 220/230/240/277Vac System
(180~305Vac)



■ Output Derating vs Input Voltage



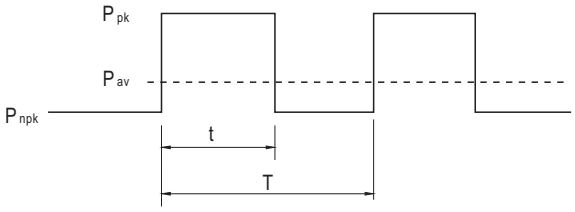
■ Funtion Manual

1. Peak Power

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} \leqslant P_{rated}$$

$$Duty = \frac{t}{T} \times 100\% \leqslant 35\%$$

$t \leqslant 5$ sec



P_{av} : Average output power (W)

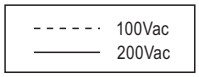
P_{pk} : Peak output power (W)

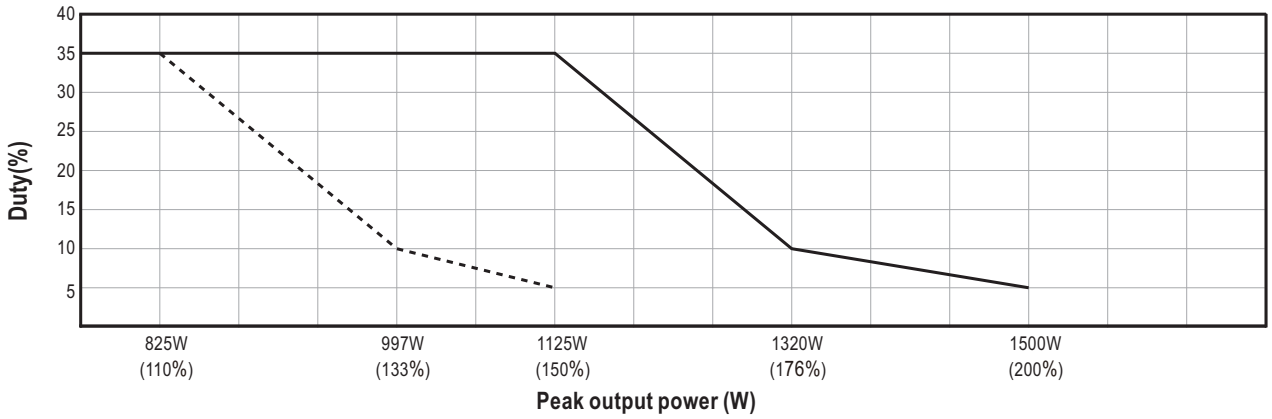
P_{npk} : Non-peak output power (W)

P_{rated} : Rated output power (W)

t : Peak power width (sec)

T : Period (sec)





For example (24V model) :

Vin = 200Vac Duty_max = 5%

$P_{av} = P_{rated} = 750W$

$P_{pk} = 1500W$

$t \leqslant 5$ sec

$$T \geqq \frac{5 \text{ sec}}{5\%} \geqq 100\text{sec}$$

$$P_{npk} \leqslant \frac{T P_{av} - t P_{pk}}{T-t}$$

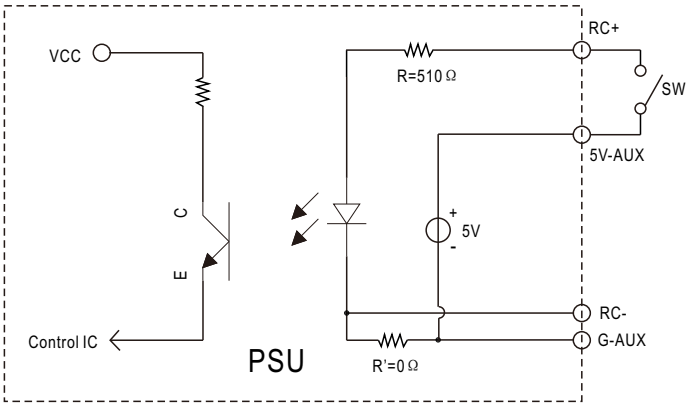
$$P_{npk} \leqslant 710W$$

Note: When the output voltage is adjusted to the upper limit, the peak power is 150% rated power.

2.Remote Control

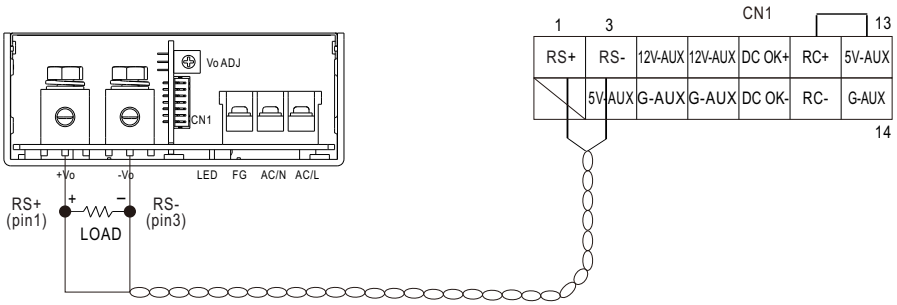
The PSU can be turned ON/OFF by using the "Remote Control" function with external switch.

PSU Vo Status	Between RC+ (pin11) and 5V-AUX(pin13) on CN1
POWER ON	SW close (Short)
POWER OFF	SW open (Open)



3.Remote Sense

The remote sensing compensates voltage drop on the load wiring up to 0.3Vdc.



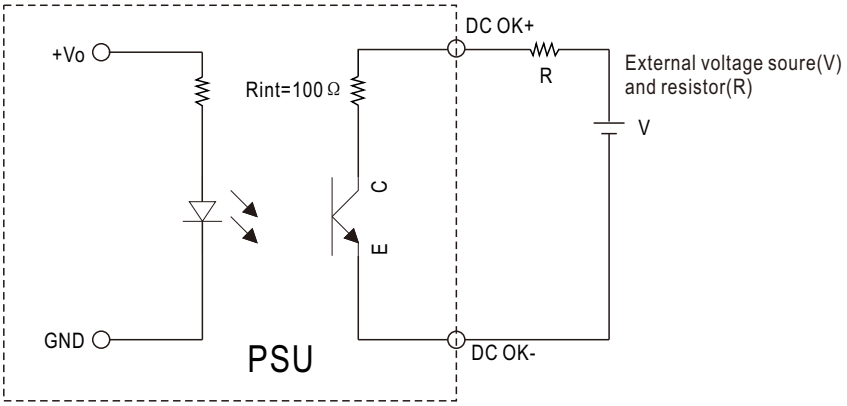
Sense lines should be twisted in pairs

4.DC_OK signal

DC_OK is a collector shorted signal. It is used by an optocoupler in the power supply which indicates the output status of the power supply as exhibited below.

PSU Vo Status	Photo transistor
POWER ON	Conduct(Low impedance)
POWER OFF	Open(High impedance)

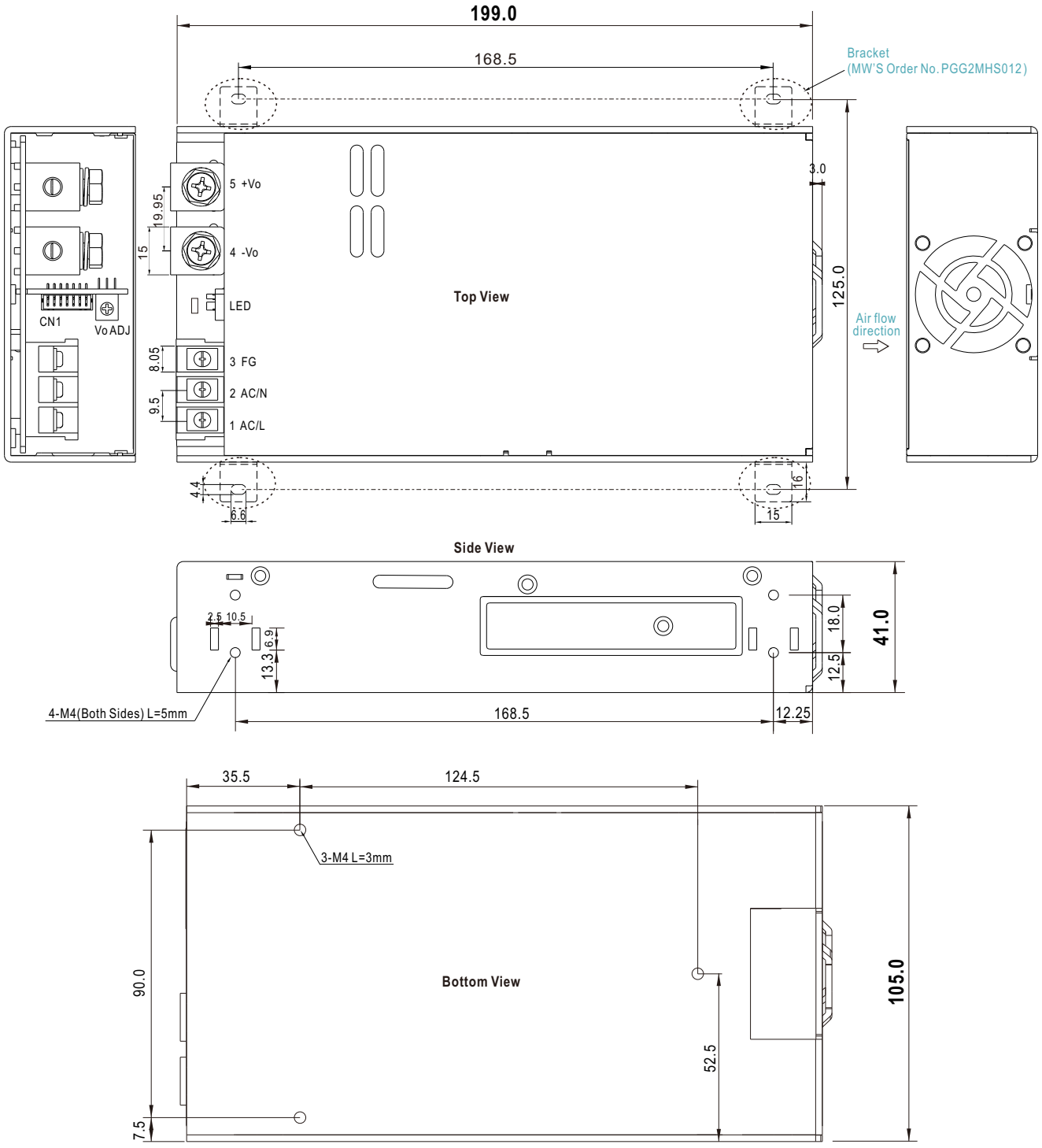
Optocoupler Rating(max.) 15Vdc/10mA resistive load



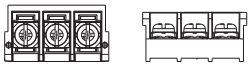
■ Mechanical Specification

(Unit: mm , tolerance ± 1mm)

Case No.980D



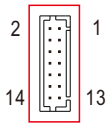
※ AC Input Terminal Pin No. Assignment

Pin No.	Assignment	Diagram	Screw Size	Maximum mounting torque
1	AC/L or DC input +Vin		M3.5	8~10Kgf-cm
2	AC/N or DC input -Vin			
3	FG ⏚			

※ DC Output Terminal Pin No. Assignment

Pin No.	Assignment	Diagram	Screw Size	Maximum mounting torque
4	-Vo		M5	10~12Kgf-cm
5	+Vo			

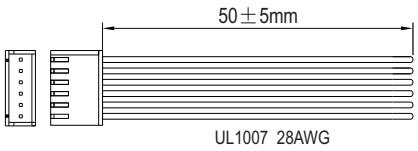
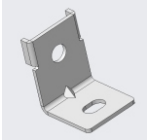
※ Control Pin No. Assignment (CN1) : HRS DF11-14DP-2DS or equivalent



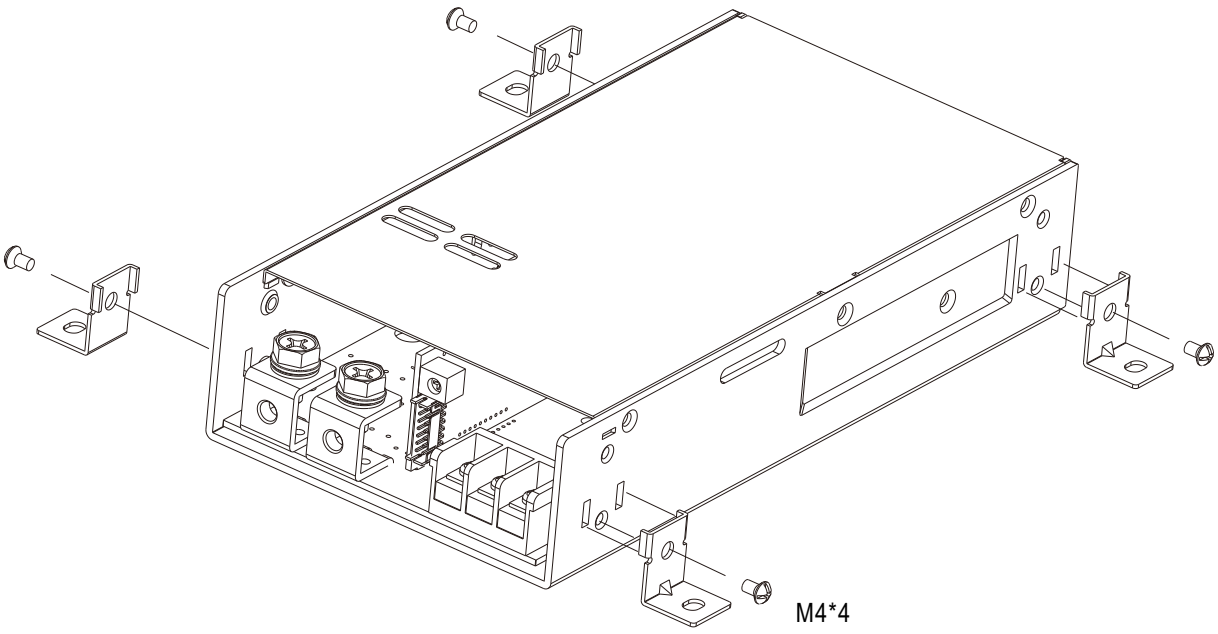
Mating Housing	HRS DF11-14DS or equivalent
Terminal	HRS DF11-**SC or equivalent

Pin No.	Function	Description
1	RS+	Positive sensing for remote sense.
2	NC	Reserve
3	RS-	Negative sensing for remote sense.
4,13	5V-AUX	Auxiliary voltage output, 4.25~5.75Vdc, referenced to pin 6,8,14(G-AUX). The maximum load current is 0.2A. This output is not controlled by the "remote ON/OFF control".
5,7	12V-AUX	Auxiliary voltage output, 10.2~13.8Vdc, referenced to pin 6,8,14(G-AUX). The maximum load current is 0.8A. This output is not controlled by the "remote ON/OFF control".
6,8,14	G-AUX	Auxiliary voltage output ground. The signal return is isolated from the output terminals (+Vo & -Vo).
9	DC OK+	Positive sensing for DC OK.
10	DC OK-	Negative sensing for DC OK.
11	RC+	Turns the output on and off by electrical or dry contact between pin 11 (RC+) and pin 13 (5V-AUX). Short: Power ON, Open: Power OFF.
12	RC-	The output is internally connected to pin 6,8,14(G-AUX).

■ Accessory List

No.	Item		Quantity
1	Control function interface(CN1) mating wire along with NSP-750 (standard accessory)	 UL1007 28AWG 	1pcs/per model
2	Bracket MW'S Order NO. :PGG2MHS012 (By request accessory,should ordered seperatey)		4pcs/per model (Please refer to Installation Diagram)
3	Terminal cover MW'S Order NO. : PEE4TBC-03 (By request accessory,should ordered seperatey)		1pcs/per model

■ Installation Diagram



■ Installation Manual

Please refer to : http://www.meanwell.com/manual.html