

ALC12 Series

Instruction Manual

BEFORE USING THE POWER SUPPLY UNIT

Be sure to read this instruction manual thoroughly before using this product.

Pay attention to all warnings and cautions before using the unit. Incorrect usage could lead to an electrical shock, damage to the unit or a fire hazard.

DANGER

- Never use this product in locations where flammable gas or ignitable substances are present.

WARNING

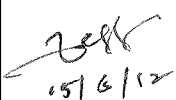


- Do not touch this product or its internal components while it is in operation. There may be high voltage or high temperature present and you may receive an electric shock or burn.
- When the product is operating, keep your hands and face away from it as you may be injured by flying debris in the event of a fault.
- Do not make unauthorised changes to this product, otherwise you may receive an electric shock and void your warranty.
- Do not use this product in the event of the emission of smoke or abnormal smell and sound etc. It might lead to fire and/or electric shock. In such cases, please contact us. Do not attempt repair by yourself, as it is dangerous for the user.
- Do not operate these products in the presence of condensation. It might lead to fire and/or electric shock.

CAUTION

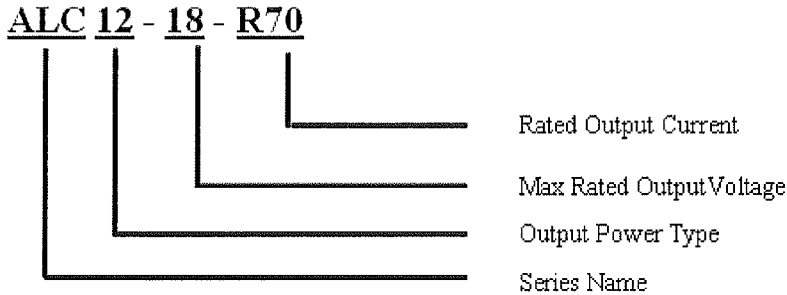
- Confirm connections to input/output terminals are correct as indicated in the instruction manual.
- Input voltage, Output current, Output power, ambient temperature and ambient humidity should be kept within specifications, otherwise the product will be damaged.
- Never operate the product continuously under overcurrent or short-circuit condition. Insulation failure, smoking, burning or other damage might occur.
- This product contains a printed circuit board utilising surface mounted devices. Do not drop or apply shock to the unit. Therefore, please handle with care.
- Do not use this product in environment with a strong electromagnetic field, corrosive gas or conductive substances.
- For applications which require very high reliability (Nuclear related equipment, traffic control equipment, etc.), it is necessary to provide a fail safe mechanism in the end equipment.
- Do not inject abnormal voltages into the output of this product. The injection of reverse voltage or over voltage exceeding nominal output voltage into the output terminals might cause damage to internal components.
- The information in this document is subject to change without prior notice. Please refer to the latest version of the data sheet, etc., for the most up-to date specifications of the product.
- No part of this document may be copied or reproduced in any form without prior written consent of TDK-Lambda.

Note: CE MARKING

CE marking, when applied to a product covered by this handbook indicates compliance with the Low Voltage Directive (2006/95/EC) in that it complies with EN 61347-1 and EN 61347-2-13.

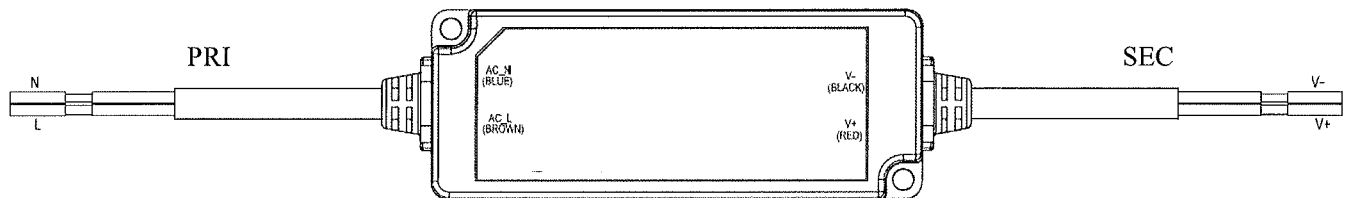
DWG NO. : PA604-04-01G		
APPD	CHK	DWG
		

1. Model Name Identification Method



2. Terminal Explanation

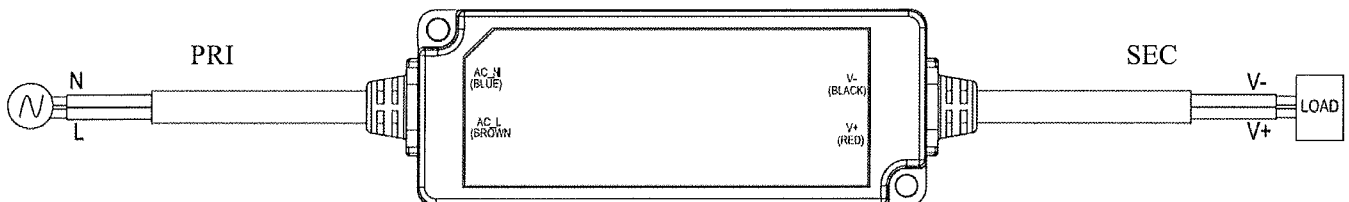
- (1) L (Brown) : Input terminal Live line (Fuse in line)
- (2) N (Blue) : Input terminal Neutral line
- (3) V (+) : (+)Output terminal
- (4) V (-) : (-) Output terminal



3. Terminal connecting method

- Input must be off when making connection.
- The output wire and input wire shall be separated and twisted to improve noise sensitivity.
- Protection against electric shock must be ensured by installation in an appliance

Note: The power supply is for LED lamp load.



4. Explanation of Functions and Precautions

4-1. Input Voltage Range

Input voltage range is single phase 90 ~ 277VAC (50/60Hz) .

Input voltage which is out of specification may cause unit to damage. For cases where conformance to various safety specs(UL,CSA,EN) are required, input voltage range will be 100~240VAC (50/60Hz) .

4-2. Inrush Current

Power Thermistor is built-in to protect the circuit from Inrush Current.

4-3. Over Voltage Protection (OVP)

The OVP function will cause the output to shut down. In case of output shutdown, kindly remove the AC input for a few minutes, thereafter the AC input can be re-applied for recovery of the output. OVP setting is fixed and not to be adjusted externally.

Note : External over voltage will not trigger OVP and PSU will stop operation.
When external voltage is removed, PSU will resume operation.

4-4. Short Circuit Protection

This short circuit protection will activate for the case of overload output voltage is less than 3V.
Do not operate overload and shift load impedance within specification.

Note : Never operate the unit under short circuit conditions for more than 30 seconds.

4-5. Over Temperature Protection (OTP)

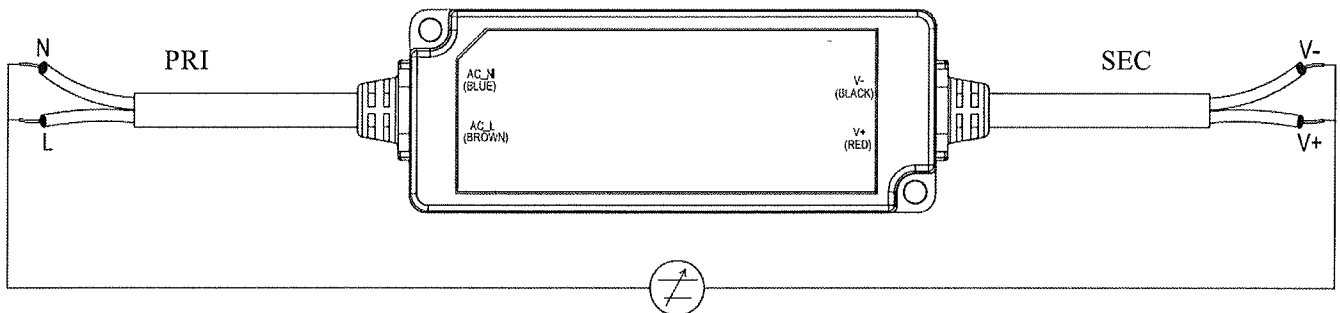
The OTP function (manual reset type) is provided. When ambient or internal temperature rises abnormally, OTP function operates and output will be shutdown. After shut down, remove the AC input and cool it down to reset OTP, then re-apply the AC input.

5. Isolation / Withstand Voltage

5-1. Isolation Resistance Test

Isolation resistance between input and output shall be more than 100M Ω at 500VDC. For safety, voltage setting of DC isolation tester must be done before the test. Ensure that the unit is fully discharged after the test.

(a) Output ~ Input : 500VDC, 100M Ω or more

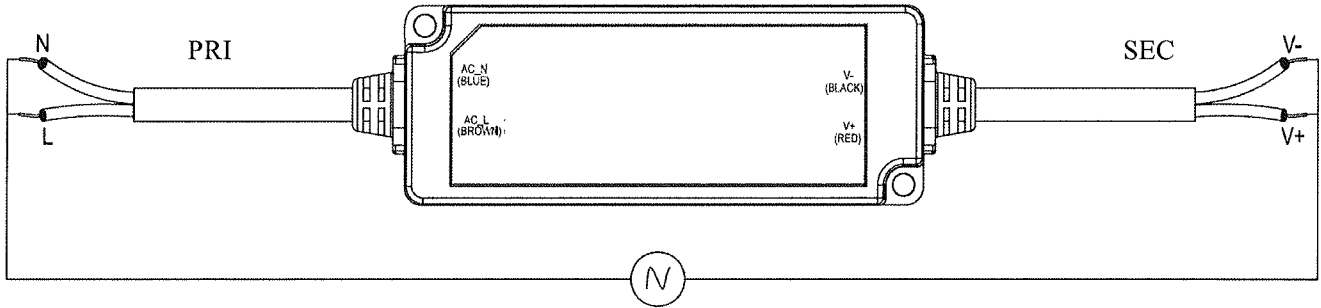


5-2. Withstand Voltage

This series is designed to withstand 3.0kVAC between input and output. When testing withstand voltage, set current limit of withstand voltage test equipment at 20mA. The applied voltage must be gradually increased from zero to testing value and then gradually decreased for shut down. When timer is used, the power supply may be damaged by high impulse voltage at timer switch on and off.

Connect input and output as follows :

(a) Input ~ Output : 3kVAC, 1min (20mA)

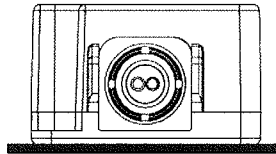


6. Mounting Directions

Recommended standard mounting is as in below picture. There is no restriction on mounting direction.

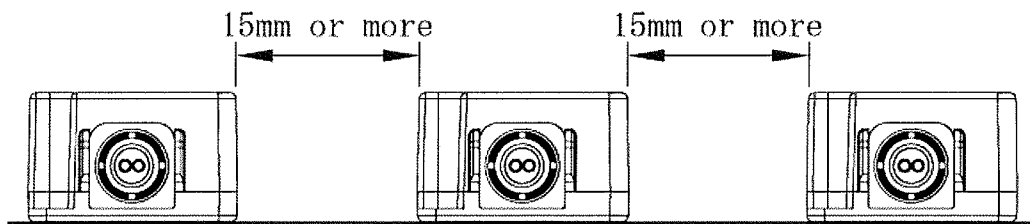
Note: The power supply can be operated in an ambient temperature of up to 70°C max (refer to output derating curve) and for UL safety the ambient temperature is up to 50°C.

STANDARD MOUNTING



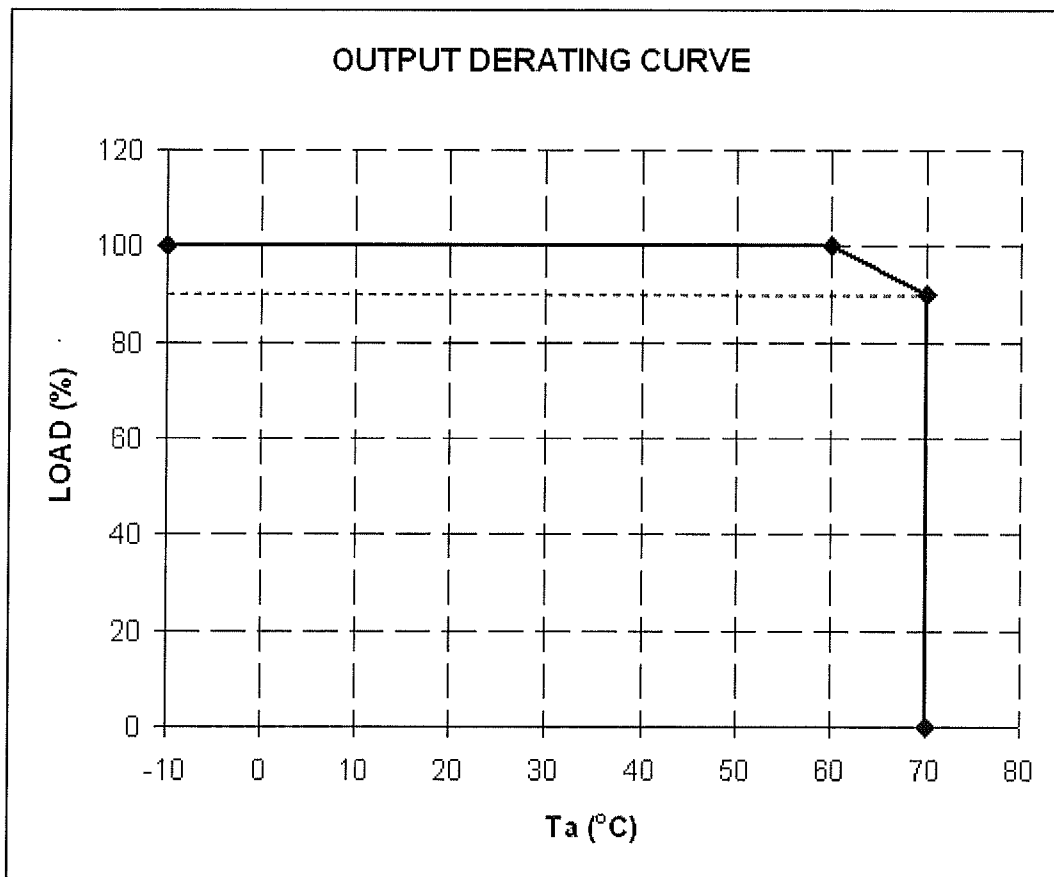
6-1 Mounting Method

- 1) This is convection cooling type power supply. In consideration of the heat radiation and safety, please keep a distance of more than 15mm between the power supply and the peripheral parts. When lining up multiple units, please make sure to place them 15mm or more apart from each other.
- 2) Recommended torque for mounting screw (M3 screw) : 0.49 N·m (5.0 kgf·cm).
- 3) Do not exceed the recommended torque to prevent mechanical stress on the enclosure.



6-2 Output Derating

Ta (°C)	LOAD (%)
-10 ~ +60	100
70	90



7. Wiring Method

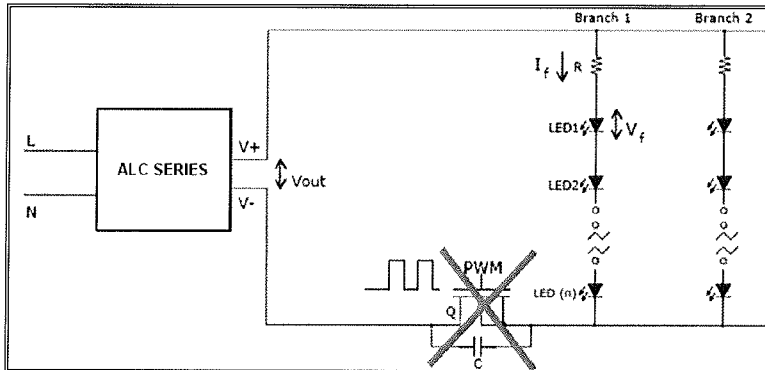
- The output wire and input wire should be separated and twisted to improve noise sensitivity.
- The output wire and input wire should not be pulled in such manner that it will render mechanical stress to the unit.

8. According to IEC/EN 61347

- The controlgears (power supply unit) have mains connected windings.
- The controlgears (power supply unit) are SELV-Equivalent.

9. Dimming

- It is not recommended to perform dimming by PWM switching at the output of ALC series. It may cause damage in power supply unit.



10. Before concluding that the unit is at fault...

- Check if the rated input voltage is connected.
- Check if the wiring of output polarity is correct.
- Check if the output voltage and output wattage does not exceed the specification.
- Audible noise can be heard when input voltage waveform is not sinusoidal wave.
- Ensure that a large capacitor is not connected on the output side. Please use within maximum external capacitance shown below.

Model	Maximum External Capacitance	
	0.35A	0.70A
ALC12	22uF	47uF

11. Repair

- The unit cannot be repaired by end user, in case of damage of this product, please return to our service center.
- The external cord of this power supply cannot be replaced