

CliQ II Redundancy Module

20A, 40A / DRR-20□, DRR-40□



Highlights & Features

- RoHS Compliant
- Relay alarm indication
- Built-in 2 channel DC OK signal
- Caused by rugged handling
- Conformal coating on PCBA to protect against chemical and dust pollutants
- Class I, Div 2 Hazardous Locations (DRR-20A, DRR-40A)
- Ease of wire connection to terminals
- Wide Input & Output Range 22-60 Vdc
- Full corrosion resistance aluminium chassis even with deep scratches

Safety Standards



CB Certified for worldwide use

Model Number: DRR-20□, DRR-40□

Unit Weight: 0.37kg, 0.51 kg

Dimensions (L x W x D): 121 x 50 x 122.1 mm

General Description

The new Redundancy Module DRR 20□ and DRR 40□ are the latest offering from one of the World's No.1 Power Supply Company. The product offers a variable input & output voltage from 22-60V, a wide temperature range from -40°C to 80°C. The state-of-the-art design is made to withstand harsh industrial environments. The rugged, compact aluminium case is shock and vibration resistant according to IEC60068-2-6. Due to the wide input & output voltage range from 22 to 60Vdc, the Delta's CliQ II Redundancy Module is able to support power supply in parallel operation. The DRR module has an alarm relay contact as an indicator.

Model Information

CliQ II Redundancy Modules

Model Number	Input Voltage Range	Output Voltage	Output Current
DRR-20□	24-48Vdc	Vin-0.65V (Typ)	20A
DRR-40□			40A

Model Numbering

DR	R -	XX	□
DIN Rail	Redundancy Module	Output Current 20 – 20A 40 – 40A	A - Metal Case, with Class I, Div 2 N - Metal Case, without Class I, Div 2

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Specifications

Input Data

Redundancy Module	DRR-20□	DRR-40□
Nominal Input Voltage	24-48Vdc	
Input Voltage Range	22-60Vdc	
Nominal Current	20A max	40A max
Input Voltage Alarm / Relay Contacts	24V system: both Vin1 & Vin2 >18V ± 5% or <30V max. relay contacts	48V system: both Vin1 & Vin2 >36V ± 5% or <60V max. relay contacts

Note: The LED will turn on when The Vin1 & Vin2 > 18V ±5% (For 24V system) or > 36V ±5% (For 48V system) and not more than 30V (For 24V system) or not more than 60V (For 48V system), The relay contacts will be closed. If Vin1 & Vin2 is under or over this range, The LED will be turn off.

Output Data

Nominal Output Voltage / Tolerance	Vin-0.65V (Typ)
Nominal Current	20A max / 40A max
Derating above +50 °C	> 50°C (2.5% / K.)
Short Circuit / Over Load Limit	<25A for DRR- 20A) <50A for DRR-40A

Note: The overload condition must be controlled by The PSUs in parallel; The limit of input current would not more than 25A (For 20A module) or not more than 50A (For 60A module).

Efficiency	> 97% typical.
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Certification / Standards

Electrical Equipment of Machines	IEC60204-1 (Over Voltage Category III)
Electrical Safety (Information Technology Equipment)	UR/cUR recognized to UL60950-1, SIQ BG to EN60950-1, CB test certificate and report to IEC60950-1 and CE.
Industrial Control Equipment	UL/cUL recognize to UL508
Hazardous location / ATEX (For DRR-20A and DRR-40A)	cCSAus to CSA C22.2 No.213-M1987, ANSI / ISA 12.12.01:2007 [Class I, Division 2, Group A,B,C,D T4, Ta = -40°C to +80°C (> +50°C derating)]
Ex II 3G ATEX 94/9/EC (For DRR-20A and DRR-40A)	EN60079-0:2009, EN60079-15:2010 Ex II 3G Ex nA nC IIC T4 Gc, Ta = -40°C to +80°C (> +50°C derating)] Certificate No. EPS 12 ATEX 1 491 X
CE	Conformance with EMC guideline 2004/108/EC and for low voltage guideline 2006/95/EC For DRR-20A and DRR-40A: In conformance with Equipment for explosive atmospheres (ATEX) directive 94/9/EC
Electronic equipment for use in electrical power installations	EN50178 / IEC62103
Safety Entry Low Voltage	PELV (EN60204), SELV (EN60950)
RoHS Compliant	RoHS Directive 2011/65/EU Compliant
Protection Against Electric Shock	DIN 57100-410

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General Data

Isolation Voltage		
Input / PE	Test / Routine Test	1.5 KVAC / 1.5 KVAC
Output / PE	Test / Routine Test	1.5 KVAC / 1.5 KVAC
Degree of Protection		IP20
Class of Protection		Class II with PE Connection
MTBF		> 800,000hrs. as per BELL CORE STD or IEC61709
Type of Housing		Aluminium (AL1100F)
Dimensions (L x W x H)		121 x 50 x 122.1 mm
Weight		0.375 Kg 0.515 Kg
LED (DC Input OK)		Vin1 OK and Vin2 OK (Green LED)

Climatic Data

Surrounding Air Temperature	Operating	-40°C to +80°C
	Storage	-40°C to +85°C
Power De-rating		> 50% of Full load @ 70°C derated Linearly
Operating Humidity		< 95% RH (Non-Condensing)
Shock Test (Non-Operating)		IEC60068-2-27, 30G (300m/s ²) for duration 18ms 1 Shock in 2 Directions tested with Fixture with EUT mounted on DINRAIL in Vertical and Horizontal position.
Vibration (Non-Operating)		10Hz to 500Hz @ 30 m/S ² (3G peak); displacement of 0.35mm; 60min per axis for all X, Y, Z direction. Refer to IEC 60068-2-6. Note: all
Pollution Degree		2 according to EN50178
Climatic Class		3K3 according to EN 60721

EMC (Electromagnetic Compatibility)

Immunity to interference : According to EN 61000-6-2 EN 61000-4-2 ¹⁾	CE (EMC and Low Voltage Directive)
Discharge of static electricity (ESD) Housing: Contact discharge: Air Discharge:	Level 4 8 KV 15 KV
EN 61000-4-3 ¹⁾ Radiate Field Immunity Housing: Frequency/Field intensity:	Level 3 80MHz - 1GHz / 10V/M with 1kHz tone / 80% modulation
EN 61000-4-8 ²⁾ Power frequency magnetic fields Input: Current:	Level 3 10A /Meter

EN55011 corresponds to CISPR11 / EN55022 corresponds to CISPR22 / EM 61000 corresponds to IEC 1000

1) Criterion A: Normal operating behavior within the defined limits.

2) Criterion B: Temporary impairment to operational behavior that is corrected by the device itself.

3) Symmetrical: Conductor to conductor.

4) Asymmetrical: Conductor to ground.

5) Class B: Area of application industry and residential.

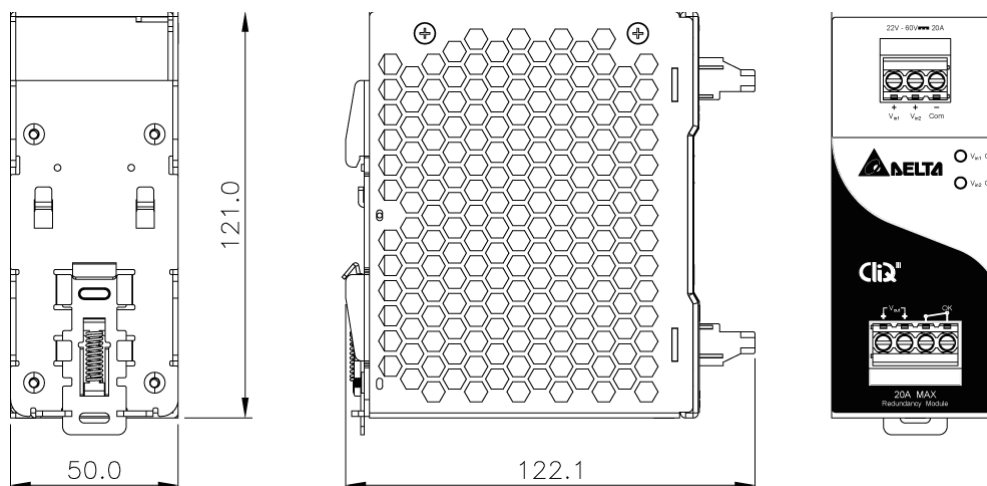
CliQ II Redundancy Module

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Dimensions

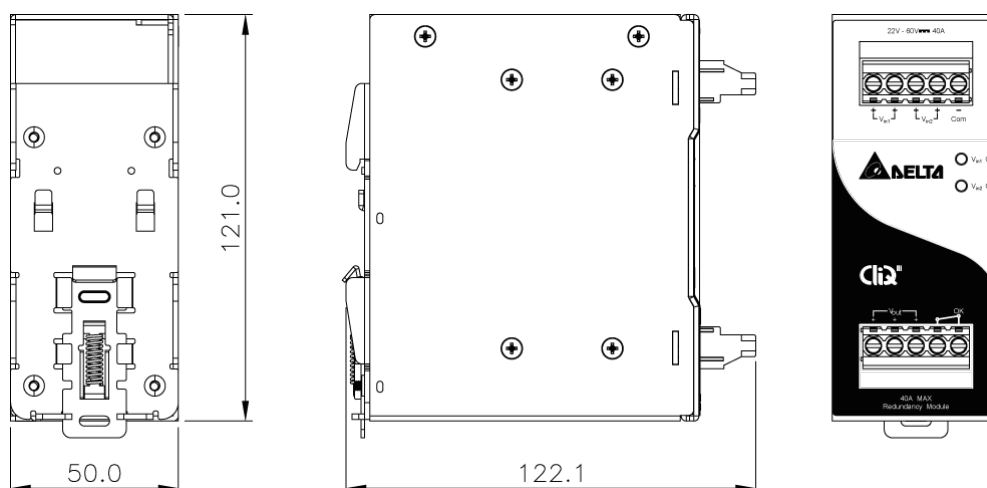
DRR-20□

L x W x D: 121 x 50 x 122.1 mm
Weight: 0.37 Kg



DRR-40□

L x W x D: 121 x 50 x 122.1 mm
Weight: 0.51 Kg



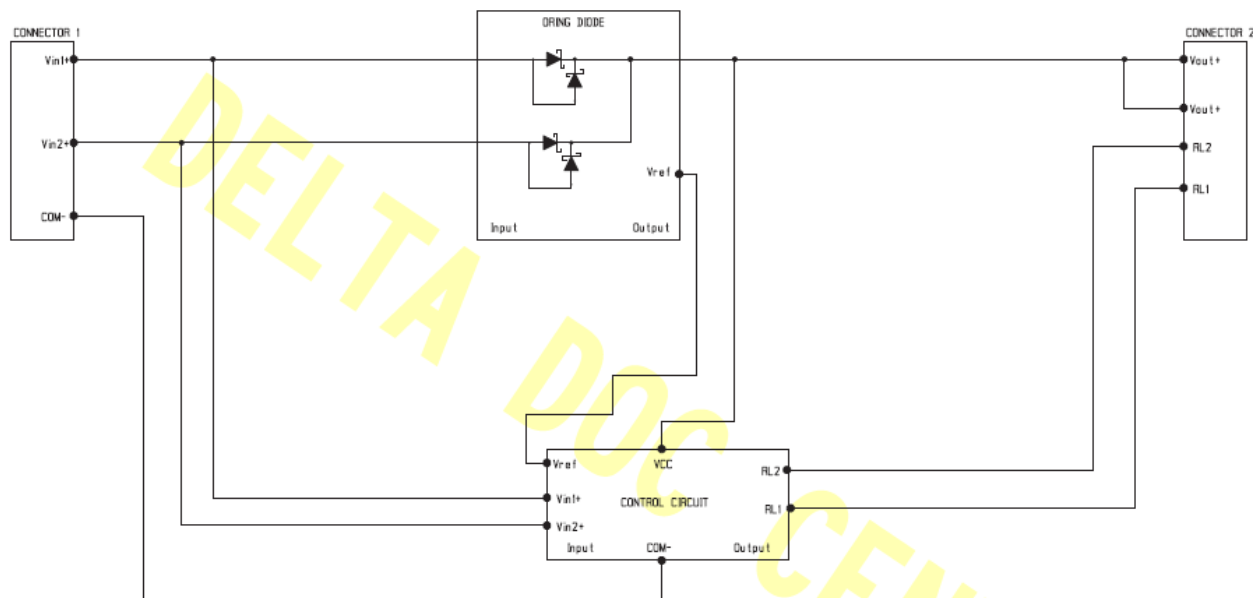
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Block Diagram

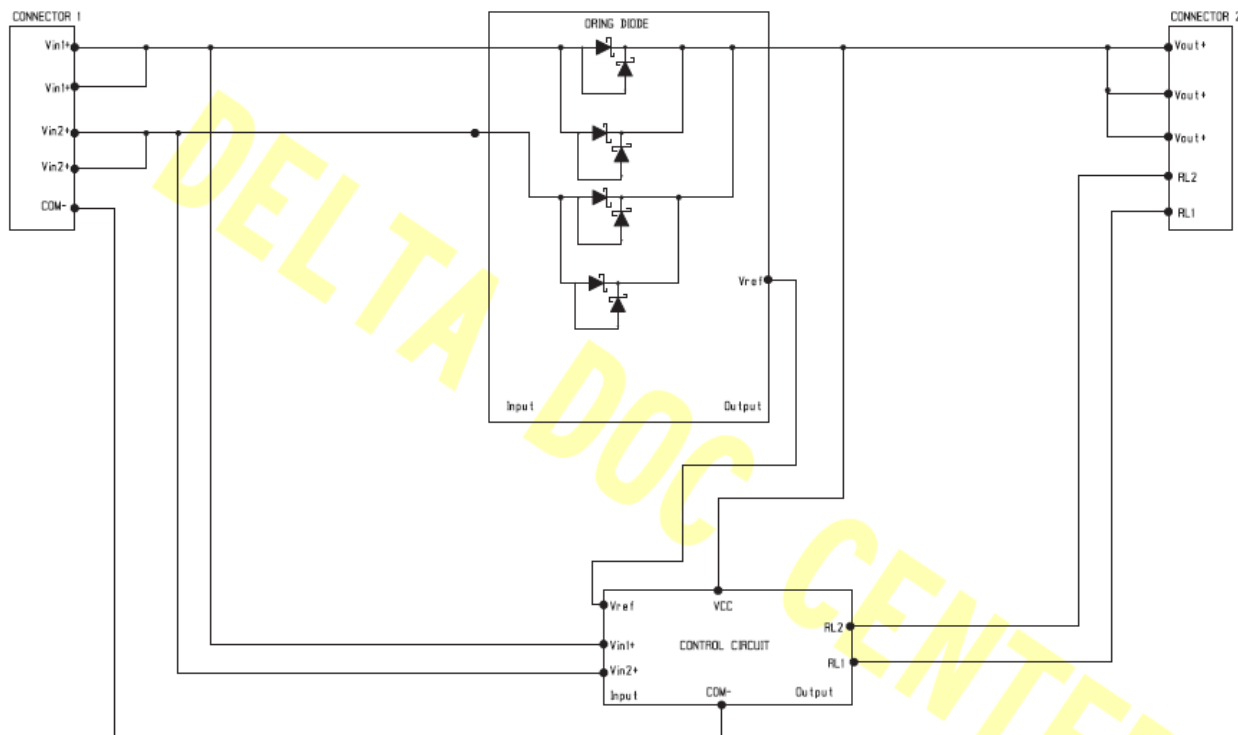
DRR-20□

Overall Block & Wiring Diagram EOE21010284



DRR-40□

Overall Block & Wiring Diagram EOE21010285



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Engineering Data

De-rating

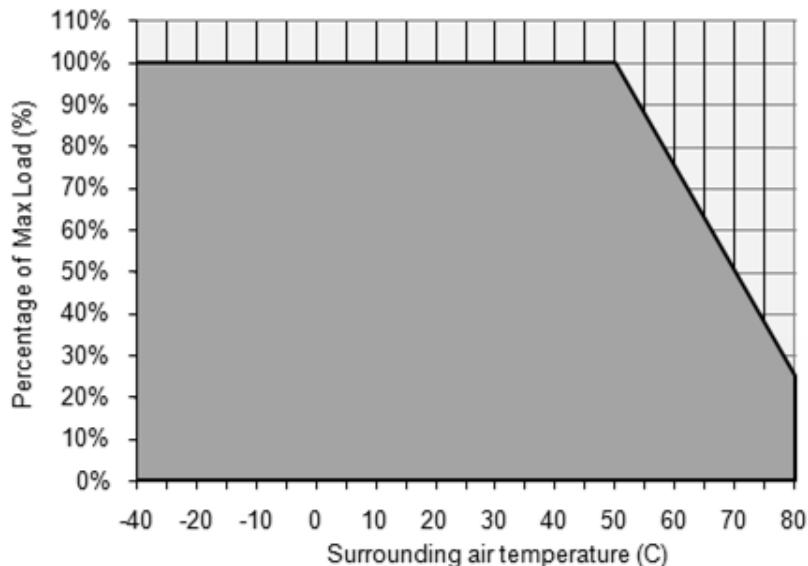


Fig. 1 De-rating for Vertical and Horizontal Mounting Orientation
 > 50°C de-rate power by 2.5% / °C

Note

1. Do not use the Redundancy Module in areas outside the shaded portion as shown in the above graph, internal parts may occasionally deteriorate or be damaged.
2. For the power derating refer above graph ambient temperature > 50°C, the output capacity has to be reduced by 2.5% per degree Celsius increase in temperature. If the output capacity is not reduced when Amb > 50°C, some device will run into thermal stress problem, the ORing diodes will get too hot.
3. If the Redundancy Module has to be mounted in any other direction please contact your service provider.
4. In order for the device to function in the manner intended, it is also necessary to observe lateral spacing of 20mm. to other modules.
5. Depending on the ambient temperature and load of the device, the temperature of the housing can become very high!
6. If the device has to be mounted in any other orientation, please do not hesitate to contact info@deltapsu.com for more details.

Assembly & Installation

The power supply unit (PSU) can be mounted on 35mm DIN rails in accordance with EN 60715. The device should be installed with input terminal block at the bottom.

Each device is delivered ready to install.

Mounting

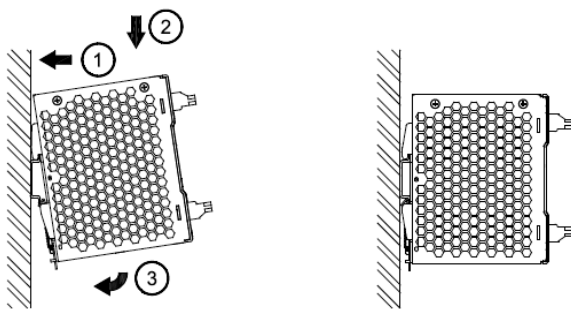


Fig. 2.1 Mounting

Snap on the DIN rail as shown in Fig. 2.1:

1. Tilt the unit upwards and insert it onto the DIN rail.
2. Push downwards until stopped.
3. Press against the bottom front side for locking.
4. Shake the unit slightly to ensure that it is secured.

Dismounting

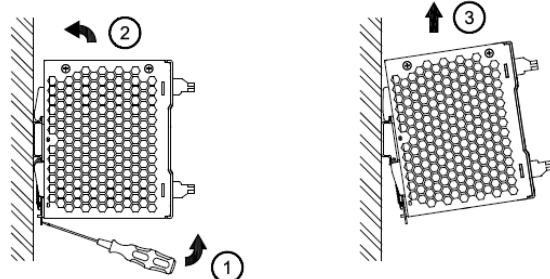


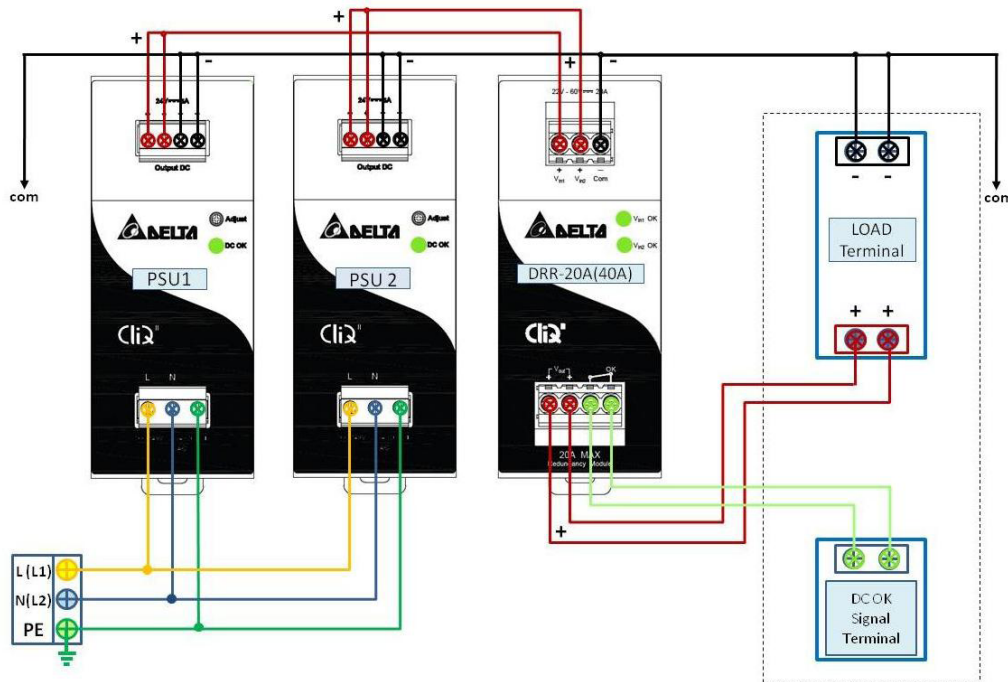
Fig. 2.2 Dismounting

To uninstall, pull or slide down the latch with screw driver as shown in Fig. 2.2. Then slide the power supply unit (PSU) in the opposite direction, release the latch and pull out the power supply unit (PSU) from the rail.

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Redundancy operation with DRP 20□- (40□)



Parallel Operation

When 2 Power Supplies are connected in parallel, they can share the load if the following steps are taken.

Step 1.

Measure the output voltages at no load from Anode1 to Ground i.e. Voltage Anode1 to Ground of PSU1 and Voltage Anode2 to Ground of PSU2. If the voltages are not the same, follow Step 2. If they are the same, skip to Step 3.

Step 2.

Adjust the output voltages, with the help of VR on the Power Supply front panel marked as ADJUST, to the same level. For e.g. if PSU1 is measuring 24.15Vdc and PSU2 is measuring 24.25Vdc, adjust the output voltage of one to be the same as the other.

Step 3.

Connect the Power Supply to the end system load and measure the output voltages from A1 to Ground i.e. Voltage Anode 1 to Ground of PSU1 and Voltage Anode 2 to Ground of PSU2. Ensure that the output voltages are the same even after the 2 Power Supplies are connected to load. If not, adjust them with the VR available on the front panel. A tolerance of $\pm 25\text{mV}$ would be acceptable.

Note:

- 1) If the output voltage of any Power Supply is higher, it will take the initial load and share the maximum load.
- 2) If the output voltages are the same, then an equal load current sharing between the 2 Power Supplies can be achieved.
- 3) The ORing diode must be of an appropriate rating. The rating must be at least 4 times of the output load current and at least reverse voltage rating of 20Vrr.
- 4) The use of a heat sink is advised to ensure the ORing Diode does not overheat.
- 5) Recommended Redundancy Module: DRR-20□.

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Others

Delta RoHS Compliant

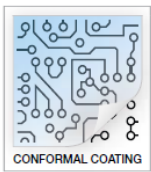


Restriction of the usage of hazardous substances

The European directive 2011/65/EU limits the maximum impurity level of homogeneous materials such as lead, mercury, cadmium, chrome, polybrominated flame retardants PBB and PBDE for the use in electrical and electronic equipment. RoHS is the abbreviation for "Restriction of the use of certain hazardous substances in electrical and electronic equipment".

This product conforms to this standard.

Conformal Coating



The Protective Coating Technology

Delta Electronics Group has designed the perfect dipping technique which penetrates everywhere including under device, and prevents leakage. The conformal coating dipping can be applied to PCBs or circuit board. The coating preserves the performance of precision electronic primarily by preventing ionizable contaminants such as salt from reaching circuit nodes, where the material slumps around sharp edges. This can be a problem especially in highly conversing atmosphere.

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