



## SPECIFICATION FOR APPROVAL

Customer : 大華

Customer P/N: \_\_\_\_\_

Part No : \_\_\_\_\_ Rev : \_\_\_\_\_

Description : AC-DC Power Supply

Delta Model No : DRL-48V120W1AAD Rev : 00

Sample Issue Date : Apr.12, 2017

## DELTA ELECTRONICS, INC.

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Please send one copy of this specification back after you signed approval for production pre-arrangement.

Customer Sign : \_\_\_\_\_ Date : \_\_\_\_\_

Approved By : Paul Lo Date : 2017/4/12

Engineer By: Rock.Yao M.Engineer By: Leon.Yeh Approved By: Paul.Lo

# 1. Revision History



|                    |             |                  |  |                    |           |
|--------------------|-------------|------------------|--|--------------------|-----------|
| DELTA P/N          |             | DRL-48V120W1AAD  |  | SHEET 1 OF 1       |           |
| CONTENT            |             | Revision History |  | DATE Apr. 12, 2017 |           |
| 1.Revision History |             |                  |  |                    |           |
| REV.               | DESCRIPTION |                  |  | ENGINEER           | DATE      |
| 00                 | ISSUE       |                  |  | Rock Yao           | 4/12/2017 |

## **2. Electrical Specification**



# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD



### Highlights & Features

- Universal AC input voltage
- Built-in constant current circuit for reactive loads
- Up to 90.0% efficiency
- Full power from -10°C to +50°C operation at 230Vac @ 5000 meters or 16400 feet altitude
- Compliance to SEMI F47 @ 200Vac
- Conformal coating on PCBAs to protect against common dust and chemical pollutants

### Safety Standards



CB Certified for worldwide use

**Model Number:** DRL-48V120W1AAD  
**Unit Weight:** 0.54 kg (1.19 lb)  
**Dimensions (L x W x D):** 123.6 x 40 x 117.6 mm (4.86 x 1.57 x 4.62 inch)

### General Description

The DRL-48V120W1AAD is designed for cost sensitive users who need to fulfill essential features needed for many general industrial applications, without compromising on quality and reliability. The convection-cooled product will operate between -20°C to +70°C, with full rated power available from -10°C to +50°C at 230Vac. The overcurrent protection is designed to operate in constant current mode, which makes the power supply suitable for inductive and capacitive load applications. The product is certified according to safety standards IEC/EN/UL 60950-1 for Information Technology Equipment (ITE) and UL 508 for Industrial Control Equipment (ICE). Electromagnetic radiated and conducted emissions are compliant to EN 55022, Class B; and, the product is fully compliant for environmental protection requirements per RoHS Directive 2011/65/EU.

### Model Information

DIN Rail Power Supply

| Model Number    | Input Voltage Range    | Rated Output Voltage | Rated Output Current |
|-----------------|------------------------|----------------------|----------------------|
| DRL-48V120W1AAD | 85-264Vac (120-375Vdc) | 48Vdc                | 2.50A                |

### Model Numbering

| DRL –                 | 48V            | 120W         | 1            | A              | A                         | D         |
|-----------------------|----------------|--------------|--------------|----------------|---------------------------|-----------|
| DIN Rail Power Supply | Output Voltage | Output Power | Single Phase | Delta Standard | A – Without DC OK Contact | D – Dahua |



# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Specifications

#### Input Ratings / Characteristics

|                                 |                                                                      |
|---------------------------------|----------------------------------------------------------------------|
| Nominal Input Voltage           | 100-240Vac                                                           |
| Input Voltage Range             | 85-264Vac                                                            |
| Nominal Input Frequency         | 50-60Hz                                                              |
| Input Frequency Range           | 47-63Hz                                                              |
| DC Input Voltage Range*         | 120-375Vdc                                                           |
| Input Current                   | 2.2A typ. @ 115Vac, 1.2A typ. @ 230Vac                               |
| Efficiency at 100% Load         | 89% typ. @ 115Vac, 90% typ. @ 230Vac                                 |
| Max Power Dissipation           | 0% load 1.21W @ 115Vac & 230Vac<br>100% load 13.3W @ 115Vac & 230Vac |
| Max Inrush Current (Cold Start) | 20A typ. @ 115Vac, 40A typ. @ 230Vac                                 |
| Leakage Current                 | < 0.25mA @ 264Vac                                                    |

\*Fulfills test conditions for DC input. Safety approval for DC input can be obtained upon request.

#### Output Ratings / Characteristics\*\*

|                                                          |                                                                        |
|----------------------------------------------------------|------------------------------------------------------------------------|
| Nominal Output Voltage                                   | 48Vdc                                                                  |
| Factory Set Point Tolerance                              | 48Vdc $\pm$ 2%                                                         |
| Output Voltage Adjustment Range                          | 44-56Vdc                                                               |
| Output Current                                           | 2.50A (120W max.)                                                      |
| Output Power                                             | 120W                                                                   |
| Line Regulation                                          | < 0.5% (@ 85-264Vac, 100% load)                                        |
| Load Regulation                                          | < 1% (0-100% load)                                                     |
| PARD*** (20MHz)                                          | < 150mVpp @ > -10°C to +70°C<br>< 300mVpp @ $\leq$ -10°C to -20°C      |
| Rise Time                                                | 30ms typ. @ nominal input (100% load)                                  |
| Start-up Time                                            | 200ms typ. @ 115Vac & 230Vac (100% load)                               |
| Hold-up Time                                             | 20ms typ. @ 115Vac (100% load)<br>90ms typ. @ 230Vac (100% load)       |
| Dynamic Response<br>(Overshoot & Undershoot O/P Voltage) | $\pm$ 10% @ 85-264Vac input, 0-100% load<br>(Slew Rate: 0.1A/ $\mu$ s) |
| Start-up with Capacitive Loads                           | 4,000 $\mu$ F Max                                                      |

\*\*For power de-rating from -10°C to -20°C, and 40°C to 70°C @ 115Vac & 50°C to 70°C @ 230Vac, and  $V_{in}$  < 100Vac, see power de-rating on page 3.

\*\*\*PARD is measured with an AC coupling mode, 5cm wires, and in parallel with 0.1 $\mu$ F ceramic capacitor & 47 $\mu$ F electrolytic capacitor.

# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Mechanical

|                                   |                                                    |                         |
|-----------------------------------|----------------------------------------------------|-------------------------|
| Case Cover / Chassis              | SGCC / Aluminium                                   |                         |
| Dimensions (L x W x D)            | 123.6 x 40 x 117.6 mm (4.86 x 1.57 x 4.62 inch)    |                         |
| Unit Weight                       | 0.54 kg (1.19 lb)                                  |                         |
| Indicator                         | Green LED (DC OK)                                  |                         |
| Cooling System                    | Convection                                         |                         |
| Terminal                          | Input                                              | 3 Pins (Rated 600V/35A) |
|                                   | Output                                             | 4 Pins (Rated 300V/28A) |
| Wire                              | Input                                              | AWG 18-8                |
|                                   | Output                                             | AWG 24-12               |
| Mounting Rail                     | Standard TS35 DIN Rail in accordance with EN 60715 |                         |
| Noise (1 Meter from power supply) | Sound Pressure Level (SPL) < 25dBA                 |                         |

### Environment

|                             |                                                                                                                                                                          |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Surrounding Air Temperature | Operating                                                                                                                                                                | -20°C to +70°C                                                                                                                             |
|                             | Storage                                                                                                                                                                  | -40°C to +85°C                                                                                                                             |
| Power De-rating             | -10°C to -20°C de-rate power by 2%/°C<br>> 40°C de-rate power by 1.67% / °C @ 115Vac<br>> 50°C de-rate power by 2.5% / °C @ 230Vac<br>< 100Vac de-rate power by 1% / Vac |                                                                                                                                            |
| Operating Humidity          | 5 to 95% RH (Non-Condensing)                                                                                                                                             |                                                                                                                                            |
| Operating Altitude          | 0 to 5,000 Meters (16,400 ft.) for ITE application<br>0 to 2,000 Meters (6,560 ft.) for ICE application                                                                  |                                                                                                                                            |
| Shock Test                  | Non-Operating                                                                                                                                                            | IEC 60068-2-27, 27, Half Sine Wave: 50G for duration of 11ms; 3 times per direction, 9 times in total                                      |
|                             | Operating                                                                                                                                                                | IEC 60068-2-27, 27, Half Sine Wave: 10G for duration of 11ms; 1 time in X axis                                                             |
| Vibration                   | Non-Operating                                                                                                                                                            | IEC 60068-2-6, Random: 5Hz to 500Hz; 2.09G <sub>rms</sub> ; 20 min per axis for all X, Y, Z directions                                     |
|                             | Operating                                                                                                                                                                | IEC 60068-2-6, Sine Wave: 10Hz to 500Hz @ 19.6m/s <sup>2</sup> (2G peak); displacement of 0.35mm; 10 min per cycle, 60 min for X direction |
| Pollution Degree            | 2                                                                                                                                                                        |                                                                                                                                            |

### Protections

|                          |                                                                     |
|--------------------------|---------------------------------------------------------------------|
| Overvoltage              | 57.0V-67.2V, SELV Output, Latch Mode                                |
| Overload / Overcurrent   | 105-150% of rated load current, Continuous current                  |
| Over Temperature         | Latch Mode                                                          |
| Short Circuit            | Hiccup Mode, Non-Latching (Auto-Recovery when the fault is removed) |
| Internal Fuse            | T4A / 250V                                                          |
| Degree of Protection     | IP20 Compliance                                                     |
| Protection Against Shock | Class I with PE* connection                                         |

\*PE: Primary Earth



# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Reliability Data

|                        |                  |                                             |                                       |
|------------------------|------------------|---------------------------------------------|---------------------------------------|
| MTBF                   | Telcordia SR-332 | > 700,000 hrs                               | I/P: 100Vac, O/P: 100% load, Ta: 25°C |
| Expected Cap Life Time |                  | 10 years (115Vac & 230Vac, 50% load @ 40°C) |                                       |

### Safety Standards / Directives

|                              |                                                     |                                                                                                  |
|------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Safety Entry Low Voltage     |                                                     | SELV (EN 60950-1)                                                                                |
| Electrical Safety            | TUV Bauart<br>UL/cUL recognized<br>CCC<br>CB scheme | EN 60950-1<br>UL 60950-1 and CSA C22.2 No. 60950-1 (File No. E131881)<br>GB4943.1<br>IEC 60950-1 |
| Industrial Control Equipment | UL/cUL listed                                       | UL 508 and CSA C22.2 No. 107.1-01 (File No. E338991)                                             |
| CE                           |                                                     | In conformance with EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC               |
| Material and Parts           |                                                     | RoHS Directive 2011/65/EU Compliant                                                              |
| Galvanic Isolation           | Input to Output                                     | 3.0KVac                                                                                          |
|                              | Input to Ground                                     | 2.0KVac                                                                                          |
|                              | Output to Ground                                    | 0.5KVac                                                                                          |

# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### EMC

|                                         |                |                                                                                                                                                                                                 |                                                                                                                                                                                                                              |
|-----------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC / Emissions                         |                | Generic Standards: EN 61000-6-3, EN 61000-6-4<br>CISPR 22, EN 55022, EN 55011, FCC Title 47: Class B;<br>GB9254.1                                                                               |                                                                                                                                                                                                                              |
| Component Power Supply for General Use  |                | EN 61204-3                                                                                                                                                                                      |                                                                                                                                                                                                                              |
| Immunity to                             |                | Generic Standards: EN 61000-6-1, EN 61000-6-2, EN 55024                                                                                                                                         |                                                                                                                                                                                                                              |
| Electrostatic Discharge                 | IEC 61000-4-2  | Level 4 Criteria A <sup>1)</sup><br>Air Discharge: 15kV<br>Contact Discharge: 8kV                                                                                                               |                                                                                                                                                                                                                              |
| Radiated Field                          | IEC 61000-4-3  | Level 3 Criteria A <sup>1)</sup><br>80MHz-1GHz, 10V/M with 1kHz tone / 80% modulation<br>1.4GHz-2GHz, 3V/M with 1kHz tone / 80% modulation<br>2GHz-2.7GHz, 1V/M with 1kHz tone / 80% modulation |                                                                                                                                                                                                                              |
| Electrical Fast Transient / Burst       | IEC 61000-4-4  | Level 3 Criteria A <sup>1)</sup><br>2kV                                                                                                                                                         |                                                                                                                                                                                                                              |
| Surge                                   | IEC 61000-4-5  | Level 4 Criteria A <sup>1)</sup><br>Common Mode <sup>3)</sup> : 4kV<br>Differential Mode <sup>4)</sup> : 2kV                                                                                    |                                                                                                                                                                                                                              |
| Conducted                               | IEC 61000-4-6  | Level 3 Criteria A <sup>1)</sup><br>150kHz-80MHz, 10Vrms                                                                                                                                        |                                                                                                                                                                                                                              |
| Power Frequency Magnetic Fields         | IEC 61000-4-8  | Level 4 Criteria A <sup>1)</sup><br>30A/m                                                                                                                                                       |                                                                                                                                                                                                                              |
| Voltage Dips and Interruptions          | IEC 61000-4-11 | 0% of 100Vac, 20ms<br>40% of 100Vac, 200ms<br>70% of 100Vac, 500ms<br>0% of 100Vac, 5000ms<br>0% of 2400Vac, 20ms<br>40% of 240Vac, 200ms<br>70% of 240Vac, 500ms<br>0% of 240Vac, 5000ms       | Criteria A <sup>1)</sup><br>Criteria B <sup>2)</sup><br>Criteria A <sup>1)</sup><br>Criteria B <sup>2)</sup><br>Criteria A <sup>1)</sup><br>Criteria A <sup>1)</sup><br>Criteria A <sup>1)</sup><br>Criteria B <sup>2)</sup> |
| Low Energy Pulse Test (Ring Wave)       | IEC 61000-4-12 | Level 3 Criteria A <sup>1)</sup><br>Common Mode <sup>3)</sup> : 2kV<br>Differential Mode <sup>4)</sup> : 1kV                                                                                    |                                                                                                                                                                                                                              |
| Harmonic Current Emission               |                | IEC/EN 61000-3-2, Class A; GB17625.1                                                                                                                                                            |                                                                                                                                                                                                                              |
| Voltage Fluctuation and Flicker         |                | IEC/EN 61000-3-3                                                                                                                                                                                |                                                                                                                                                                                                                              |
| Voltage Sag Immunity<br>SEMI F47 - 0706 |                | 80% of 200Vac<br>70% of 200Vac<br>50% of 200Vac                                                                                                                                                 | 160Vac, 1000ms<br>140Vac, 500ms<br>100Vac, 200ms<br>Criteria A <sup>1)</sup><br>Criteria A <sup>1)</sup><br>Criteria A <sup>1)</sup>                                                                                         |

1) Criteria A: Normal performance within the specification limits

2) Criteria B: Temporary degradation or loss of function which is self-recoverable

3) Asymmetrical: Common mode (Line to earth)

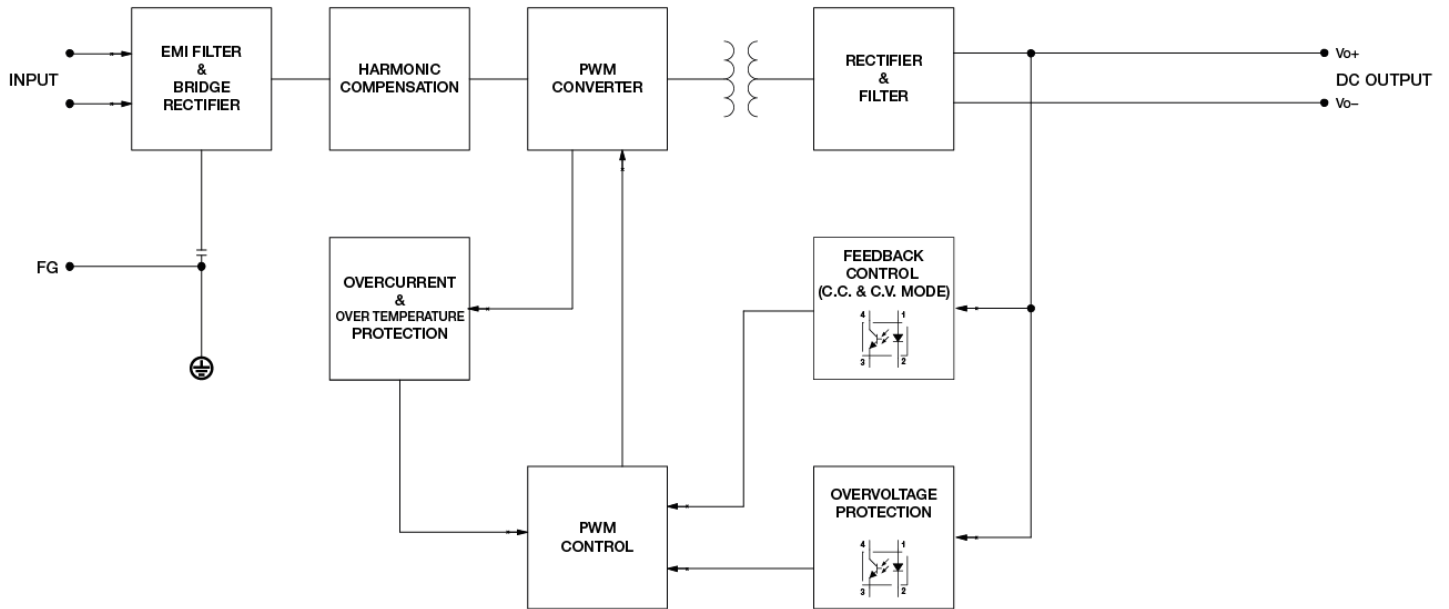
4) Symmetrical: Differential mode (Line to line)

# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Block Diagram

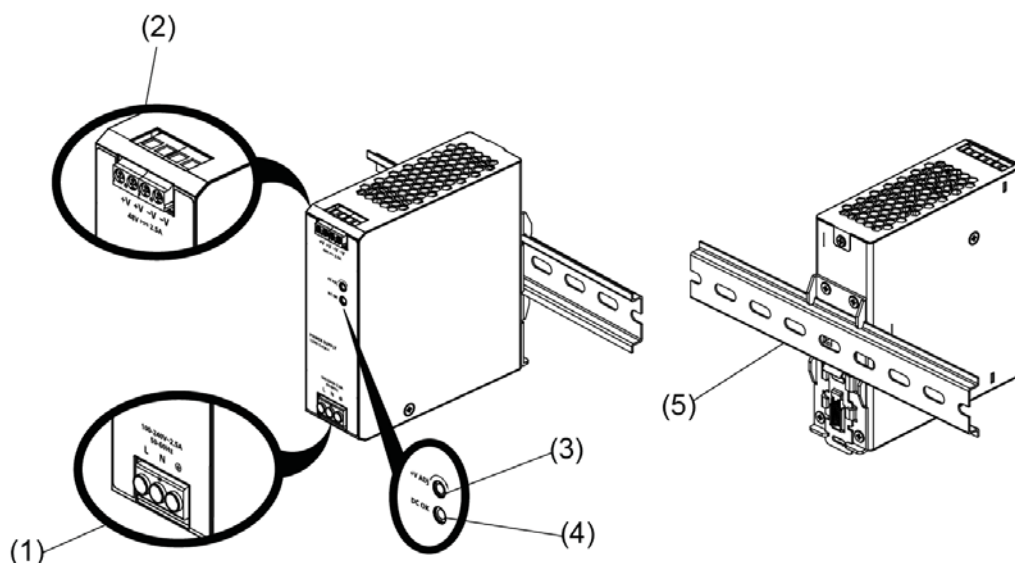
DRL-48V120W1AAD



# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Device Description

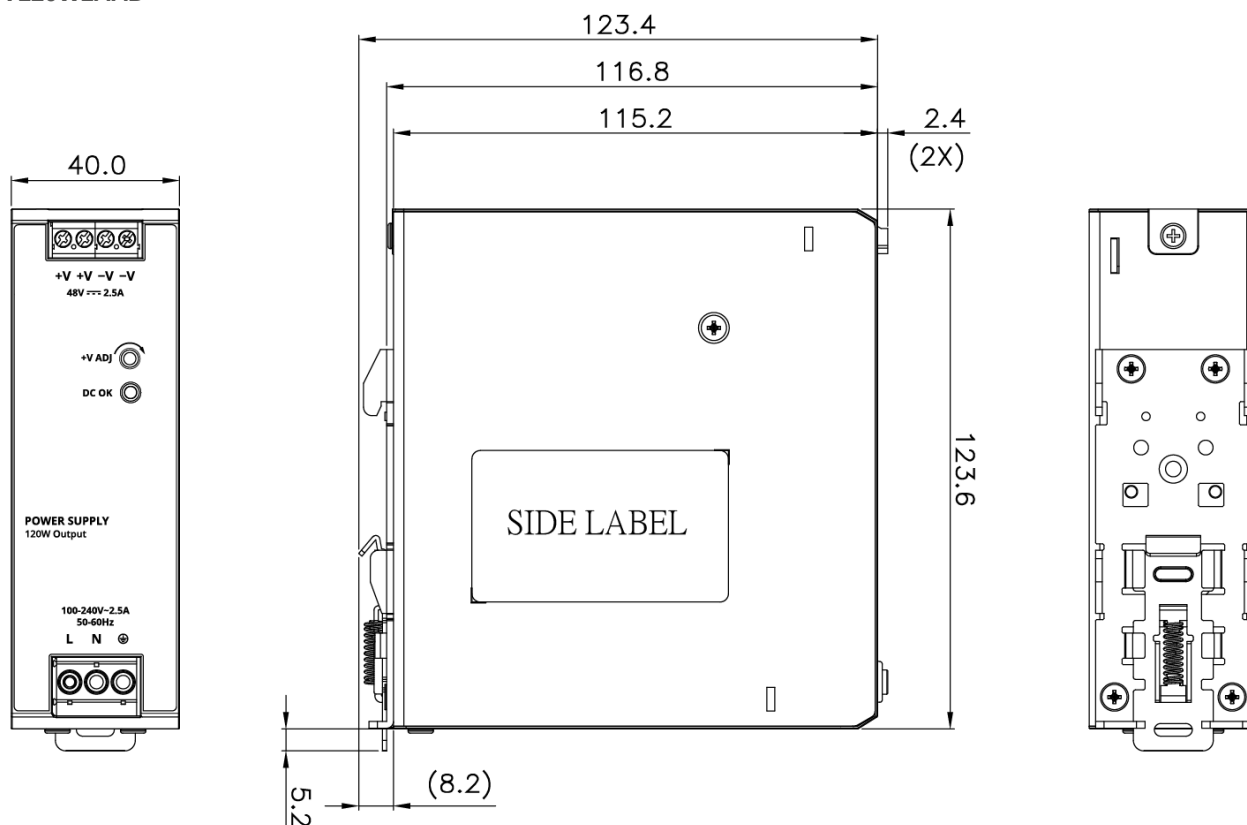


- 1) Input terminal block connector
- 2) Output terminal block connector
- 3) DC voltage adjustment potentiometer
- 4) DC OK LED (Green)
- 5) Universal mounting rail system

### Dimensions

**L x W x D:** 123.6 x 40 x 117.6 mm (4.86 x 1.57 x 4.62 inch)

**DRL-48V120W1AAD**

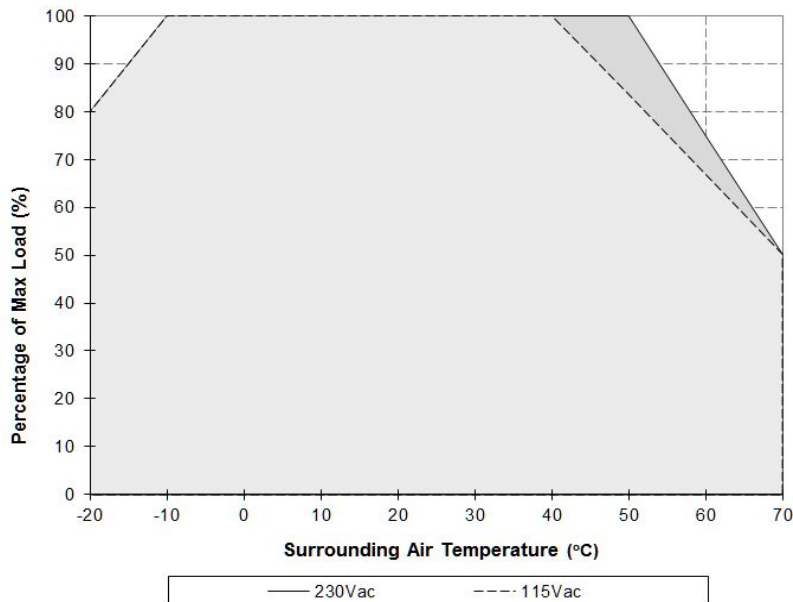


# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Engineering Data

#### Output Load De-rating VS Surrounding Air Temperature



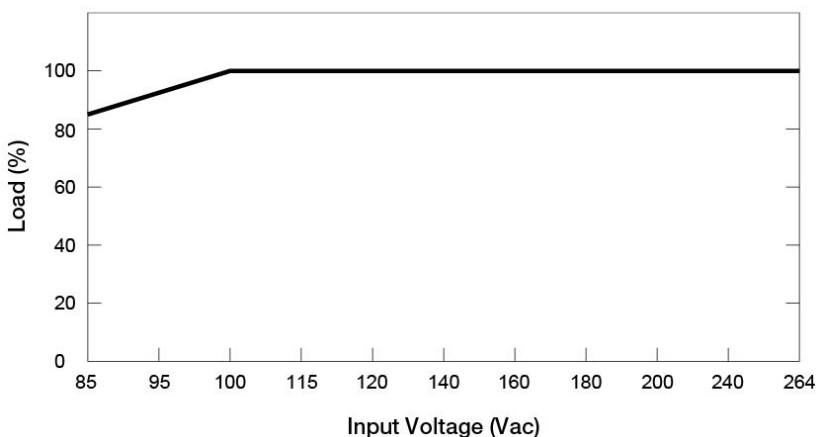
#### Note

1. Power supply components may degrade, or be damaged, when the power supply is continuously used outside the shaded region, refer to the graph shown in Fig. 1.
2. If the output capacity is not reduced when the surrounding air temperature  $>40^{\circ}\text{C}$  (115Vac) or  $>50^{\circ}\text{C}$  (230Vac), the device will run into Over Temperature Protection. When activated, the output voltage will go into bouncing mode and will recover when the surrounding air temperature is lowered or the load is reduced as far as necessary to keep the device in working condition.
3. In order for the device to function in the manner intended, it is also necessary to keep a safety distance as recommended in the safety instructions while the device is in operation.
4. Depending on the surrounding air temperature and output load delivered by the power supply, the device can be very hot!
5. If the device has to be mounted in any other orientation, please contact [info@deltapsu.com](mailto:info@deltapsu.com) for more details.

**Fig. 1 De-rating for Vertical Mounting Orientation**

-10°C to -20°C de-rate power by 2%/°C  
 $> 40^{\circ}\text{C}$  de-rate power by 1.67% / °C @ 115Vac  
 $> 50^{\circ}\text{C}$  de-rate power by 2.5% / °C @ 230Vac

#### Output Load De-rating VS Input Voltage



- No output power de-rating for the input voltage from 100Vac to 264Vac

# DIN Rail Power Supply

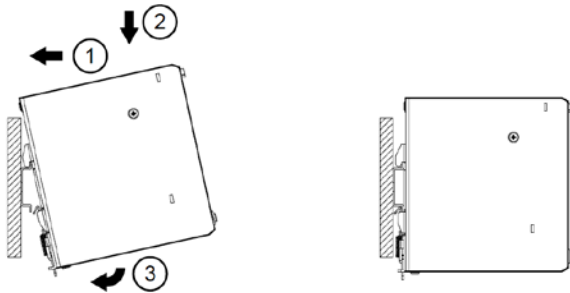
## 48V 120W 1 Phase / DRL-48V120W1AAD

### 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

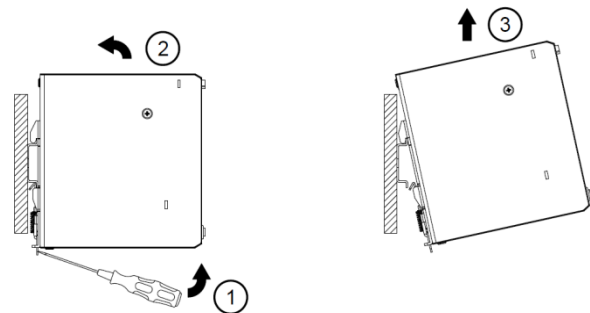


**Fig. 2.1 Mounting**

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.

In accordance to EN 60950 / UL 60950, flexible cables require ferrules.

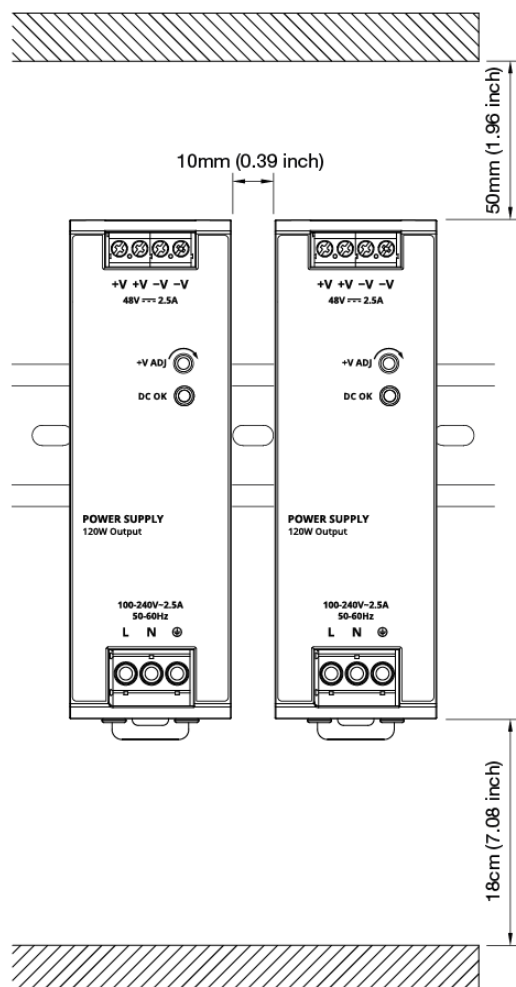
Use appropriate copper cables designed to sustain operating temperature of at least 60°C / 75°C or more to fulfill UL requirements.

# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Safety Instructions

#### ■ Vertical Mounting



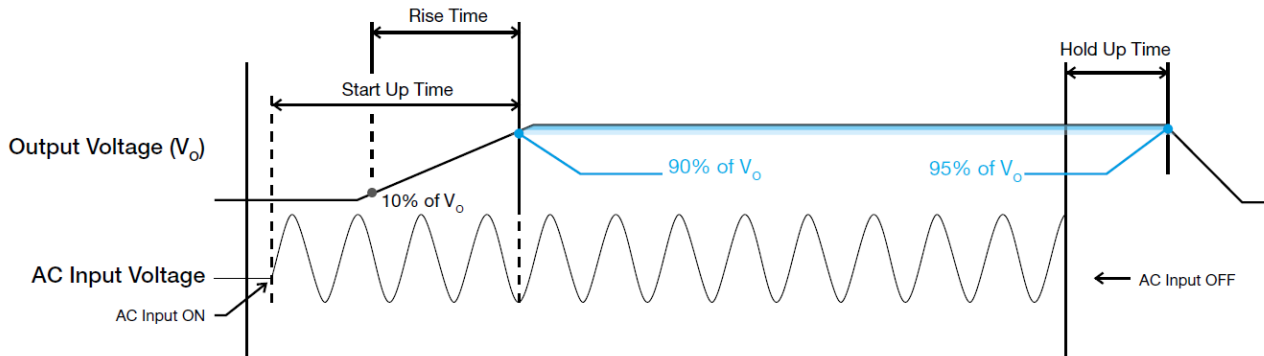
- ALWAYS switch mains of input power OFF before connecting and disconnecting the input voltage to the unit. If mains are not turned OFF, there is risk of explosion / severe damage.
- **To guarantee sufficient convection cooling, keep a distance of 50mm (1.96 inch) above and 18cm (7.08 inch) below the device as well as a lateral distance of 10mm (0.39 inch) to other units.**
- Note that the enclosure of the device can become very hot depending on the surrounding air temperature and load of the power supply. Risk of burns!
- The main power must be turned off before connecting or disconnecting wires to the terminals.
- DO NOT insert any objects into the unit.
- Hazardous voltages may be present for up to 5 minutes after the input mains voltage is disconnected. Do not touch the unit during this time.
- The power supplies are built in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.

# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Functions

#### ■ Graph illustrating the Start-up Time, Rise Time, and Hold-up Time



### Start-up Time

The time required for the output voltage to reach 90% of its final steady state set value, after the input voltage is applied.

### Rise Time

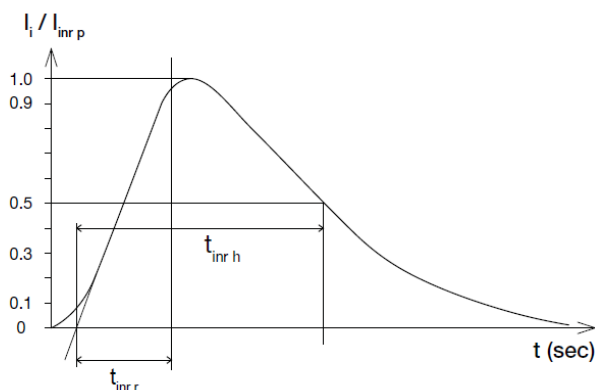
The time required for the output voltage to change from 10% to 90% of its final steady state set value.

### Hold-up Time

Time between the collapse of the AC input voltage, and the output falling to 95% of its steady state set value.

### Inrush Current

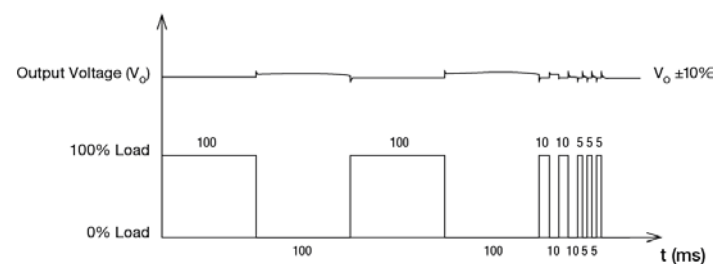
Inrush current is the peak, instantaneous, input current measured and, occurs when the input voltage is first applied. For AC input voltages, the maximum peak value of inrush current will occur during the first half cycle of the applied AC voltage. This peak value decreases exponentially during subsequent cycles of AC voltage.



### Dynamic Response

The power supply output voltage will remain within  $\pm 10\%$  of its steady state value, when subjected to a dynamic load from 0 to 100% of its rated current.

#### ■ 50% duty cycle / 5Hz to 100Hz



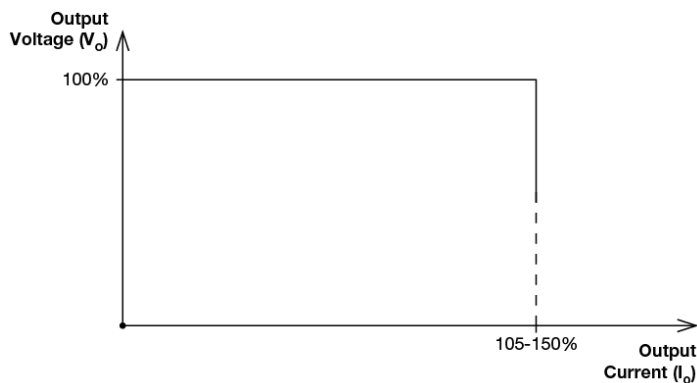


# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

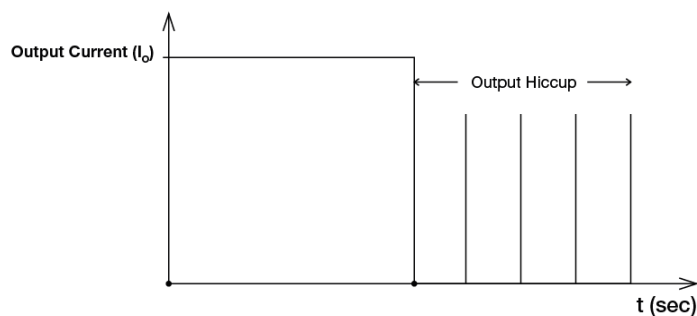
### Overload & Overcurrent Protections (Continuous Current)

The power supply's Overload (OLP) and Overcurrent (OCP) Protections will be activated when output current is 105~150% of  $I_o$  (Max load). Upon such an occurrence, the  $V_o$  (output voltage) will start to droop. Once the power supply has reached its maximum power limit, the protection will be activated; and, the power supply will operate in continuous current. The power supply will recover once the cause of OLP or OCP is removed, and  $I_o$  (output current) is back within the specified range.



### Short Circuit Protection (Auto-Recovery)

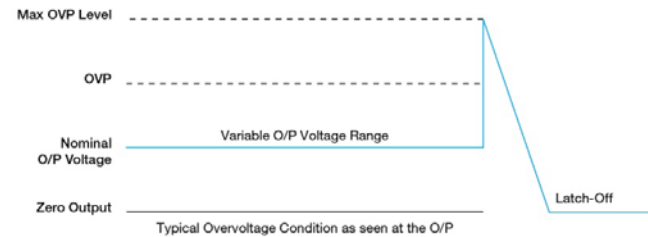
The power supply's output Short Circuit Protection function also provides protection against short circuits. When a short circuit is applied, the output current will operate in "Hiccup mode". The power supply will return to normal operation after the short circuit is removed.



### Overvoltage Protection (Latch Mode)

The power supply's overvoltage circuit will be activated when its internal feedback circuit fails. The output voltage shall not exceed its specifications as described in "Protections" section. Power supply will latch off, and require removal/re-application of input AC voltage in order to restart.

**The power supply should be latch.**



### Over Temperature Protection (Latch Mode)

As described in load de-rating section, the power supply also has Over Temperature Protection (OTP). In the event of a higher operating temperature at 100% load; or, when the operating temperature is beyond what is recommended in the de-rating graph, the OTP circuit will be activated. When activated, power supply will latch off, until the surrounding air temperature drops to its normal operating temperature or the load is reduced as recommended in the de-rating graph. Removal/re-application of input AC voltage will then be required in order to restart.

# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Operating Mode

#### ■ Redundant Operation

In order to ensure proper redundant operation for the power supply units (PSUs), the output voltage difference between the two units must be kept at 0.9~1.0V for these 48V supplies. Follow simple steps given below to set them up for the redundant operation:

##### Step 1.

Measure output voltage of PSU 1 and PSU 2. If PSU 1 is the master unit, then  $V_O$  of PSU 1 must be higher than PSU 2. In order to set the output voltage, individually connect each power supply to 50% of rated load at any line voltage from 85-264Vac, and set the PSU 1 and PSU 2 output voltage.

##### Step 2.

Connect the power supply units PSU 1 and PSU 2 to Vin 1 & Vin 2, respectively, of the DRR-20N (or 20A) module shown on the right of above diagram.

##### Step 3.

Connect the system load to  $V_{out}$ . Please note that output voltage  $V_{out}$  from DRR module will be  $= V_O$  (output voltage of power supply) –  $V_{drop}^*$  (in DRR module).

\* $V_{drop}$  will vary from 0.60V to 0.90V (Typical 0.65V) depending on the load current and surrounding air temperature.

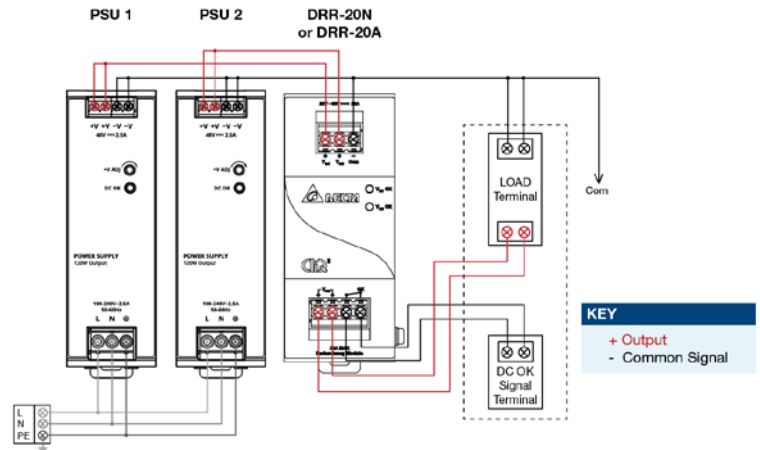


Fig. 3 Redundancy Operation Connection Diagram

#### ■ Parallel Operation

The power supply units (PSUs) can also be used for parallel operation in order to increase the output power. The difference in output voltage between the two units must be kept to within 25mV of each other. This difference must be verified with the same output load connected independently to each unit.

Parameters such as EMI, inrush current, leakage current, PARD, start up time will be different from those on the datasheet, when two units are connected in parallel. The user will need to verify that any differences will still allow the two power supplies connected in parallel will work properly in their product/application.

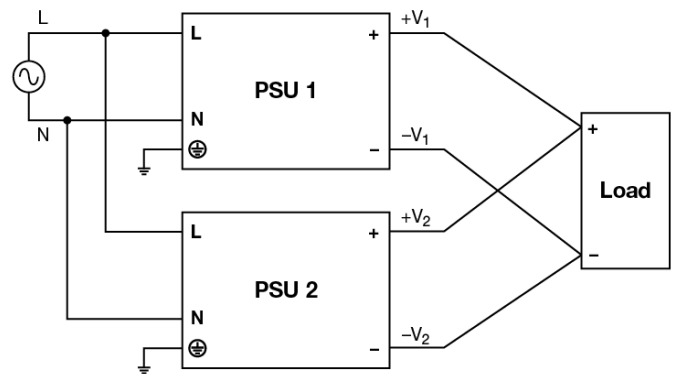


Fig. 4 Parallel Operation Connection Diagram

# DIN Rail Power Supply

## 48V 120W 1 Phase / DRL-48V120W1AAD

### Others

#### Delta RoHS Compliant

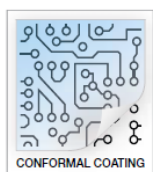


#### Restriction of the usage of hazardous substances

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

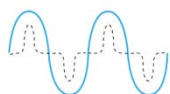


#### The Protective Coating Technology

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 PCBAs 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.

#### PFC – Norm EN 61000-3-2

#### Line Current Harmonic content



Typically, the input current waveform is not sinusoidal due to the periodical peak charging of the input capacitor. In industrial environment, complying with EN 61000-3-2 is only necessary under special conditions. Complying to this standard can have some technical drawbacks, such as lower efficiency as well as some commercial aspects such as higher purchasing costs. Frequently, the user does not profit from fulfilling this standard, therefore, it is important to know whether it is mandatory to meet this standard for a specific application.

# 3. Physical Dimension



TABLE 2.

| PART NAME                    | PIN | FUNCTION |
|------------------------------|-----|----------|
| INPUT TERMINAL BLOCK(3 POLE) | 1   | L        |
|                              | 2   | N        |
|                              | 3   | PE       |
| OUTPUT TERMINAL BLOCK(4POLE) | 1   | v-       |
|                              | 2   | v-       |
|                              | 3   | v+       |
|                              | 4   | v+       |

## NOTE:

1. "※" IS CRITICAL DIM WHICH MUST BE CONTROLLED STRICTLY BY QA.
2. PRODUCT SURFACE SHOULD BE CLEAN, NO DENT AND FREE FROM TOOLING MARK.
3. ENGRAVING ON CHASSIS MUST BE VISIBLE.
- 4.COMPLIANT MODEL:  
DRL-48V120W1AAD
5. UNLESS OTHERWISE SPECIFIED TOLERANCE OF DIMENSION ARE  $\pm 0.5$

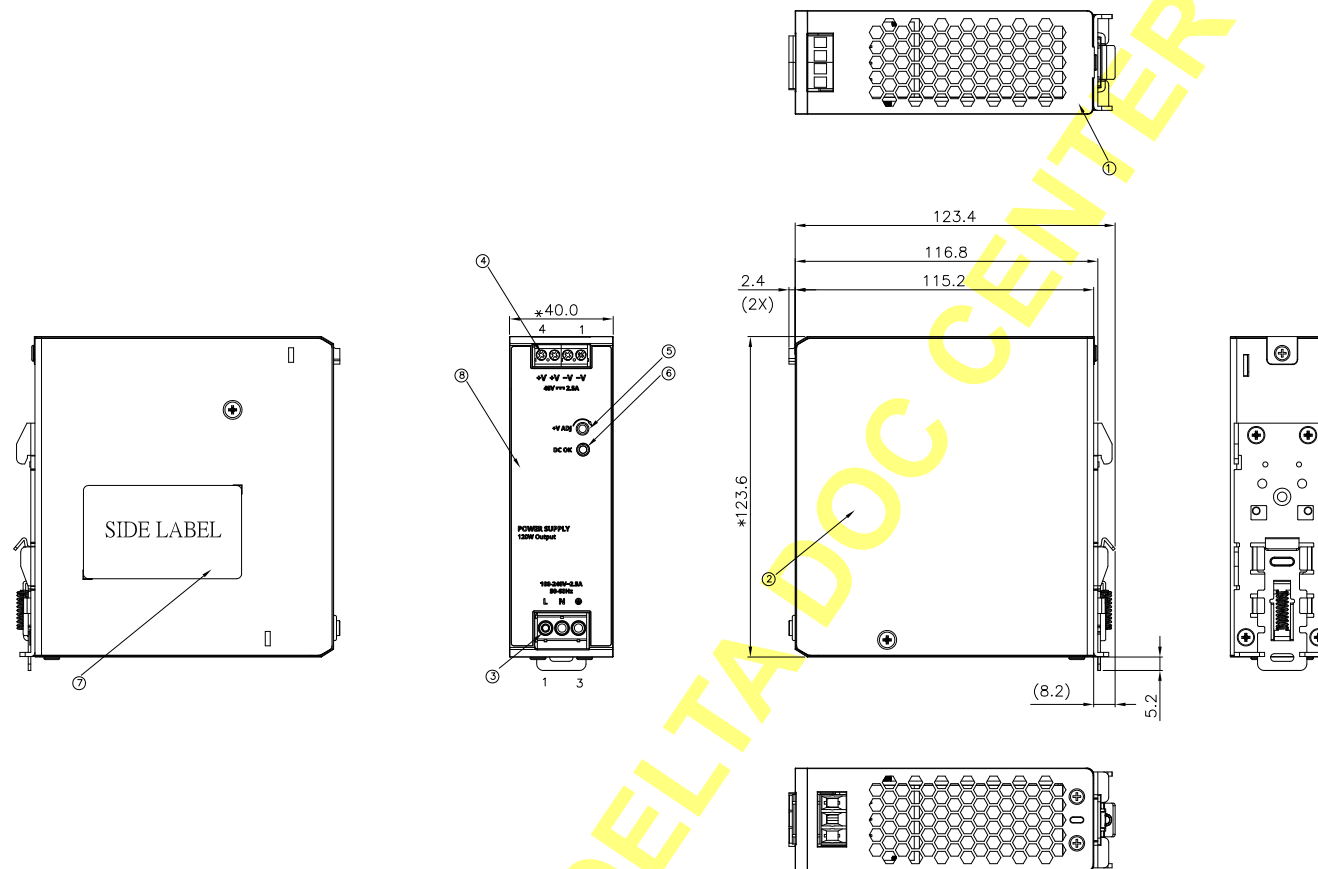


TABLE 1.

| ITEM | PART NAME                    | REMARKS              |
|------|------------------------------|----------------------|
| ①    | COVER                        | NATURE               |
| ②    | CHASSIS                      | NATURE               |
| ③    | INPUT TERMINAL BLOCK(3POLE)  | BLACK                |
| ④    | OUTPUT TERMINAL BLOCK(6POLE) | BLACK                |
| ⑤    | VR                           | --                   |
| ⑥    | LED                          | GREEN                |
| ⑦    | SIDE LABEL                   | WHITE                |
| ⑧    | FRONT LABEL                  | PANTONE COOL GRAY 4C |

**DELTA** 台達電子工業股份有限公司  
DELTA ELECTRONICS, INC.

Drawn: 葉柏園 04/05'17

Design: 葉柏園 04/05'17

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF DELTA ELECTRONICS, INC. AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SELL OF APPARATUS OR DEVICES WITHOUT PERMISSION.

## DIMENSIONAL TOLERANCES

| ( )       | ( )     | ( )      | ( )    | ( )             | ( )             |
|-----------|---------|----------|--------|-----------------|-----------------|
| <30       | : ±0.25 | DECIMALS | UP-100 | : ±0.2          | 250-300 : ±0.4  |
| >30-100   | : ±0.35 | X        | : ±0.3 | 100-150 : ±0.25 | 300-350 : ±0.45 |
| >100-200  | : ±0.5  | X.X      | : ±0.2 | 150-200 : ±0.3  | 350-400 : ±0.5  |
| ABOVE 200 | : ±0.6  | X.XX     | : ±0.1 | 200-250 : ±0.35 | 400-OVER : ±0.7 |

Holes : ±0.05 ANGLES : ±0.5°

SCALE -- UNIT mm USED ON DRL-48V120W1AAD



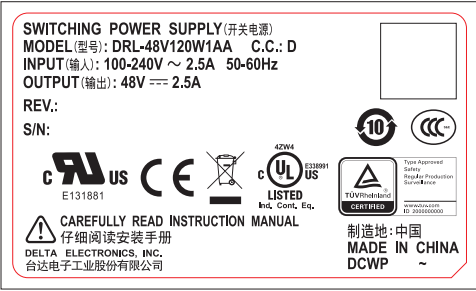
## Description:

## PHYSICAL DIMENSIONS

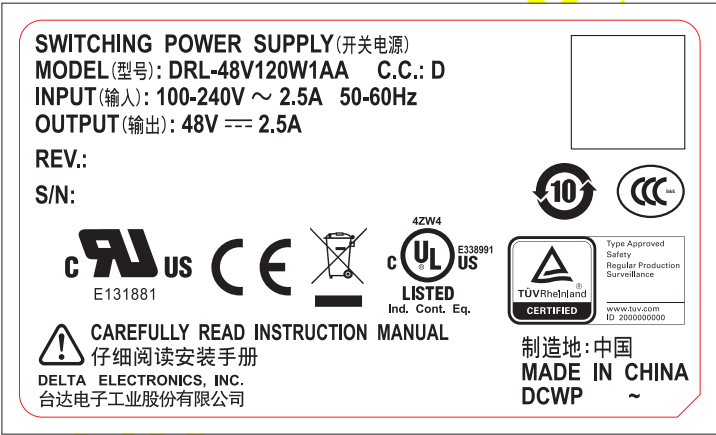
| Part No.        | REV.                 |
|-----------------|----------------------|
| DRL-XXV120W1AAD | 00                   |
| SHEET 3 OF 4    | ISSUE DATE: 04/05'17 |

# 4.Label Drawing





SCALE 1:1



SCALE 1.5:1

The mark "-" is the label vendor code of DELTA who registered at CSA or UL :  
CM-2 : CymMetrik  
MMC : Yongta

|                                                                                                                                                                                                                                                                                                                   |  |  |  |                                                                                                      |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|------------------------------------------------------------------------------------------------------|-----------------------|
|  台達電子工業股份有限公司<br>DELTA ELECTRONICS, INC.                                                                                                                                                                                        |  |  |  | Drawn:  04/12/17 | Design: Leon 04/12/17 |
| THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF DELTA ELECTRONICS, INC. AND SHALL NOT BE REPRODUCED OR USED AS THE BASIS FOR THE MANUFACTURE OR SELL OF APPARATUSES OR DEVICES WITHOUT PERMISSION.                                                                                                          |  |  |  | Description: LABEL                                                                                   |                       |
| DIMENSIONAL TOLERANCES<br>( ) ( V ) ( )<br><30 : ±0.25 DECIMALS UP~100 : ±0.2 250~300 : ±0.4 UP~600 : ±1.5<br>>30~100 : ±0.35 X : ±0.3 100~150 : ±0.25 300~350 : ±0.45 600~900 : ±2.4<br>>100~300 : ±0.5 X.X : ±0.2 150~200 : ±0.3 350~400 : ±0.5 900~OVER : ±3.1<br>ABOVE 300 : ±0.6 X.XX : ±0.1 200~250 : ±0.35 |  |  |  | Part No. 3268761650                                                                                  |                       |
| SCALE -- UNIT mm USED ON DRL-48V120W1AAD                                                                                                                                                                                                                                                                          |  |  |  | SHEET 3 OF 3 ISSUE DATE: 04/12/17                                                                    |                       |
| A4 SIZE                                                                                                                                                                                                                                                                                                           |  |  |  | REV. 00                                                                                              |                       |

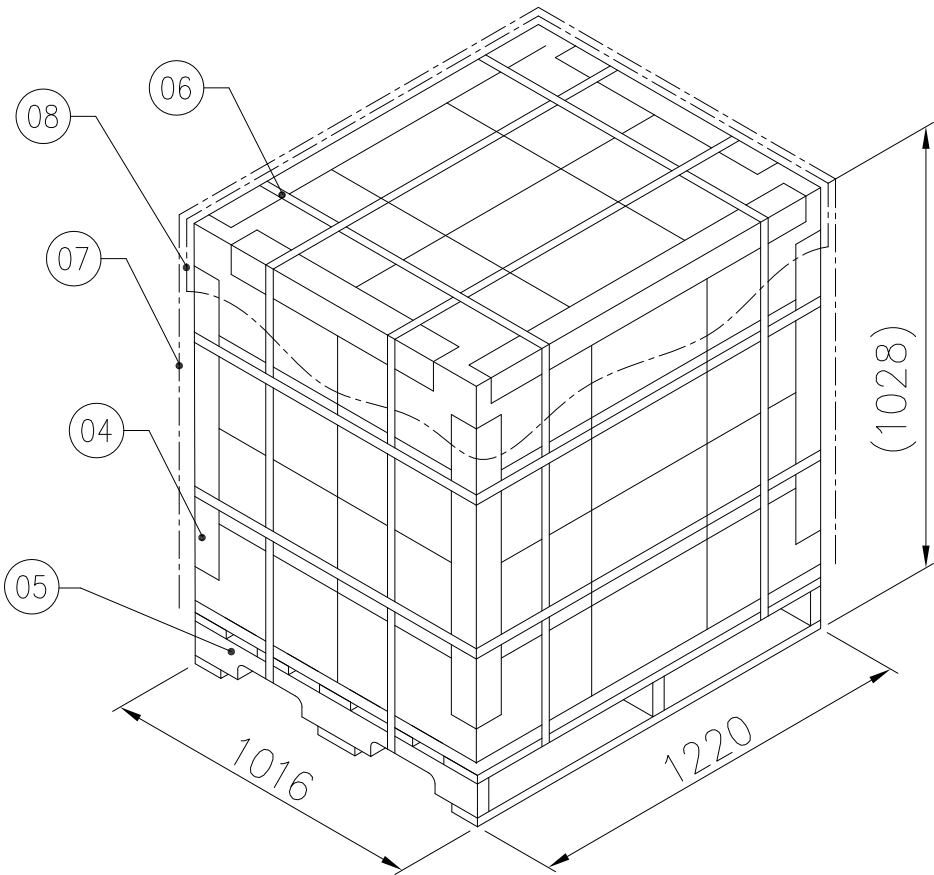
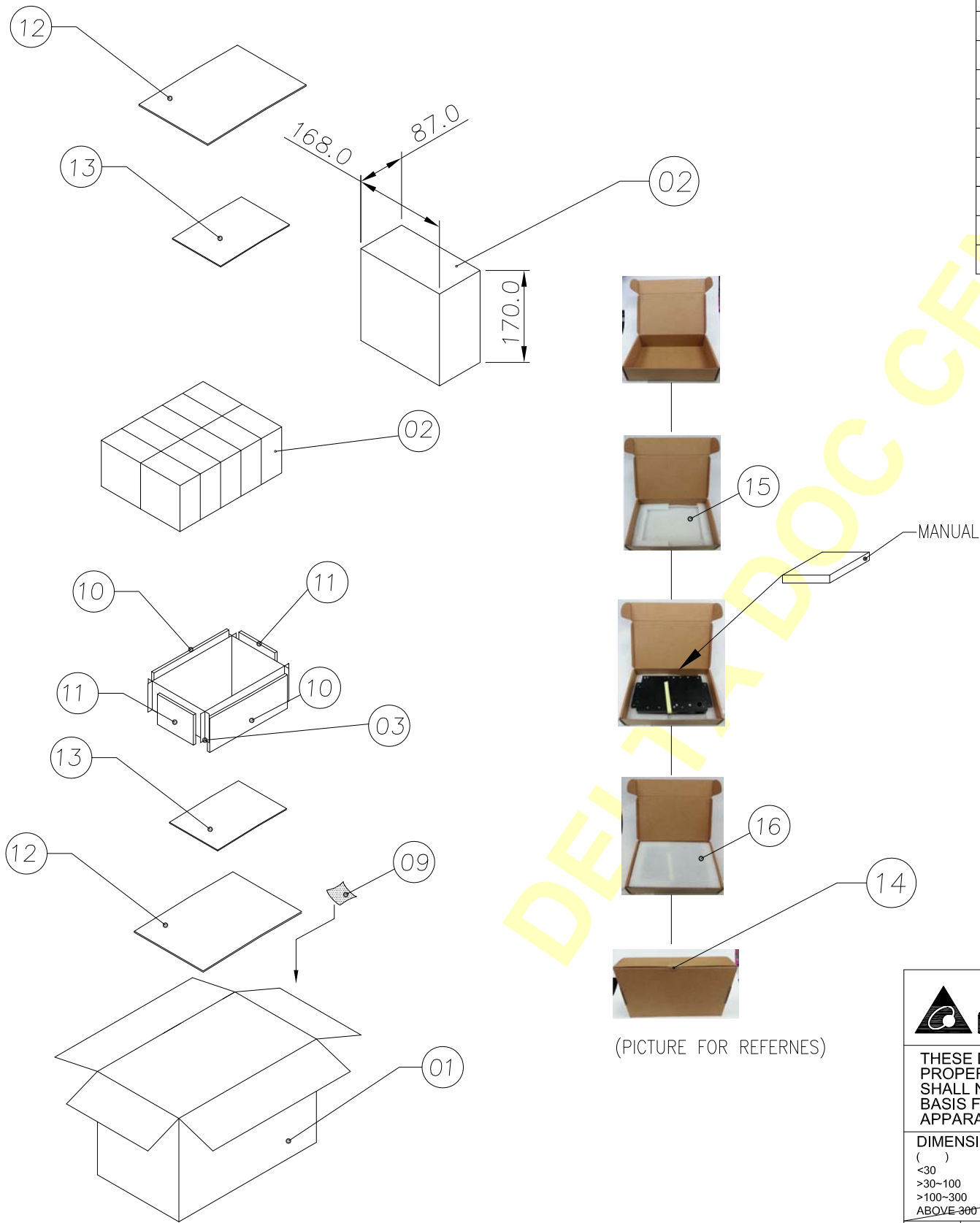
# 5. Packing





- NOTES:
- 10PCS/CARTON\*3\*2CARTONS/LAYER\*4LAYERS=240PCS/PALLET
  - ALL THE PACKING MATERIAL SHOULD MEET DELTA GENERAL SPEC:10000-0162.
  - 當非滿棧板出貨時,四周仍需使用豎型角紙板(ANGLE PAPER),請包裝/採購單位協助按實際情況裁切適當尺寸,豎型紙板(ANGLE PAPER)長度應儘量接近於Carton箱堆疊後的高度.

| ITEM | PART NO.   | NAME          | OUTSIDE DIM.(mm) | Q'TY     |         | UNIT |
|------|------------|---------------|------------------|----------|---------|------|
| 01   | 35125310XX | CARTON        | 506X406X228      | 1/10     | 100.000 | TP   |
| 02   | 35182595XX | BOX           | 168X87X170       | 1/1      | 1.000   | PCE  |
| 03   | 35143440XX | PARTITION     | 490X390X172      | 1/10     | 100.000 | TP   |
| 04   | 35101802XX | ANGLE PAPER   | 900X55X55        | 8/240    | 33.334  | TP   |
| 05   | 3524029200 | PALLET        | 1220X1016X120    | 1/240    | 4.167   | TP   |
| 06   | 35201427XX | PLASTIC STRIP | W=12, T=0.5      | 27M/240  | 112.500 | MM   |
| 07   | 35200824XX | PE FILM       | T=0.02mm         | 150g/240 | 0.625   | GRM  |
| 08   | 35200899XX | PE SHEET      | 1500X1300        | 1/240    | 4.167   | TP   |
| 09   | 35201301XX | DRYER         | 5g               | 1/10     | 100.000 | TP   |
| 10   | 35026226XX | FOAM PAD      | 400X100X20       | 2/10     | 200.000 | TP   |
| 11   | 35026230XX | FOAM PAD      | 300X100X20       | 2/10     | 200.000 | TP   |
| 12   | 35129485XX | PAD PAPER     | 485X385X5        | 2/10     | 200.000 | TP   |
| 13   | 35026214XX | FOAM PAD      | 490X390X10       | 2/10     | 200.000 | TP   |
| 14   | 32611692XX | LABEL PET     | ø25              | 1/1      | 1.000   | PCE  |
| 15   | 35018626XX | FOAM PAD      | 162X159X62       | 1/1      | 1.000   | PCE  |
| 16   | 35018627XX | FOAM PAD      | 162X159X62       | 1/1      | 1.000   | PCE  |



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DELTA ELECTRONICS, INC.

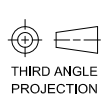
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| DIMENSIONAL TOLERANCES |         | HOLES : ±0.05 |                 | ANGLES : ±0.5°  |                 |
|------------------------|---------|---------------|-----------------|-----------------|-----------------|
| ( )                    | ( )     | ( )           | ( )             | ( )             | ( )             |
| <30                    | : ±0.25 | DECIMALS      | UP-100 : ±0.2   | 250-300 : ±0.4  | UP-600 : ±1.5   |
| >30-100                | : ±0.35 | X             | 100-150 : ±0.25 | 300-350 : ±0.45 | 600-900 : ±2.4  |
| >100-300               | : ±0.5  | X-X           | 150-200 : ±0.3  | 350-400 : ±0.5  | 900-OVER : ±3.1 |
| ABOVE 300              | : ±0.6  | X-XX          | 200-250 : ±0.35 |                 |                 |

SCALE - UNIT mm USED ON DRL-24V120W1AR

Drawn: Johnny  
04/11'17

Design: Johnny  
04/11'17



Description:

PML

A3  
SIZE

Part No.  
DRL-48V120W1AAD

REV.

00

SHEET 2 OF 2 ISSUE DATE:04/11'17

## **6. Safety License**



IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST  
CERTIFICATES FOR ELECTRICAL EQUIPMENT  
(IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE  
CERTIFICATS D'ESSAIS DES EQUIPEMENTS  
ELECTRIQUES (IECEE) METHODE OC

## CB TEST CERTIFICATE

Product  
Produit

Name and address of the applicant  
Nom et adresse du demandeur

Name and address of the manufacturer  
Nom et adresse du fabricant

Name and address of the factory  
Nom et adresse de l'usine

Note: When more than one factory, please report on page 2  
Note: Lorsque il y plus d'une usine, veuillez utiliser la 2<sup>ème</sup> page

Ratings and principal characteristics  
Valeurs nominales et caractéristiques principales

Trademark (if any)  
Marque de fabrique (si elle existe)  
Type of Manufacturer's Testing Laboratories used  
Type de programme du laboratoire d'essais constructeur

Model / Type Ref.  
Ref. De type

Additional information (if necessary may also be reported on page 2)  
Les informations complémentaires (si nécessaire,, peuvent être indiqués sur la 2<sup>ème</sup> page

A sample of the product was tested and found to be in conformity with  
Un échantillon de ce produit a été essayé et a été considéré conforme à la

As shown in the Test Report Ref. No. which forms part of this Certificate  
Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat

This CB Test Certificate is issued by the National Certification Body

Ce Certificat d'essai OC est établi par l'Organisme **National de Certification**

## CERTIFICAT D'ESSAI OC

SWITCHING POWER SUPPLY

DELTA ELECTRONICS INC  
3 TUNGYUAN RD  
CHUNG LI INDUSTRIAL ZONE  
TAOYUAN COUNTY, 32063 Taiwan

DELTA ELECTRONICS INC  
3 TUNGYUAN RD  
CHUNG LI INDUSTRIAL ZONE  
TAOYUAN COUNTY, 32063 Taiwan

DELTA ELECTRONICS (JIANGSU) LTD.  
NO 1688 JIANGXING EAST RD  
WUJIANG ECONOMIC DEVELOPMENT ZONE  
WUJIANG CITY, 215200 JIANGSU PROVINCE China

☒ Additional Information on page 2  
See Page 2

Delta Electronics Inc.

DRL-24V120W1X1X2, DRL-48V120W1X1X2, TIPS-120W24V1MA, TIPS-120W48V1MA  
See Page 2

Additionally evaluated to EN 60950-1: 2006 / A11: 2009 / A1: 2010 / A12: 2011 / A2:2013; National Differences specified in the CB Test Report

☒ Additional Information on page 2  
IEC 60950-1(ed.2), IEC 60950-1(ed.2);am1, IEC 60950-1(ed.2);am2

E131881-A1919-CB-1 issued on 2015-10-26, E131881-A1919-CB-1 issued on 2015-10-23



UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK

UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see [www.ul.com/ncbnames](http://www.ul.com/ncbnames)

Date: 2015-10-23

Original Issue Date: 2015-10-01

Signature:

Jan-Erik Storgaard



Ref. Certif. No.

**DK-48865-A1-UL**

## Model Details:

DRL-24V120W1X1X2, DRL-48V120W1X1X2 (Where X1 can be any alphanumeric character or blank; X2=N, R, A, S, for marketing purpose only and no impact to safety related critical components and constructions)

## Factories:

DELTA ELECTRONICS (THAILAND) PUBLIC CO LTD  
909 SOI 9, MOO 4, PATTANA 1RD  
BANGPOO INDUSTRIAL ESTATE (E P Z)  
TAMBOL PHRAKSA AMPHUR MUANG  
SAMUTPRAKARN, 10280 Thailand

DELTA ELECTRONICS POWER (DONGGUAN) CO LTD  
DELTA INDUSTRIAL ESTATE  
SHIJIE TOWN  
DONGGUAN, 523308 GUANGDONG China

## Additional Information:

The original report was modified to include the following changes/additions:

- 1) Changed model names
- 2) Alternated CY1, CY2, CY3 second sources, Walsin Technology Corp., Type AH.
- 3) Corrected to remove double square symbol in all labels.
- 4) Corrected to change clause 1.7.1.2, Symbol for Class II equipment only from "Pass" to "N/A".
- 5) Corrected to remove "CY1=CX2" from table 1.5.1 item 09.

## Ratings:

## Input:

100-240Vac, 2.5A, 50-60Hz

## Output:

(1) 24Vdc, 5A (for DRL-24V120W1X1X2, TIPS-120W24V1MA)

or

(2) 48Vdc, 2.5A (for DRL-48V120W1X1X2, TIPS-120W48V1MA)

**Additional information (if necessary)****Information complémentaire (si nécessaire)**

☐ UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA

☒ UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK

☐ UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN

☐ UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA

For full legal entity names see [www.ul.com/ncbnames](http://www.ul.com/ncbnames)

Date: 2015-10-23

Original Issue Date: 2015-10-01

Signature:

Jan-Erik Storgaard





# 中国国家强制性产品认证证书

证书编号: 2015010907819255

## 委托人名称、地址

台达电子工业股份有限公司  
台湾 桃园县 中坜市 中坜工业区东园路 3 号

## 生产者(制造商)名称、地址

台达电子工业股份有限公司  
台湾 桃园县 中坜市 中坜工业区东园路 3 号

## 生产企业名称、地址

中达电子(江苏)有限公司  
中国 江苏省吴江经济技术开发区江兴东路1688号

## 产品名称和系列、规格、型号

### 开关电源

TIPS-120W24V1MA、TIPS-120W48V1MA、DRL-24V120W1X1X2、DRL-48V120W1X1X2 (“X1”代表数字0-9或字母A-Z或空白,其电气特性皆相同,仅为区别客户不同,不影响安全及电磁兼容性,“X2”代表字母N,R,A,S)交流输入:100-240VAC, 2.5A 50-60Hz;直流输出:24V, 5A(对于 TIPS-120W24V1MA 和 DRL-24V120W1X1X2);直流输出:48V, 2.5A(对于TIPS-120W48V1MA 和 DRL-48V120W1X1X2)(产品销售时不配备电线组件,仅适用于海拔5000米及以下)

## 产品标准和技术要求

GB4943.1-2011; GB17625.1-2012; GB9254-2008

上述产品符合强制性产品认证实施规则  
CNCA-C09-01:2014的要求,特发此证。

发证日期: 2015年11月08日

有效期至: 2020年11月08日

证书有效期内本证书的有效性依据发证机构的定期监督获得保持。

本证书的相关信息可通过国家认监委网站www.cnca.gov.cn查询



主任:



## 中国质量认证中心

中国·北京·南四环西路188号9区 100070  
<http://www.cqc.com.cn>

T 20151109143440792





# CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

No.:2015010907819255

## NAME AND ADDRESS OF THE APPLICANT

Delta Electronics, Inc.  
3 Tungyuan Road, Chungli Industrial Zone, Taoyuan County 32063, Taiwan

## NAME AND ADDRESS OF THE MANUFACTURER

Delta Electronics, Inc.  
3 Tungyuan Road, Chungli Industrial Zone, Taoyuan County 32063, Taiwan

## NAME AND ADDRESS OF THE FACTORY

Delta Electronics (Jiangsu) Ltd.  
215200, No. 1688 East Jiangxing Road Economic and Technology Development Zone, Wujiang, Jiangsu Province, P.R.China.

## NAME, MODEL AND SPECIFICATION

### SWITCHING POWER SUPPLY

TIPS-120W24V1MA, TIPS-120W48V1MA, DRL-24V120W1X1X2, DRL-48V120W1X1X2 ("X1"=0-9,A-Z or blank, As for different market purpose no impact on Products safety and EMC characteristics only, "X2"=N,R,A,S) , AC input:100-240V~, 2.5A, 50-60Hz;for TIPS-120W24V1MA and DRL-24V120W1X1X2 DC output:24V,5A ; for TIPS-120W48V1MA and DRL-48V120W1X1X2 DC output:48V,2.5A sale without cord set, Altitude up to 5000m

## THE STANDARDS AND TECHNICAL REQUIREMENTS FOR THE PRODUCTS

GB4943.1-2011;GB17625.1-2012;GB9254-2008

This is to certify that the above mentioned products have met the requirements of implementation rules for compulsory certification(REF NO. CNCA-C09-01:2014).

Date of issue:Nov.08,2015

Date of expiry: Nov.08,2020

Validity of this certificate is subject to positive result of the regular follow up inspection by issuing certification body until the expiry date.

This certificate can be verified through CNCA ' s website: [www.cnca.gov.cn](http://www.cnca.gov.cn)



President:

Wang Kejiao



## CHINA QUALITY CERTIFICATION CENTRE

Section 9, No. 188, Nansihuan Xilu, Beijing 100070 P. R. China  
<http://www.cqc.com.cn>

T 20151109143440792



## Declaration of Conformity

Ref No: MPBU-TW-201601012-CE-343

**Manufacturer name: Delta Electronics, Inc.**

Add: 3 Tungyuan Road, Chungli Industrial Zone, Taoyuan County 32063, Taiwan

Tel: 886- 3- 4526107

Fax: 886 -3- 4527314

***Is herewith confirmed the following equipment***

Product: Switching Power Supply

Brand name: 

Type Designation: DRL-24V120W1X1X2, DRL-48V120W1X1X2 (Where X1 can be any alphanumeric character or blank; X2=N, R, A, S, for marketing purpose only and no impact to safety related critical components and constructions); TIPS-120W24V1MA, TIPS-120W48V1MA

Input: 100-240Vac, 2.5A, 50-60Hz.

DC Output: (1) 24Vdc, 5A (for DRL-24V120W1X1X2, TIPS-120W24V1MA) or

(2) 48Vdc, 2.5A (for DRL-48V120W1X1X2, TIPS-120W48V1MA)

***Comply with the following directives and requirements set out in the Council Directive on the Approximation for the Laws of the Member States***

☒ Low Voltage Directive 2014/35/EU

☒ EN 60950-1: 2006+A11: 2009+A1: 2010+A12: 2011 + A2: 2013 (Report No: E131881-A1919-CB-1)

☐ EN 60065: 2002+A1: 2006+A11: 2008+A2: 2010 (Report No )

☐ EN 62368-1:2014/AC: 2015 (Report No.....)

☐ EN 61347-2-12: 2005+A1: 2010 used in conjunction with EN 61347-1: 2008+A1: 2011+A2: 2013 (Report No )

☐ EN 61347-2-13: 2006 used in conjunction with EN 61347-1: 2008+A1: 2011+A2: 2013 (Report No )

☐ EN 61558-2-16: 2009 used in conjunction with EN 61558-1: 2005/A1: 09 (Report No )

☐ EN 60335-2-29:2004+A2:2010 in conjunction with EN 60335-1:2002+A1:2004+ A2:2006+ A11:2004+A12:2006+A13:2008+A14:2010+A15:2011 and EN 62233:2008. (Report No )

☐ EN 61010: 2010 (Report No )

☐ Other (Report No )

☐ MDD Directive 93/42/EEC

☐ EN 60601-1-1: 2006/A12 :2014 (Report No )

- ☐ EN 60601-1-2: 2015 (Report No )
- ☐ CISPR 11:2009+A1:2010 (Group I, Class B)
- ☐ IEC 61000-3-2: 2014
- ☐ IEC 61000-3-3: 2013
- ☐ IEC 61000-4-2: 2008: Edition 2.0
- ☐ IEC 61000-4-3: 2010: Edition 3.2
- ☐ IEC 61000-4-4: 2012: Edition 3.0
- ☐ IEC 61000-4-5: 2014: Edition 3.0
- ☐ IEC 61000-4-6: 2013: Edition 4.0
- ☐ IEC 61000-4-8: 2009: Edition 2.0
- ☐ IEC 61000-4-11: 2004: Edition 2.0

☒ EMC Directive 2014/30/EU

- ☒ EN 55032 : 2012+AC :2013 Class B
- ☒ EN 55022: 2010+AC :2011 Class B
- ☐ EN 55013: 2013
- ☐ EN 55015: 2013
- ☐ EN 55020: 2007/A11:2011
- ☒ EN 55024: 2010
- ☐ EN 55011: 2009+A1: 2010
- ☐ EN 55014-2: 2015
- ☒ EN 61000-3-2: 2014
- ☒ EN 61000-3-3: 2013
- ☒ IEC 61000-4-2: 2008: Edition 2.0
- ☒ IEC 61000-4-3: 2010: Edition 3.2
- ☒ IEC 61000-4-4: 2012: Edition 3.0
- ☒ IEC 61000-4-5: 2014: Edition 3.0
- ☒ IEC 61000-4-6: 2013: Edition 4.0
- ☒ IEC 61000-4-8: 2009: Edition 2.0
- ☒ IEC 61000-4-11: 2004: Edition 2.0

(Report No: CP150918D02C, CP150918D02, EN150918D02E)

- ☐ WEEE Directive 2012/19/EU (Report No:)
- ☒ RoHS Directive 2011/65/EU
  - ☒ EN 50581: 2012 (Issue No: 20151126)
- ☐ Commission Regulation (EC) No 278/2009, ErP Directive 2009/125/EC
  - ☐ EN 50563: 2011+A1: 2013 (Report No:)

***Person responsible for making this declaration***

Name, Surname: Jerry Chang

Title: Principal Engineer

Place: Taiwan



Date: 2017-03-08

Signature: *Jerry Chang*





## СЕРТИФИКАТ СООТВЕТСТВИЯ

№ TC RU C-TW.AL16.B.08474

Серия RU № 0370161

**ОРГАН ПО СЕРТИФИКАЦИИ** продукции Общества с ограниченной ответственностью «Гарант Плюс».  
 Место нахождения: 121170, Российская Федерация, город Москва, Кутузовский проспект, дом 36, строение 3.  
 Фактический адрес: 121170, Российская Федерация, город Москва, Кутузовский проспект, дом 36, строение 3.  
 Телефон/факс: +7(495) 532-86-08, адрес электронной почты: garantplus-os@inbox.ru. Аттестат аккредитации  
 регистрационный № РОСС RU.0001.11AL16 выдан 05.02.2013 года Федеральной службой по аккредитации

**ЗАЯВИТЕЛЬ** Общество с ограниченной ответственностью «Дельта Энерджи Системс». Основной государственный  
 регистрационный номер: 1047796658392. Место нахождения: 101000, Российская Федерация, город Москва, Покровский  
 бульвар, дом 4/17 строение 46. Фактический адрес: 121357, Российская Федерация, город Москва, улица Верейская, дом  
 17, офис 112. Телефон: +74956443240, факс: +74956443241, адрес электронной почты: ups.russia@delta.com.tw

**ИЗГОТОВИТЕЛЬ** «Delta Electronics, Inc.».  
 Место нахождения: 86 Ruey Kuang Road, Neihu, Taipei 11491, Тайвань (Китай).  
 Фактический адрес: 86 Ruey Kuang Road, Neihu, Taipei 11491, Тайвань (Китай).  
 Филиалы завода-изготовителя: согласно приложению на одном листе, бланк № 0242324

**ПРОДУКЦИЯ** Источники питания промышленного назначения, серии (типы): AHPS, DVPPS, DRC, DRB, DRL, DRM,  
 DRP, DRR, DRS, DRU, PMB, PMC, PMF, PMH, PMR, PMT, PJ, PJT, MDS  
 Продукция изготовлена в соответствии с Директивами 2006/95/EC, 2004/108/EC  
 Серийный выпуск

КОД ТН ВЭД ТС 8504 40 900 0

**СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ** ТЕХНИЧЕСКИХ РЕГЛАМЕНТОВ ТАМОЖЕННОГО СОЮЗА:  
 ТР ТС 004/2011 «О БЕЗОПАСНОСТИ НИЗКОВОЛЬТНОГО ОБОРУДОВАНИЯ»  
 ТР ТС 020/2011 «ЭЛЕКТРОМАГНИТНАЯ СОВМЕСТИМОСТЬ ТЕХНИЧЕСКИХ СРЕДСТВ»

**СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ** - протоколов испытаний от 29.12.2015 года №№ 8505-219-  
 15/СП, 8506-219-15/СП, 8507-219-15/СП, 8508-219-15/СП Испытательной лаборатории Общества с  
 ограниченной ответственностью «СПБ-Стандарт», аттестат аккредитации регистрационный № РОСС  
 RU.0001.21AB94 срок действия с 28.10.2011 по 28.10.2016 года;  
 - акта анализа состояния производства от 18.01.2016 года № 6477/2016 органа по сертификации продукции  
 Общества с ограниченной ответственностью «Гарант Плюс»;  
 - эксплуатационных документов

**ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ** Условия и сроки хранения продукции, срок службы (годности)  
 указаны в прилагаемой к продукции эксплуатационной документации

СРОК ДЕЙСТВИЯ С 18.01.2016 ПО 17.01.2021 ВКЛЮЧИТЕЛЬНО

Руководитель (уполномоченное  
 лицо) органа по сертификации

Эксперт (эксперт-аудитор)  
 (эксперты (эксперты-аудиторы))

К.С. Мельникова  
 (инициалы, фамилия)

М.Ю. Шапкин  
 (инициалы, фамилия)



## ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ТС RU C-TW.A116.B.08474

Серия RU № 0242324

## Сведения по сертификату соответствия

Филиалы завода-изготовителя:

«Delta Electronics (Jiang Su) LTD»

Место нахождения: No 1688, Jiangxing East Road, Wujiang Economy Development Zone, Wujiang City, Jiangsu province, Китайская Народная Республика

Фактический адрес: No 1688, Jiangxing East Road, Wujiang Economy Development Zone, Wujiang City, Jiangsu province, Китайская Народная Республика

«Delta Electronics (Thailand) Plc.»

Место нахождения: 909 Soi 9, Moo 4, E.P.Z., Bangpoo Industrial Estate, Tambon Prakasa, Amphur Muang Samutprakarn, Samutprakarn 10280, Королевство Таиланд.

Фактический адрес: 909 Soi 9, Moo 4, E.P.Z., Bangpoo Industrial Estate, Tambon Prakasa, Amphur Muang Samutprakarn, Samutprakarn 10280, Королевство Таиланд.

Руководитель (уполномоченное  
лицо) органа по сертификацииК.С. Мельникова  
(инициалы, фамилия)Эксперт (эксперт-аудитор)  
(эксперты (эксперты-аудиторы))М.Ю. Шапкин  
(инициалы, фамилия)



Delta Electronics, Inc.  
Ms. Candy Lee, Manager  
QA Dept.  
3 Tungyuan Road  
Chungli Industrial Zone  
Taoyuan County 32063  
Taiwan

Date : 28.10.2015  
Our ref. : WLE ZTW1  
Your ref.: MPBU-TW-201510011-1

**Ref : R TÜV-Mark Approval**

Type of Equipment : SWITCHING POWER SUPPLY  
Model Designation : See Certificate  
Certificate No. : R 50323663 0001  
Report No. : 10053365 001

Dear Ms. Candy Lee,

The above specified equipment has been tested and found to be in accordance with the relevant requirements.

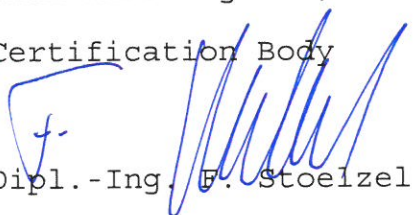
Please find enclosed your certificate as specified above.

If cancellation of the certificate is submitted by 15 November in a given year, no fee will be charged for the following year.

The certificate is issued with the reservation that the license holder applies all information required in § 6 of the ProdSG related to name and address of the manufacturer or his authorized representative / importer, including their respective contact addresses on the product prior to marketing of the product in the European Economic Area.

With kind regards,

Certification Body

  
Dipl.-Ing. F. Stoelzel

Enclosure

**TÜV RHEINLAND TAIWAN LTD.**

11F., No. 758, Sec. 4, Bade Rd.,  
Songshan Dist., Taipei City 105,  
Taiwan R. O. C.  
Tel. (02) 2172-7000  
Fax (02) 2528-0018  
<http://www.tuv.com>

**TAICHUNG BRANCH:**

No. 9, Lane 36, Sec. 3, Minsheng Rd.,  
Daya Dist., Taichung City 428  
Taiwan, R. O. C.  
Tel. (04) 2560-2998  
Fax (04) 2566-3598

# Zertifikat

# Certificate



Zertifikat Nr. Certificate No.  
R 50323663

Blatt Page  
0001

Ihr Zeichen Client Reference  
MPBU-TW-201510011-1

Unser Zeichen Our Reference  
ZTW1-WLE- 10053365 001

Ausstellungsdatum  
28.10.2015

Date of Issue  
(day/mo/yr)

**Genehmigungsinhaber License Holder**  
Delta Electronics, Inc.  
3 Tungyuan Road  
Chungli Industrial Zone  
Taoyuan County 32063  
Taiwan

**Fertigungsstätte Manufacturing Plant**  
Delta Electronics Power  
(Dongguan) Co., Ltd.  
Delta Industrial Estate  
Shijie Town, Dongguan City  
Guangdong Province 523308  
P.R. China

## Prüfzeichen Test Mark



## Geprüft nach Tested acc. to

EN 60950-1:2006+A11+A12+A2

**Zertifiziertes Produkt (Geräteidentifikation)**  
**Certified Product (Product Identification)**

**Lizenzentgelte - Einheit**  
**License Fee - Unit**

### Einbau-Schaltnetzteil (SWITCHING POWER SUPPLY)

|                                                        |                                                                                      |    |
|--------------------------------------------------------|--------------------------------------------------------------------------------------|----|
| Bezeichnung<br>(Type Designation)                      | : DRL-24V120W1X1X2                                                                   | 10 |
| X1 steht für<br>(stands for)                           | : alphanumerisch Charakter oder<br>freibleibend (alphanumeric<br>character or blank) | 1  |
| X2 steht für<br>(stands for)                           | : N, R, A oder (or) S                                                                | 1  |
| Nennspannung<br>(Rated Voltage)                        | : AC 100-240V, 50-60Hz                                                               |    |
| Nennstrom<br>(Rated Current)                           | : 2.5A                                                                               |    |
| Ausgang (Output)                                       | : DC 24V/5A                                                                          |    |
| max. Umgebungstemperatur<br>(max. Ambient Temperature) | : 1) 40°C (AC 100V)<br>2) 50°C (AC 240V)<br>3) 70°C (AC 100-240V)                    |    |
| max. Betriebshöhe<br>(max. Operating Altitude)         | : 5000m                                                                              |    |

Fortsetzung Blatt (continued on page) 02

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ANLAGE (Appendix): 1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.

This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

**TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg**  
Tel.: (+49/221)8 06 - 13 71 e-mail: cert-validity@de.tuv.com  
Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety

**Zertifizierungsstelle**





# Zertifikat

# Certificate



Zertifikat Nr. Certificate No.  
R 50323663

Blatt Page  
0002

Ihr Zeichen Client Reference  
MPBU-TW-201510011-1

Unser Zeichen Our Reference  
ZTW1-WLE- 10053365 001

Ausstellungsdatum  
28.10.2015

Date of Issue  
(day/mo/yr)

Genehmigungsinhaber License Holder  
Delta Electronics, Inc.  
3 Tungyuan Road  
Chungli Industrial Zone  
Taoyuan County 32063  
Taiwan

Fertigungsstätte Manufacturing Plant  
Delta Electronics Power  
(Dongguan) Co., Ltd.  
Delta Industrial Estate  
Shijie Town, Dongguan City  
Guangdong Province 523308  
P.R. China

## Prüfzeichen Test Mark

## Geprüft nach Tested acc. to

EN 60950-1:2006+A11+A1+A12+A2



Zertifiziertes Produkt (Geräteidentifikation)  
Certified Product (Product Identification)

Lizenzentgelte - Einheit  
License Fee - Unit

Einbau-Schaltnetzteil (SWITCHING POWER SUPPLY)

wie Blatt (as page) 01  
Fortsetzung (Continuation)

Schutzklasse : I  
(Protection Class)  
Verschmutzungsgrad : 2  
(Pollution Degree)

Vermerke: Primär-und Sekundärkreise sind gemäß Verfahren 1 und 2 nach Abschnitt 2.9.4 getrennt. Der Einbau muß gemäß der zugehörigen Einbauanweisung erfolgen.

(Remark: Primary and secondary circuits are separated according to method 1 and 2 of clause 2.9.4. The installation has to be carried out according to the attached installation instruction.)

ANLAGE (Appendix): 1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.  
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Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety

Zertifizierungsstelle



Dipl.-Ing. F. Stöelzel



# Zertifikat

# Certificate



Zertifikat Nr. Certificate No.  
R 50323663

Blatt Page  
0003

Ihr Zeichen Client Reference  
MPBU-TW-201510011-1

Unser Zeichen Our Reference  
ZTW1-WLE- 10053365 001

Ausstellungsdatum  
28.10.2015

Date of Issue  
(day/mo/yr)

Genehmigungsinhaber License Holder  
Delta Electronics, Inc.  
3 Tungyuan Road  
Chungli Industrial Zone  
Taoyuan County 32063  
Taiwan

Fertigungsstätte Manufacturing Plant  
Delta Electronics Power  
(Dongguan) Co., Ltd.  
Delta Industrial Estate  
Shijie Town, Dongguan City  
Guangdong Province 523308  
P.R. China

## Prüfzeichen Test Mark

## Geprüft nach Tested acc. to

EN 60950-1:2006+A11+A1+A12+A2



Zertifiziertes Produkt (Geräteidentifikation)  
Certified Product (Product Identification)

Lizenzentgelte - Einheit  
License Fee - Unit

Einbau-Schaltnetzteil (SWITCHING POWER SUPPLY)

wie Blatt (as page) 01

Ergänzung  
(Addition)

|                                   |                                                                                      |             |
|-----------------------------------|--------------------------------------------------------------------------------------|-------------|
| Bezeichnung<br>(Type Designation) | : 1) TIPS-120W24V1MA<br>2) DRL-48V120W1X1X2<br>3) TIPS-120W48V1MA                    | 1<br>1<br>1 |
| X1 steht für<br>(stands for)      | : alphanumerisch Charakter oder<br>freibleibend (alphanumeric character<br>or blank) | 1           |
| X2 steht für<br>(stands for)      | : N, R, A oder (or) S                                                                | 1           |
| Ausgang<br>(Output)               | : 1) DC 24V/5A<br>2,3) DC 48V/2.5A                                                   |             |

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ANLAGE (Appendix): 1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.

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Zertifizierungsstelle



Dipl.-Ing. F. Stölzel



# Zertifikat

# Certificate



Zertifikat Nr. Certificate No.  
R 50323663

Blatt Page  
0004

Ihr Zeichen Client Reference  
MPBU-TW-201510011-1

Unser Zeichen Our Reference  
ZTW1-WLE- 10053365 001

Ausstellungsdatum  
28.10.2015

Date of Issue  
(day/mo/yr)

Genehmigungsinhaber License Holder  
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3 Tungyuan Road  
Chungli Industrial Zone  
Taoyuan County 32063  
Taiwan

Fertigungsstätte Manufacturing Plant  
Delta Electronics (Jiangsu) Ltd.  
No. 1688, Jiangxing East Road  
Wujiang Economic Development Zone  
Wujiang City, Jiangsu Province 215200  
P.R. China

## Prüfzeichen Test Mark



## Geprüft nach Tested acc. to

EN 60950-1:2006+A11+A1+A12+A2

Zertifiziertes Produkt (Geräteidentifikation)  
Certified Product (Product Identification)

Lizenzentgelte - Einheit  
License Fee - Unit

Einbau-Schaltnetzteil (SWITCHING POWER SUPPLY)

wie Blatt (as page) 01

Ergänzung  
(Addition)

Fertigungsstätte: siehe oben  
(Factory) (see above)

## ANLAGE (Appendix): 1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.  
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TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg  
Tel.: (+49/221)8 06 - 13 71 e-mail: cert-validity@de.tuv.com  
Fax: (+49/221)8 06 - 39 35 http://www.tuv.com/safety

Zertifizierungsstelle



Dipl.-Ing. F. Stölzel

# Delta Standard Power Supplies



Please click the link below to search **UL certificates** of DeltaPSU products.

## Information Technology Equipment Certificate (ITE)

E191395



[UL 60950-1 Recognized](#)



[UL 60950-1 Recognized for Canada](#)

E131881



[UL 60950-1 Recognized](#)



[UL 60950-1 Recognized for Canada](#)

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## Industrial Control Equipment Certificate (ICE)

Power Supply and Buffer Module

E315355



[UL 508 Listed](#)



[UL 508 Listed for Canada](#)

E338991



[UL 508 Listed](#)



[UL 508 Listed for Canada](#)

## Redundancy Module

E315355



[UL 508 Listed](#)



[UL 508 Listed for Canada](#)

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# Delta Standard Power Supplies



## Class 2 Power Units

E350883



[UL 1310 Recognized](#)



[UL 1310 Recognized for Canada](#)

Thank you for your interest in our products.