



## Features

- Support 1+1 and N+1 redundancy system
- 2 channels input and 1 output
- Suitable for redundancy operation of 12V/24V/48V system
- Output current up to 20A
- Cooling by free air convection
- -40~+80°C ultra-wide operating temperature ( >+60°C derating)
- 32mm slim width
- Built-in 2 channels DC OK signal and alarm relay contact
- Installed on DIN Rail TS35/7.5 or 15
- 3 years warranty

## Applications

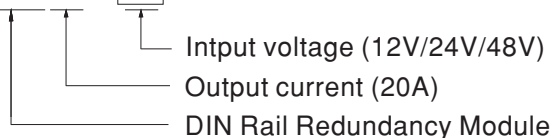
- Industrial control system
- Semiconductor fabrication equipment
- Factory automation
- Electro-mechanical apparatus

## Description

The DRDN20 series is a 20A redundancy module that can be used with a power supply to improve overall system operation reliability. Product key features include: 12V/24V/48V input voltage for selection, support N+1 and 1+1 redundancy systems, built-in two rails DC input contacts and single output. The MOSFET technology implemented can reduce heat loss and reduce the voltage difference between the input and output voltages, built-in 2 channels DC OK relay contacts for monitoring output status, ultra-wide operating temperature of -40 to +80°C and narrow width (32mm).

## Model Encoding

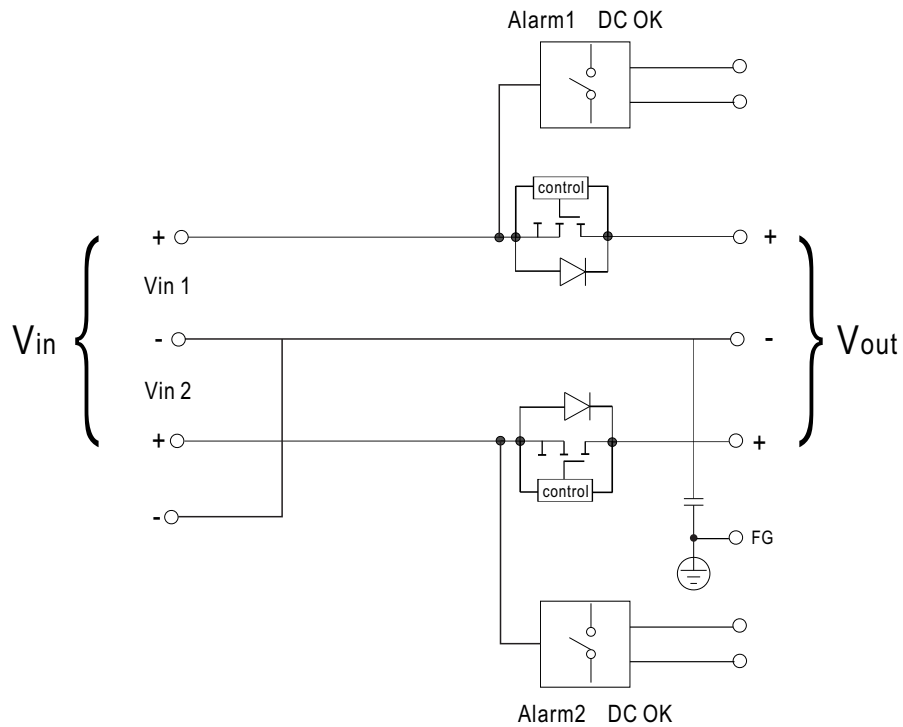
**DRDN20 - 24**



## SPECIFICATION

| MODEL                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DRDN20-□                                                                                                 |                             |                                                                    |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------|
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | □ =12V, 24V, 48V                                                                                         |                             |                                                                    |
| INPUT                                   | NUMBER OF INPUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2 Channels                                                                                               |                             |                                                                    |
|                                         | DC NORMAL VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 12Vdc                                                                                                    | 24Vdc                       | 48Vdc                                                              |
|                                         | DC VOLTAGE RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9~14Vdc                                                                                                  | 19~29Vdc                    | 36~60Vdc                                                           |
|                                         | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0~10A x2 input , 0~20A x1 input Continuous                                                               |                             |                                                                    |
|                                         | VOLTAGE DROP (Vin-Vout) (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.25V                                                                                                    |                             |                                                                    |
|                                         | PEAK CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0~15A x2 input , 0~30A x1 input 5Sec.                                                                    |                             |                                                                    |
|                                         | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 98%                                                                                                      |                             |                                                                    |
|                                         | INPUT REVERSE CURRENT (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1mA                                                                                                      |                             |                                                                    |
|                                         | INPUT REVERSE VOLTAGE (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 40Vdc                                                                                                    | 40Vdc                       | 65Vdc                                                              |
| OUTPUT                                  | RATED CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0~20A, Continuous                                                                                        |                             |                                                                    |
|                                         | PEAK CURRENT (max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 30A, 5Sec.                                                                                               |                             |                                                                    |
|                                         | CAPACITANCE(Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 320uF                                                                                                    |                             |                                                                    |
|                                         | STANDBY POWER LOSSES(Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.5W                                                                                                     |                             |                                                                    |
| PROTECTION                              | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <30A,5Sec. No damage                                                                                     |                             |                                                                    |
|                                         | SHORT CIRCUIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <30A,5Sec. No damage                                                                                     |                             |                                                                    |
| FUNCTION                                | REDUNDANCY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | For 1+1 redundancy ,and support N+1 redundancy                                                           |                             |                                                                    |
|                                         | BOTH INPUTS VOLTAGE ALARM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <8.5V or >14.7V (±5%)                                                                                    | <18V or >31V (±5%)          | <34.2V or >63V (±5%)                                               |
|                                         | RELAY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 30Vdc/1A resistive load                                                                                  |                             |                                                                    |
|                                         | LED STATUS DISPLAY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Green LED OK                                                                                             |                             |                                                                    |
| ENVIRONMENT                             | COOLING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Free air convection                                                                                      |                             |                                                                    |
|                                         | WORKING TEMP. <small>Note.2</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -40 ~ +80℃ (Refer to "Derating Curve")                                                                   |                             |                                                                    |
|                                         | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5 ~ 95% RH non-condensing                                                                                |                             |                                                                    |
|                                         | STORAGE TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -40 ~ +85℃                                                                                               |                             |                                                                    |
|                                         | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ±0.03%/℃ (0 ~ 60℃ )                                                                                      |                             |                                                                    |
|                                         | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Component:10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC61373 |                             |                                                                    |
|                                         | OPERATING ALTITUDE <small>Note.3</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 5000 meters/OVC II                                                                                       |                             |                                                                    |
| SAFETY & EMC<br><small>(Note.4)</small> | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | IEC62368-1, UL62368-1, EAC TP TC 004 approved                                                            |                             |                                                                    |
|                                         | WITHSTAND VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | IP/OP - Chassis : 0.5KVac ; IP/OP- Relay : 0.5KVac ; Relay - Chassis : 0.5KVac                           |                             |                                                                    |
|                                         | ISOLATION RESISTANCE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | IP/OP - Chassis, IP/OP- Relay, Relay - Chassis:>100M Ohms / 500Vdc / 25℃ / 70% RH                        |                             |                                                                    |
|                                         | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Parameter                                                                                                | Standard                    | Test Level / Note                                                  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Conducted                                                                                                | EN55032(CISPR32)            | Class B                                                            |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Radiated                                                                                                 | EN55032(CISPR32)            | Class B                                                            |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Voltage Flicker                                                                                          | -----                       | -----                                                              |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Harmonic Current                                                                                         | -----                       | -----                                                              |
|                                         | EMC IMMUNITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EN55035, EN61000-6-2(EN50082-2), EN55024                                                                 |                             |                                                                    |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Parameter                                                                                                | Standard                    | Test Level / Note                                                  |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ESD                                                                                                      | EN61000-4-2                 | Level 4, 15KV air ; Level 3, 8KV contact; criteria A               |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Radiated                                                                                                 | EN61000-4-3                 | Level 3, 10V/m ; criteria A                                        |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EFT / Burst                                                                                              | EN61000-4-4                 | Level 3, 2KV ; criteria A                                          |
|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Surge                                                                                                    | EN61000-4-5                 | Level 3, 1KV/Line-Line ;Level 3, 2KV/Line-Line-Chassis ;criteria A |
| Conducted                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EN61000-4-6                                                                                              | Level 3, 10V ; criteria A   |                                                                    |
| Magnetic Field                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EN61000-4-8                                                                                              | Level 4, 30A/m ; criteria A |                                                                    |
| OTHERS                                  | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 611.82K hrs min. Telcordia SR-332 (Bellcore); 353.67K hrs min. MIL-HDBK-217F (25℃)                       |                             |                                                                    |
|                                         | DIMENSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 32*125.2*102mm (W*H*D)                                                                                   |                             |                                                                    |
|                                         | PACKING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.35Kg;28psc/10.8Kg/1.24CUFT                                                                             |                             |                                                                    |
| NOTE                                    | 1. All parameters NOT specially mentioned are measured at normal input (12V/24V/48V), rated load and 25℃ of ambient temperature.<br>2. Derating may be needed over high ambient temperature. Please check the derating curve for more details.<br>3. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).<br>4. The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to “EMI testing of component power supplies.” (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> ) |                                                                                                          |                             |                                                                    |

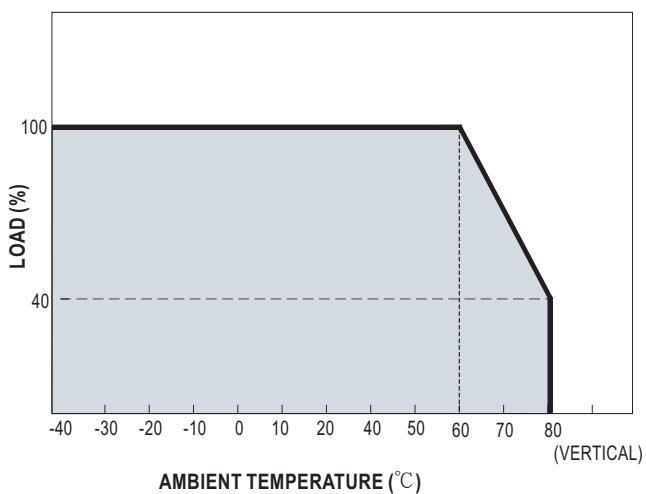
## ■ Block Diagram



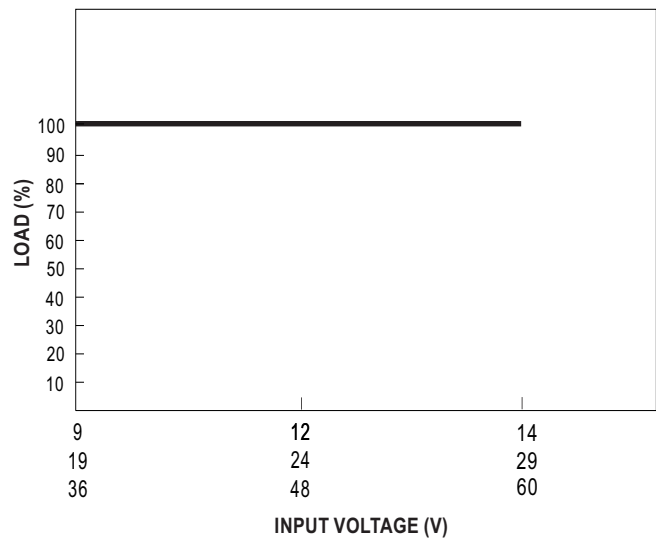
## ■ DC OK Relay Contact

|                        |                                             |
|------------------------|---------------------------------------------|
| Contact Ratings (max.) | 30V/1A resistive load                       |
| Contact Close(DC OK)   | PSU turns on                                |
| Contact Open(DC Fail)  | PSU turns off / over or under input voltage |

## ■ Derating Curve



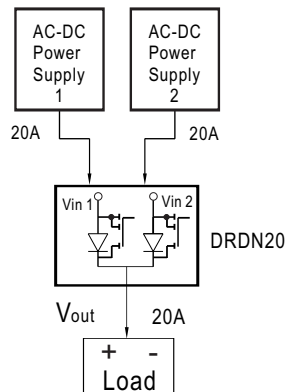
## ■ Output Derating VS Input Voltage



## Typical Application Notes

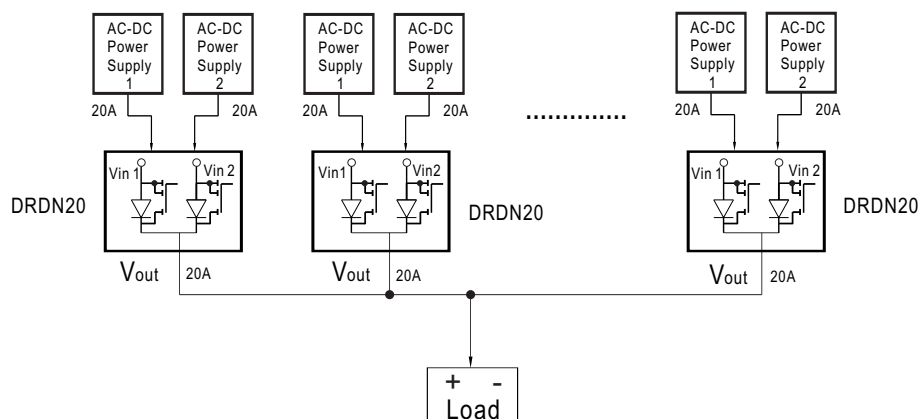
### 1. 1+1 Redundancy:

Using 1 more PSU as the redundant unit



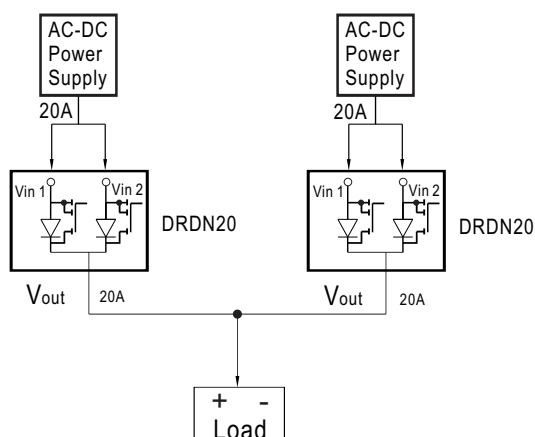
### 2. 1+N Redundancy:

Using more PSUs as the redundant units to increase the reliability



### 3. Single Use:

Connecting only one PSU to one DRDN20 to reduce the stress of the MOSFET and hence increase the reliability

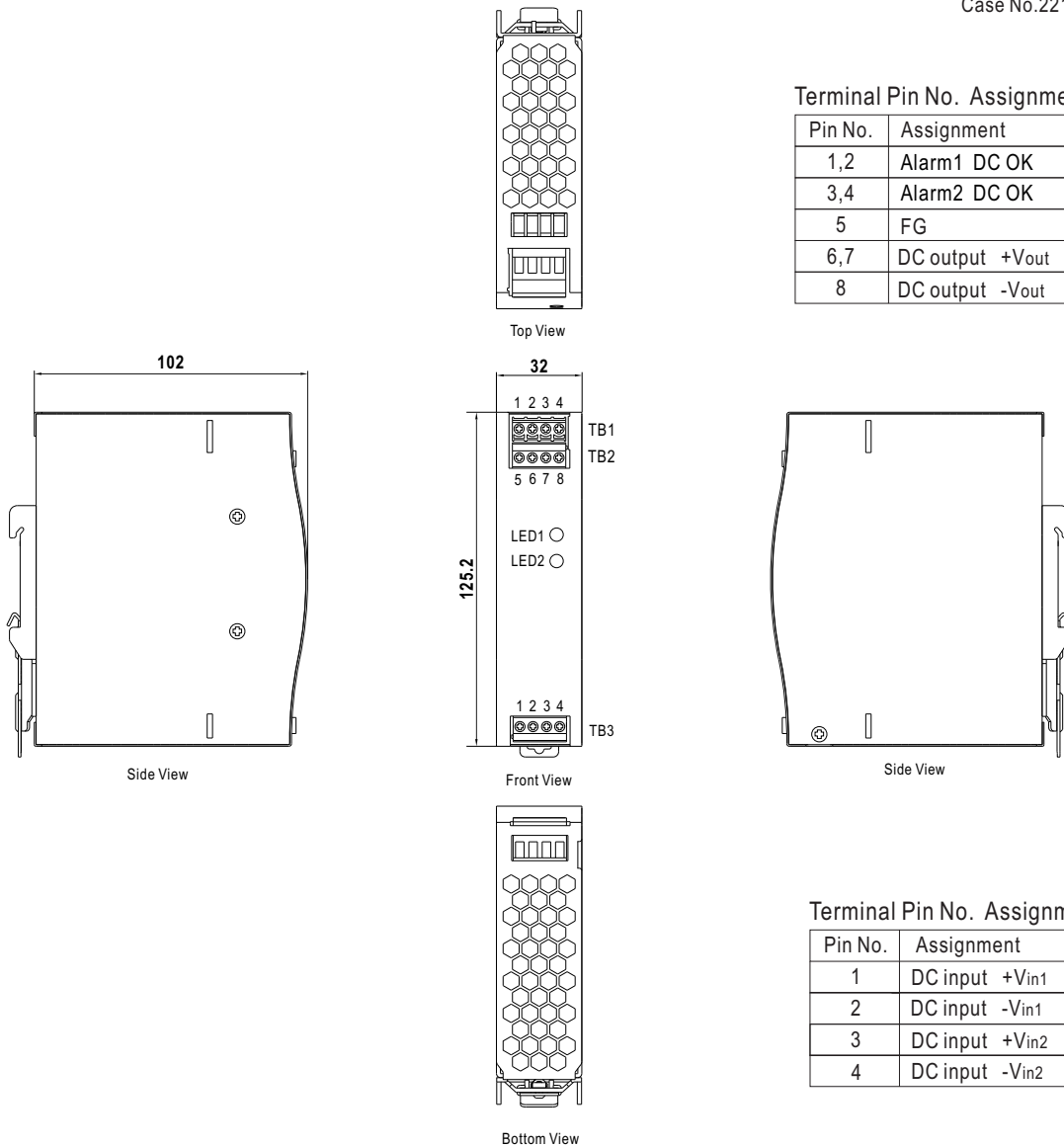


## Mechanical Specification

Case No.221D Unit:mm

Terminal Pin No. Assignment (TB1,TB2)

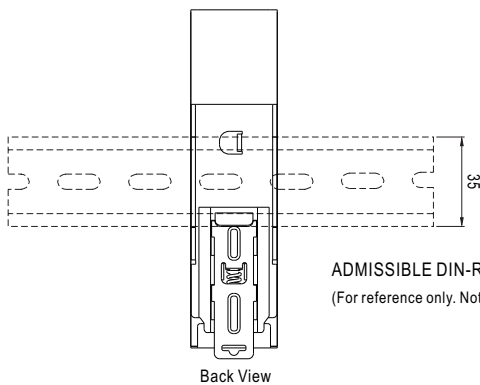
| Pin No. | Assignment      |
|---------|-----------------|
| 1,2     | Alarm1 DC OK    |
| 3,4     | Alarm2 DC OK    |
| 5       | FG              |
| 6,7     | DC output +Vout |
| 8       | DC output -Vout |



Terminal Pin No. Assignment (TB3)

| Pin No. | Assignment     |
|---------|----------------|
| 1       | DC input +Vin1 |
| 2       | DC input -Vin1 |
| 3       | DC input +Vin2 |
| 4       | DC input -Vin2 |

## Installation Instruction



ADMISSIBLE DIN-RAIL: TS35/7.5 OR TS35/15  
(For reference only. Not included with unit.)

This series fits DIN rail TS35/7.5 or TS35/15.  
For installation details, please refer to the Instruction manual.

## Installation Manual

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