Astrodyne TDI
Now you have power.

20W Single Ouput Industrial DIN Rail Power Supply

# MDR20 series

- Universal AC Input
- Protections: Short Circuit/Overload/Over voltage
- Cooling by Free Air Convection
- Can be Installed on DIN Rail TS-35/7.5 or 15
- LED Indicator for Power On
- Built-In DC Okay Active Signal
- No Load Power Consumption <0.75W
- 100% Full Load Burn-In Test

| Model Number | Output Volts | Output Amps | Ripple & Noise | Efficiency | OVP | DC Volt Adjust | Min Load |
|---|---|---|---|---|---|---|---|
| **SINGLE OUTPUT** | | | | | | | |
| MDR20-5 | 5 Volts(DC) | 3 Amps | 80mV pk-pk | 76% | 5.75~6.75V | 4.75~5.5V | 0 ~ 3Amps |
| MDR20-12 | 12 Volts(DC) | 1.67 Amps | 120mV pk-pk | 80% | 13.8~16.2V | 10.8~13.2V | 0~1.67Amps |
| MDR20-15 | 15 Volts(DC) | 1.34 Amps | 120mV pk-pk | 81% | 17.25~20.25V | 13.5~16.5V | 0~1.34Amps |
| MDR20-24 | 24 Volts(DC) | 1 Amps | 150mV pk-pk | 84% | 27.6~32.4V | 21.6~26.4V | 0 ~ 1Amps |



ASTRODYNE USA: 1-800-823-8082
ASTRODYNE PACIFIC: 886-2-26983458

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## INPUT SPECIFICATIONS

| | |
|---|---|
| Input Voltage Range | 85-264VAC / 120-370 Volts (DC) |
| Frequency Range | 47-63 Hz |
| Inrush Current, typ: (cold start) | 20 Amps @ 115VAC |
| | 40 Amps @ 230VAC |
| Input Current | 0.55 Amps. @ 115VAC |
| | 0.35 Amps. @ 230VAC |
| Leakage current | <1mA / 240VAC |

## OUTPUT SPECIFICATIONS

| | |
|---|---|
| Voltage and Current | See Selection Chart |
| Line Regulation | ±1% |
| Load Regulation | ± 1% |
| Voltage Tolerance (Note 2) | ±2%: 5Volts(DC) |
| | ±1%: All Others |
| Ripple/Noise (Note 1) | See Selection Chart |
| Hold Up Time @ FL | 50mS @ 230VAC |
| | 20mS @115VAC |
| Setup, Rise Time @ FL (Note 4) | 500ms, 30ms/230VAC |
| | 1000mS, 30mS/115VAC |
| Over Current Protection | 105~160% rated output power |
| | Constant current limit,auto recover |
| Over Voltage Protection | See Selection Chart |
| | Shut down o/p voltage, re-power |
| DC Voltage Adjust | See Selection Chart |

## ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| Oper. Temperature | -20°C to +70°C (See Derate Curve) |
| Storage Temperature | -40°C to +85°C, 10~95% RH |
| Working Humidity | 20 to +90% RH, non cond |
| Temperature Coefficient | ± 0.03% / °C (0-50°C) |
| MTBF (MIL-HDBK-217F, 25°C) | 236.9K Hrs |
| Vibration Component: | 10~500Hz, 2G 10min./1cycle, |
| | period for 60min. each along |
| | X, Y, Z axes |
| Mounting: | Compliance to IEC60068-2-6 |

## PHYSICAL SPECIFICATIONS

| | | |
|---|---|---|
| Size | | |
| | Millimeters | 22.5 x 90 x 100 |
| | Inches | 0.89" x 3.54" x 3.94" |
| Weight | | 6.702 oz (190g) |

## GENERAL SPECIFICATIONS

| | |
|---|---|
| Safety | UL508 |
| | TUV EN60950-1 Approved |
| Insulation Resistance | 100MΩ / 500VDC / 25°C / 70% RH |
| EMC Emissions (Note 3) | Compliance to EN55011, EN55022 |
| | (CISPR22), EN61204-3 Class B |
| | EN61000-3-2,-3 |
| EMC Immunity (Note 3) | Compliance to |
| | EN61000-4-2,3,4,5,6,8,11; |
| | EN55024, EN61000-6-1, |
| | EN61204-3, light industry level, |
| | criteria A |
| Isolation | 3000VAC Input - Output |
| | 2000VAC Input - Ground |
| | 500VAC Output - Ground |
| DC OK Active Signal (max.) | 5V: 3.75 ~ 6Volts(DC) / 50mA |
| | 12V: 9 ~ 13.5Volts(DC) / 40mA |
| | 15V: 11.5 ~ 16.5Volts(DC) / 40mA |
| | 24V: 18 ~ 27Volts(DC) / 20mA |

## NOTE

1. Ripple & Noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
2. Tolerance: includes set up tolerance , line regulation and load regulation.
3. The Power Supply is considered a component. It must be re-confirmed that the equipment it is installed into meets required EMC Directives
4. Set Up Time is measured at first cold start. Turning the Power Supply on and off may lead to increased Set Up Time

*All specifications are typical at nominal input, full load, and 25°C unless otherwise noted*

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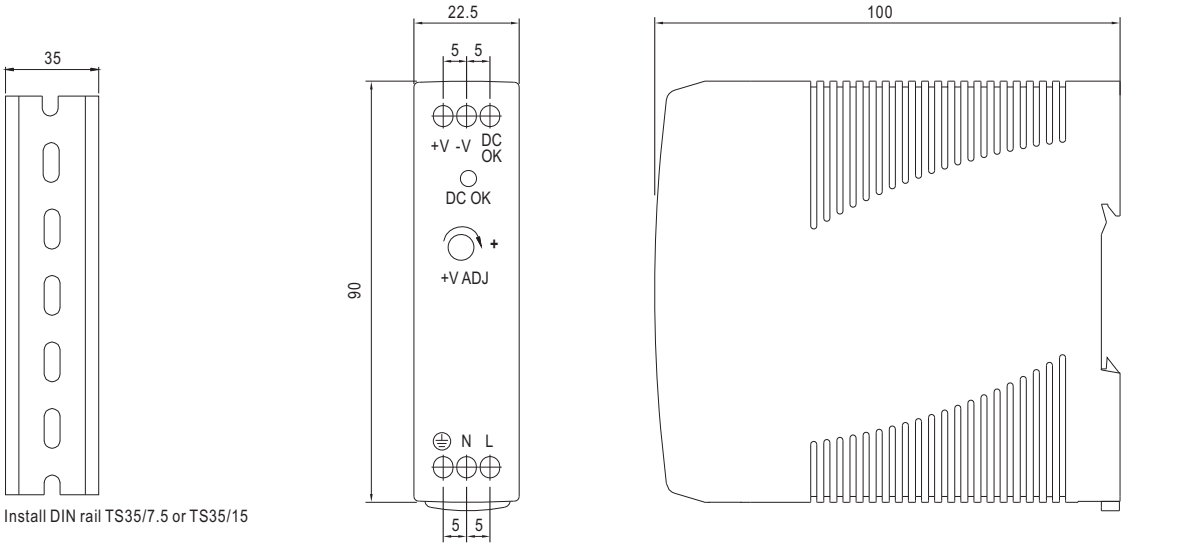
## ■ Mechanical Specification

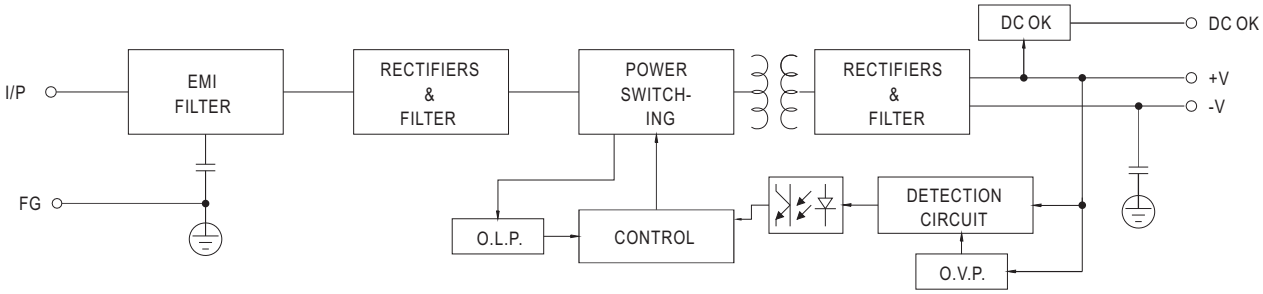
Case No. 956 Unit:mm




Install DIN rail TS35/7.5 or TS35/15

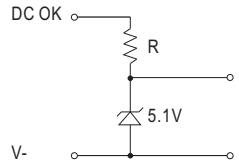
## ■ Block Diagram

fosc : 60KHz



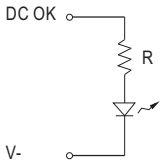
## ■ Application of DC OK Active Signal

**(a) 5V signal**



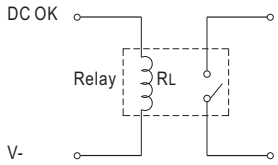

| Model | R |
|---|---|
| 5V | ≧200Ω |
| 12V | ≧1.5KΩ |
| 15V | ≧2KΩ |
| 24V | ≧3.9KΩ |

**(b) LED**



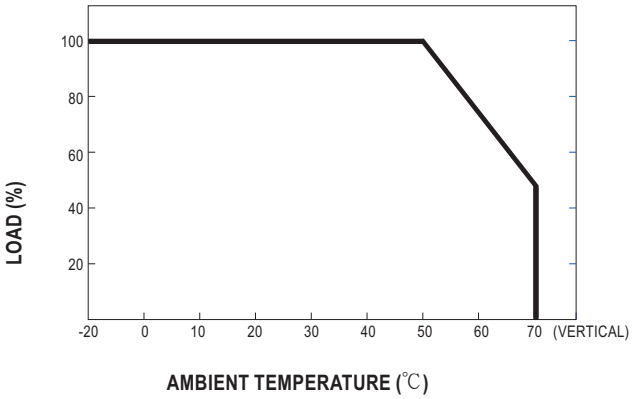

| Model | R |
|---|---|
| 5V | ≧1KΩ |
| 12V | ≧2.4KΩ |
| 15V | ≧3KΩ |
| 24V | ≧4.7KΩ |

**(c) Relay**




| Model | RL |
|---|---|
| 5V | ≧120Ω |
| 12V | ≧700Ω |
| 15V | ≧700Ω |
| 24V | ≧1.2KΩ |

## ■ Derating Curve




## ■ Output Derating VS Input Voltage