



User's Manual



Features

- Universal AC input / Full range
- Protections: Short circuit / Overload / Over voltage
- Can be installed on DIN rail TS-35/7.5 or 15
- Output Voltage adjustable through internal potentiometer
- Output Current adjustable through external 1~10Vdc, PWM signal or resistance
- Cooling by free air convection
- Pass LPS
- LED indicator for power on
- 100% full load burn-in test
- 3 years warranty

Applications

- Machine vision inspection system
- Plant cultivation system

GTIN CODE

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

Description

DRA-60 is one 60W AC/DC DIN rail power supply, featuring the adjustable output current. Users are able to easily change the constant output current level, via 1~10Vdc, PWM signal or resistance.

DRA-60 can be mounted on DIN rail TS-35/7.5 or 15; in addition, the width of the unit is only 40mm that it is well suited for the installation in a limited spacing. DRA-60 accepts the universal AC input between 90VAC and 264VAC; the efficiency is up to 87% that the entire series can operate, under free air convection, from -30°C through 70°C.

Model Encoding

DRA - 60 - 12

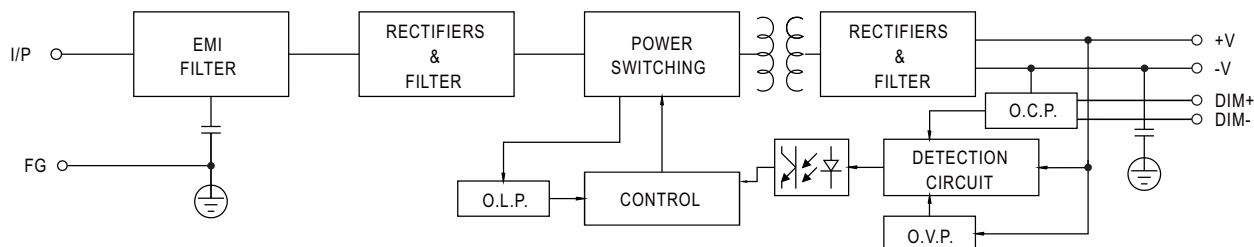
Output voltage
Output wattage
Series name



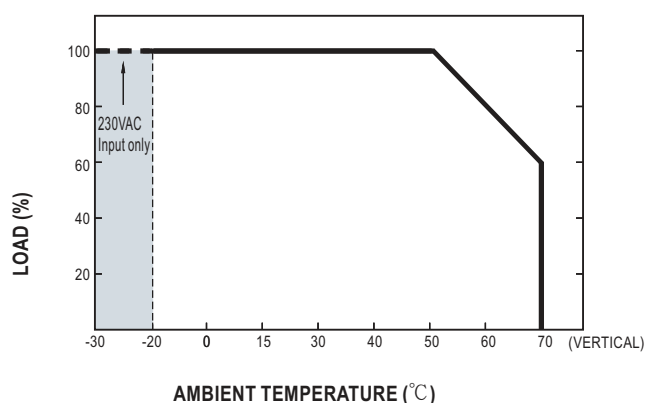
SPECIFICATION

| MODEL | | DRA-60-12 | | DRA-60-24 | |
|--|------------------------------|---|--|---|--|
| OUTPUT | DC VOLTAGE | 12V | | 24V | |
| | CONSTANT CURRENT REGION | 3 ~ 12V | | 3 ~ 24V | |
| | RATED CURRENT | 5A | | 2.5A | |
| | CURRENT RANGE | 0 ~ 5A | | 0 ~ 2.5A | |
| | RATED POWER | 60W | | 60W | |
| | RIPPLE & NOISE (max.) Note.2 | 120mVp-p | | 150mVp-p | |
| | VOLTAGE ADJ. RANGE | 12 ~ 15V | | 24 ~ 30V | |
| | VOLTAGE TOLERANCE Note.3 | ± 1.0% | | ± 1.0% | |
| | LINE REGULATION | ± 0.5% | | ± 0.5% | |
| | LOAD REGULATION | ± 0.5% | | ± 0.5% | |
| | SETUP, RISE TIME Note.4 | 400ms, 90ms/230VAC | | 800ms, 90ms/115VAC at full load | |
| | HOLD UP TIME (Typ.) | 50ms/230VAC | | 10ms/115VAC at full load | |
| INPUT | VOLTAGE RANGE | 90 ~ 264VAC | | 127 ~ 370VDC [DC input operation possible by connecting AC/L(+), AC/N(-)] | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | |
| | EFFICIENCY (Typ.) | 85% | | 87% | |
| | AC CURRENT (Typ.) | 1.3A/115VAC | | 0.8A/230VAC | |
| | INRUSH CURRENT (Typ.) | COLD START 30A/115VAC | | 60A/230VAC | |
| PROTECTION | OVERLOAD | 95 ~ 108% rated output power | | | |
| | | Protection type : Constant current limiting, recovers automatically after fault condition is removed | | | |
| | OVER VOLTAGE | 14.49 ~ 18.63V | | 28.98 ~ 37.26V | |
| Protection type : Shut down o/p voltage, re-power on to recover | | | | | |
| ENVIRONMENT | WORKING TEMP. | -30 ~ +70℃ (Refer to "Derating Curve") | | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +85℃, 10 ~ 95% RH | | | |
| | TEMP. COEFFICIENT | ± 0.03%/℃ (0 ~ 50℃) on output | | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | |
| SAFETY & EMC (Note 5) | SAFETY STANDARDS | UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 approved | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC | | | |
| | ISOLATION RESISTANCE | I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH | | | |
| | EMC EMISSION | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020 | | | |
| | EMC IMMUNITY | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, BS EN/EN61204-3, light industry level, criteria A, EAC TP TC 020 | | | |
| OTHERS | MTBF | 2930.8K hrs min. Telcordia SR-332 (Bellcore) ; 436.4K hrs min. MIL-HDBK-217F (25℃) | | | |
| | DIMENSION | 40*90*100mm (W*H*D) | | | |
| | PACKING | 0.3Kg; 42pcs/13.6Kg/0.82CUFT | | | |
| NOTE | | | | | |
| <div>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.</div> <div>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ F & 47 μ F parallel capacitor.</div> <div>3. Tolerance : includes set up tolerance, line regulation and load regulation.</div> <div>4. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.</div> <div>5. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf)</div> <div>6. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended.</div> <div>7. 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).</div> <div>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</div> | | | | | |

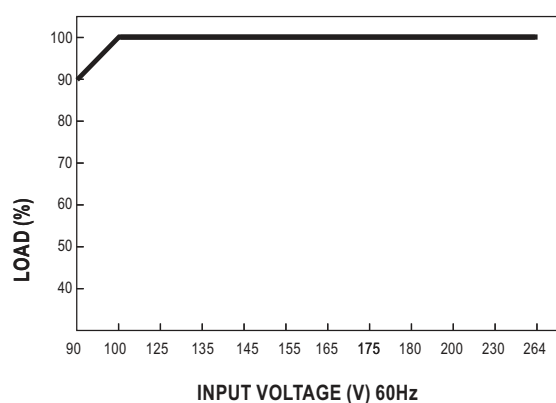
Block Diagram



Derating Curve



Static Characteristics



OUTPUT CURRENT ADJUSTMENT OPERATION

- ※ Built-in 3 in 1 current adjustment function . Output constant current level can be adjusted by applying 1 ~ 10Vdc, 10V PWM signal or resistance between DIM+ and DIM-.
- ※ Please DO NOT connect "DIM-" to "-V".
- ※ Reference resistance value for output current adjustment (Typical)

| Resistance value | Single Power supply | 10K Ω | 20K Ω | 30K Ω | 40K Ω | 50K Ω | 60K Ω | 70K Ω | 80K Ω | 90K Ω | 100K Ω | OPEN |
|-----------------------------|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------|
| | Multiple Power supplies (N=Power supply quantity for simultaneous current adjustment control) | 10K Ω /N | 20K Ω /N | 30K Ω /N | 40K Ω /N | 50K Ω /N | 60K Ω /N | 70K Ω /N | 80K Ω /N | 90K Ω /N | 100K Ω /N | ----- |
| Percentage of rated current | | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% |

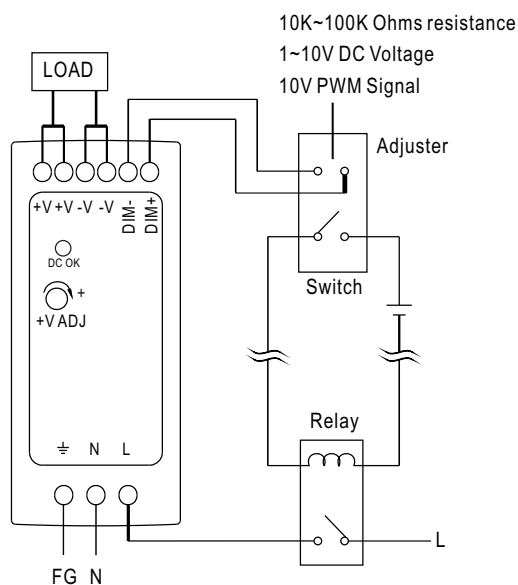
- ※ 1 ~ 10Vdc for output current adjustment (Typical)

| Applied Source | 1V | 2V | 3V | 4V | 5V | 6V | 7V | 8V | 9V | 10V | OPEN |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----------|
| Percentage of rated current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% |

- ※ 10V PWM signal for output current adjustment (Typical): Frequency range : 100Hz ~ 3KHz

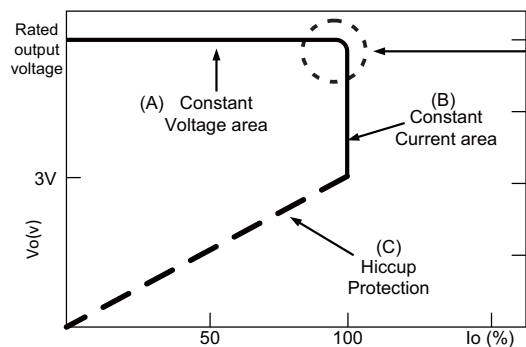
| Duty value | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | OPEN |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----------|
| Percentage of rated current | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% | 102%~108% |

※Using the current adjustment function can not adjust the output current to 0A. Please refer to the connection method below to adjust the output current to 0A.



DRIVING METHODS OF APPLICATIONS

The power supply may either work in "constant voltage mode or constant current mode"



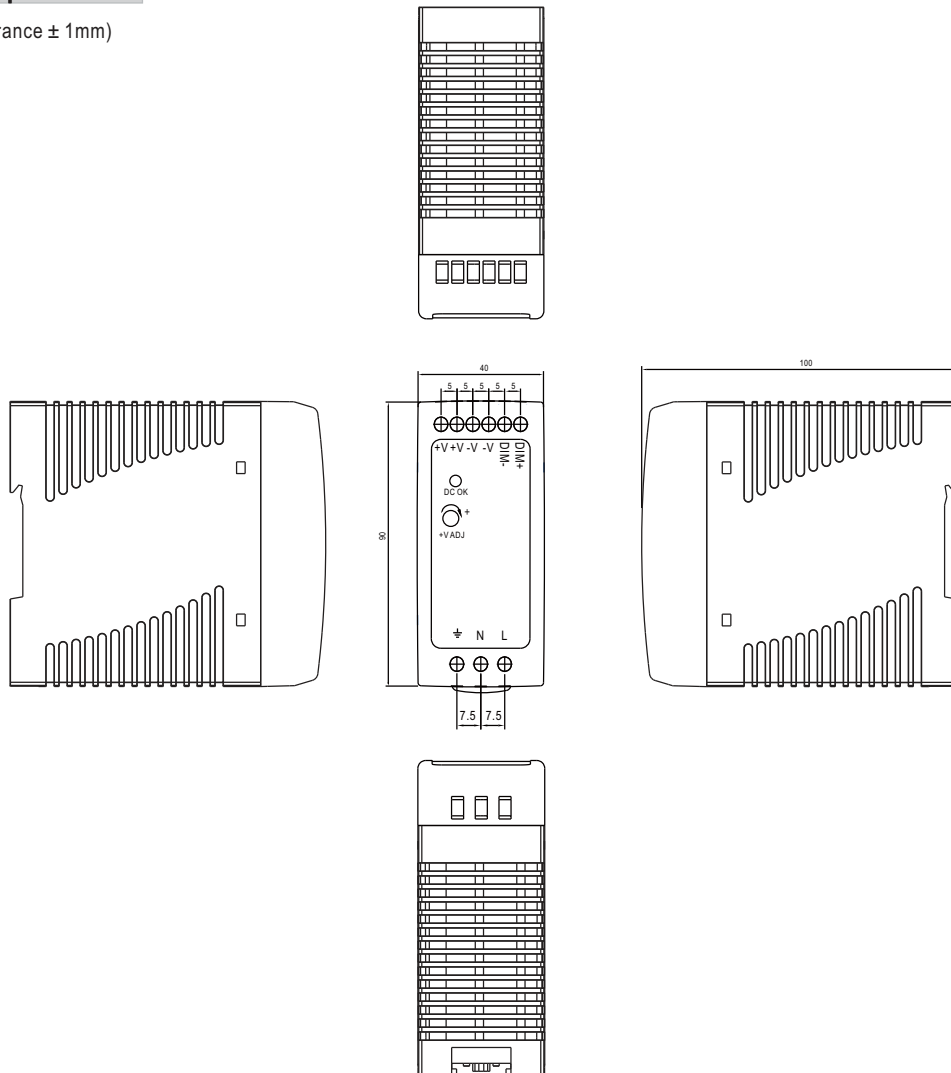
In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

Should there be any compatibility issues, please contact MEAN WELL.

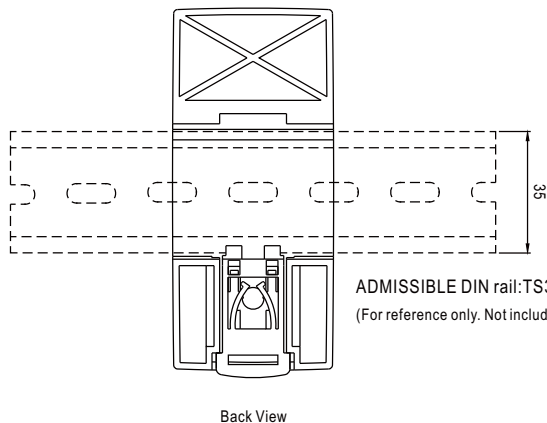
Mechanical Specification

(Unit: mm , tolerance ± 1 mm)

Case No.962A



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>