15W DIN Rail Type DC-DC Converter

DDR-15 series

Feature

- Width only 17.5mm (1SU)
- 4:1 ultra wide input range
- -40~+85℃ wide working temperature
- No minimum load required
- DC output adjustable (±10%)
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Protections: Short circuit / Overload / Over voltage / Input reverse polarity / Input under voltage protection
- 4KVdc I/O isolation(Reinforced isolation)
- 3 years warranty

Applications

- Industrial control system
- Semi-conductor fabrication equipment
- Factory automation
- Electro-mechanical
- Wireless network
- Telecom or datacom system

Description

DDR-15 series is a 15W DIN Rail type DC-DC converter with main features including DIN rail-type easy installation, ultra slim width (17.5mm), 4: 1 ultra wide input voltage, -40~+85℃ wide operating temperature, 4KVdc I/O isolation, adjustable output voltage (± 10%) and full protective functions...etc.

This series has two input options: 9~36V /18~75V and various output options: 3.3V / 5V / 12V / 15V / 24V and can be used for industrial control, security control, communication system and other fields. Suitable applications are DC buck/boost regulator, increasing system insulation level and voltage drop compensation along cable...etc.

Model Encoding

DDR - 15 G - 24

- 24 — Output voltage(3.3/5/12/15/24Vdc)
- G — Input voltage (G：9~36Vdc, L:18~75Vdc)
- 15 — Rated wattage
- DDR — Series name

SPECIFICATION

MODEL		DDR-15G-3.3	DDR-15G-5	DDR-15G-12	DDR-15G-15	DDR-15G-24
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V
	RATED CURRENT	3.5A	3A	1.25A	1A	0.63A
	CURRENT RANGE	0 ~ 3.5A	0 ~ 3A	0 ~ 1.25A	0 ~ 1A	0 ~ 0.63A
	RATED POWER	11.6W	15W	15W	15W	15W
	RIPPLE & NOISE (max.) Note.2	50mVp-p	50mVp-p	60mVp-p	75mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE	3.0 ~ 3.6V	4.5 ~ 5.5V	9 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 28V
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.5%	±1%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	120ms, 85ms at full load				
	HOLD UP TIME (Typ.)	G-type: 8ms@24Vdc input				
	EXTERNAL CAPACITANCE LOAD (Max.)	3300 μF	3300 μF	1200 μF	1200 μF	680 μF
INPUT	VOLTAGE RANGE Note.4	9 ~ 36Vdc				
	EFFICIENCY (Typ.)	84%	84%	85%	85%	86%
	DC CURRENT (Typ.)	0.8A /24Vdc				
	INRUSH CURRENT (Typ.)	15A /24Vdc				
PROTECTION	OVERLOAD	110 ~ 150% rated output power				
		Protection type : Hiccup mode, recovers automatically after fault condition is removed				
	OVER VOLTAGE	3.8 ~ 4.7V	5.75 ~ 7V	13.8 ~ 16.2V	17.25 ~ 20.25V	28.8 ~ 32.4V
		Protection type : Shut down o/p voltage, re-power on to recover				
	REVERSE POLARITY	By internal MOSFET, no damage, recovers automatically after fault condition removed				
	UNDER VOLTAGE LOCKOUT	Power ON≥9V , OFF≤8.5V				
ENVIRONMENT	WORKING TEMP.	-40 ~ +85℃ (Refer to "Derating Curve")				
	WORKING HUMIDITY	5 ~ 95% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 5 ~ 95% RH non-condensing				
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 60℃)				
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6				
	OPERATING ALTITUDE	2000 meters				
SAFETY & EMC (Note 5)	SAFETY STANDARDS	IEC 62368-1 (LVD) approved, Design refer to UL508				
	WITHSTAND VOLTAGE	I/P-O/P:4KVdc				
	ISOLATION RESISTANCE	I/P-O/P>100M Ohms / 500Vdc / 25℃/ 70% RH				
	EMC EMISSION	**Parameter**	**Standard**	**Test Level / Note**		
		Conducted	EN55032	Class B		
		Radiated	EN55032	Class B		
		Voltage Flicker	EN61000-3-3	-----		
	EMC IMMUNITY	EN55024 , EN61000-6-2(EN50082-2)				
		Parameter	**Standard**	**Test Level / Note**		
		ESD	EN61000-4-2	Level 3, 8KV air ; Level 3, 6KV 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 ; criteria A		
		Conducted	EN61000-4-6	Level 3, 10V ; criteria A		
		Magnetic Field	EN61000-4-8	Level 4, 30A/m ; criteria A		
OTHERS	MTBF	907K hrs min. MIL-HDBK-217F (25℃)				
	DIMENSION	17.5*90*54.5mm (W*H*D)				
	PACKING	68g; 160pcs/12Kg/1.19CUFT				

NOTE

1. All parameters NOT specially mentioned are measured at 24VDC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μf & 47 μf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. Derating may be needed under low input voltage. Please check the derating curve for more details.
5. 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 http://www.meanwell.com)
6. 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).

SPECIFICATION

MODEL		DDR-15L-3.3	DDR-15L-5	DDR-15L-12	DDR-15L-15	DDR-15L-24
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V
	RATED CURRENT	4.5A	3A	1.25A	1A	0.63A
	CURRENT RANGE	0 ~ 4.5A	0 ~ 3A	0 ~ 1.25A	0 ~ 1A	0 ~ 0.63A
	RATED POWER	15W	15W	15W	15W	15W
	RIPPLE & NOISE (max.) Note.2	50mVp-p	50mVp-p	60mVp-p	75mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE	3.0 ~ 3.6V	4.5 ~ 5.5V	9 ~ 13.2V	13.5 ~ 16.5V	26.1 ~ 28V
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.5%	±1%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	120ms, 85ms at full load				
	HOLD UP TIME (Typ.)	L-type: 16ms@48Vdc input				
	EXTERNAL CAPACITANCE LOAD (Max.)	3300 μF	3300 μF	1200 μF	1200 μF	680 μF
INPUT	VOLTAGE RANGE Note.4	18 ~ 75Vdc				
	EFFICIENCY (Typ.)	84%	85%	86%	86%	87%
	DC CURRENT (Typ.)	0.4A /48Vdc				
	INRUSH CURRENT (Typ.)	15A /48Vdc				
PROTECTION	OVERLOAD	110 ~ 150% rated output power				
		Protection type : Hiccup mode, recovers automatically after fault condition is removed				
	OVER VOLTAGE	3.8 ~ 4.7V	5.75 ~ 7V	13.8 ~ 16.2V	17.25 ~ 20.25V	28.8 ~ 32.4V
		Protection type : Shut down o/p voltage, re-power on to recover				
	REVERSE POLARITY	By internal MOSFET, no damage, recovers automatically after fault condition removed				
	UNDER VOLTAGE LOCKOUT	Power ON≥18V , OFF≤17V				
ENVIRONMENT	WORKING TEMP.	-40 ~ +85℃ (Refer to "Derating Curve")				
	WORKING HUMIDITY	5 ~ 95% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 5 ~ 95% RH non-condensing				
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 60℃)				
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6				
	OPERATING ALTITUDE	2000 meters				
SAFETY & EMC (Note 5)	SAFETY STANDARDS	IEC 62368-1 (LVD) approved, Design refer to UL508				
	WITHSTAND VOLTAGE	I/P-O/P:4KVdc				
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	EMC IMMUNITY	EN55024 , EN61000-6-2(EN50082-2)				
		Parameter	**Standard**	**Test Level / Note**		
		ESD	EN61000-4-2	Level 3, 8KV air ; Level 3, 6KV 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 ; criteria A		
		Conducted	EN61000-4-6	Level 3, 10V ; criteria A		
		Magnetic Field	EN61000-4-8	Level 4, 30A/m ; criteria A		
OTHERS	MTBF	907K hrs min. MIL-HDBK-217F (25℃)				
	DIMENSION	17.5*90*54.5mm (W*H*D)				
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NOTE

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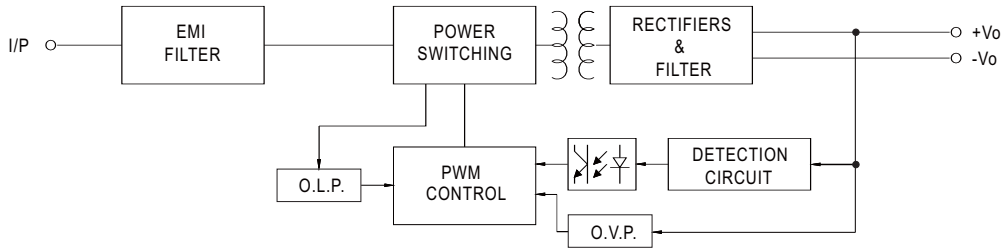
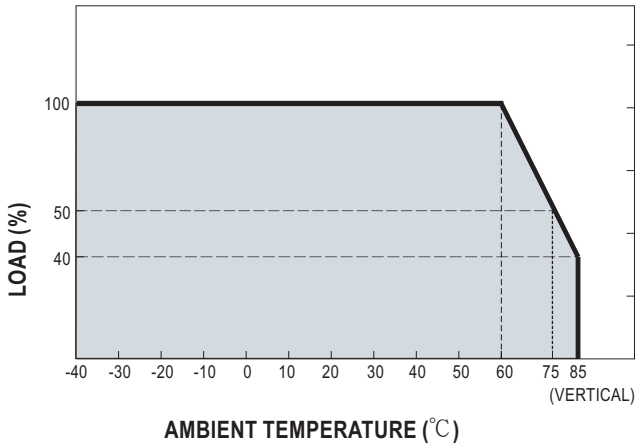
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. Derating may be needed under low input voltage. Please check the derating curve for more details.
5. The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole 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 http://www.meanwell.com)
6. 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).

Block Diagram

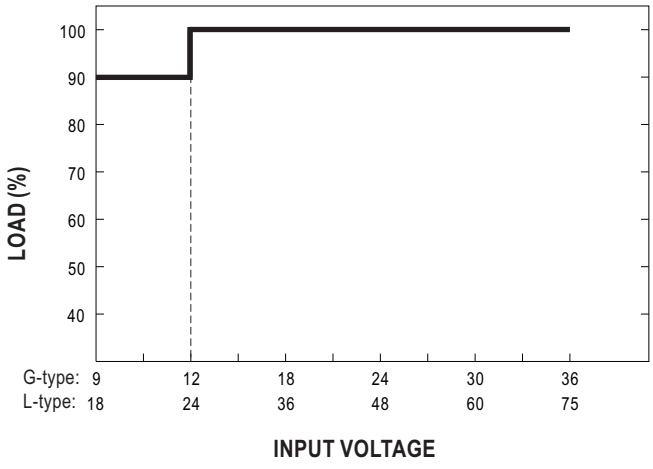
fosc : 100KHz



Derating Curve

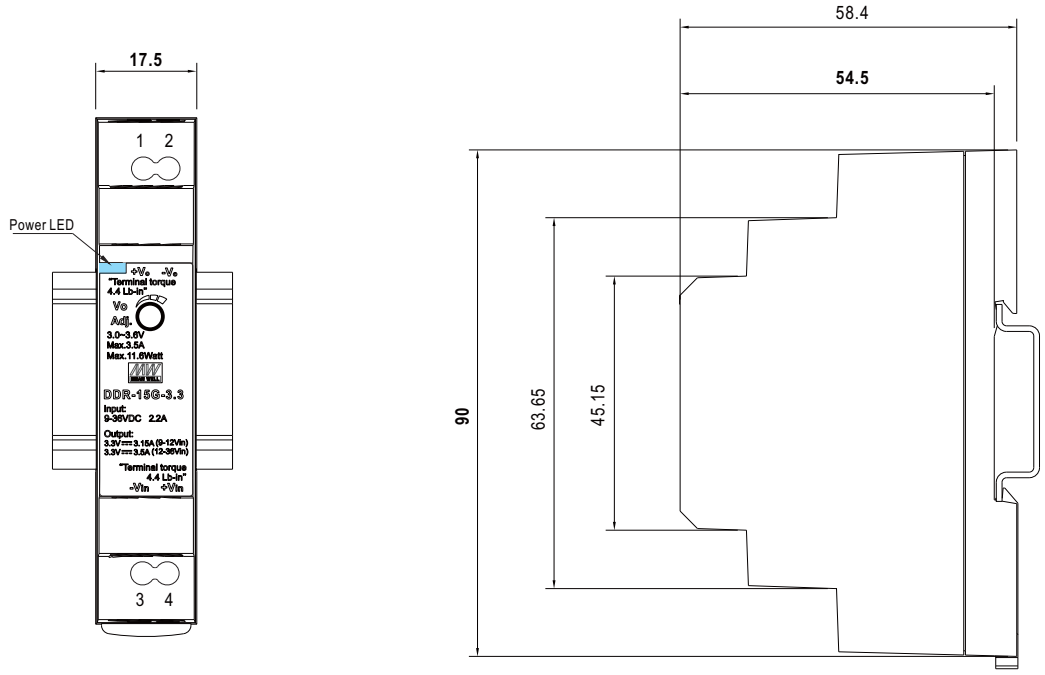


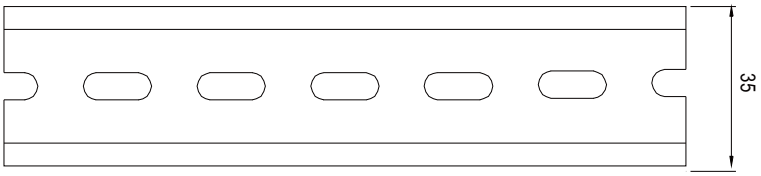
Output derating VS input voltage



■ Mechanical Specification

（Unit: mm , tolerance ± 0.5mm)





ADMISSIBLE DIN-RAIL:TS35/7.5 OR TS35/15

Terminal Pin No. Assignment

Pin No.	Assignment
1	DC Output +Vo
2	DC Output -Vo
3	DC Input -Vin
4	DC Input +Vin

■ Installation Manual

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