




DDR-240 series Rail Power Supplies



MEAN WELL DDR-240 series Rail Power Supplies Owner's Manual

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MEAN WELL DDR-240 series Rail Power Supplies



Specifications

Model	Output Voltage	Input Voltage	Rated Wattage
DDR-240B-24	24V	B: 16.8~33.6Vdc	240W
DDR-240B-48	48V	C: 33.6~67.2Vdc	240W
DDR-240C-24	24V	D: 67.2~154Vdc	240W
DDR-240C-48	48V		
DDR-240D-24	24V		
DDR-240D-48	48V		

Product Usage Instructions

Installation

1. Ensure the power source matches the input voltage range of the converter.
2. Mount the converter on a DIN rail TS-35/7.5 or 15 securely.
3. Connect the input and output terminals following the polarity markings.
4. Ensure proper ventilation for cooling by free air convection.

Operation

1. Power on the converter within the specified temperature range of -40°C to +70°C.
2. Use the DC output adjustable feature to set the desired output voltage.
3. Monitor the status of the converter using the provided protections for short circuits, overload, over-voltage, over-temperature, input reverse polarity, and input under voltage protection.
4. Utilize the DC OK relay contact and remote ON-OFF control as needed.

Maintenance

1. Regularly check for any signs of damage or overheating.
2. Clean the unit as necessary to prevent dust accumulation.
3. Refer to the user manual for troubleshooting steps in case of any issues.

FAQ

- **Q:** What is the peak load capability of the DDR-240 series?
- **A:** The DDR-240 series has a peak load capability of 150%.
- **Q:** What applications are suitable for the DDR-240 series?
- **A:** The DDR-240 series is suitable for use in bus, tram, metro or railway systems, industrial control systems, semiconductor fabrication equipment, factory automation, electro-mechanical applications, wireless networks, and telecom or datacom systems.
- **Q:** What is the warranty period for the DDR-240 series?
- **A:** The DDR-240 series comes with a 3-year warranty.

Features

- Compliance to BS EN/EN50155 and BS EN/EN45545-2 railway standard
- Width only 40mm
- 2:1 wide input range
- -40~+70°C wide working temperature
- 150% peak load capability
- Current sharing up to 960W(3+1)
- DC output adjustable
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Protections: Short circuit / Overload / Over voltage / Over temperature / Input reverse polarity/ Input under voltage protection
- 4KVdc 1/0 isolation(Reinforced isolation)
- DC OK relay contact
- Remote ON-OFF control
- 3 years warranty



Applications

- Bus, tram, metro or railway system
- Industrial control system
- Semiconductor fabrication equipment
- Factory automation
- Electro-mechanical
- Wireless network
- Telecom or datacom system



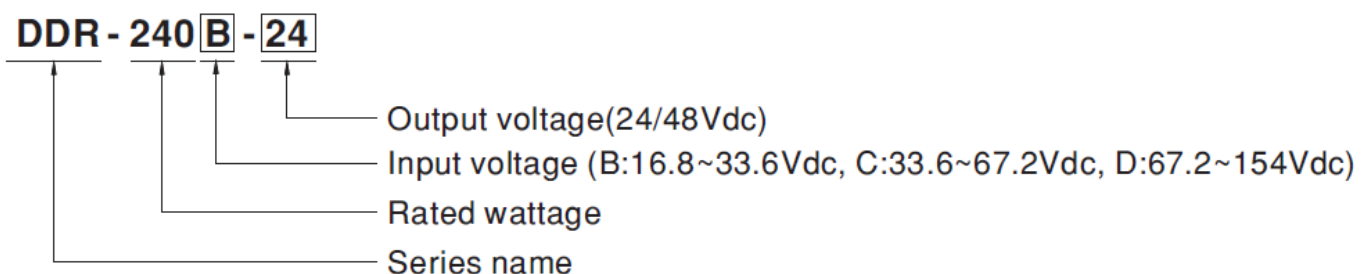
GTIN CODE

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

Description

- DDR-240 series is a 240W DIN Rail type DC-DC converter with main features including DIN rail-type easy installation, ultra-slim width (40mm), 2:1 wide input voltage, fanless design, -40~+70°C wide operating temperature, 4KVdc 1/0 isolation, 150% peak load, current sharing, DC OK, adjustable output voltage and full protective functions.
- This series of models has various input options: 16.8~33.6V / 33.6~67.2V / 67.2~154V and two output options: 24V / 48V and can be used for industrial & railway control, security control, communication systems and other fields.
- Suitable applications include to DC buck/boost regulator, increasing system insulation level and voltage drop compensation along cable...etc.

Model Encoding



SPECIFICATION

MODEL			DDR-24 0B-24	DDR-24 0B-48	DDR-24 0C-24	DDR-240C-48	DDR-24 0D-24	DDR-24 0D-48
OUT PUT	DC VOLTA GE		24V	48V	24V	48V	24V	48v
	RATED C URRENT		10A	5A	10A	5A	10A	5A
	CURRENT RANGE		0 ~ 10A	0 ~ 5A	0 ~ 10A	0 ~ 5A	0 ~ 10A	0 ~ 5A
	RATED P OWER		240W	240W	240W	240W	240W	240W
	P E A K	CURR ENT	15A	7.5A	15A	7.5A	15A	7.5A
		POW ER Note. 5	360W (3sec.)					
	RIPPLE & NOISE (m ax.) Note. 2		80mVp- p	100mVp- p	80mVp- p	100mVp-p	80mVp- p	100mVp- p
	VOLTAGE ADJ. RAN GE		24 ~ 28 V	48 ~ 56V	24 ~ 28V	48 ~ 56V	24 ~ 28 V	48~ 56V
	VOLTAGE TOLERAN CE Note.3		±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REG ULATION		±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD RE GULATIO N		±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RI SE TIME		500ms, 60ms					
	HOLD UP TIME (Typ .)		Please refer to page 6 Hold up Time(Load de-rating curve)					
	V OL TA G E R A	CON TINU OUS	16.8 ~ 33.6Vdc		33.6 ~ 67.2Vdc		67.2 ~ 154Vdc	

	REMOTE ON-OFF CONTROL	Please refer to the Function Manual		
ENVIRONMENT	WORKING TEMP.	-40 ~ +70°C (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%/°C (0 ~ 55°C)		
	VIBRATION	Component:10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC61373		
	OPERATING ALTITUDE Note. 7	5000 meters		
SAFETY & EMC (Note 6)	SAFETY STANDARDS	IEC 62368-1, UL 62368-1, EAC TP TC 004, AS/NZS 62368.1 approved		
	WITHSTAND VOLTAGE	I/P-O/P:4KVdc I/P-FG:2.5KVdc O/P-FG:0.71KVdc		
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500Vdc / 25°C/ 70% RH		
	EMC EMISSION	Parameter	Standard	Test Level / Note
		Conducted	BS EN/EN55032	Class B
		Radiated	BS EN/EN55032	Class B
		Voltage Flicker	BS EN/EN61000-3-3	—
		Harmonic Current	—	—
	EMC IMMUNITY	BS EN/EN55035 , BS EN/EN61000-6-2(BS EN/EN50082-2)		
		Parameter	Standard	Test Level / Note
		ESD	BS EN/EN61000-4-2	Level 3, 8KV air ; Level 3, 6KV contact; criteria A
		Radiated	BS EN/EN61000-4-3	Level 3, 10V/m ; criteria A
		EFT / Burst	BS EN/EN61000-4-4	Level 3, 2KV ; criteria A
		Surge	BS EN/EN61000-4-5	Level 3, 1KV/Line-Line ;Level 3, 2KV/Line-Line-FG ;criteria A
		Conducted	BS EN/EN61000-4-6	Level 3, 10V ; criteria A

		Magnetic Field	BS EN/EN61000-4-8	Level 4, 30A/m ; criteria A
	RAILWAY STANDARD	Compliance to BS EN/EN45545-2 for fire protection ; Meet BS EN/EN50155 / IEC60571 including IEC61373 for shock & vibration, BS EN/EN50121-3-2 for EMC		
OTHERS	MTBF	1415.6K hrs min. 5°C)	Telcordia SR-332 (Bellcore); 189.9K hrs min.	MIL-HDBK-217F (2
	DIMENSION	40*125.2*113.5mm (W*H*D)		
	PACKING	0.76Kg;20psc/16.2Kg/1.16CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at normal input (B:24Vdc, C:48Vdc, D:110Vdc), rated load, and 25°C of ambient temperature.			
	<div></div>			
NOTE	2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µF & 47µF parallel capacitor.			
	3. Tolerance: includes set up tolerance, line regulation, and load regulation.			
NOTE	4. Derating may be needed under low input voltage. Please check the derating curve for more details.			
	5. 3 seconds max., please refer to peak loading curves.			
NOTE	6. 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 https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)			
NOTE	7. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitudes higher than2000m(6500ft).			
	※ Product Liability Disclaimer For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx			

Block Diagram

Graph showing Load (%) versus Ambient Temperature ($^{\circ}\text{C}$) for vertical members.

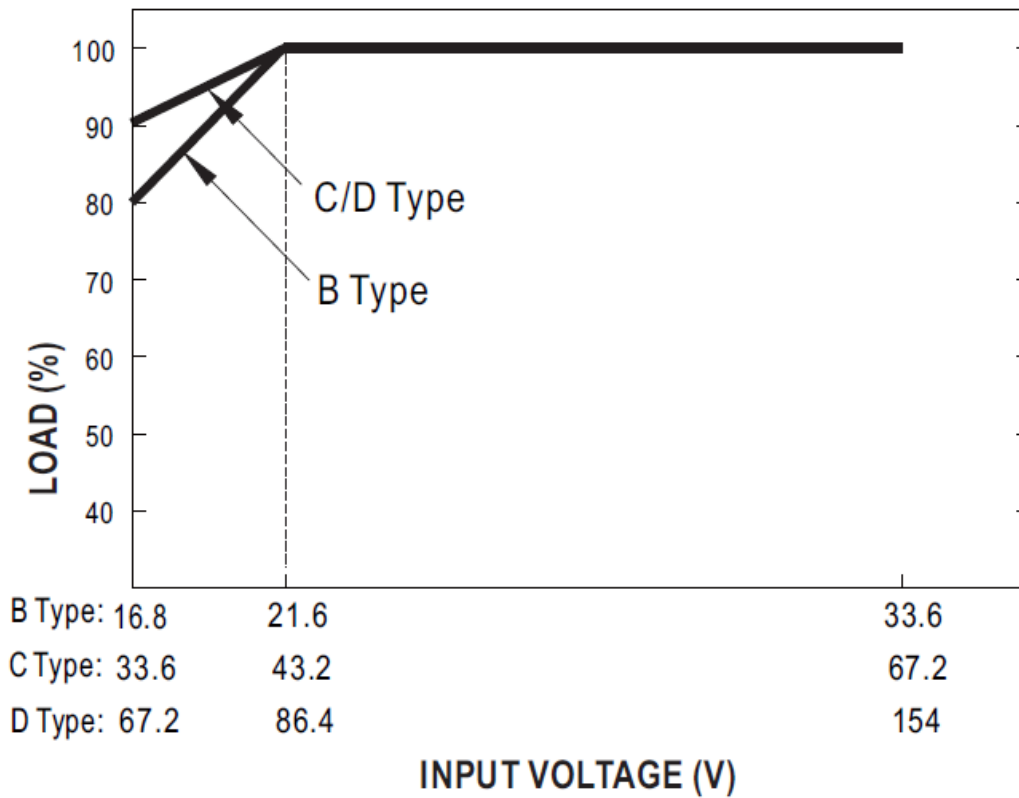
The graph illustrates the relationship between ambient temperature and load capacity for vertical members. The load is constant for temperatures up to 50°C and then decreases linearly.

Key data points and trends:

- For 3 sec. (typ.):** Load is constant at 150% up to 50°C . It decreases linearly to 120% at 60°C and then to 100% at 70°C .
- Continuous:** Load is constant at 100% up to 50°C . It decreases linearly to 40% at 70°C .

The vertical axis represents Load (%), ranging from 40 to 150. The horizontal axis represents Ambient Temperature ($^{\circ}\text{C}$), ranging from -40 to 80. A vertical line at 70°C indicates the maximum temperature for vertical members.

Output derating VS input voltage



Peak Loading



DC OK Relay Contact

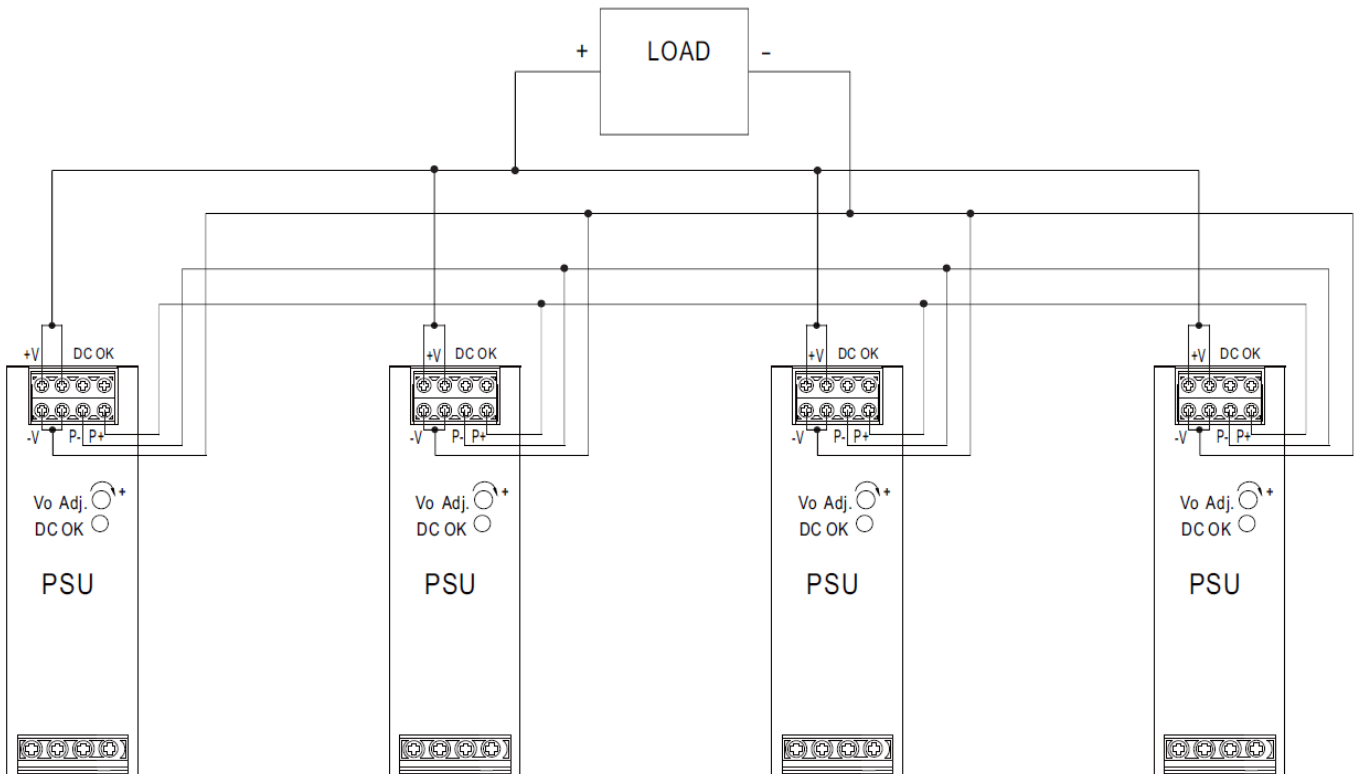
Contact Close	PSU turns on / DC OK.
Contact Open	PSU turns off / DC fails.
Contact Ratings (max.)	30V/1A resistive load.

Function Manual

Current sharing

1. Parallel operation is available by connecting the units shown as below (P+, P- are connected mutually in parallel) :
2. The voltage difference among each output should be minimized that less than 0.2V is required.
3. The total output current must not exceed the value determined by the following equation (Output current at parallel operation) =(The rated current per unit) x (Number of unit) x 0.9.
4. In parallel operation 4 units is the maximum, please consult the manufacturer for other applications.

5. When in parallel operation, the minimum output load should be greater than 3% of the total output load.
(Min. load > 3% rated current per unit x number of unit)



Remote ON-OFF Control

The power supply can be turned ON-OFF by using the “Remote ON-OFF” function.

Remote ON-OFF (TB1 PIN2,4)	Output Status
Open or 4 ~ 10VDC	power supply ON
Short or 0 ~ 0.8VDC	power supply OFF

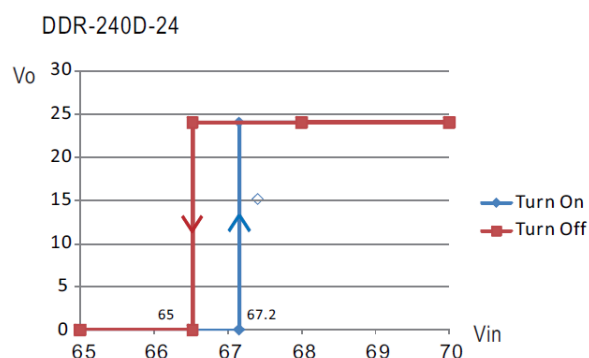
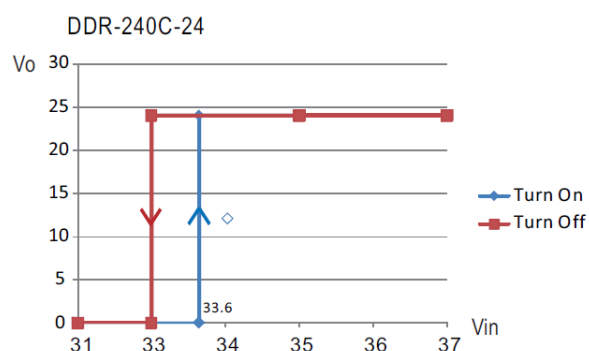
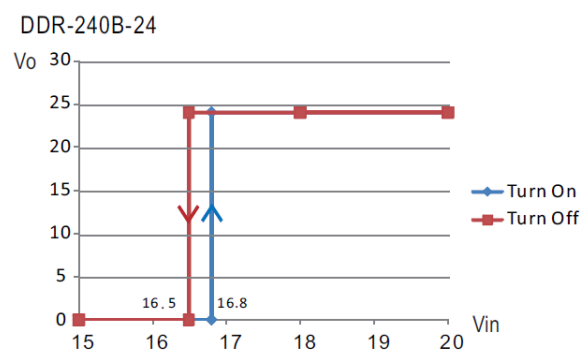
Input Fuse

There is one fuse connected in series to the positive input line, which is used to protect against abnormal surges. The fuse specifications of each model are shown as below.

Type	Fuse Type	Reference and Rating
B	Time-Lag	Conquer MST, 10A, 250V *2
C	Time-Lag	Conquer MST, 6.3A, 250V *2
D	Time-Lag	Conquer MST, 6.3A, 250V *1

Input Under-Voltage Protection

- If the input voltage drops below V_{min} , the internal control IC shuts down and there is no output voltage.
- It recovers automatically when the input voltage reaches above V_{min} , please refer to the curve below.



Input Reverse Polarity Protection

- There is a MOSFET connected in series to the negative input line. If the input polarity is connected reversely, the MOSFET opens and there will be no output to protect the unit.

Inrush Current

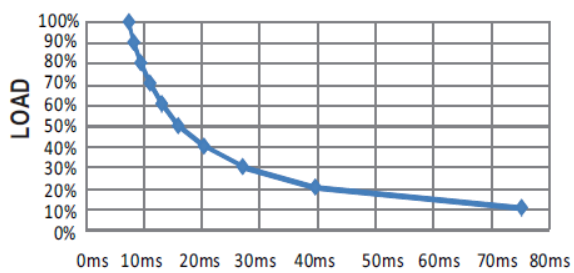
- Inrush current is suppressed by a resistor during the initial start-up, and then the resistor is bypassed by a MOSFET to reduce power consumption after accomplishing the start-up.

Hold-up Time

- EN50155: 2007 version – B/C- type complies with S2 level (10ms)@ 70% load; D-type complies with S2 level (10ms)@ full load, Please refer to the table and curves shown below for the hold-up time specification.

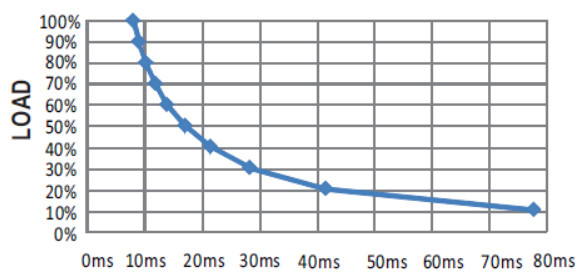
Load Model	100% load	70% load	another load
B type (24Vin)	6ms min.	10ms min.	figure 1,2
C type (48Vin)	8ms min.	11ms min.	figure 3,4
D type (110Vin)	11ms min.	15ms min.	figure 5,6

DDR-240B-24



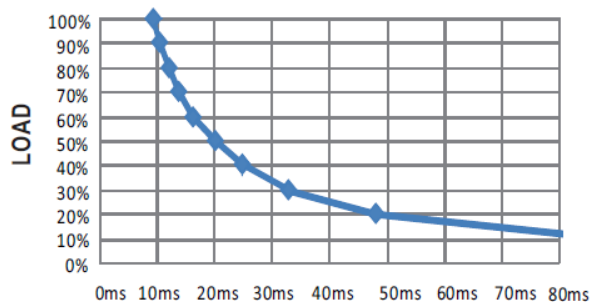
TIME
(figure 1)

DDR-240B-48



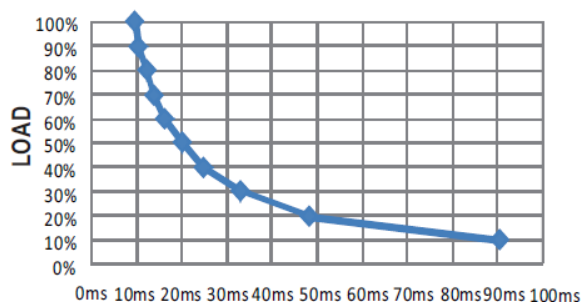
TIME
(figure 2)

DDR-240C-24



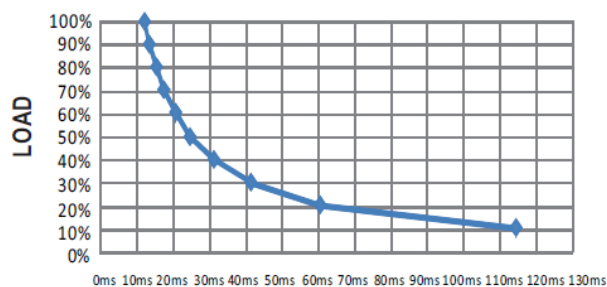
TIME
(figure 3)

DDR-240C-48



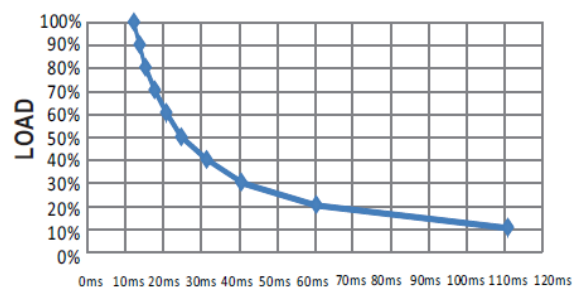
TIME
(figure 4)

DDR-240D-24



TIME
(figure 5)

DDR-240D-48



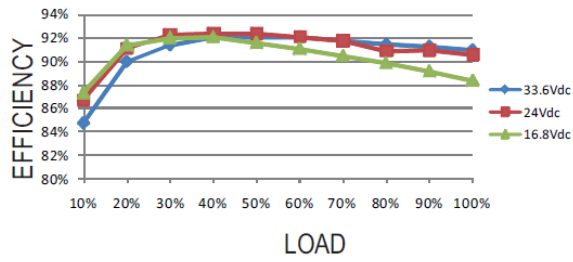
TIME
(figure 6)

- EN50155: 2017 version – Comply with S1 level

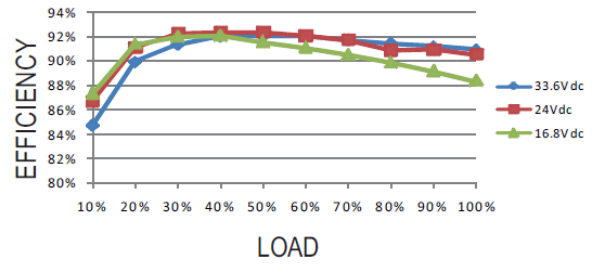
Efficiency vs Load & Vin Curve

- The efficiency vs load & Vin curves of each model are shown as below.

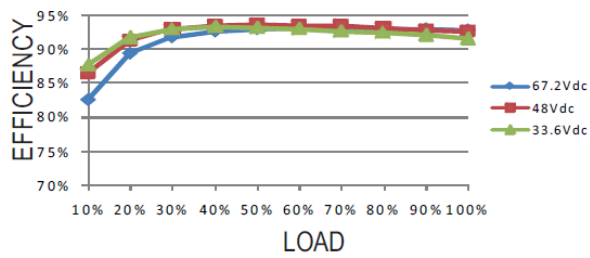
DDR-240B-24



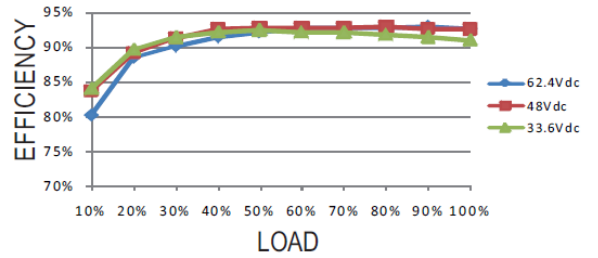
DDR-240B-48



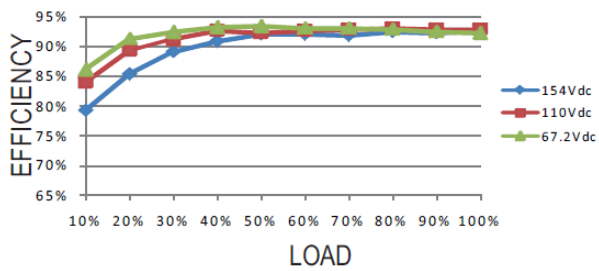
DDR-240C-24



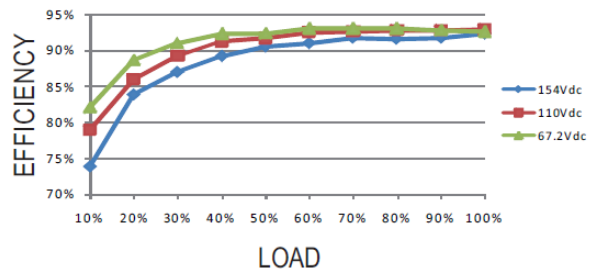
DDR-240C-48



DDR-240D-24



DDR-240D-48



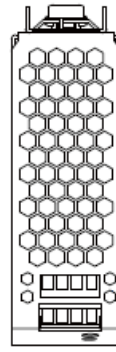
Immunity to Environmental Conditions

Test method	Standard	Test conditions	Status
Cooling Test	EN 50155 section 12.2.3 (Column 2, Class TX) EN 60068-2-1	Temperature: -40°C Dwell Time: 2 hrs/cycle	No damage
Dry Heat Test	EN 50155 section 12.2.4 (Column 2, Class TX) EN 50155 section 12.2.4 (Column 3, Class TX & Column 4, Class TX) EN 60068-2-2	Temperature: 70°C / 85°C Duration: 6 hrs / 10min	PASS
Damp Heat Test, Cyclic	EN 50155 section 12.2.5 EN 60068-2-30	Temperature: 25°C~55°C Humidity: 90%~100% RH Duration: 48 hrs	PASS
Vibration Test	EN 50155 section 12.2.11 EN 61373	Temperature: 19°C Humidity: 65% Duration: 10 mins	PASS
Increased Vibration Test	EN 50155 section 12.2.11 EN 61373	Temperature: 19°C Humidity: 65% Duration: 5 hrs	PASS
Shock Test	EN 50155 section 12.2.11 EN 61373	Temperature: 21±3°C Humidity: 65±5% Duration: 30ms*18	PASS
Low-Temperature Storage Test	EN 50155 section 12.2.3 (Column 2, Class TX) EN 60068-2-1	Temperature: -40°C Dwell Time: 16 hrs	PASS
Salt Mist Test	EN 50155 section 12.2.10 (Class ST4)	Temperature: 35°C±2°C Duration: 96 hrs	PASS

EN45545-2 Fire Test Conditions

Test Items				Hazard Level	
	Items	Standard	HL1	HL2	HL3
	Oxygen index test	EN 45545-2:2013 EN ISO 4589-2:1996	PASS	PASS	PASS
R22	Smoke density test	EN 45545-2:2013 EN ISO 5659-2:2006	PASS	PASS	PASS
	Smoke toxicity test	EN 45545-2:2013 NF X70-100:2006	PASS	PASS	PASS
R24	Oxygen index test	EN 45545-2:2013 EN ISO 4589-2:1996	PASS	PASS	PASS
R25	Glow-wire test	EN 45545-2:2013 EN 60695-2-11:2000	PASS	PASS	PASS
R26	Vertical flame test	EN 45545-2:2013 EN 60695-11:2003	PASS	PASS	PASS

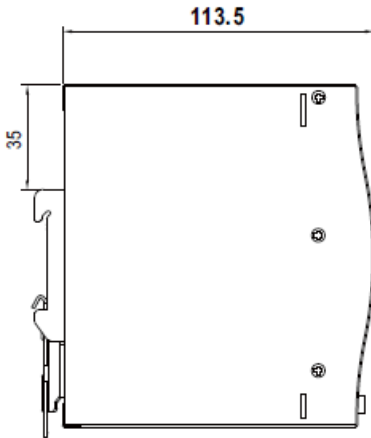
Mechanical Specification



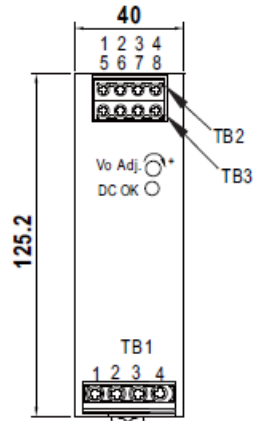
Top View

Terminal Pin No. Assignment (TB2,TB3)

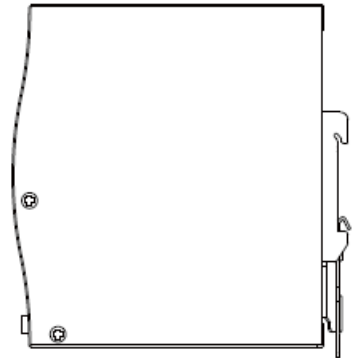
Pin No.	Assignment
1,2	DC output +Vo
5,6	DC output -Vo
3,4	DC OK Relay Contact
7,8	P+,P-



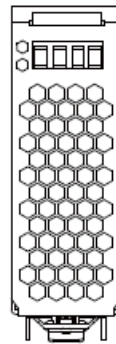
Side View



Front View



Side View

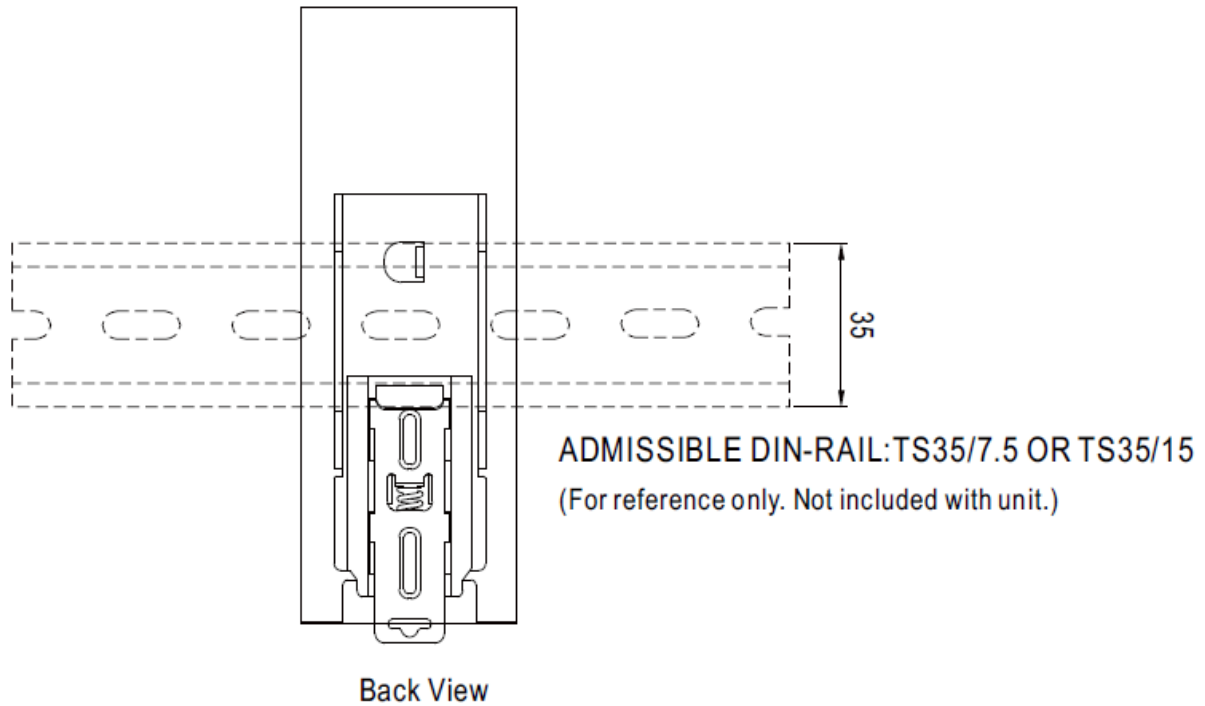


Bottom View

Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG
2	DC input -Vin
3	DC input +Vin
4	Remote ON/OFF

Installation Instruction




- 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>



Documents / Resources

	<p>MEAN WELL DDR-240 series Rail Power Supplies [pdf] Owner's Manual DDR-240B-24, DDR-240B-48, DDR-240C-24, DDR-240C-48, DDR-240D-24, DDR-240D-48, D DR-240 series Rail Power Supplies, DDR-240 series, Rail Power Supplies, Power Supplies, Su pplies</p>
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References

- [User Manual](#)