DDR-240B-24 DIN Rail Type DC DC Converter

MEAN WELL DDR-240B-24 DIN Rail Type DC DC Converter Owner's Manual

Contents

MEAN WELL DDR-240B-24 DIN Rail Type DC-DC Converter

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 provided wiring diagram.

Operation

1. Power on the converter by applying the correct input voltage.
2. Monitor the DC output voltage to ensure it falls within the specified range.
3. Use the DC OK relay contact for external monitoring if needed.

Maintenance

1. Regularly check for any dust accumulation on the converter and clean it if necessary.
2. Inspect the connections for any signs of wear or damage.
3. Refer to the user manual for troubleshooting steps in case of any issues.

UL62368-1 AS/NZS62368-1 TPTC004 IEC62368-1

Features

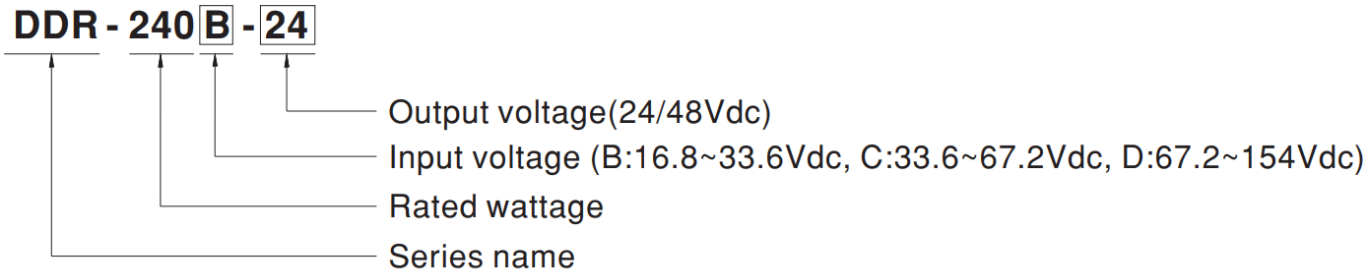
- Compliance to BS EN/EN50155 and BS EN/EN45545-2 railway standard
- Width only 40mm

- 2:1 wide input range
- 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 0K relay contact
- Remote ON-OFF control
- 3 years warranty

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, wide operating temperature, 4K Vdc 1/0 isolation, 150% peak load, current sharing, DC 0K, adjustable output voltage and full protective functions. This series of models has various input options: 1 / 33.+67.2V / 67.2-154V and two output options: 24V / 48V and can be used for industrial & railway control, security control, communication sys,them, and other fields. Suitable applications incl to DC buck/boost regulator, increasing system insulation level and voltage drop compensation along cable…etc.

Model Encoding



Applications

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

GTIN CODE
MW Search: https://www.meanwell.com/serviceGTIN.aspx

SPECIFICATION

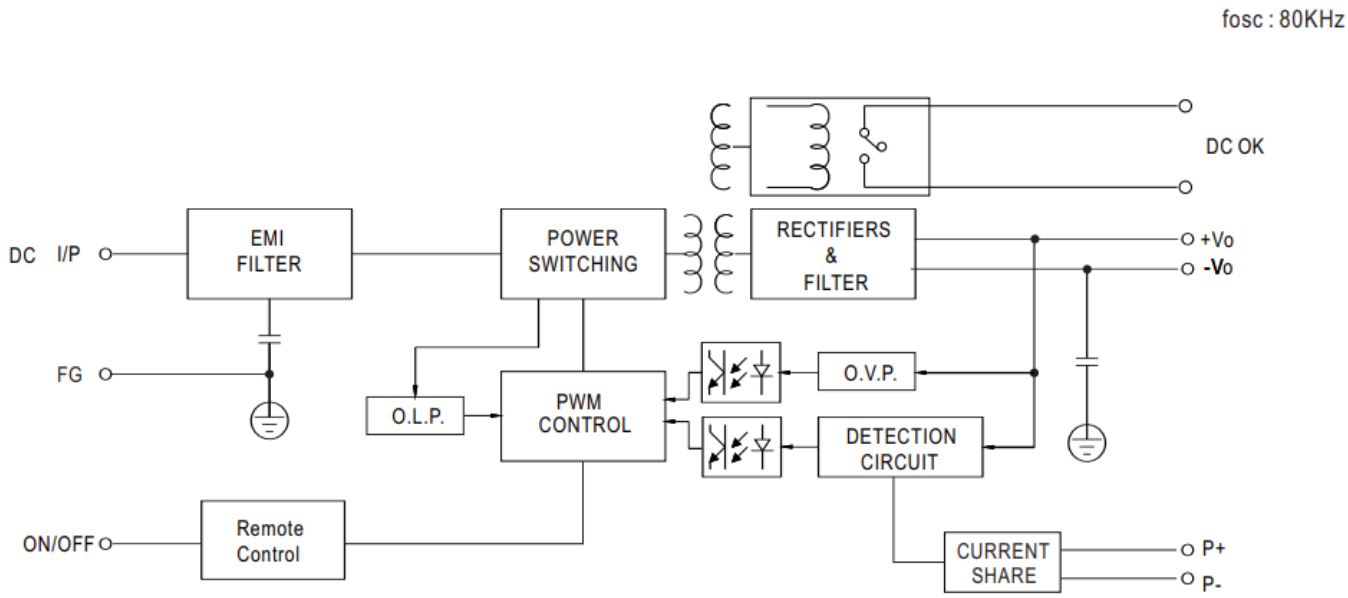
MODEL			DDR-240B-24	DDR-240B-48	DDR-240C-24	DDR-240C-48	DDR-240D-24	DDR-240D-48
OUTPUT	DC VOLTAGE		24V	48V	24V	48V	24V	48v
	RATED CURRENT		10A	5A	10A	5A	10A	5A
	CURRENT RANGE		0 ~ 10A	0 ~ 5A	0 ~ 10A	0 ~ 5A	0 ~ 10A	0 ~ 5A
	RATED POWER		240W	240W	240W	240W	240W	240W
	PEAK	CURRENT	15A	7.5A	15A	7.5A	15A	7.5A
		POWER Note. 5	360W (3sec.)					
	RIPPLE & NOISE (max.) Note. 2		80mVp-p	100mVp-p	80mVp-p	100mVp-p	80mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE		24 ~ 28 V	48 ~ 56V	24 ~ 28V	48 ~ 56V	24 ~ 28 V	48~ 56V
	VOLTAGE TOLERANCE Note.3		±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION		±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION		±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME		500ms, 60ms					
	HOLD UP TIME (Typ.)		Please refer to page 6 Hold up Time(Load de-rating curve)					
	VOLTAG	CONTINUOUS	16.8 ~ 33.6Vdc		33.6 ~ 67.2Vdc		67.2 ~ 154Vdc	

INPUT	**ERANGE Note.4**	**100ms**	14.4 ~ 16.8Vdc		28.8 ~33.6Vdc		66 ~ 67.2Vdc	
	EFFICIENCY (Typ.)		90%	90%	91%	92%	92%	92.5%
	DC CURRENT (Typ.)		11.2A @24Vdc		5.6A @48Vdc		2.5A @110Vdc	
	INRUSH CURRENT (Typ.)		30A					
	INTERRUPTION OF VOLTAGE SUPPLY		EN50155:2007-B/C- type comply with S2 level (10ms)@ 70% load ; D-type comply with S2 level (10ms)@ full load					
			EN50155:2017-Comply with S1 level					
PROTECTION	**OVERLOAD Note.5**		Normally works within 150% rated output power for more than 3 seconds and then constant current protection 105~135% rated output power with auto-recovery					
	OVERVOLTAGEE		28.8 ~ 35V	57.6 ~ 65.0V	28.8 ~ 35V	57.6 ~ 65V	28.8 ~ 35V	57.6 ~ 65V
			Protection type: Shut down o/p voltage, re-power on to recover					
	OVER TEMPERATURE		Shut down the o/p voltage, and re-power on to recover					
	UNDER VOLTAGE LOCKOUT		24Vin (B – type): Power ON≥16.8 , OFF≤16.5V		48Vin (C – type): Power ON≥33.6, OFF≤33V		110Vin (D – type):Power ON≥67.2V, OFF≤65V	
FUNCTION	**DC OK REALY CONTACT RATINGS (max.)**		30Vdc/1A resistive load					
	CURRENT SHARING		Up to 960W (3+1 units). Please refer to the Function Manual					

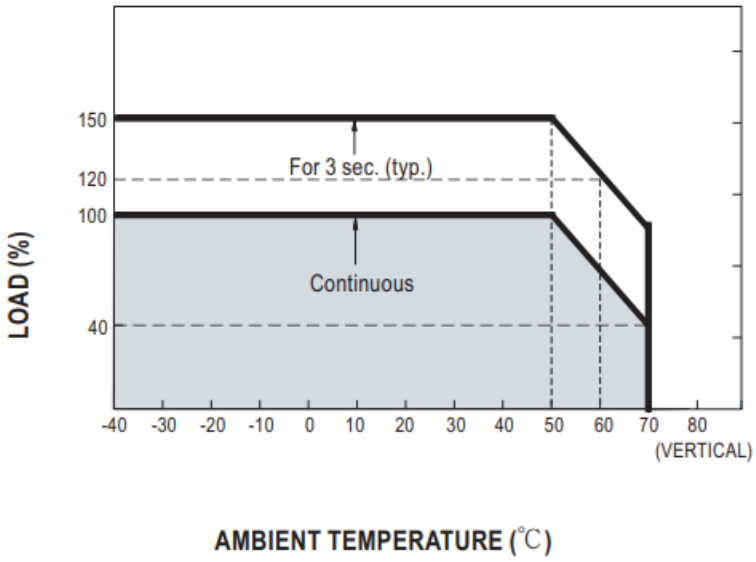
	REMOTE ON-OFF CONTROL	Please refer to the Function Manual		
ENVIRONMENT	**WORKING TEMP.**	-40 ~ +70℃ (Refer to “Derating Curve”)		
	WORKING HUMIDITY	5 ~ 95% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-40 ~ +85, 5 ~ 95% RH non-condensing		
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 55℃)		
	VIBRATION	Component:10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Zand 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℃/ 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. Telcordia SR-332 (Bellcore); 189.9K hrs min. MIL-HDBK-217F (25°C)		
	DIMENSION	40*125.2*113.5mm (W*H*D)		
	PACKING	0.76Kg;20psc/16.2Kg/1.02CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at normal input (B:24Vdc, C:48Vdc, D:110Vdc) rated load a, nd 25°C of ambient temperature. 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. 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. 6. The power supply is considered an independent unit, but the final equipment still needs toconfirmm th at 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**) 7. The ambient temperature derating of 3.5°C/1000m with fanless models and 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		

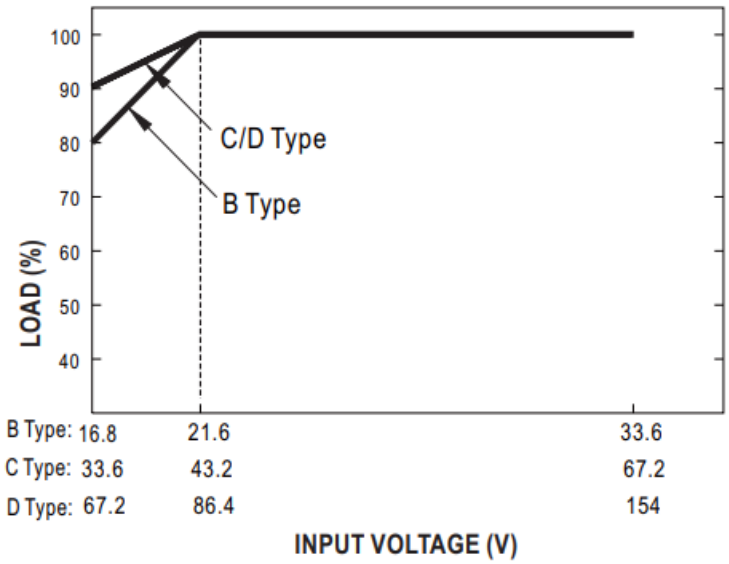
Block Diagram



Derating Curve



Output derating VS input voltage



Peak Loading

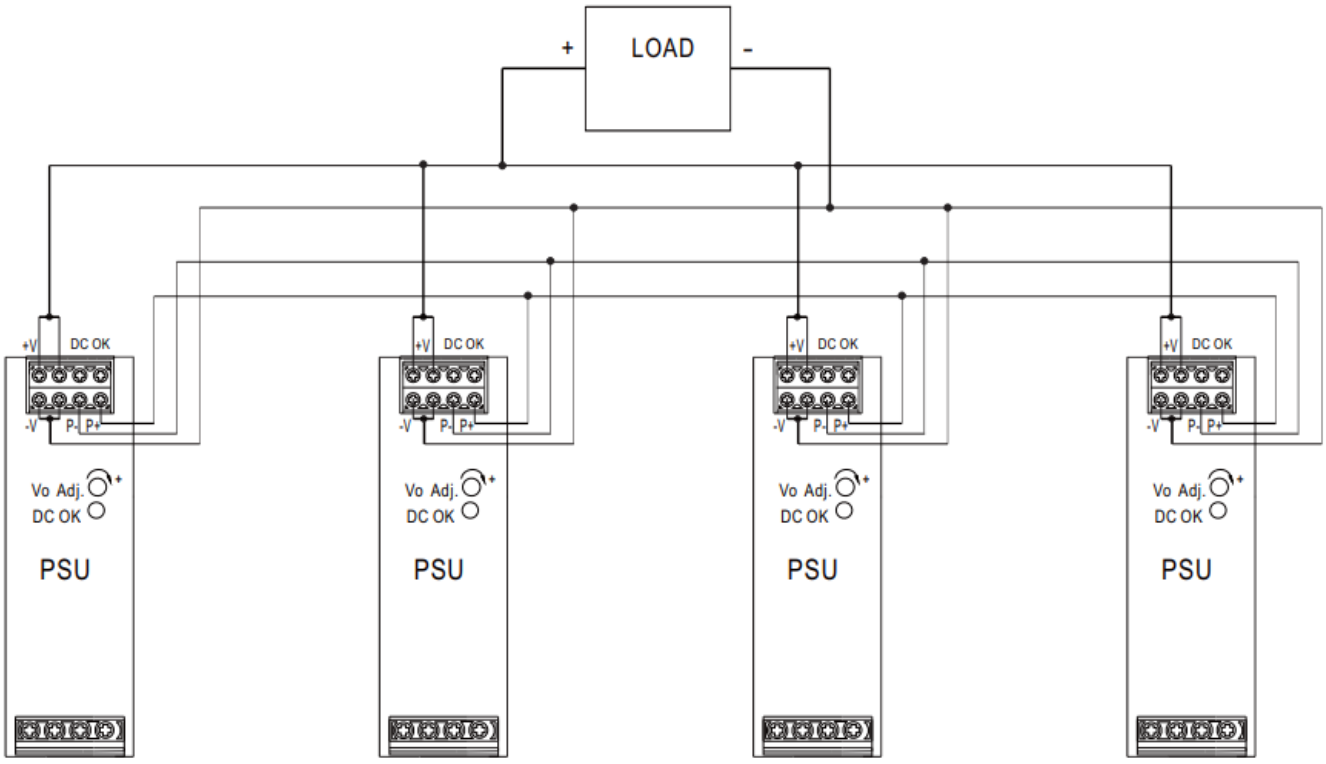
DC OK Relay Contact

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 below (P+, and P- are connected mutually in parallel) :
2. The voltage difference among each output should be minimized so 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 units) x 0.9.
4. In parallel operation 4 units are the maximum, please consult the manufacturer for other applications.
5. When in parallel operation, the minimum output load should be greater than 3% othe f 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

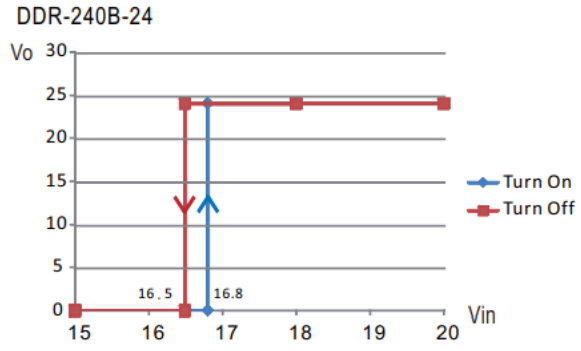
Input Fuse

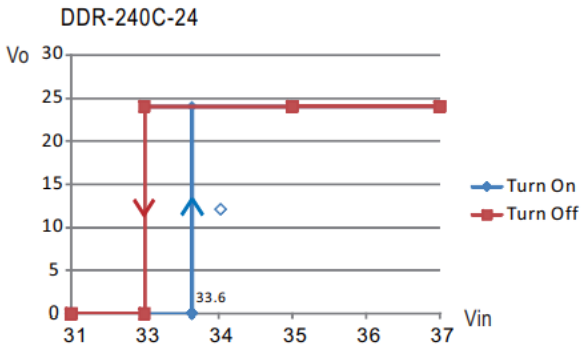
There is one fuse connected in series to the positive input line, which is used to protect against abnormal surges. The fusee specifications of each model are shown below.

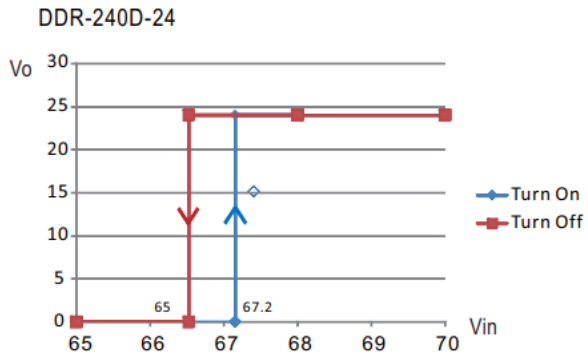
Type	Fuse Type	Reference and Rating
B	Time-Lag	Conquer MST, 10A, 250V *2
C	Time-Lag	Conquer MST, 6.3A, 250V *2
D	Time-Lag	Conquer MST, 6.3A, 250V *1

Input Under-Voltage Protection

If the input voltage drops below Vimin, the internal control IC shuts down and there is no output voltage. It recovers automatically when the input voltage reaches above Vimin,p leaserefersr to the ccurvebelow.







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.

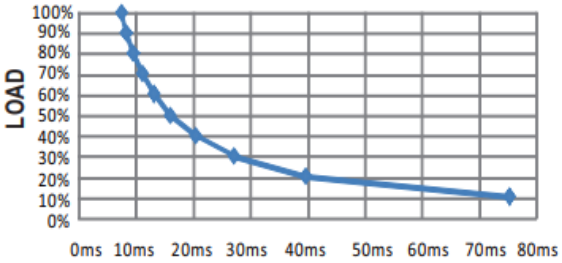
Hold-up Time

- EN50155: 2007 version – B/C- type comply with S2 level (10ms)@ 70% load ; D-type comply with S2 level (10ms)@ full load,

Please refer to the table and curves shown below for thehold-upp time specification.

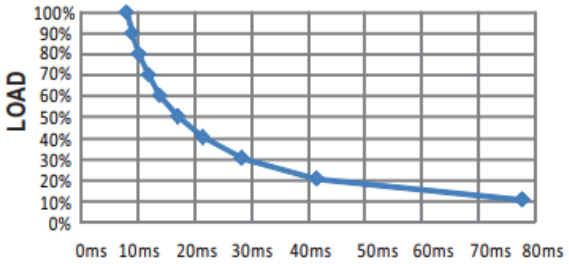
Load / Model	100% load	70% load	other load
B type (24Vin)	6ms min.	10ms min.	figure 1,2
C type (48Vin)	8ms min.	11ms min.	figure 3,4
D type (110Vin)	11ms min.	15ms min.	figure 5,6

DDR-240B-24



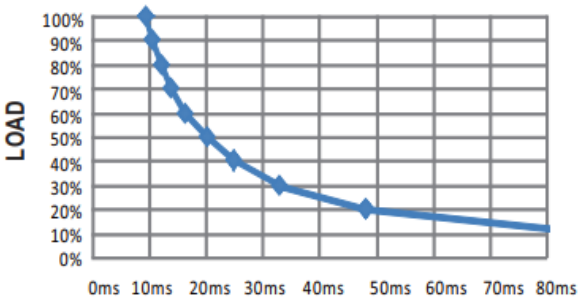
(figure 1)

DDR-240B-48



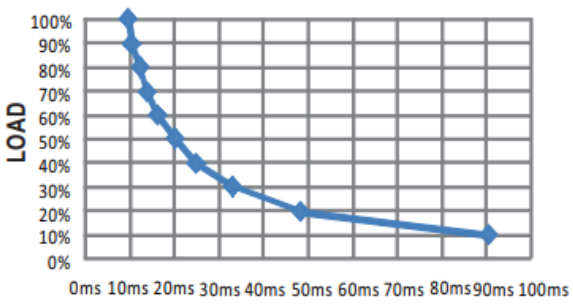
(figure 2)

DDR-240C-24



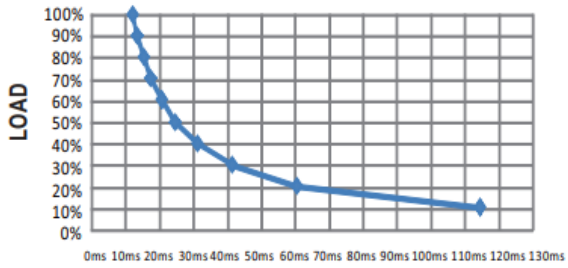
(figure 3)

DDR-240C-48



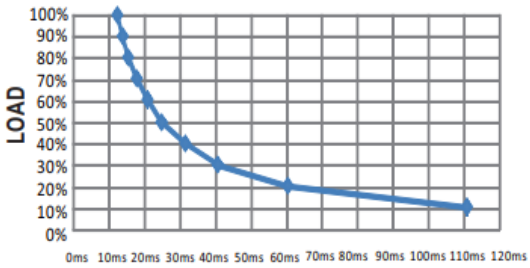
(figure 4)

DDR-240D-24



(figure 5)

DDR-240D-48



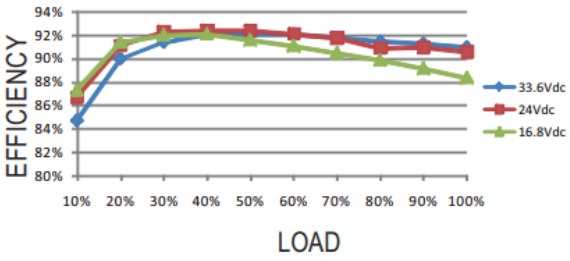
(figure 6)

- EN50155: 2017 version - Comply with S1 level

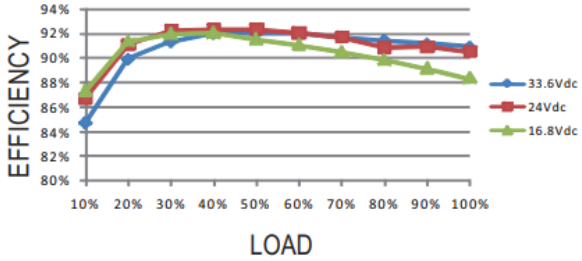
Efficiency vs Load & Vin Curve

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

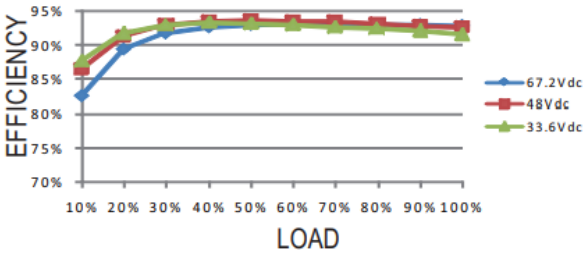
DDR-240B-24



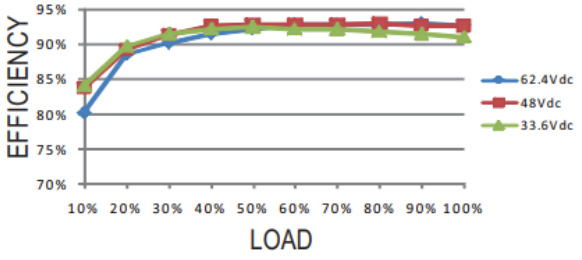
DDR-240B-48



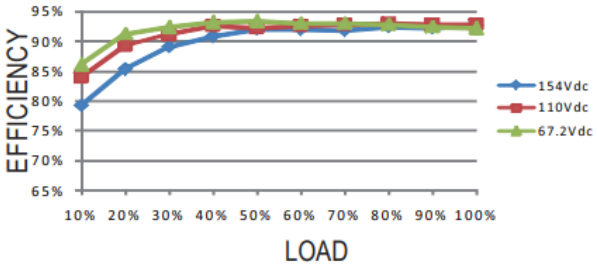
DDR-240C-24



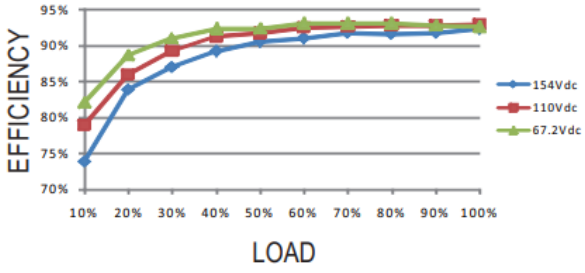
DDR-240C-48



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

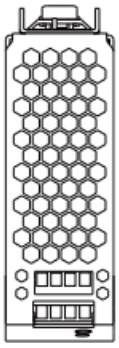
EN45545-2 Fire Test Conditions

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

(Unit: mm , tolerance ± 1mm)

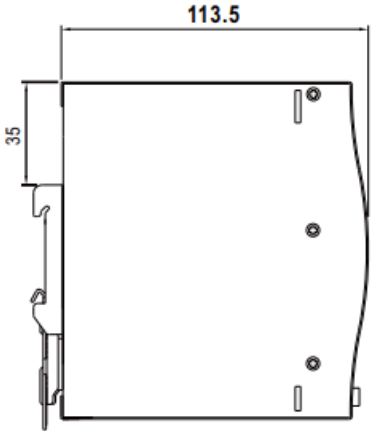
Case No.265A-D



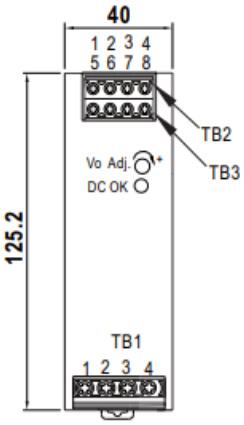
Top View

Terminal Pin No. Assignment (TB2,TB3)

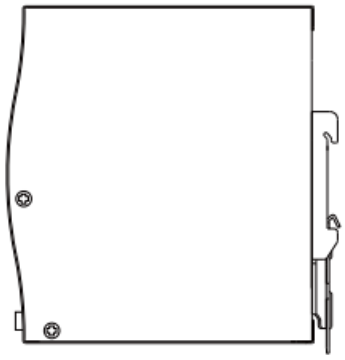
Pin No.	Assignment
1,2	DC output +Vo
5,6	DC output -Vo
3,4	DC OK Relay Contact
7,8	P+,P-



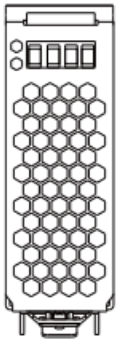
Side View



Front View



Side View

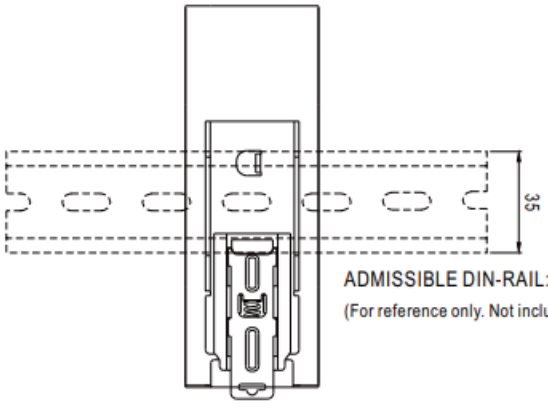


Bottom View

Terminal Pin No. Assignment (TB1)

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

Installation Instruction



Back View

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

- File Name: DDR-240-SPEC 2024-09-30

User's Manual

FAQs

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: How can I adjust the DC output voltage of the converter?
A: The DC output voltage of the DDR-240 series is adjustable within a specific range. Refer to the user manual for detailed instructions on adjusting the voltage.

Q: What protections are included in the DDR-240 series?
A: The DDR-240 series features protections against short circuits, overload, over-voltage, over-temperature, input reverse polarity, and input under voltage.

Documents / Resources

	MEAN WELL DDR-240B-24 DIN Rail Type DC DC Converter [pdf] Owner's Manual DDR-240B-24, DDR-240B-48, DDR-240C-24, DDR-240C-48, DDR-240D-24, DDR-240D-48, DDR-240B-24 DIN Rail Type DC DC Converter, DDR-240B-24, DIN Rail Type DC DC Converter, Type DC DC Converter, DC Converter

References

- User Manual