



User's Manual



Feature

- Width only 17.5mm (1SU)
- 4:1 ultra wide input range
- -40~+85°C wide working temperature
- No minimum load required
- DC output adjustable ($\pm 10\%$)
- 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

GTIN CODE

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

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°C wide operating temperature, 4KVdc I/O isolation, adjustable output voltage ($\pm 10\%$) 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

- Output voltage(3.3/5/12/15/24Vdc)
- Input voltage (G: 9~36Vdc, L: 18~75Vdc)
- Rated wattage
- 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 μ F	3300 μ F	1200 μ F	1200 μ F	680 μ F
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	5000 meters				
SAFETY & EMC (Note 5)	SAFETY STANDARDS	UL 62368-1, IEC 62368-1, AS/NZS 62368.1, EAC TP TC 004 approved				
	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	BS EN/EN55032		Class B	
		Radiated	BS EN/EN55032		Class B	
		Voltage Flicker	BS EN/EN61000-3-3		-----	
	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 ; 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	
OTHERS		MTBF	3446.2K hrs min. Telcordia SR-332 (Bellcore) ; 907.2K hrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	17.5*90*54.5mm (W*H*D)				
	PACKING	68g; 160pcs/12Kg/1.14CUFT				
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 μ F & 47 μ F 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) 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). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx					

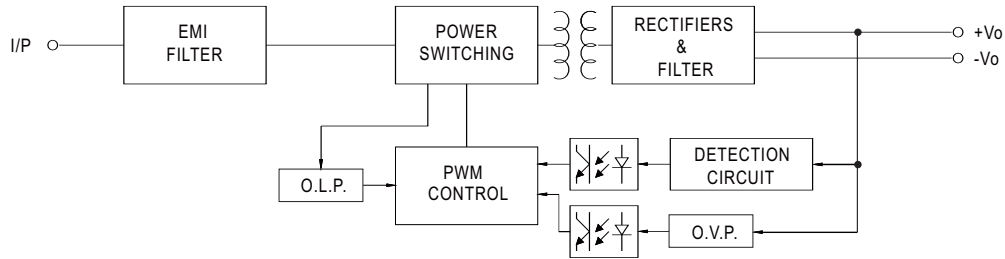


SPECIFICATION

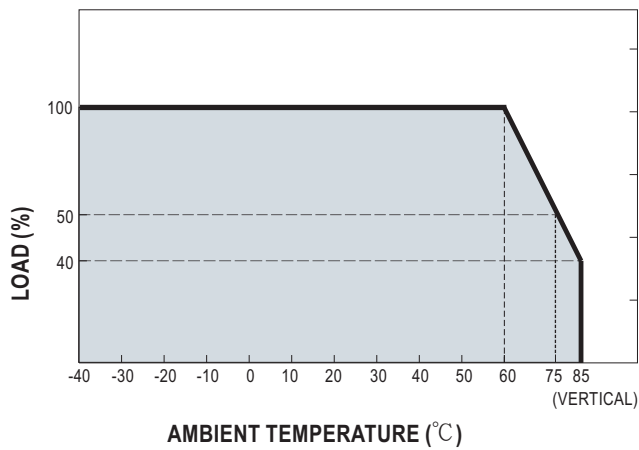
MODEL		DDR-15L-3.3	DDR-15L-5	DDR-15L-12	DDR-15L-15	DDR-15L-24
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V
	RATED CURRENT	4.5A	3A	1.25A	1A	0.63A
	CURRENT RANGE	0 ~ 4.5A	0 ~ 3A	0 ~ 1.25A	0 ~ 1A	0 ~ 0.63A
	RATED POWER	15W	15W	15W	15W	15W
	RIPPLE & NOISE (max.) Note.2	50mVp-p	50mVp-p	60mVp-p	75mVp-p	100mVp-p
	VOLTAGE ADJ. RANGE	3.0 ~ 3.6V	4.5 ~ 5.5V	9 ~ 13.2V	13.5 ~ 16.5V	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.)	L-type: 16ms@48Vdc input				
EXTERNAL CAPACITANCE LOAD (Max.)	3300 μ F	3300 μ F	1200 μ F	1200 μ F	680 μ F	
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) ,AS/NZS 62368.1 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	BS EN/EN55032		Class B	
		Radiated	BS EN/EN55032		Class B	
		Voltage Flicker	BS EN/EN61000-3-3		-----	
	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 ; 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	
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 48VDC 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 μ F & 47 μ F 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) 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). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx					

Block Diagram

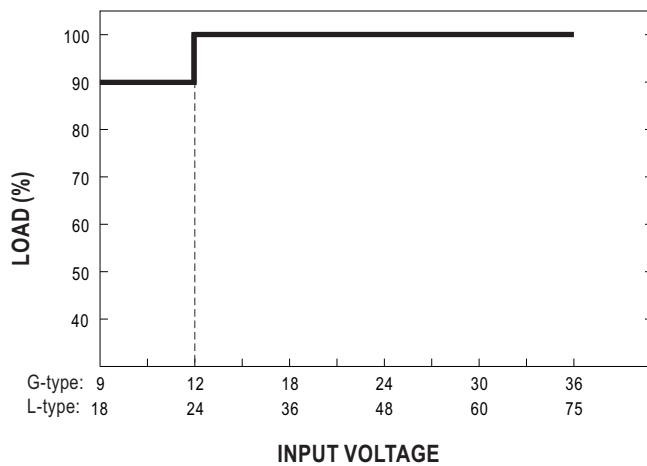
fosc : 100KHz



Derating Curve

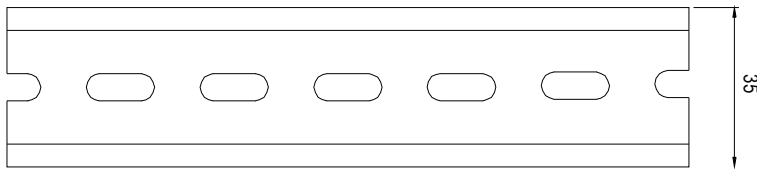
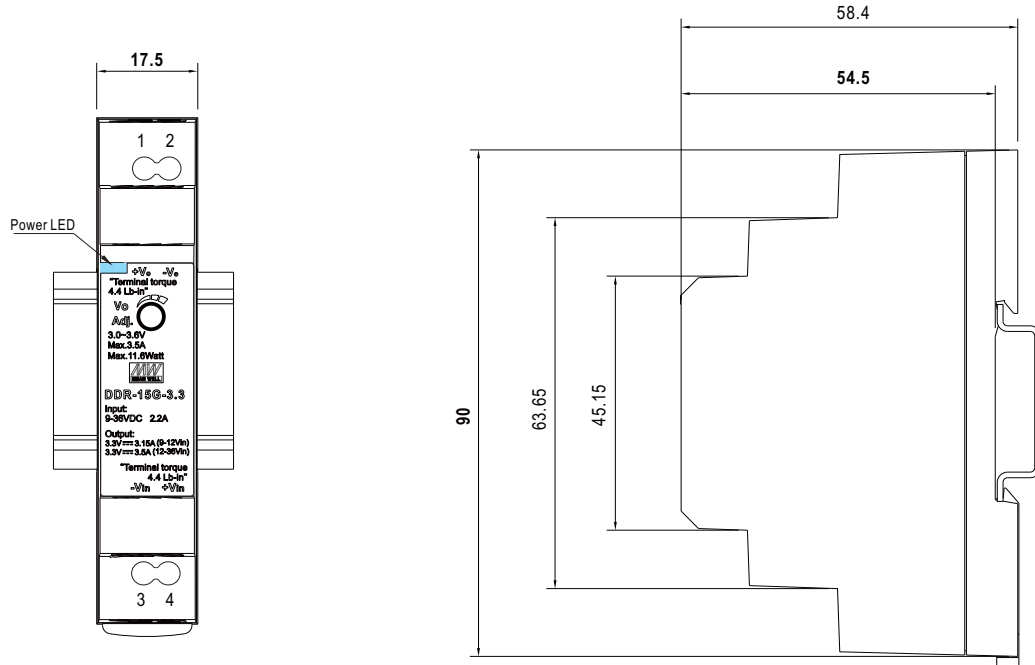


Output derating VS input voltage



Mechanical Specification

(Unit: mm , tolerance $\pm 0.5\text{mm}$)



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>



Feature

- Width only 35mm (2SU)
- 4:1 ultra wide input range
- -40~+85°C wide working temperature
- No minimum load required
- DC output adjustable ($\pm 10\%$)
- 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

Description

DDR-30 series is a 30W DIN Rail type DC-DC converter with main features including DIN rail-type easy installation, ultra slim width (35mm), 4:1 ultra wide input voltage, -40~+85°C wide operating temperature, 4KVdc I/O isolation, adjustable output voltage ($\pm 10\%$) and full protective functions...etc.

This series has two input options: 9~36V / 18~75V and various output options: 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 - 30 G - 24

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

Applications

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

GTIN CODE

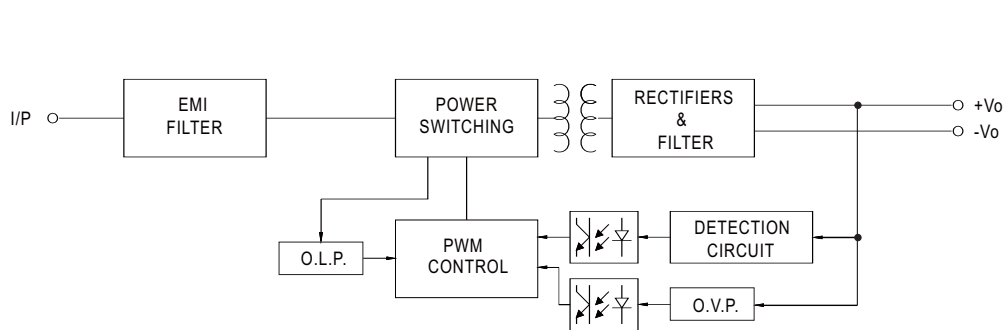
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>



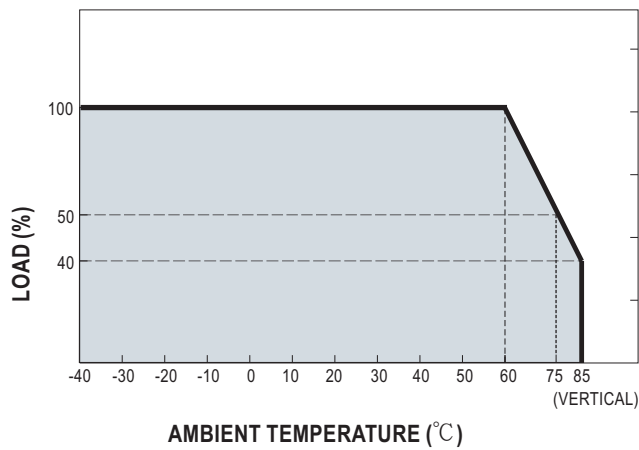
SPECIFICATION

MODEL		DDR-30G-5	DDR-30G-12	DDR-30G-15	DDR-30G-24	DDR-30L-5	DDR-30L-12	DDR-30L-15	DDR-30L-24	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	5V	12V	15V	24V	
	RATED CURRENT	6A	2.5A	2A	1.25A	6A	2.5A	2A	1.25A	
	CURRENT RANGE	0 ~ 6A	0 ~ 2.5A	0 ~ 2A	0 ~ 1.25A	0 ~ 6A	0 ~ 2.5A	0 ~ 2A	0 ~ 1.25A	
	RATED POWER	30W	30W	30W	30W	30W	30W	30W	30W	
	RIPPLE & NOISE (max.) Note.2	60mVp-p	75mVp-p	75mVp-p	100mVp-p	60mVp-p	75mVp-p	75mVp-p	100mVp-p	
	VOLTAGE ADJ. RANGE	4.5 ~ 5.5V	9 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 28V	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%	± 2.0%	± 2.0%	± 2.0%	
	LINE REGULATION	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	
	LOAD REGULATION	± 1.5%	± 0.5%	± 0.5%	± 0.5%	± 1.5%	± 0.5%	± 0.5%	± 0.5%	
	SETUP, RISE TIME	120ms, 85ms at full load								
HOLD UP TIME (Typ.)	G-type: 7ms@24Vdc input					L-type: 18ms@48Vdc input				
EXTERNAL CAPACITANCE LOAD (Max.)	3300 μF	2200 μF	1500 μF	1000 μF	3300 μF	2200 μF	1500 μF	1000 μF		
INPUT	VOLTAGE RANGE Note.4	9 ~ 36Vdc					18 ~ 75Vdc			
	EFFICIENCY (Typ.)	85%	86%	87%	89%	86%	89%	90%	91%	
	DC CURRENT (Typ.)	1.5A/24Vdc					0.8A/48Vdc			
	INRUSH CURRENT (Typ.)	15A/24Vdc					15A/48Vdc			
PROTECTION	OVERLOAD	110 ~ 150% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE	5.75 ~ 7V	13.8 ~ 16.2V	17.25 ~ 20.25V	28.8 ~ 34V	5.75 ~ 7V	13.8 ~ 16.2V	17.25 ~ 20.25V	28.8 ~ 34V	
		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	24Vin (G-type):Power ON ≥ 9V , OFF ≤ 8.5V 48Vin (L-type):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	5000 meters								
SAFETY & EMC (Note 5)	SAFETY STANDARDS	UL/IEC 62368-1 ,AS/NZS 62368.1 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				BS EN/EN55032				Class B
		Radiated				BS EN/EN55032				Class B
		Voltage Flicker				BS EN/EN61000-3-3				-----
	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 ; 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
OTHERS	MTBF	2780.3K hrs min. Telcordia SR-332 (Bellcore) ; 483.8K hrs min. MIL-HDBK-217F (25℃)								
	DIMENSION	35*90*54.5mm (W*H*D)								
	PACKING	0.12Kg;96pcs/12.5Kg/1.1CUFT								
NOTE	1. All parameters NOT specially mentioned are measured at normal input (G:24Vdc, L:48Vdc), 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 μ F & 47 μ F 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) 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). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx									

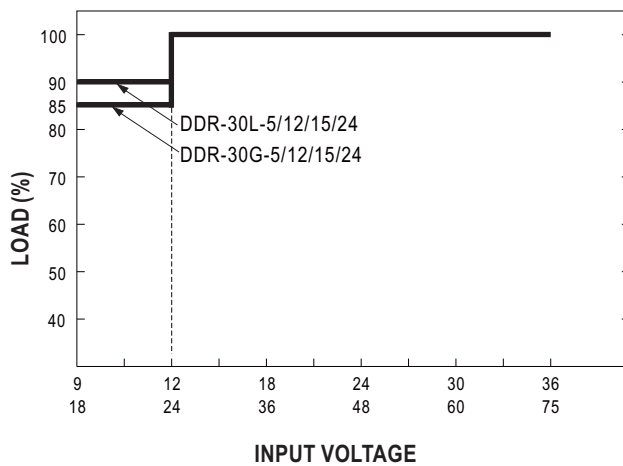
Block Diagram



Derating Curve

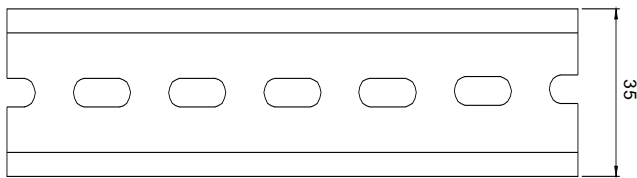
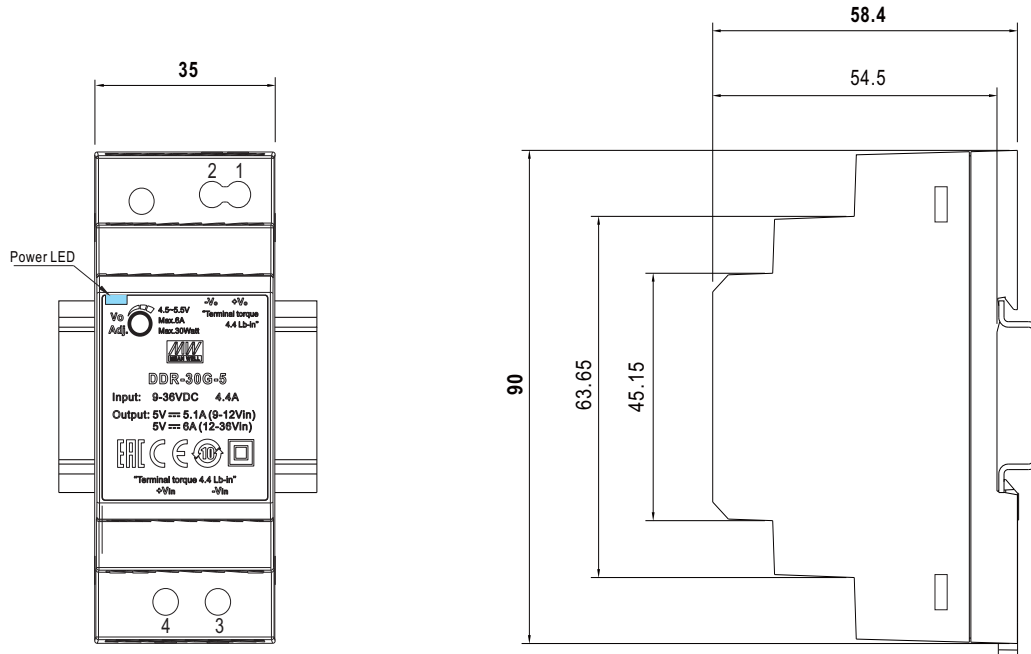


Output derating VS input voltage



■ Mechanical Specification

(Unit: mm , tolerance $\pm 0.5\text{mm}$)



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>



User's Manual



Feature

- Width only 52.5mm (3SU)
- 4:1 ultra wide input range
- -40~+85°C wide working temperature
- No minimum load required
- DC output adjustable ($\pm 10\%$)
- 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

GTIN CODE

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

Description

DDR-60 series is a 60W DIN Rail type DC-DC converter with main features including DIN rail-type easy installation, ultra slim width (52.5mm), 4:1 ultra wide input voltage, -40~+85°C wide operating temperature, 4KVdc I/O isolation, adjustable output voltage ($\pm 10\%$) and full protective functions...etc.

This series has two input options: 9~36V / 18~75V and various output options: 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 - 60 G - 24

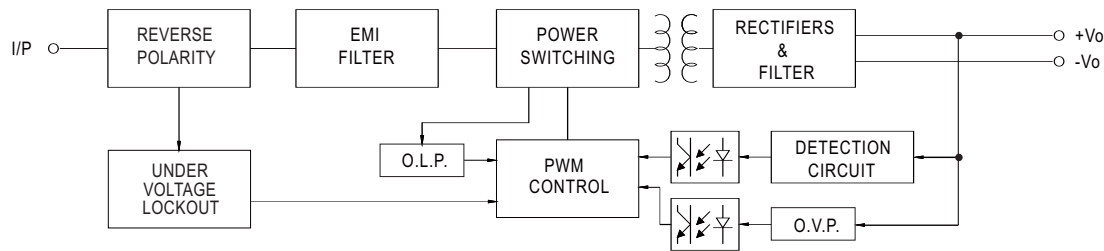
- Output voltage(5/12/15/24Vdc)
- Input voltage (G: 9~36Vdc, L: 18~75Vdc)
- Rated wattage
- Series name



SPECIFICATION

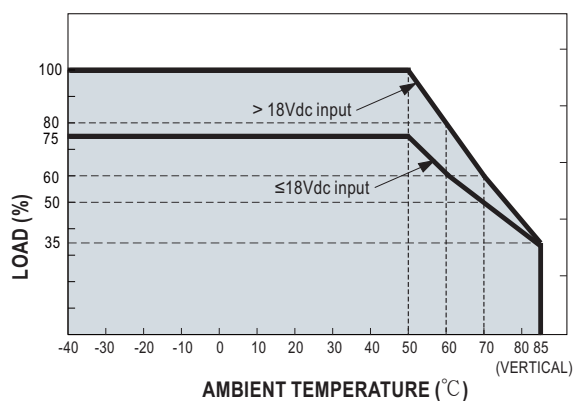
MODEL		DDR-60G-5	DDR-60G-12	DDR-60G-15	DDR-60G-24	DDR-60L-5	DDR-60L-12	DDR-60L-15	DDR-60L-24	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	5V	12V	15V	24V	
	RATED CURRENT	10.8A	5A	4A	2.5A	12A	5A	4A	2.5A	
	CURRENT RANGE	0 ~ 10.8A	0 ~ 5A	0 ~ 4A	0 ~ 2.5A	0 ~ 12A	0 ~ 5A	0 ~ 4A	0 ~ 2.5A	
	RATED POWER	54W	60W	60W	60W	60W	60W	60W	60W	
	RIPPLE & NOISE (max.) Note.2	60mVp-p	75mVp-p	75mVp-p	100mVp-p	60mVp-p	75mVp-p	75mVp-p	100mVp-p	
	VOLTAGE ADJ. RANGE	4.5 ~ 5.5V	9 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 28V	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%	±2.0%	±2.0%	±2.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±1.5%	±0.5%	±0.5%	±0.5%	±1.5%	±0.5%	±0.5%	±0.5%	
	SETUP, RISE TIME	120ms, 85ms at full load								
HOLD UP TIME (Typ.)	G-type: 5ms@24Vdc input					L-type: 10ms@48Vdc input				
EXTERNAL CAPACITANCE LOAD (Max.)	6800 μF	4700 μF	3300 μF	2200 μF	6800 μF	4700 μF	3300 μF	2200 μF		
INPUT	VOLTAGE RANGE Note.4	9 ~ 36Vdc					18 ~ 75Vdc			
	EFFICIENCY (Typ.)	87.5%	91%	91%	91%	87.5%	91%	92%	92%	
	DC CURRENT (Typ.)	3A /24Vdc					1.5A/48Vdc			
	INRUSH CURRENT (Typ.)	20A /24Vdc					20A/48Vdc			
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE	5.75 ~ 7V	13.8 ~ 16.2V	17.25 ~ 20.25V	28.8 ~ 34V	5.75 ~ 7V	13.8 ~ 16.2V	17.25 ~ 20.25V	28.8 ~ 34V	
		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	24Vin (G-type):Power ON≥9V , OFF≤8.5V 48Vin (L-type):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								
SAFETY & EMC (Note 5)	OPERATING ALTITUDE	5000 meters								
	SAFETY STANDARDS	IEC 62368-1, UL 62368-1, AS/NZS 62368-1, EAC TP TC 004 approved								
	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	BS EN/EN55032			Class A				
		Radiated	BS EN/EN55032			Class A for 1m I/O cable , Class B for 30cm I/O cable				
		Voltage Flicker	BS EN/EN61000-3-3			-----				
	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 ; 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					
OTHERS	MTBF	3261.6K hrs min. Telcordia SR-332 (Bellcore) ; 611.1K hrs min. MIL-HDBK-217F (25℃)								
	DIMENSION	52.5*90*54.5mm (W*H*D)								
	PACKING	216g; 60pcs/14Kg/0.97CUFT								
NOTE	1. All parameters NOT specially mentioned are measured at normal input (G:24Vdc, L:48Vdc), 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 μ F & 47 μ F 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) 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). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx									

Block Diagram

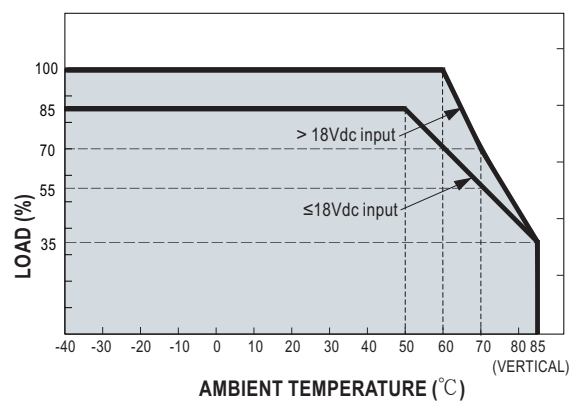


Derating Curve

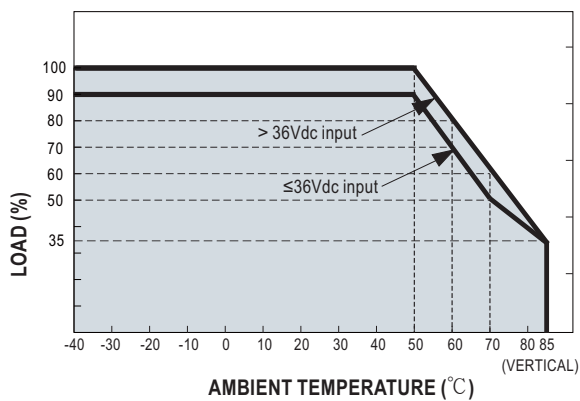
DDR-60G-5



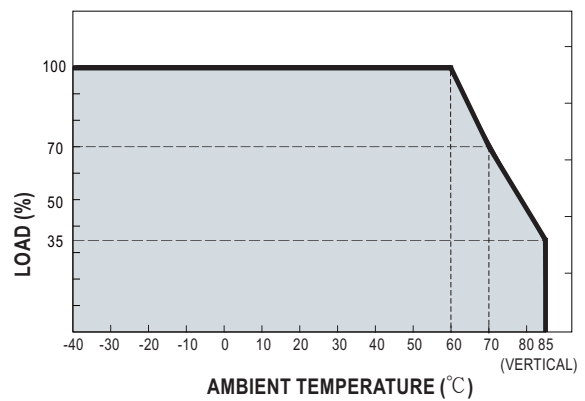
DDR-60G-12/15/24



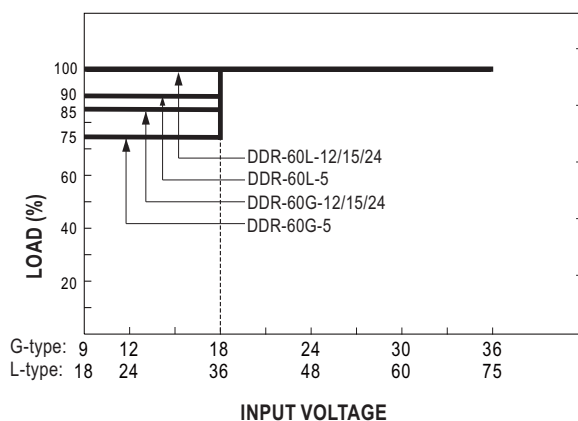
DDR-60L-5



DDR-60L-12/15/24



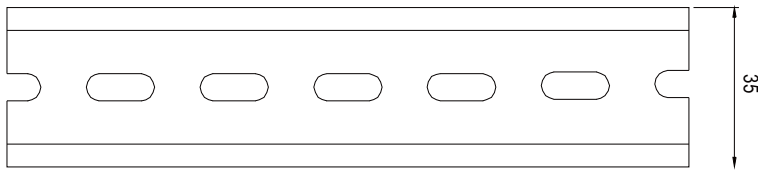
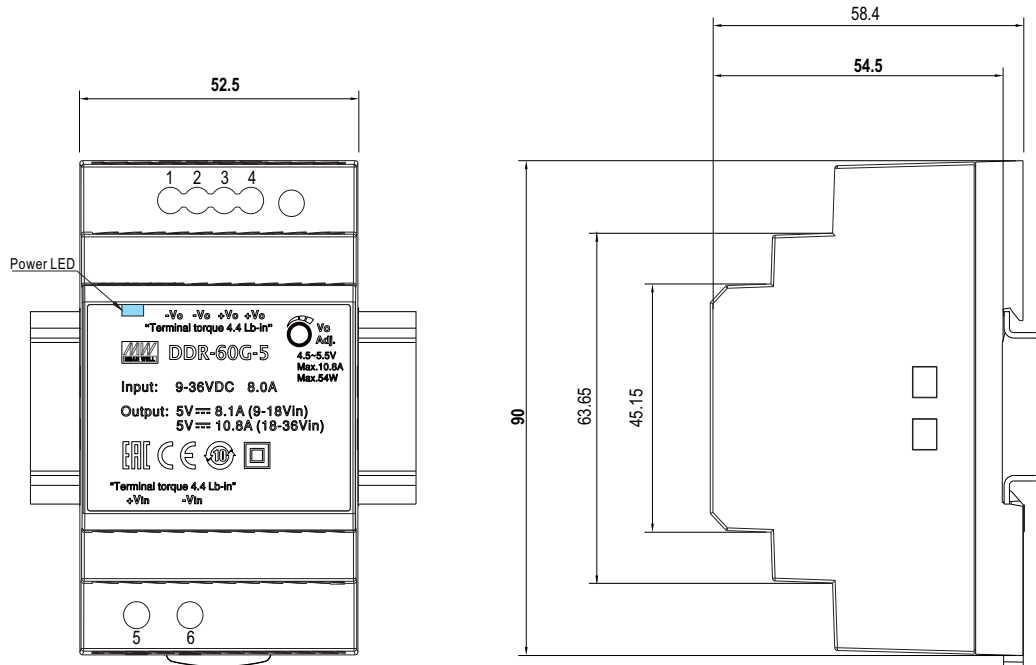
Output derating VS input voltage



Mechanical Specification

(Unit: mm , tolerance ± 1 mm)

Case No. DDR-60



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

Pin No.	Assignment
1,2	DC output -Vo
3,4	DC output +Vo
5	DC input +Vin
6	DC input -Vin

Installation Manual

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



120W DIN Rail Type DC-DC Converter

DDR-120 series



User's Manual



Features

- Compliance to BS EN/EN50155 and BS EN/EN45545-2 railway standard
- Width only 32mm
- 2:1 wide input range
- -40~+70°C wide working temperature
- 150% peak load capability
- 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 / Input reverse polarity / Input under voltage protection
- 4KVdc I/O isolation(Reinforced isolation)
- 3 years warranty

Description

DDR-120 series is a 120W DIN Rail type DC-DC converter with main features including DIN rail-type easy installation, ultra slim width (32mm), 2:1 wide input voltage, fanless design, -40~+70°C wide operating temperature, 4KVdc I/O isolation, 150% peak load, adjustable output voltage and full protective functions.

This series of models has various input options: 9~18V / 16.8~33.6V / 33.6~67.2V / 67.2~154V and various output options: 12V / 24V / 48V and can be used for industrial & railway control, security control, communication system and other fields. Suitable applications include DC buck/boost regulator, increasing system insulation level and voltage drop compensation along cable...etc.

Model Encoding

DDR-120A-24

- Output voltage(12/24/48Vdc)
- Input voltage (A: 9~18Vdc, B:16.8~33.6Vdc, C:33.6~67.2Vdc, D:67.2~154Vdc)
- Rated wattage
- Series name

Applications

- Bus, tram, metro or railway system
- Industrial control system
- Semi-conductor 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-120A-12	DDR-120A-24	DDR-120A-48	DDR-120B-12	DDR-120B-24	DDR-120B-48
OUTPUT	DC VOLTAGE	12V	24V	48V	12V	24V	48V
	RATED CURRENT	8.3A	4.2A	2.1A	10A	5A	2.5A
	CURRENT RANGE	0 ~ 8.3A	0 ~ 4.2A	0 ~ 2.1A	0 ~ 10A	0 ~ 5A	0 ~ 2.5A
	RATED POWER	99.6W	100.8W	100.8W	120W	120W	120W
	PEAK CURRENT	12.45A	6.3A	3.15A	15A	7.5A	3.75A
	PEAK POWER	Note.5 150W (3sec.)			180W (3sec.)		
	RIPPLE & NOISE (max.)	Note.2 50mVp-p	50mVp-p	50mVp-p	50mVp-p	50mVp-p	50mVp-p
	VOLTAGE ADJ. RANGE	9 ~ 14V	24 ~ 28V	48 ~ 56V	9 ~ 14V	24 ~ 28V	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 @12Vdc			500ms, 60ms @24Vdc		
HOLD UP TIME (Typ.)	Please refer to page 7 Hold up Time(Load de-rating curve)						
INPUT	VOLTAGE RANGE	Note.4 9 ~ 18Vdc	9 ~ 18Vdc	9 ~ 18Vdc	16.8 ~ 33.6Vdc	16.8 ~ 33.6Vdc	16.8 ~ 33.6Vdc
	EFFICIENCY (Typ.)	88.5%	88.5%	88.5%	89%	89.5%	91%
	DC CURRENT (Typ.)	11.2A @12Vdc			5.6A @24Vdc		
	INRUSH CURRENT (Typ.)	5A @12Vdc			5A @ 24Vdc		
	INTERRUPTION OF VOLTAGE SUPPLY	EN50155:2007-comply with 3ms@ full load EN50155:2017-comply with S1 level			EN50155:2007-comply with S1 level (6ms) @ full load, S2 level (10ms) @ 70% load EN50155:2017-comply with S1 level		
PROTECTION	OVERLOAD	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					
	OVER VOLTAGE	14.4 ~ 16.8V	28.8 ~ 33.6V	57.6 ~ 67.2V	14.4 ~ 16.8V	28.8 ~ 33.6V	57.6 ~ 67.2V
	REVERSE POLARITY	By internal MOSFET, no damage, recovers automatically after fault condition removed					
	UNDER VOLTAGE LOCKOUT	12Vin (A - type) :Power ON≥9V , OFF≤8.5V			24Vin (B - type) :Power ON≥16.8V , OFF≤16.5V		
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, Z axes; Mounting: Compliance to IEC61373					
	OPERATING ALTITUDE	5000 meters					
SAFETY & EMC (Note 6)	SAFETY STANDARDS	IEC 62368-1, UL 62368-1, EAC TP TC 004, AS/NZS 62368.1 approved; Design refer to UL508					
	WITHSTAND VOLTAGE	I/P-O/P:4KVdc I/P-FG:2.5KVdc O/P-FG:2.5KVdc					
	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 (except for 9~18Vin)					
OTHERS	MTBF	1769.5K hrs min. Telcordia SR-332 (Bellcore) ; 214.5K hrs min. MIL-HDBK-217F (25℃)					
	DIMENSION	32*125.2*102mm (W*H*D)					
	PACKING	510g; 28pcs/15.3Kg/1.22CUFT					

NOTE

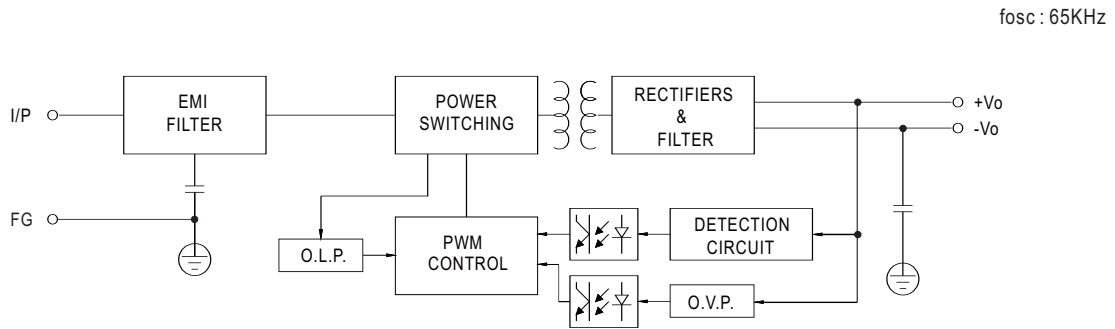
1. All parameters NOT specially mentioned are measured at normal input (A:12Vdc , B:24Vdc) , rated load and 25°C of ambient temperature.
 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ F & 47 μ F parallel capacitor.
 3. Tolerance : includes 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 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)
 7. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).
- ※ Product Liability Disclaimer : For detailed information, please refer to <https://www.meanwell.com/serviceDisclaimer.aspx>



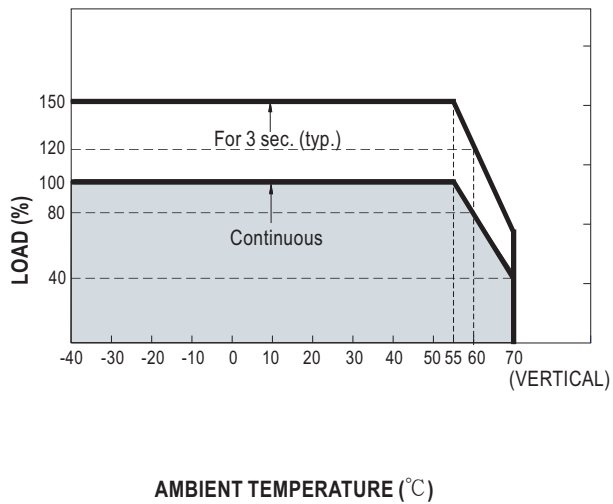
SPECIFICATION

MODEL		DDR-120C-12	DDR-120C-24	DDR-120C-48	DDR-120D-12	DDR-120D-24	DDR-120D-48
OUTPUT	DC VOLTAGE	12V	24V	48V	12V	24V	48V
	RATED CURRENT	10A	5A	2.5A	10A	5A	2.5A
	CURRENT RANGE	0 ~ 10A	0 ~ 5A	0 ~ 2.5A	0 ~ 10A	0 ~ 5A	0 ~ 2.5A
	RATED POWER	120W	120W	120W	120W	120W	120W
	PEAK CURRENT	15A	7.5A	3.75A	15A	7.5A	3.75A
	PEAK POWER	Note.5 180W (3sec.)					
	RIPPLE & NOISE (max.)	Note.2 50mVp-p	50mVp-p	50mVp-p	50mVp-p	50mVp-p	50mVp-p
	VOLTAGE ADJ. RANGE	9 ~ 14V	24 ~ 28V	48 ~ 56V	9 ~ 14V	24 ~ 28V	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 @48Vdc			500ms, 60ms @110Vdc			
HOLD UP TIME (Typ.)	Please refer to page 7 Hold up Time(Load de-rating curve)						
INPUT	VOLTAGE RANGE	Note.4 33.6 ~ 67.2Vdc	33.6 ~ 67.2Vdc	33.6 ~ 67.2Vdc	67.2 ~ 154Vdc	67.2 ~ 154Vdc	67.2 ~ 154Vdc
	EFFICIENCY (Typ.)	89.5%	91%	92%	89.5%	91%	91.5%
	DC CURRENT (Typ.)	2.8A @48Vdc			1.3A @110Vdc		
	INRUSH CURRENT (Typ.)	5A @48Vdc			5A @110Vdc		
	INTERRUPTION OF VOLTAGE SUPPLY	EN50155:2007-comply with S1 level (6ms) @ full load, S2 level (10ms) @ 60% load EN50155:2017-comply with S1 level			EN50155:2007-comply with S2 level (10ms) @ full load EN50155:2017-comply with S1 level		
PROTECTION	OVERLOAD	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					
	OVER VOLTAGE	14.4 ~ 16.8V	28.8 ~ 33.6V	57.6 ~ 67.2V	14.4 ~ 16.8V	28.8 ~ 33.6V	57.6 ~ 67.2V
	REVERSE POLARITY	Protection type : Shut down o/p voltage, re-power on to recover By internal MOSFET, no damage, recovers automatically after fault condition removed					
	UNDER VOLTAGE LOCKOUT	48Vin (C - type) :Power ON≥33.6V , OFF≤33V			110Vin (D - type):Power ON≥67.2V , OFF≤65V		
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, Z axes; Mounting: Compliance to IEC61373					
	OPERATING ALTITUDE	5000 meters					
SAFETY & EMC (Note 6)	SAFETY STANDARDS	IEC 62368-1, UL 62368-1, EAC TP TC 004, AS/NZS 62368.1 approved; Design refer to UL508					
	WITHSTAND VOLTAGE	I/P-O/P:4KVdc I/P-FG:2.5KVdc O/P-FG:2.5KVdc					
	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	1769.5K hrs min. Telcordia SR-332 (Bellcore) ; 214.5K hrs min. MIL-HDBK-217F (25℃)					
	DIMENSION	32*125.2*102mm (W*H*D)					
	PACKING	510g; 28pcs/15.3Kg/1.22CUFT					
NOTE	1. All parameters NOT specially mentioned are measured at normal input (C:48Vdc , D:110Vdc) , 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 μ F & 47 μ F 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 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) 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). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx						

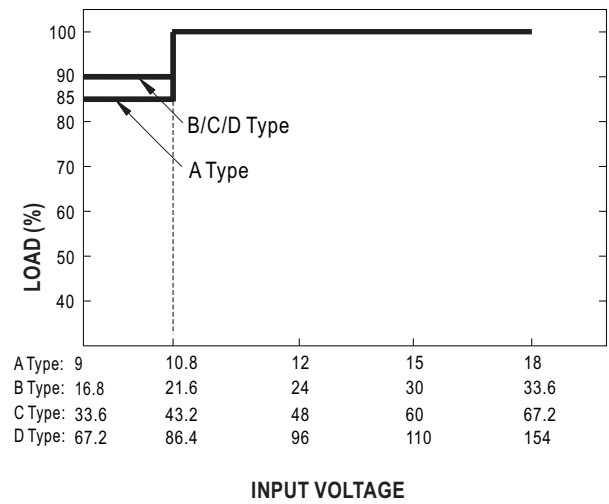
Block Diagram



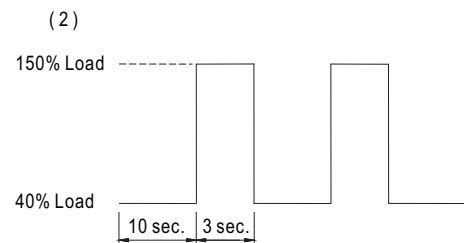
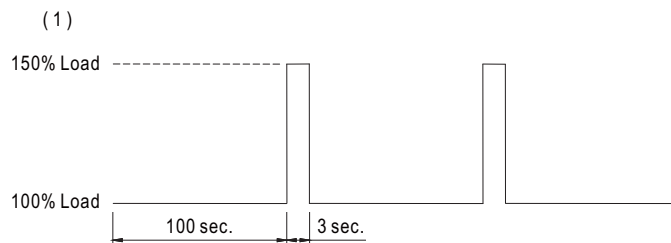
Derating Curve



Output derating VS input voltage



Peak Loading



Input Fuse

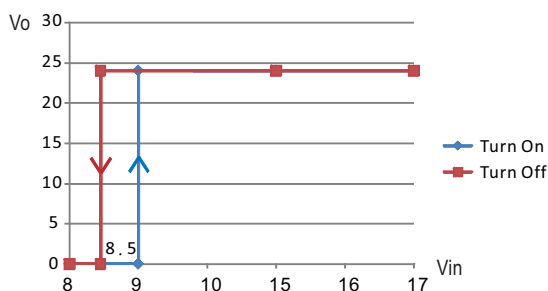
There is a fuse connected in series to the positive input line, which is used to protect against abnormal surge. Fuse specifications of each model are shown as below.

Type	Fuse Type	Reference and Rating
A	Time-Lag	Conquer MST, 10A, 250V *2
B	Time-Lag	Conquer MST, 8A, 250V *2
C	Time-Lag	Conquer MST, 8A, 250V *1
D	Time-Lag	Conquer MST, 4A, 250V *1

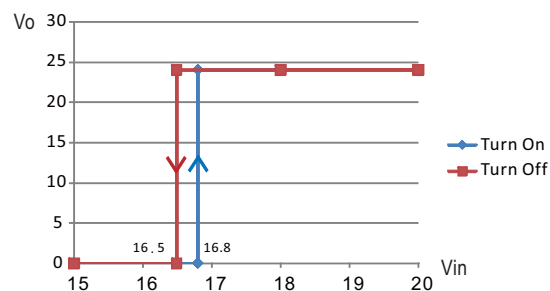
Input Under-Voltage Protection

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

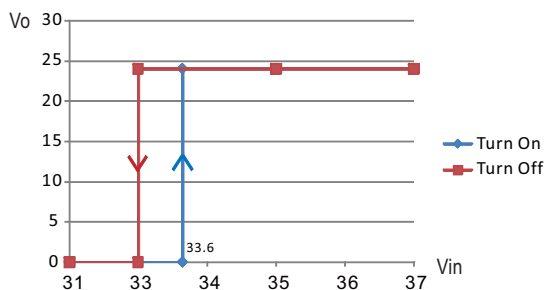
DDR-120A-24



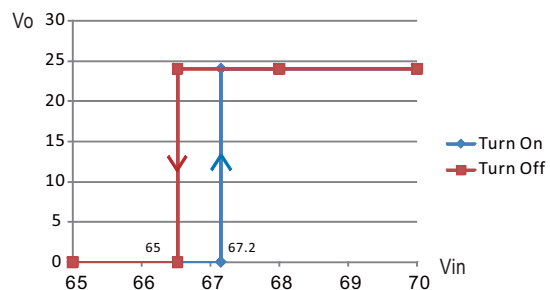
DDR-120B-24



DDR-120C-24



DDR-120D-24



■ Input Reverse Polarity Protection

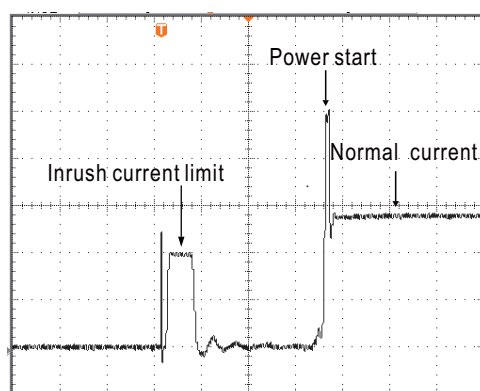
There is a MOSFET connected in series to the negative input line. If the input polarity is connected reversely, the MOSFET opens and there will be no output to protect the unit.

■ Input Range and Transient Ability

The series has a wide range input capability. With -30% / +40% of rated input voltage(except A Type), it can withstand that for 1 second.

■ Inrush Current

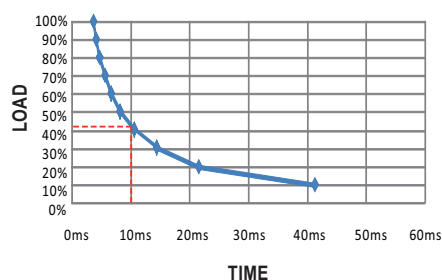
Inrush current is suppressed by a current limit circuit during the initial start-up, and then the circuit is bypassed by a MOSFET to reduce power consumption after accomplishing the start-up.



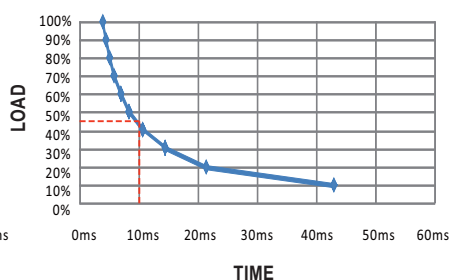
■ Hold-up Time

- EN50155: 2007 version -D type is in compliance with S2 level (10ms), while A types are in compliance with S1 level (3ms) at full load output condition. To fulfil the requirements of S2 level (10ms), B types require de-rating their output load to 70%, C types require de-rating their output load to 60%, please refer to the curve diagrams below.

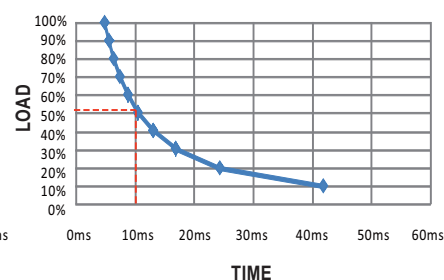
DDR-120A-12



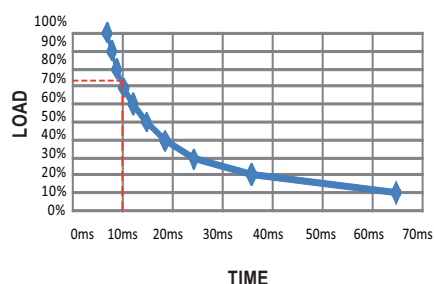
DDR-120A-24



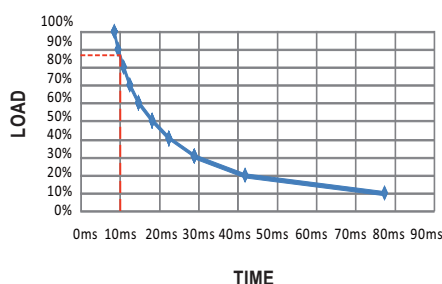
DDR-120A-48



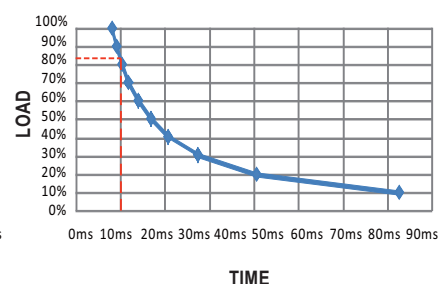
DDR-120B-12



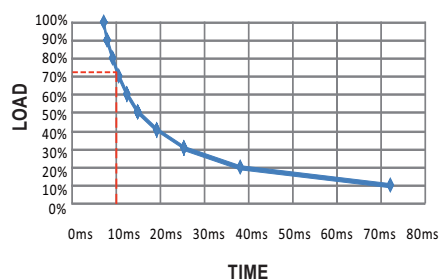
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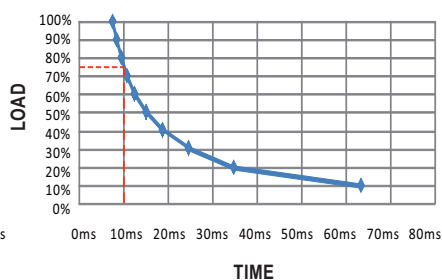
DDR-120B-48



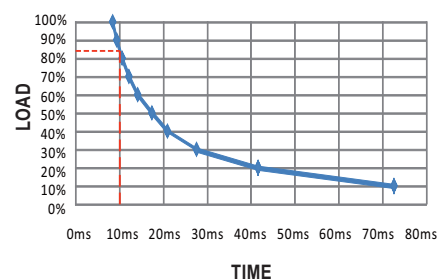
DDR-120C-12



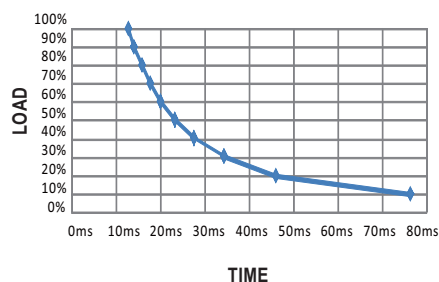
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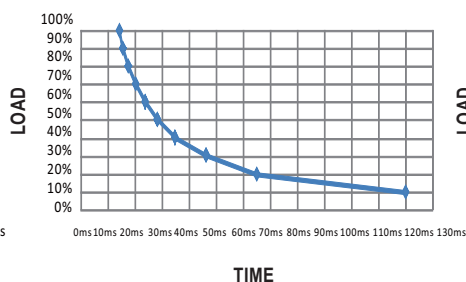
DDR-120C-48



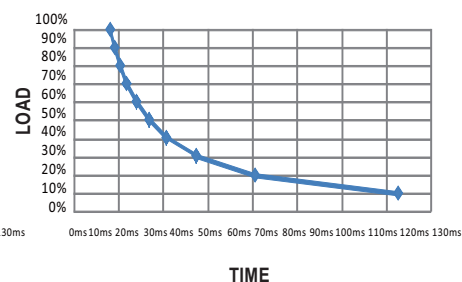
DDR-120D-12



DDR-120D-24



DDR-120D-48

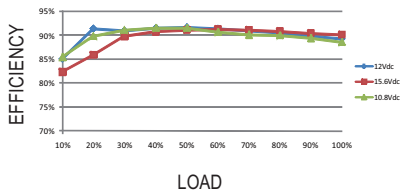


- EN50155: 2017 version - Comply with S1 level (6ms)

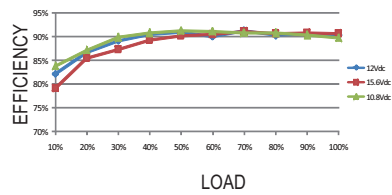
■ Efficiency vs Load & Vin Curve

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

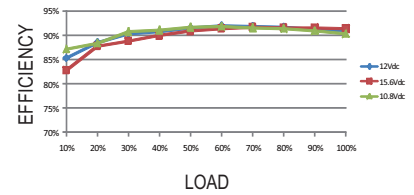
DDR-120A-12



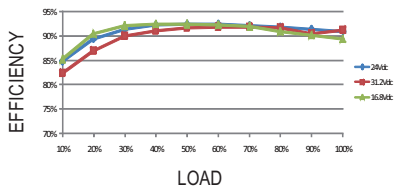
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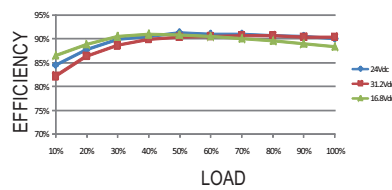
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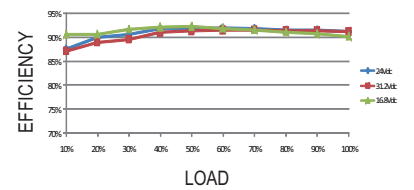
DDR-120B-12



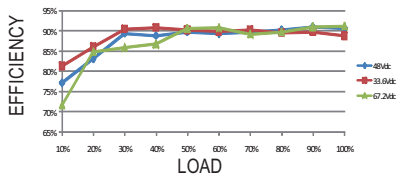
DDR-120B-24



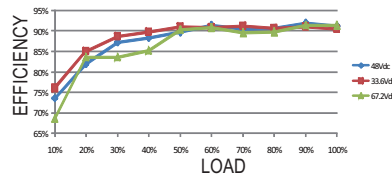
DDR-120B-48



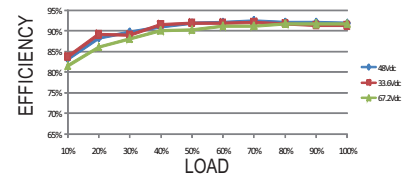
DDR-120C-12



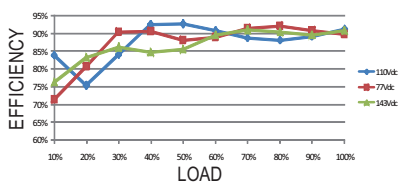
DDR-120C-24



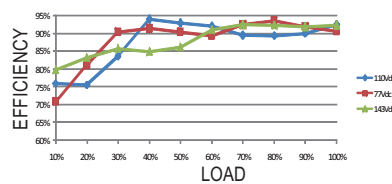
DDR-120C-48



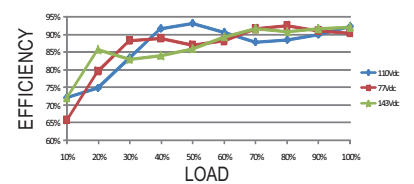
DDR-120D-12



DDR-120D-24



DDR-120D-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

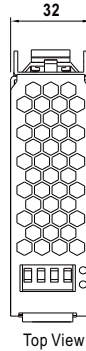
■ EN45545-2 Fire Test Conditions

Test Items			Hazard Level		
	Items	Standard	HL1	HL2	HL3
R22	Oxygen index test	EN 45545-2:2013 EN ISO 4589-2:1996	PASS	PASS	PASS
	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

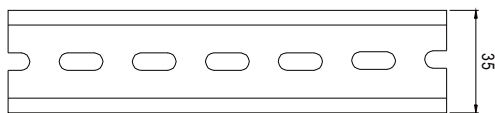
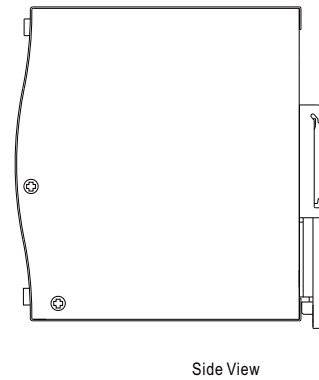
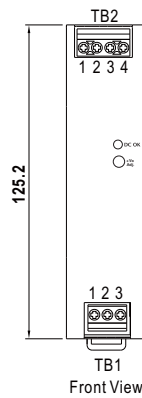
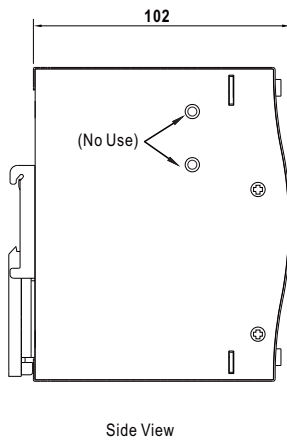
(Unit: mm , tolerance ± 1 mm)

Case No. 221

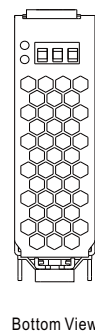


Terminal Pin No. Assignment (TB2)

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



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



Terminal Pin No. Assignment (TB1)

Pin No.	Assignment
1	FG $\oplus$
2	DC Input -Vin
3	DC Input +Vin

Installation Manual

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



User's Manual



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 I/O isolation(Reinforced isolation)
- DC OK 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, -40~+70°C wide operating temperature, 4KVdc I/O 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 system and other fields. Suitable applications include to DC buck/boost regulator, increasing system insulation level and voltage drop compensation along cable...etc.

Model Encoding

DDR - 240 B - 24

- Output voltage(24/48Vdc)
- Input voltage (B:16.8~33.6Vdc, C:33.6~67.2Vdc, D:67.2~154Vdc)
- Rated wattage
- Series name

Applications

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

GTIN CODE

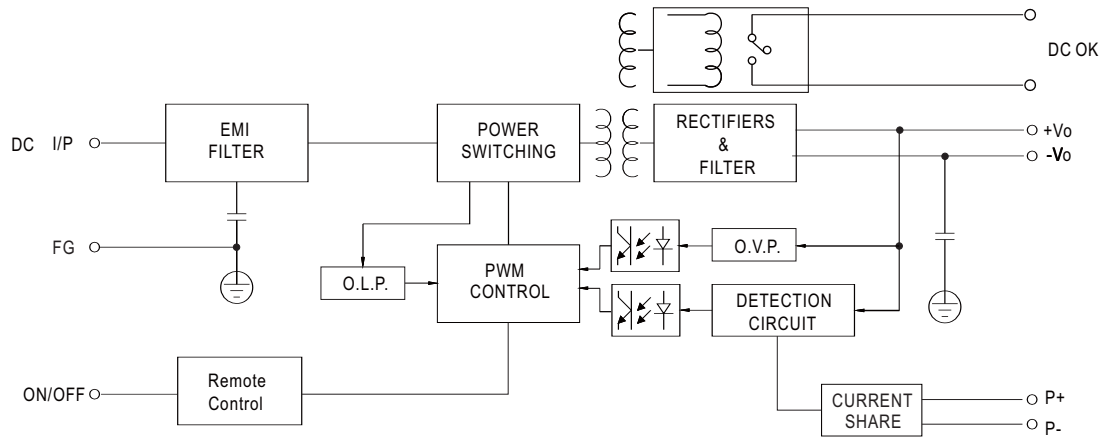
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

SPECIFICATION

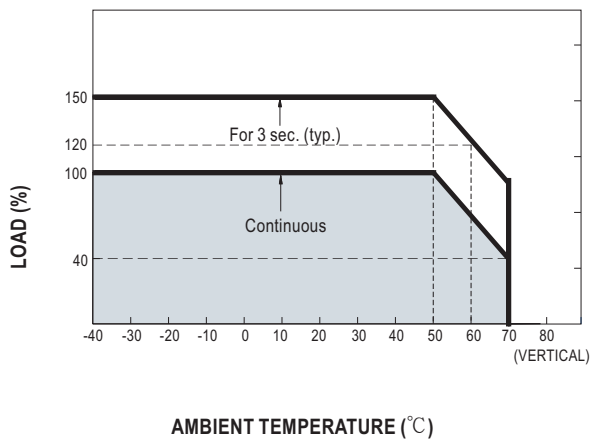
MODEL		DDR-240B-24	DDR-240B-48	DDR-240C-24	DDR-240C-48	DDR-240D-24	DDR-240D-48	
OUTPUT	DC VOLTAGE		24V	48V	24V	48V	24V	48v
	RATED CURRENT		10A	5A	10A	5A	10A	5A
	CURRENT RANGE		0 ~ 10A	0 ~ 5A	0 ~ 10A	0 ~ 5A	0 ~ 10A	0 ~ 5A
	RATED POWER		240W	240W	240W	240W	240W	240W
	PEAK	CURRENT	15A	7.5A	15A	7.5A	15A	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 ~ 28V	48 ~ 56V	24 ~ 28V	48 ~ 56V	24 ~ 28V	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)						
INPUT	VOLTAGE RANGE Note.4	CONTINUOUS	16.8 ~ 33.6Vdc		33.6 ~ 67.2Vdc		67.2 ~ 154Vdc	
		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						
	OVER VOLTAGE	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 o/p voltage, re-power on to recover					
UNDER VOLTAGE LOCKOUT		24Vin (B - type) :Power ON≥16.8V , OFF≤16.5V		48Vin (C - type) :Power ON≥33.6V , 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, 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℃ / 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℃)					
	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 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 μ F & 47 μ F 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 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) 7. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than2000m(6500ft). ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx							

Block Diagram

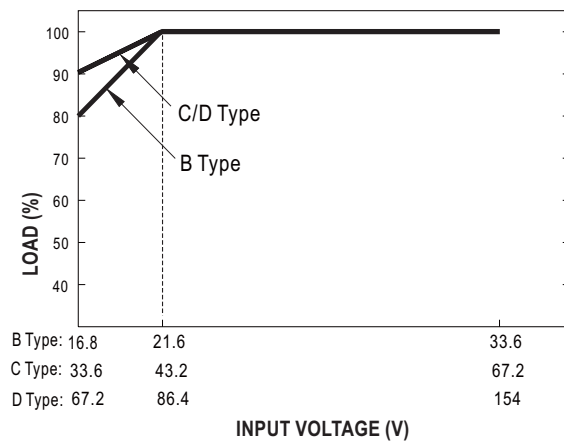
fosc : 80KHz



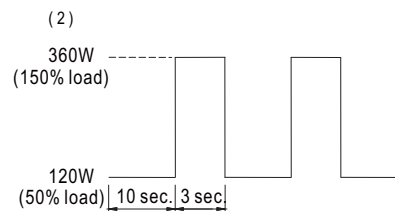
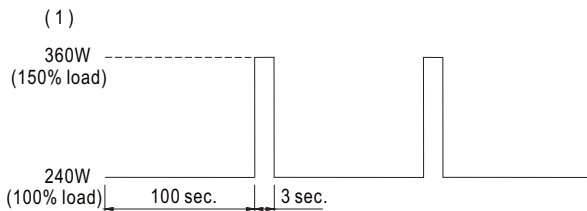
Derating Curve



Output derating VS input voltage



Peak Loading



■ DC OK Relay Contact

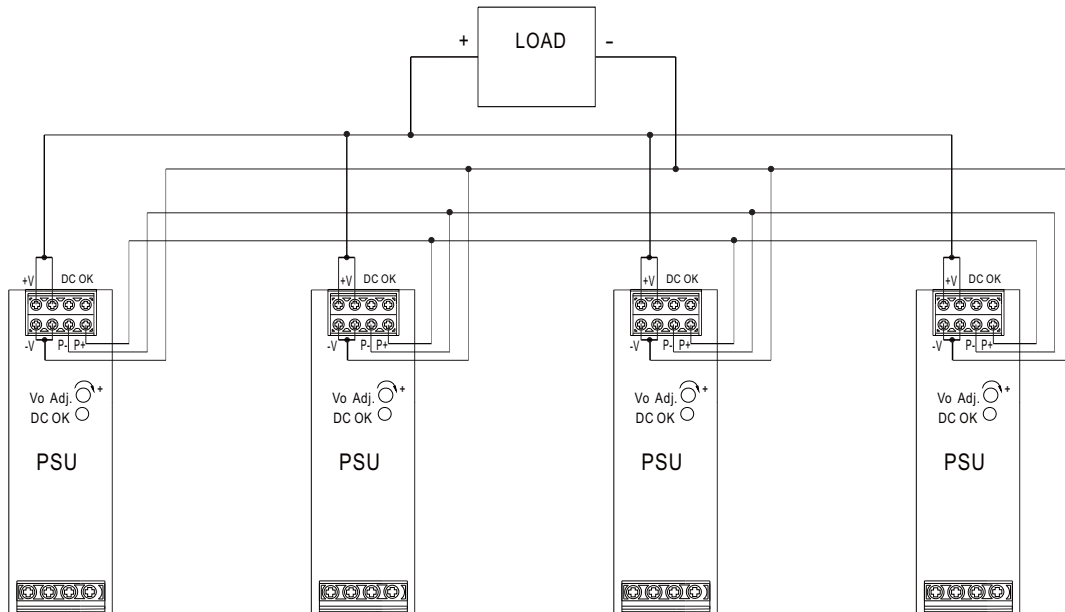
Contact Close	PSU turns on / DC OK.
Contact Open	PSU turns off / DC Fail.
Contact Ratings (max.)	30V/1A resistive load.

■ Function Manual

1. 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)

$$= (\text{The rated current per unit}) \times (\text{Number of unit}) \times 0.9.$$
- (4) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.
- (5) When in parallel operation, the minimum output load should be greater than 3% of total output load.
(Min. load > 3% rated current per unit x number of unit)



2. 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

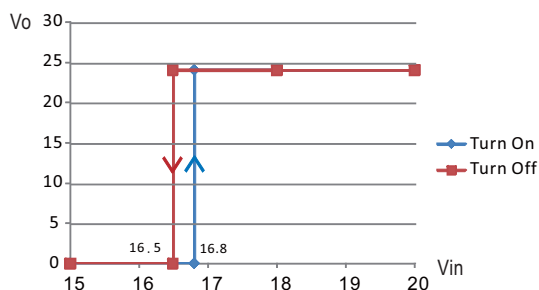
There is one fuse connected in series to the positive input line, which is used to protect against abnormal surge. Fuse specifications of each model are shown as below.

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

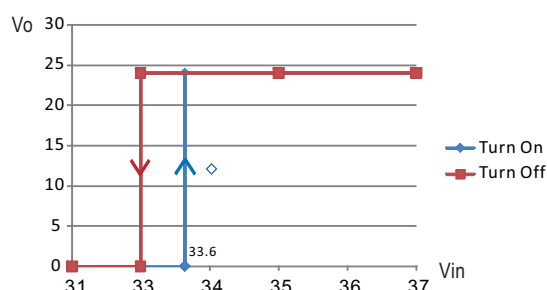
Input Under-Voltage Protection

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

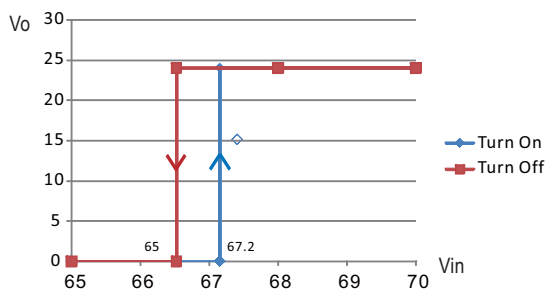
DDR-240B-24



DDR-240C-24



DDR-240D-24



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

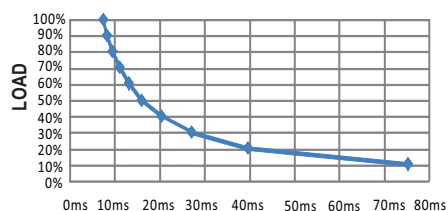
Inrush current is suppressed by a resistor during the initial start-up, and then the resistor is bypassed by a MOSFET to reduce power consumption after accomplishing the start-up.

■ 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 show below for the hold up time specification.

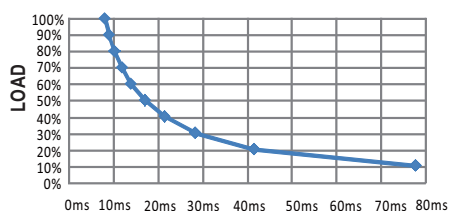
Model \ Load	100% load	70% load	other load
B type (24Vin)	6ms min.	10ms min.	figure 1,2
C type (48Vin)	8ms min.	11ms min.	figure 3,4
D type (110Vin)	11ms min.	15ms min.	figure 5,6

DDR-240B-24



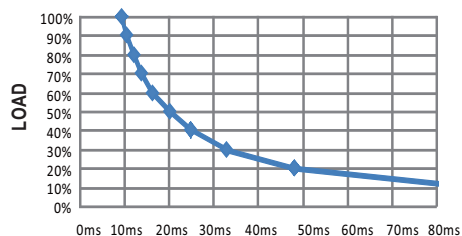
TIME
(figure 1)

DDR-240B-48



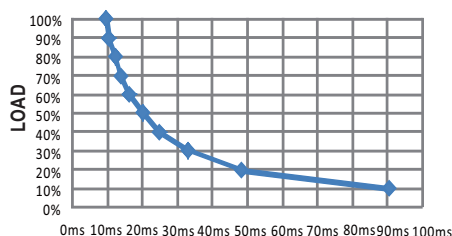
TIME
(figure 2)

DDR-240C-24



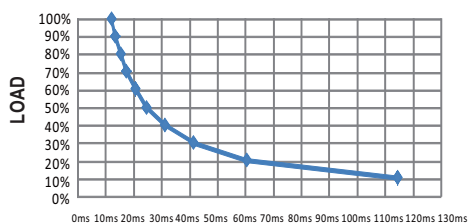
TIME
(figure 3)

DDR-240C-48



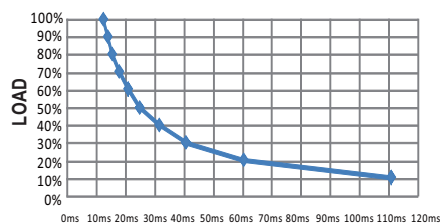
TIME
(figure 4)

DDR-240D-24



TIME
(figure 5)

DDR-240D-48



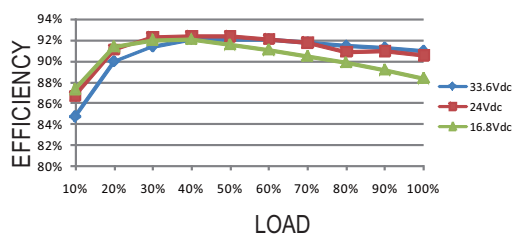
TIME
(figure 6)

- EN50155: 2017 version - Comply with S1 level

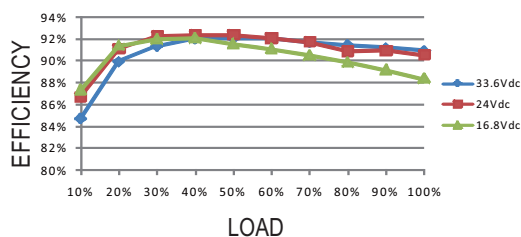
■ Efficiency vs Load & Vin Curve

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

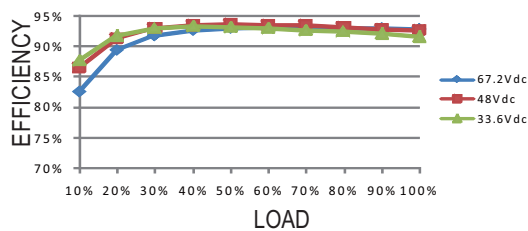
DDR-240B-24



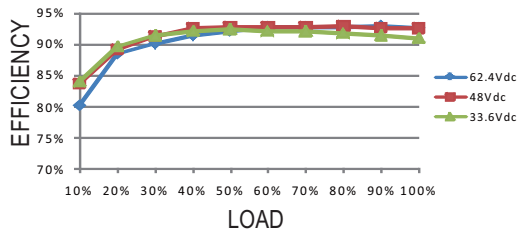
DDR-240B-48



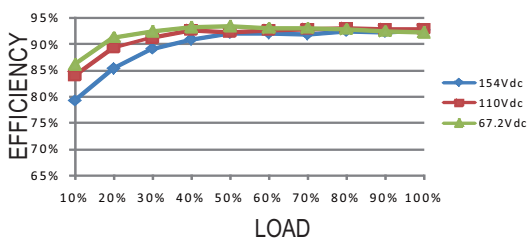
DDR-240C-24



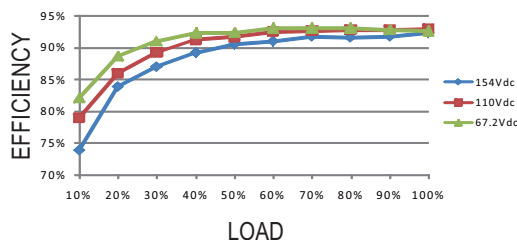
DDR-240C-48



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

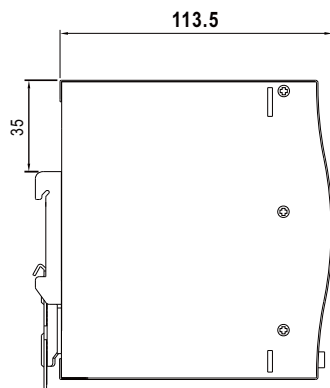
■ EN45545-2 Fire Test Conditions

Test Items			Hazard Level		
	Items	Standard	HL1	HL2	HL3
R22	Oxygen index test	EN 45545-2:2013 EN ISO 4589-2:1996	PASS	PASS	PASS
	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

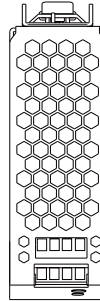
Mechanical Specification

(Unit: mm , tolerance ± 1 mm)

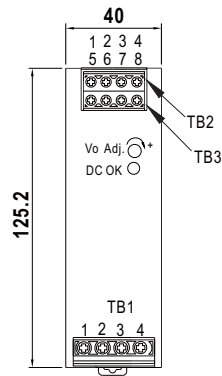
Case No.265A-D



Side View



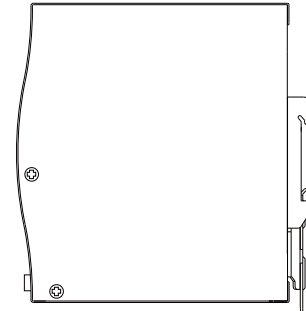
Top View



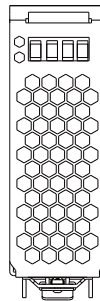
Front View

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

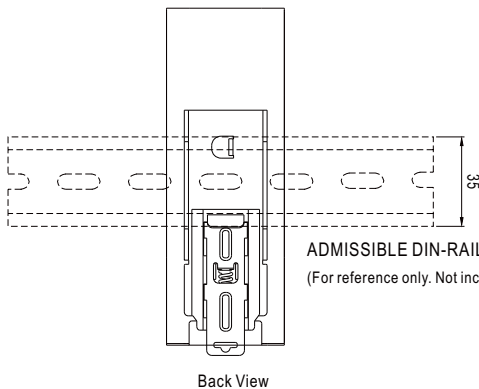


Bottom View

Terminal Pin No. Assignment (TB1)

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

Installation Instruction



Back View

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>



480W DIN Rail Type DC-DC Converter

DDR-480 series



User's Manual



Features

- Compliance to BS EN/EN50155 and BS EN/EN45545-2 railway standard
- Width only 85.5mm
- 2:1 wide input range
- -40~+80°C wide operating temperature
- 150% peak load capability
- Current sharing up to 1920W(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 I/O isolation(Reinforced isolation)
- DC OK relay contact
- Remote ON-OFF control
- Operating attitude up to 5000 meters(Note.6)
- 3 years warranty

Description

DDR-480 series is a 480W DIN Rail type DC-DC converter with main features including DIN rail-type easy installation, ultra slim width (85.5mm), 2:1 wide input voltage, fanless design, -40~+80°C wide operating temperature, 4KVdc I/O 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 multiple output options: 12V / 24V / 48V and can be used for industrial & railway control, security control, communication system and other fields. Suitable applications include to DC buck/boost regulator, increasing system insulation level and voltage drop compensation along cable...etc.

Model Encoding

DDR - 480 B - 24

- Output voltage(12/24/48Vdc)
- Input voltage (B:16.8~33.6Vdc, C:33.6~67.2Vdc, D:67.2~154Vdc)
- Rated wattage
- Series name

Applications

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

GTIN CODE

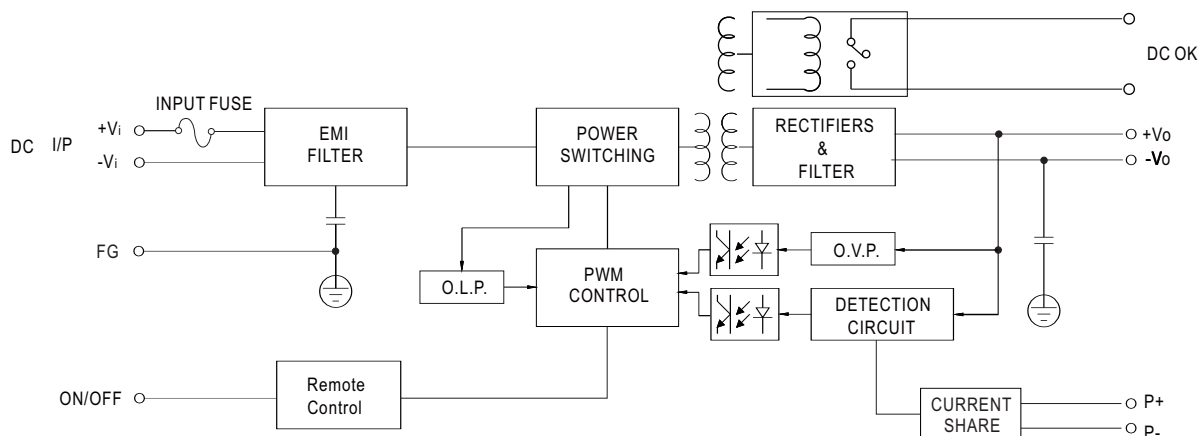
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

SPECIFICATION

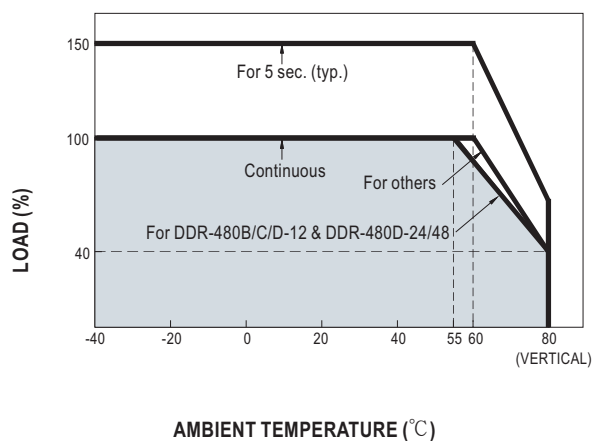
MODEL		DDR-480B-12	DDR-480B-24	DDR-480B-48	DDR-480C-12	DDR-480C-24	DDR-480C-48	DDR-480D-12	DDR-480D-24	DDR-480D-48	
OUTPUT	DC VOLTAGE	12V	24V	48V	12V	24V	48V	12V	24V	48V	
	RATED CURRENT	33.4A	20A	10A	33.4A	20A	10A	33.4A	20A	10A	
	CURRENT RANGE	0 ~ 33.4A	0 ~ 20A	0 ~ 10A	0 ~ 33.4A	0 ~ 20A	0 ~ 10A	0 ~ 33.4A	0 ~ 20A	0 ~ 10A	
	RATED POWER	400.8W	480W	480W	400.8W	480W	480W	400.8W	480W	480W	
	PEAK Note.5	CURRENT 5sec.	50.1A	30A	15A	50.1A	30A	15A	50.1A	30A	15A
		POWER 5sec.	12Vo: 601.2W, 24Vo / 48Vo : 720W								
	RIPPLE & NOISE (max.) Note.2	100mVp-p	120mVp-p	150mVp-p	100mVp-p	120mVp-p	150mVp-p	100mVp-p	120mVp-p	150mVp-p	
	VOLTAGE ADJ. RANGE	12 ~ 14V	24 ~ 28V	48~ 56V	12 ~ 14V	24 ~ 28V	48~ 56V	12 ~ 14V	24 ~ 28V	48~ 56V	
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%	±1.0%	±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%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±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)										
INPUT	VOLTAGE RANGE Note.4	CONTINUOUS	16.8 ~ 33.6Vdc			33.6 ~ 67.2Vdc			67.2 ~ 154Vdc		
		100ms	14.4 ~ 16.8Vdc			28.8 ~ 33.6Vdc			66 ~ 67.2Vdc		
	EFFICIENCY (Typ.)	90%	91%	90.5%	91%	92%	92%	91%	92%	93%	
	DC CURRENT (Typ.)	23A @24Vdc			11.2A @48Vdc			5A @110Vdc			
	INRUSH CURRENT (Typ.)	30A									
INTERRUPTION OF VOLTAGE SUPPLY	EN50155: 2017-B/C/D type comply with S2 level (10ms)@ full load										
PROTECTION	OVERLOAD Note.5	Normally works within 150% rated output power for more than 5 seconds and then constant current protection 105~135% rated output power with auto-recovery									
	OVER VOLTAGE	14.4 ~ 17.5V	28.8 ~ 35V	57.6 ~ 65V	14.4 ~ 17.5V	28.8 ~ 35V	57.6 ~ 65V	14.4 ~ 17.5V	28.8 ~ 35V	57.6 ~ 65V	
		Protection type : Shut down o/p voltage, re-power on to recover									
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover									
	REVERSE POLARITY	By internal, MOSFET, no damage, recovers automatically after fault condition is removed									
UNDER VOLTAGE LOCKOUT	24Vin (B - type) :Power ON≥16.8V , OFF≤16.5V			48Vin (C - type) :Power ON≥33.6V , 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 1920W (3+1 units). Please refer to the Function Manual									
	REMOTE ON-OFF CONTROL	Please refer to the Function Manual									
ENVIRONMENT	WORKING TEMP.	-40 ~ +80℃ (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, Z axes; Mounting: Compliance to IEC61373									
	OPERATING ALTITUDE Note.6	5000 meters / OVCII									
SAFETY & EMC (Note 7)	SAFETY STANDARDS	UL 62368-1, IEC 62368-1, AS/NZS 62368-1, EAC TP TC 004 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 (CISRP32)			Class A	
		Radiated					BS EN/EN55032 (CISRP32)			Class B	
		Voltage Flicker					BS EN/EN61000-3-3			-----	
		Harmonic Current					-----			-----	
	EMC IMMUNITY	BS EN/EN55035									
		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	750.3K hrs min. Telcordia SR-332 (Bellcore) ; 101.7K hrs min. MIL-HDBK-217F (25℃)									
	DIMENSION	85.5*125.2*129.2mm (W*H*D)									
	PACKING	1.375Kg;8pcs/12Kg/0.95CUFT									
NOTE	1. All parameters NOT specially mentioned are measured at normal input (B:24Vdc , C:48Vdc , D:110Vdc) , 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 0.1μF & 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. 150% 5 seconds, please refer to peak loading curves. 6. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than2000m(6500ft). 7. 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) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx										

Block Diagram

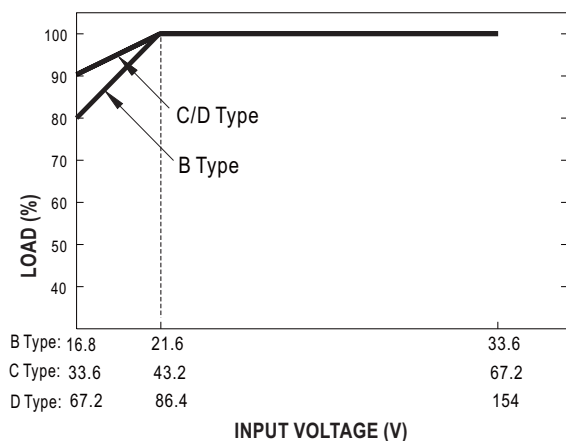
fosc : 65KHz



Derating Curve



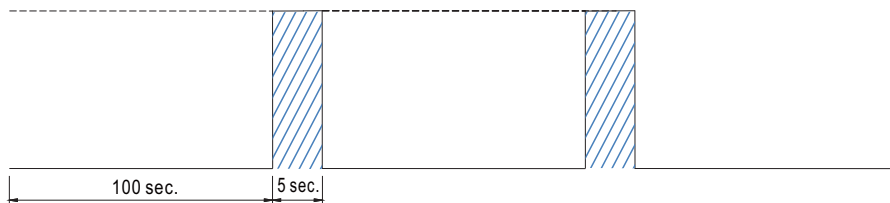
Output derating VS Input Voltage



Peak Loading

601.2W for 12Vo
720W for others
(150% load)

400.8W for 12Vo
480W for others
(100% load)



DC OK Relay Contact

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

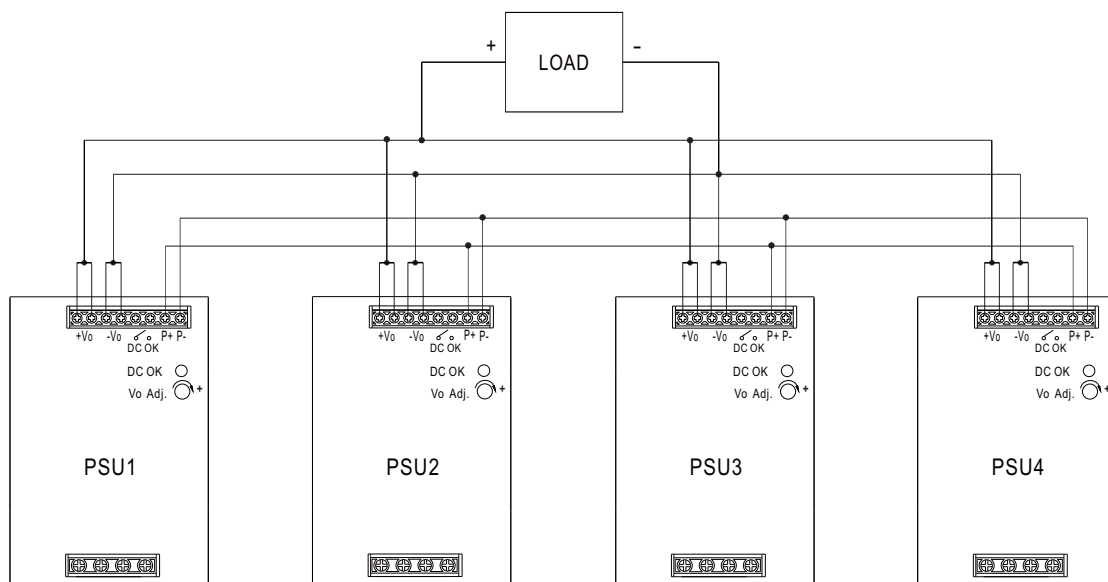
Function Manual

1. 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)

$$= (\text{The rated current per unit}) \times (\text{Number of unit}) \times 0.9.$$
- (4) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.
- (5) When in parallel operation, the minimum output load should be greater than 3% of total output load.

$$(\text{Min. load} > 3\% \text{ rated current per unit} \times \text{number of unit})$$



2. 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 5.5 ~ 10VDC	power supply ON
Short or 0 ~ 0.8VDC	power supply OFF

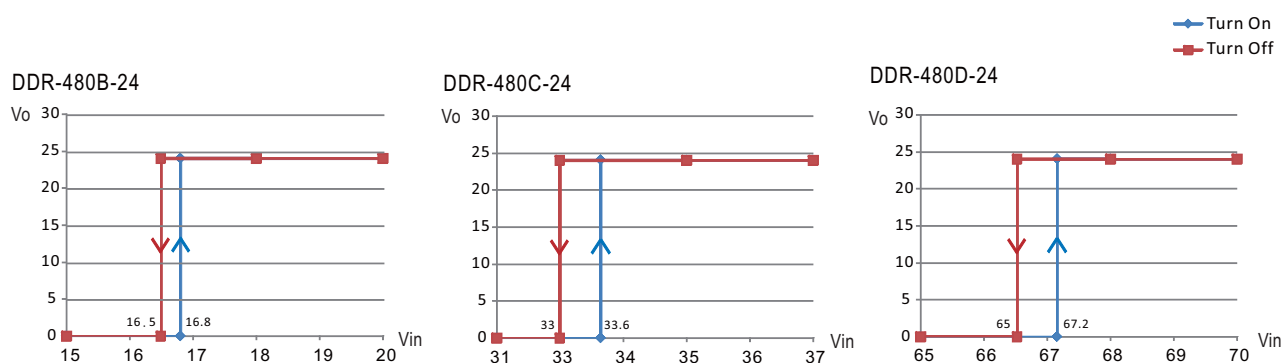
Input Fuse

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

Type	Fuse Type	Reference and Rating
B	Time-Lag	Conquer MST, 10A, 250V *5
C	Time-Lag	Conquer MST, 8A, 250V *3
D	Time-Lag	Conquer MST, 6.3A, 250V *2

Input Under-Voltage Protection

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

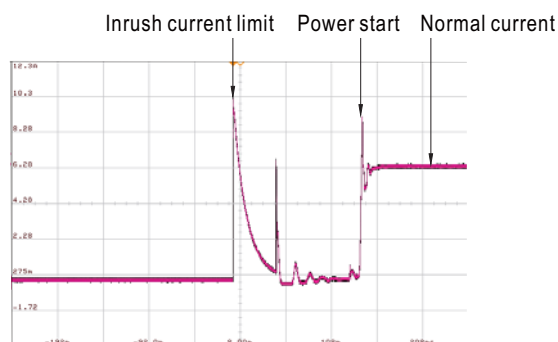


Input Reverse Polarity Protection

There are two MOSFETs connected in series to the negative input line. If the input polarity is connected reversely, the MOSFETs open 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 MOSFETs to reduce power consumption after accomplishing the start-up.



Hold-up Time

- EN50155:2017 version- B/C/D type comply with S2 level (10ms) @ full load , please refer to the table and curves show below for the hold up time specification.

Model \ Load	100% load	70% load	other load
B type (24Vin)	10ms min.	16ms min.	figure 1,2,3
C type (48Vin)	11ms min.	17ms min.	figure 4,5,6
D type (110Vin)	16ms min.	24ms min.	figure 7,8,9

DDR-480B-12

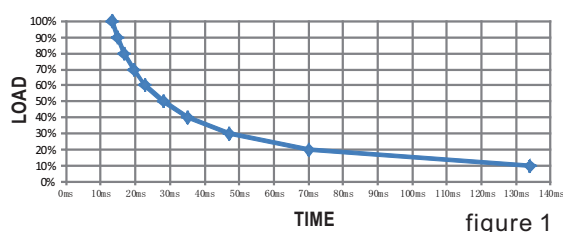


figure 1

DDR-480B-24

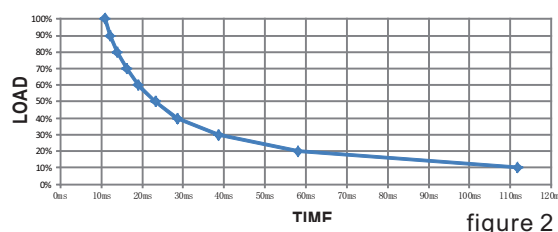


figure 2

DDR-480B-48

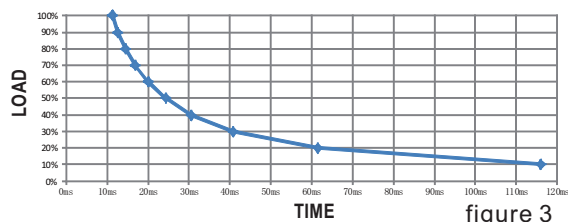


figure 3

DDR-480C-12

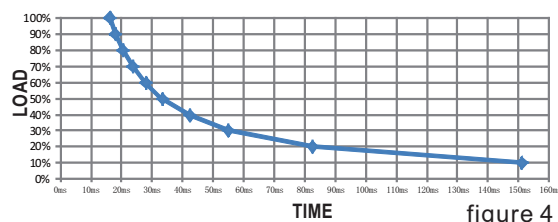


figure 4

DDR-480C-24

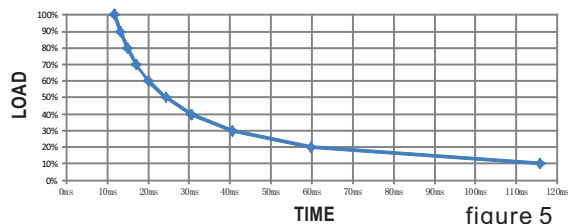


figure 5

DDR-480C-48

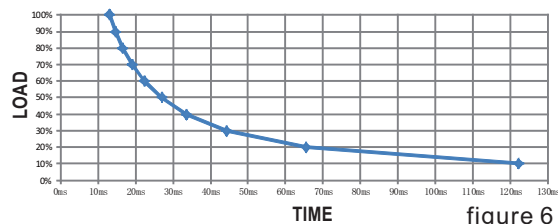


figure 6

DDR-480D-12

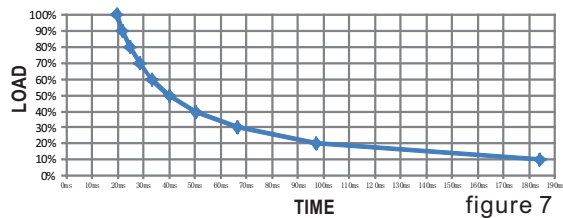


figure 7

DDR-480D-24

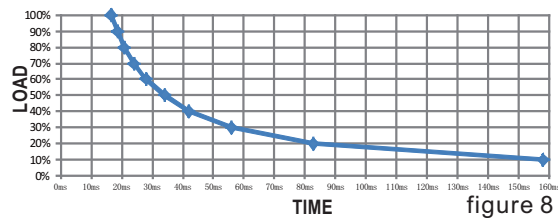


figure 8

DDR-480D-48

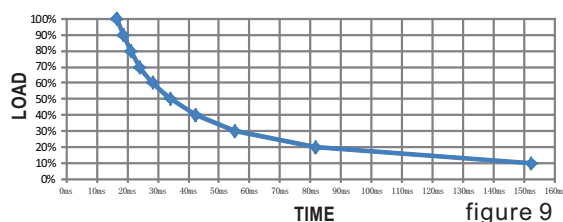
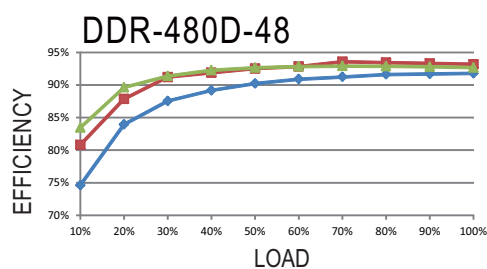
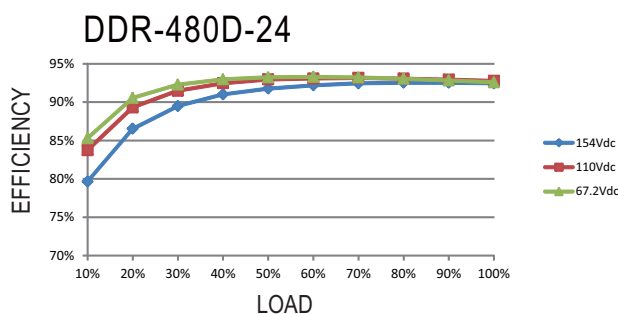
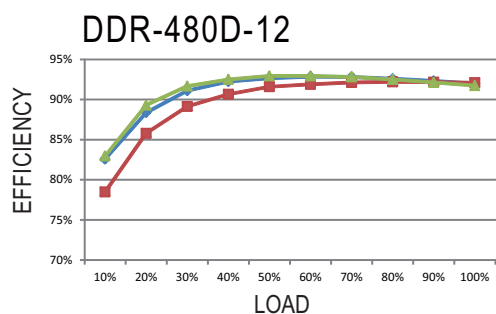
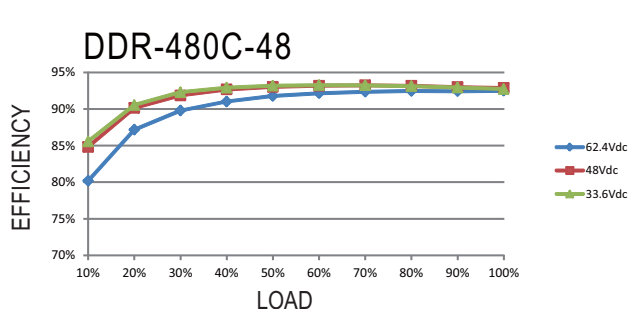
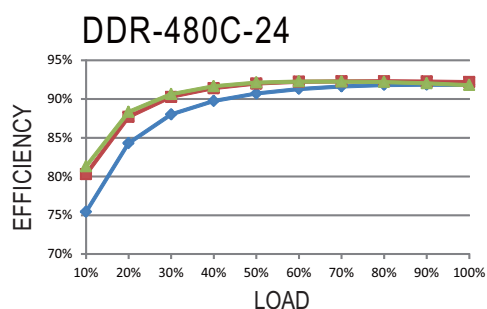
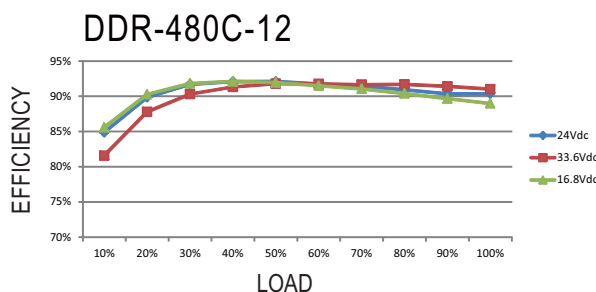
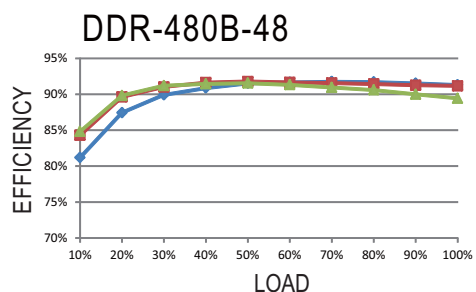
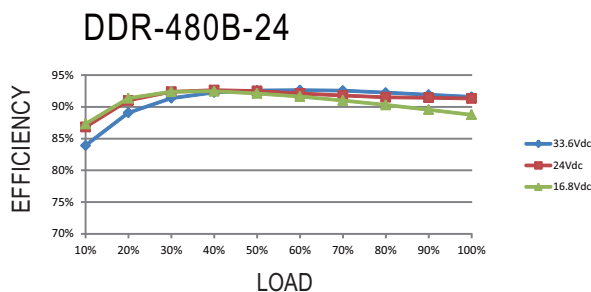
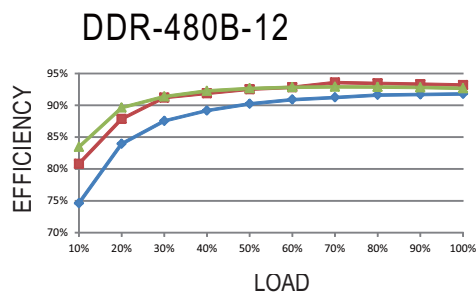


figure 9

■ Efficiency vs Load & Vin Curve

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



■ 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: 48 hrs	PASS

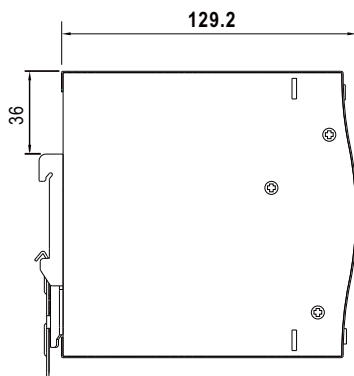
■ EN45545-2 Fire Test Conditions

Test Items			Hazard Level		
	Items	Standard	HL1	HL2	HL3
R22	Oxygen index test	EN 45545-2:2013 EN ISO 4589-2:1996	PASS	PASS	PASS
	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

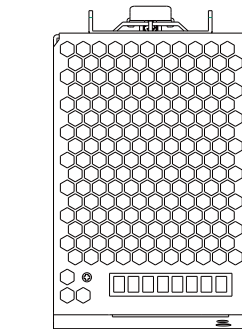
Mechanical Specification

(Unit: mm , tolerance ± 1 mm)

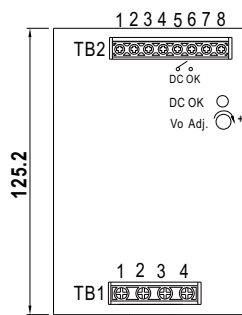
Case No. 984F



Side View



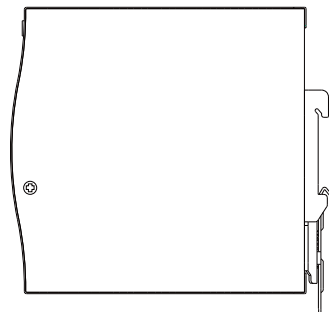
Top View



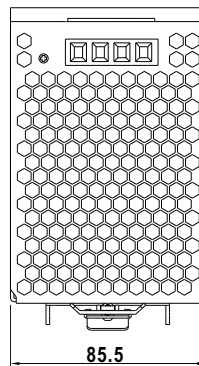
Front View

Terminal Pin No. Assignment (TB2)

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



Side View

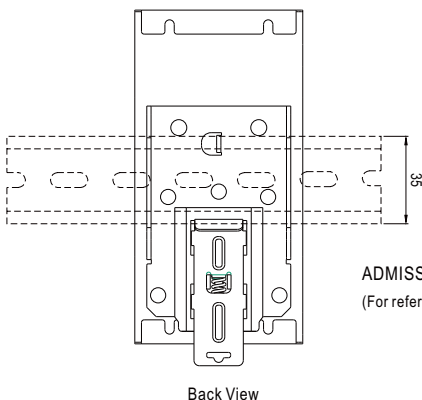


Bottom View

Terminal Pin No. Assignment (TB1)

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

Installation Instruction



Back View

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>