960W AC/DC Economical Ultra Slim Industrial DIN Rail Power XDR-960E series

User's Manual

LISTED UL61010 | BS EN/EN62368-1 BS EN/EN61558-1 BS EN/EN61010 | IEC62368-1 IEC61558-1 IEC61010 | AS/NES61558-1 AS/NES62368-1 | IS13252 (By request) | KC62368-1 (By request)

CNS15598-1 | GB4943.1 (Applying) | TPTC004

Automate | Industrial | Security | Network | Telecom

Features

- 180~264Vac input with PFC
- Global certificates in multi-fields (ITE 62368-1,Industrial 61558-1/-2-16,61010)
- 96mm slim width
- High efficiency up to 95.5% and no load power dissipation<3.6W
- Built-in constant current limiting circuit
- Current sharing up to 3840W (3+1) for parallel use
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Fanless design, cooling by free air convection
- Over voltage category III (OVC III)
- -40~+70°C wide range operation temperature (>+50℃ derating)
- Operating altitude up to 5000 meters
- Built-in DC OK relay contact
- Can be installed on DIN rail TS-35/7.5 or 15
- 3 years warranty

Applications

- Industrial control system
- Semiconductor fabrication equipment
- Factory automation
- Electro-mechanical apparatus
- Battery charger

GTIN CODE

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

Description

The XDR-960E series is a 960W AC/DC economical ultra slim industrial DIN rail power. Key features of this series include a narrow 96mm casing, optimizing system installation space. It boasts a maximum efficiency of 95.5% and a low standby power consumption <3.6W for energy savings and carbon reduction. It has built-in constant current, fanless design, a wide operating temperature range of -40 to +70℃ (up to +50℃ at full load); OVCIII compliance; parallel function capability up to 3840W; built-in DC OK signal. With comprehensive protection functions, complete safety certifications, and a 3-years warranty, the XDR-960E series is a compact, high-performance, and highly reliable DIN rail power supply.

Model Encoding

XDR - 960E - 24

- 24 — Output voltage(24V/36V/48V)
- E — Economical version
- 960 — Output wattage
- XDR — Series name

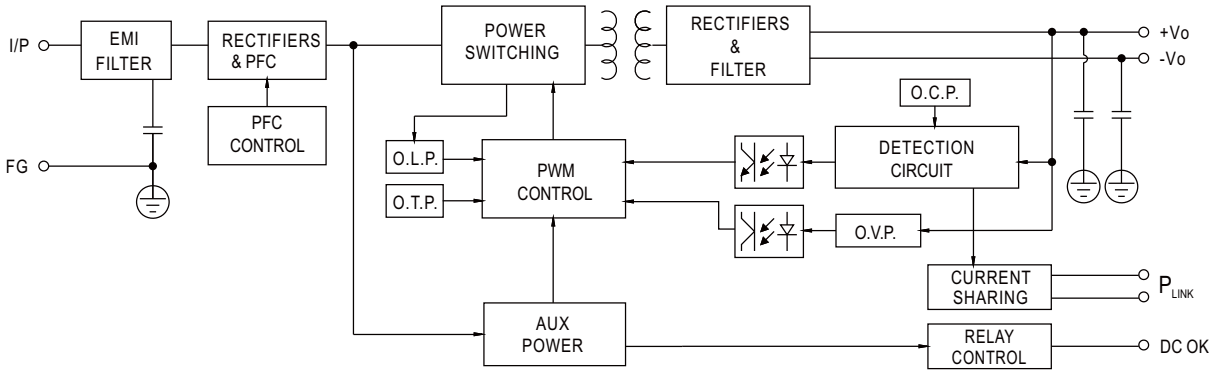
960W AC/DC Economical Ultra Slim Industrial DIN Rail Power XDR-960E series

SPECIFICATION

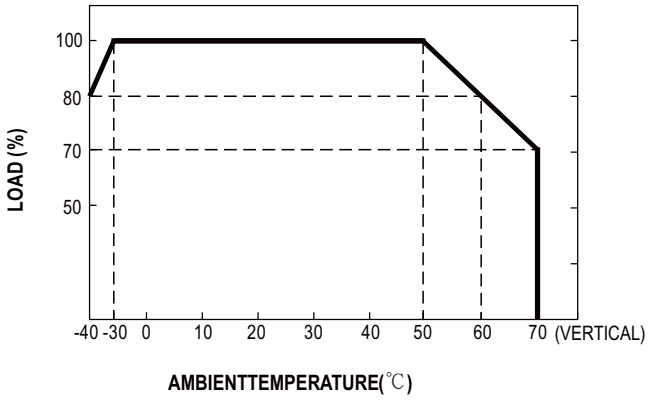
MODEL		XDR-960E-24	XDR-960E-36	XDR-960E-48
OUTPUT	DC VOLTAGE	24V	36V	48V
	RATED CURRENT	40A	26.6A	20A
	CURRENT RANGE	0 ~ 40A	0 ~ 26.6A	0 ~ 20A
	RATED POWER	960W	957.6W	960W
	RIPPLE & NOISE (max.) Note.2	120mVp-p	150mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 29V	36 ~ 42V	48 ~ 55V
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME	500ms, 50ms/230Vac at full load		
	HOLD UP TIME (Typ.)	15ms/230Vac at full load		
INPUT	AC VOLTAGE RANGE	180 ~ 264Vac		
	DC VOLTAGE RANGE	254.5 ~ 370Vdc		
	NO LOAD POWER CONSUMPTION (Typ.)	2.7W @ 230Vac	3.6W @ 230Vac	
	FREQUENCY RANGE	47 ~ 63Hz		
	POWDR FACTOR (Typ.)	PF>0.95/230Vac at full load		
	EFFICIENCY (Typ.)	94.5%	95%	95.5%
	AC CURRENT (Typ.)	4.5A/230Vac		
	INRUSH CURRENT (Typ.)	COLD START 30A/230Vac		
	LEAKAGE CURRENT	<3.5mA / 240Vac		
PROTECTION	OVERLOAD	105~130% rated output power		
		Hiccup mode when output voltage <30%, recovers automatically after fault condition is removed Constant current limiting without shutdown within 30%~100% rated output voltage, recovers automatically after fault condition is removed		
	OVER VOLTAGE	30 ~ 34V	43 ~ 50V	56 ~ 65V
		Protection type : Shut down o/p voltage, re-power on to recover		
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, recovers automatically after temperature goes down		
FUNCTION	PARALLEL(Droop Mode)	Up to 3840W or (3+1) units;Please refer to Function Manual for more details		
	DC OK RELAY CONTACT	Relay Contact Ratings (max.):30Vdc/1A, 30Vac/0.5A resistive load		
ENVIRONMENT	WORKING TEMP.	-40 ~ +70℃ (Refer to "Derating Curve")		
	WORKING HUMIDITY	20 ~ 95% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH non-condensing		
	TEMP. COEFFICIENT	±0.03% /℃ (0 ~ 50℃)		
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6		
SAFETY & EMC (Note 6)	SAFETY STANDARDS	UL61010; TUV BS EN/EN62368-1, BS EN/EN61558-1/-2-16, BS EN/EN61010; CB IEC62368-1, IEC61558-1, IEC61010; RCM AS/NZS 62368-1, AS/NZS 61558-1/-2-16; BSMI CNS15598-1; CCC GB4943.1; EAC TPTC004 approved; KC KC62368-1 and BIS IS13252 (Part 1):2010 certified, no stock ,contact sale for inquires		
	OVER VOLTAGE CATEGORY Note.4	IEC/EN 61558-1/-2-16 (OVC Ⅲ, altitude up to 2000m) IEC/EN/UL 61010 (OVC Ⅱ, altitude up to 5000m) IEC/EN 62368-1 (OVC Ⅱ, altitude up to 5000m)		
	SAFETY EXTRA-LOW VOLTAGE(SELV)	IEC/EN 61558-2-16 (SELV) IEC/EN/UL 61010-2-201 (SELV) IEC/EN 62368-1 (SELV / ES1)		
	WITHSTAND VOLTAGE	I/P-O/P: 4KVac I/P-FG: 2KVac O/P-FG: 1.5KVac O/P-DC OK: 0.5KVac		
	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 (CISPR32) / BS EN/EN61204-3 / CNS15936	Class B
		Radiated	BS EN/EN55032 (CISPR32) / BS EN/EN61204-3 / CNS15936	Class B
		Harmonic Current	BS EN/EN61000-3-2	Class A
		Voltage Flicker	BS EN/EN61000-3-2	-----
	EMC IMMUNITY	BS EN/EN55035 , BS EN/EN61204-3, 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, 4KV contact; criteria A
		Radiated	BS EN/EN61000-4-3	Level 3, 10V/m ; criteria A
		EFT / Burst	BS EN/EN61000-4-4	Level 2, 2KV ; criteria A
		Surge	BS EN/EN61000-4-5	Level 4, 2KV/Line-Line ;Level 4, 4KV/Line-Line-Chassis ;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	K hrs min. Telcordia SR-332 (Bellcore) ; K hrs min. MIL-HDBK-217F (25℃)		
	DIMENSION	**96*125.2*132mm (W*H*D)**		
	PACKING	Kg; pcs/Kg/CUFT		
NOTE	1. All parameters NOT specially mentioned are measured at 230Vac input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μF & 47 μF parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. 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). 5. Installation clearances : 40mm on top, 20mm on the bottom, 5mm on the left and right side are recommended when loaded permanently with full power. In case the adjacent device is a heat source, 15mm clearance is recommended. 6. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. (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

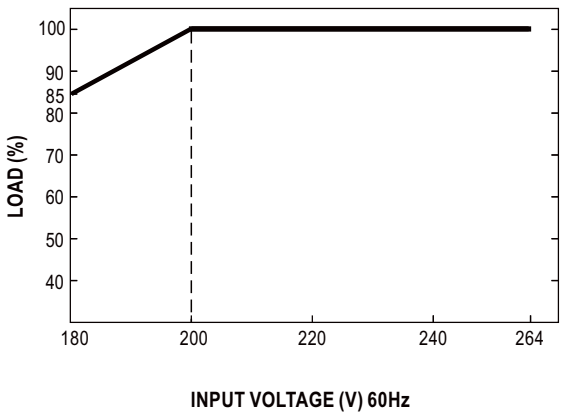
PFC fosc : 65KHz
PWM fosc : 60KHz



■ Derating Curve



■ Static Characteristics

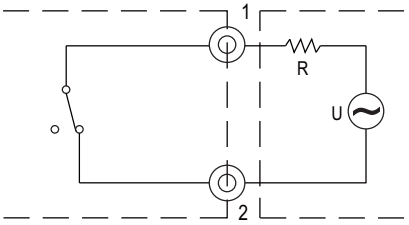


■ Function Manual

Pin No.	Function	Description
1,2	DC OK Relay Contact	Contact Close: PSU turns ON/DC_OK Contact Open: PSU turns OFF/DC_fail
3,4	Paraller Use Link(P_{LINK})	P_{LINK} should be short to enable droop parallel use.(Default disable)

1.DC OK Relay Contact

Contact Close	PSU turns ON/DC OK.
Contact Open	PSU turns OFF/DC Fail.
Contact Ratings (max.)	30Vdc/1A, 30Vac/0.5A resistive load.



External voltage source (U) and resistor (R)
(The max. Sink is 30Vdc/1A ,30Vac/0.5A)

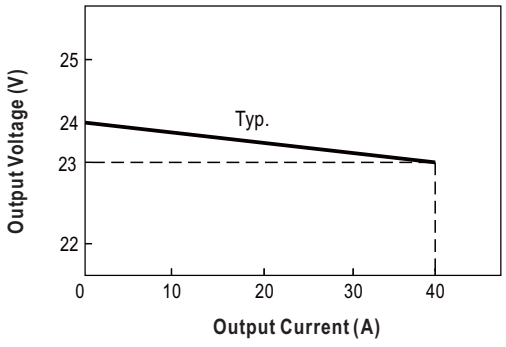
Internal circuit of DC_OK, via relay contact

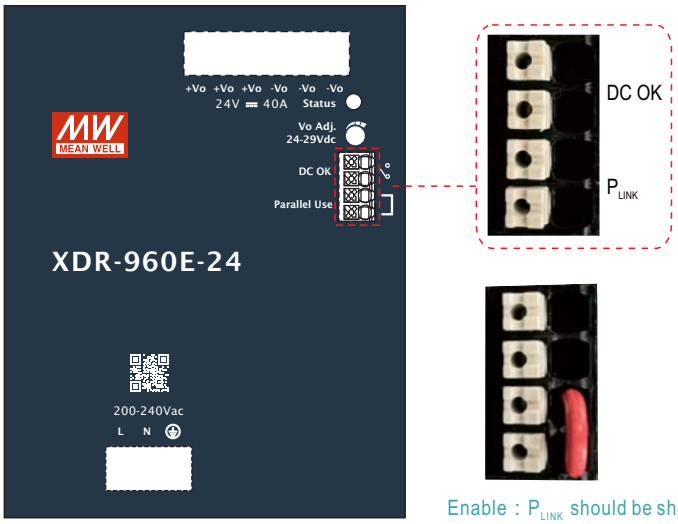
2.Parallel Use

XDR-960E has the built-in droop mode current sharing function and can be connected in parallel, up to 4 units, to provide higher output power as exhibited below :

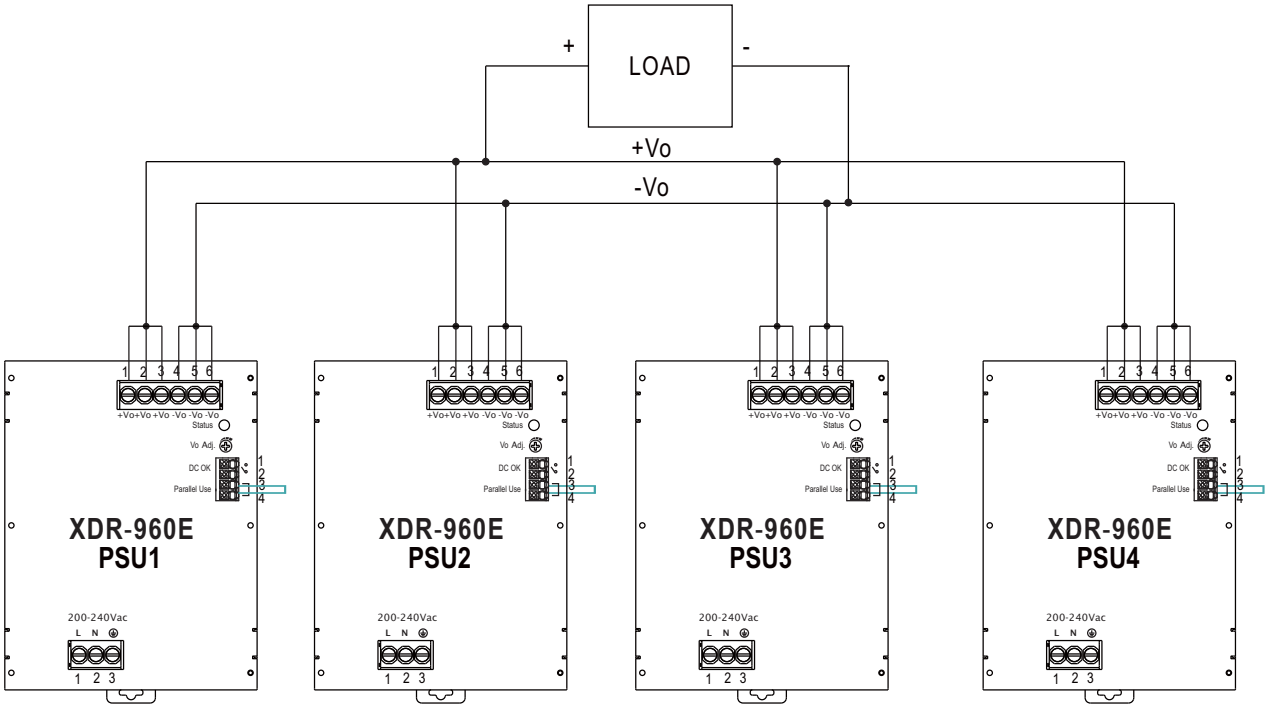
(1) Difference of output voltages among parallel units should be less than 0.1V.
(2) The total output current must not exceed the value determined by the following equation (Output current at parallel operation)=(The rated current per unit) x (Number of unit) x 0.9.
(3) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.
(4) The power supplies should be paralleled using short and large diameter wiring and then connected to the load.
(5) When in parallel operation, the minimum output load should be greater than 7% of total output load. (Min. load >7% rated current per unit x number of unit)
(6) In parallel connection, maybe only one unit (master) operate if the total output load is less than 7% of rated load condition.
The other PSUs (slaves) may go into standby mode and their output LEDs & relays will not turn on.
(7) P_{LINK} lines should be shorted locally.
(8) The "Parallel Use" mode regulates the output voltage in such a manner that the voltage at no load is approx. 4% higher than at normal load.

For example XDR-960E-24:
No load output voltage=24V
Normal load output current=40A
0~100% load output voltage=24V~23V





Enable : P_{LINK} should be short

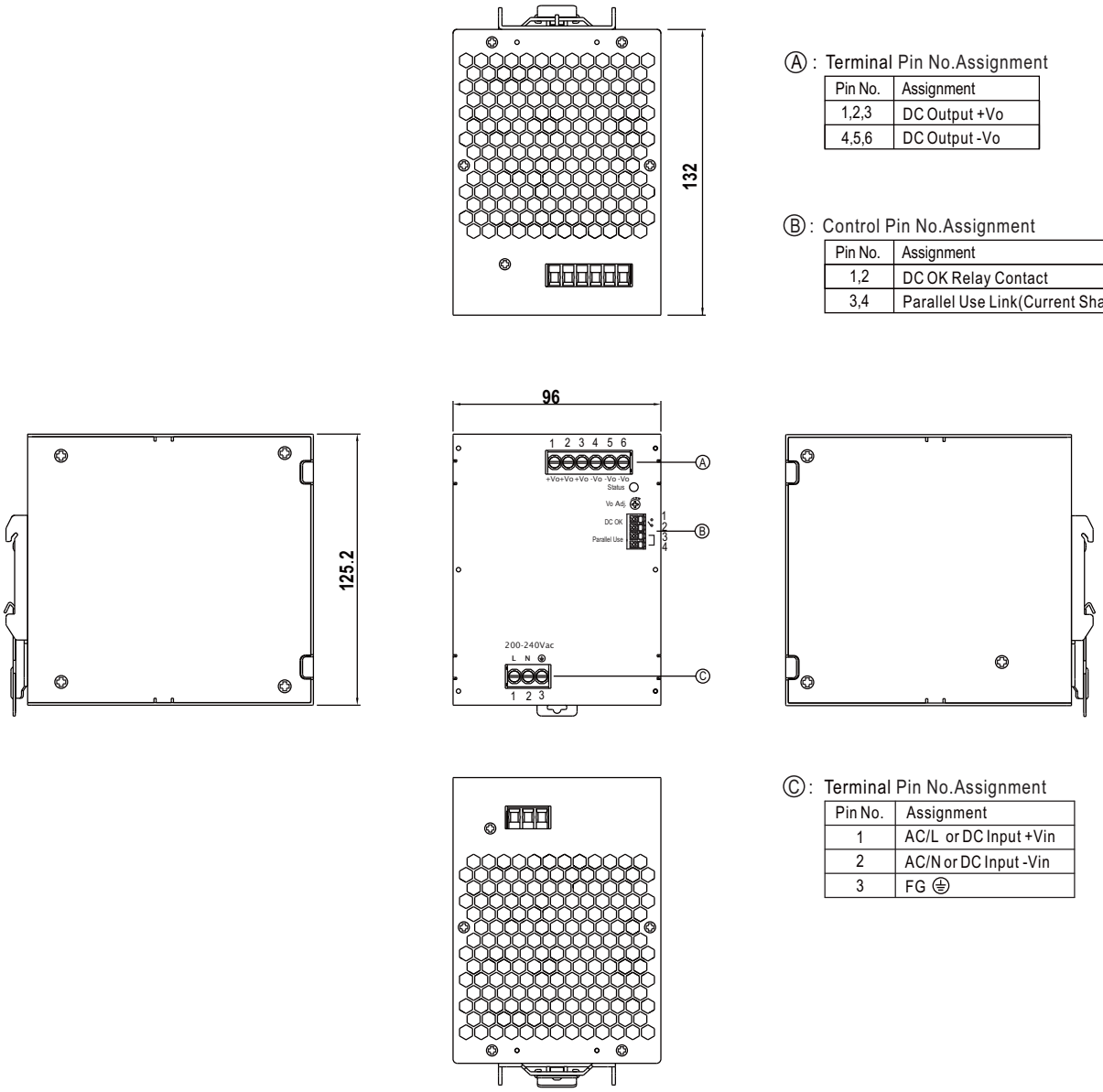


※ Please contact MEAN WELL for more details.

■ Mechanical Specification

(Unit:mm , Tolerance ±1mm)

Case No. 304



Ⓐ: Terminal Pin No.Assignment

Pin No.	Assignment
1,2,3	DC Output +Vo
4,5,6	DC Output -Vo

Ⓑ: Control Pin No.Assignment

Pin No.	Assignment
1,2	DC OK Relay Contact
3,4	Parallel Use Link(Current Sharing)

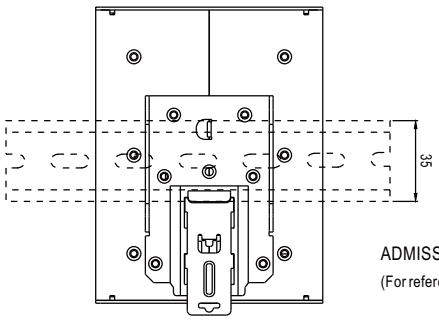
Ⓒ: Terminal Pin No.Assignment

Pin No.	Assignment
1	AC/L or DC Input +Vin
2	AC/N or DC Input -Vin
3	FG ⏚

■ Recommend Wiring

	AC Input T.B	DC Output T.B	Signal connector
Solid Wire	6mm^2 max.	6mm^2 max.	1.5mm^2 max.
A.W.G	18~10 AWG	18~8 AWG	24~16 AWG
Screw Terminal Torque	9 Lb-In	9 Lb-In	/

■ Installation Instruction



ADMISSIBLE DIN-RAIL:TS35/7.5 OR TS35/15
(For reference only. Not included with unit.)

This series fits DIN rail TS35/7.5 or TS35/15.
For installation details, please refer to the Instruction manual.

■ Installation Manual

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