



■ Features :

- Three-Phase 340 ~ 550VAC wide range input (Dual phase operation possible)
- Width only 110mm
- Built-in active PFC function compliance to EN61000-3-2
- High efficiency 94.5% and low power dissipation
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- Can be installed on DIN rail TS-35/7.5 or 15
- UL508(industrial control equipment)approved
- EN61000-6-2(EN50082-2) industrial immunity level
- Current sharing up to 3840W(3+1)
- Built-in DC OK relay contact
- 100% full load burn-in test
- 3 years warranty

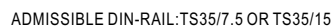
User's Manual



SPECIFICATION

MODEL	TDR-960-24	TDR-960-48
OUTPUT	DC VOLTAGE	24V
	RATED CURRENT	40A
	CURRENT RANGE	0 ~ 40A
	RATED POWER	960W
	RIPPLE & NOISE (max.) Note.2	180mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V
	VOLTAGE TOLERANCE Note.3	± 1.0%
	LINE REGULATION	± 0.5%
	LOAD REGULATION	± 1.0%
	SETUP, RISE TIME	1000ms, 100ms/400VAC 800ms, 100ms/500VAC at full load
	HOLD UP TIME (Typ.)	12ms / 400VAC 14ms / 500VAC at full load
INPUT	VOLTAGE RANGE Note.4	Three-Phase 340 ~ 550VAC (Dual phase operation possible) 480 ~ 780VDC
	FREQUENCY RANGE	47 ~ 63Hz
	POWER FACTOR (Typ.)	PF ≥ 0.88/400VAC PF ≥ 0.86/500VAC at full load
	EFFICIENCY (Typ.)	94%
	AC CURRENT (Typ.)	2A/400VAC 1.4A/500VAC
	INRUSH CURRENT (Typ.)	COLD START 60A
	LEAKAGE CURRENT	<3.5mA / 530VAC
PROTECTION	OVERLOAD	105 ~ 130% rated output power Protection type : Constant current limiting, unit will shut down after 3 sec. ,re-power on to recover
	OVER VOLTAGE	29 ~ 33V 56 ~ 65V Protection type : Shut down o/p voltage, re-power on to recover
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down
	DC OK RELAY CONTACT RATINGS (max.)	60Vdc/0.3A, 30Vdc/1A, 30Vac/0.5A resistive load
FUNCTION	CURRENT SHARING	Please refer to function manual
	WORKING TEMP. Note.5	-30 ~ +70°C (Refer to "Derating Curve")
ENVIRONMENT	WORKING HUMIDITY	20 ~ 95% RH non-condensing
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing
	TEMP. COEFFICIENT	± 0.03%/°C (0 ~ 50°C)
	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	UL508, AS/NZS62368.1, EAC TP TC 004 approved, IEC62368-1 CB approved by SIQ; Meet BS EN/EN62368-1
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC O/P-DC OK:0.5KVAC
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms / 500VDC / 25°C / 70% RH
	EMC EMISSION	Compliance to BS EN/EN55032 (CISPR32), BS EN/EN61204-3 Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55024, BS EN/EN61000-6-2 (BS EN/EN50082-2), BS EN/EN61204-3, heavy industry level, criteria A, EAC TP TC 020
OTHERS	MTBF	59.4K hrs min. MIL-HDBK-217F (25°C)
	DIMENSION	110*125.2*150mm (W*H*D)
	PACKING	2.47Kg ; 6pcs/15.8Kg/1.47CUFT
NOTE	1. All parameters NOT specially mentioned are measured at 400VAC input, 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 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. Dual phase operation is allowed under certain derating to output load. Please refer to derating curves for details. 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. 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	

Case No.214A Unit:mm



Pin No.	Assignment	Mating Housing	Wire Diameter
1	P-(Current Share)	DINKLE ESC250V-04P or equivalent (Including in the single package)	0.081~0.517mm (28~20AWG)
2	P+(Current Share)		
3,4	DC OK Relay Contact		

Block Diagram

The block diagram illustrates the power supply architecture. It begins with an input stage featuring an EMI filter and rectifiers connected to I/P and FG terminals. The filtered DC is fed into a PFC circuit, which is controlled by a PFC control unit. This stage includes O.L.P. (Over Load Protection) and O.T.P. (Over Temperature Protection) feedback loops. The output of the PFC circuit goes to a power switching stage, which is also controlled by the PWM control unit. The power switching stage's output passes through a transformer and then through a full-bridge rectifier and filter. The resulting DC is distributed to the positive (+V) and negative (-V) output rails. These rails are monitored by an O.C.P. (Over Current Protection) circuit and a current share circuit. A detection circuit monitors the outputs, providing feedback to the PWM control unit via an O.V.P. (Over Voltage Protection) signal. The current share circuit ensures balanced load distribution between the two output rails.

PFC fosc : 65KHz
PWM fosc : 60KHz

I/P ○
FG ○

EMI FILTER & RECTIFIERS

PFC CIRCUIT

PFC CONTROL

O.L.P.

POWER SWITCHING

O.T.P.

PWM CONTROL

RECTIFIERS & FILTER

O.C.P.

+V
-V

DTECTION CIRCUIT

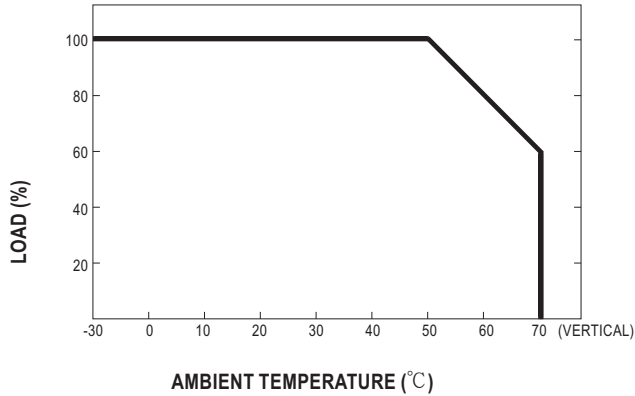
CURRENT SHARE

O.V.P.

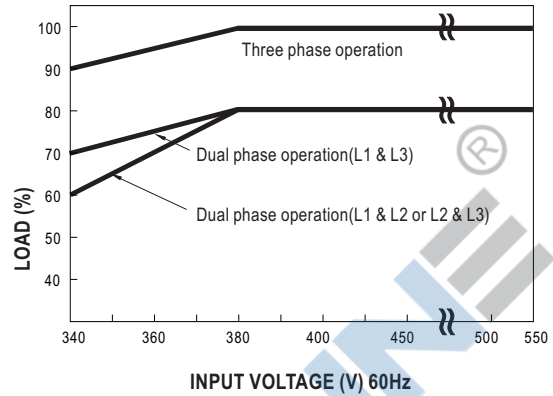
CURRENT SHARE ○

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

Derating Curve



Output derating VS input voltage



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) Difference of output voltages among parallel units should be less than 0.2V.
- (3) The total output current must not exceed the value determined by the following equation (Output current at parallel operation)=(The rated current per unit) x (Number of unit) x 0.9.
- (4) In parallel operation 4 units is the maximum, please consult the manufacture for other applications.
- (5) The power supplies should be paralleled using short and large diameter wiring and then connected to the load.
- (6) When in parallel operation, the minimum output load should be greater than 5% of total output load.
(Min. load >5% rated current per unit x number of unit)
- (7) In parallel connection, maybe only one unit (master) operate if the total output load is less than 5% of rated load condition.
The other PSUs (slaves) may go into standby mode and their output LEDs & relays will not turn on.
- (8) Some minor noise may be heard at light load condition under parallel operation.
This is a normal phenomenon and the performance of the PSU will not be influenced.

