



■ Features :

- Universal AC input/Full range
- Protections:Short circuit/Over load/Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Built in DC OK active signal
- LED indicator for power on
- 100% full load burn-in test
- No load power consumption<0.75W

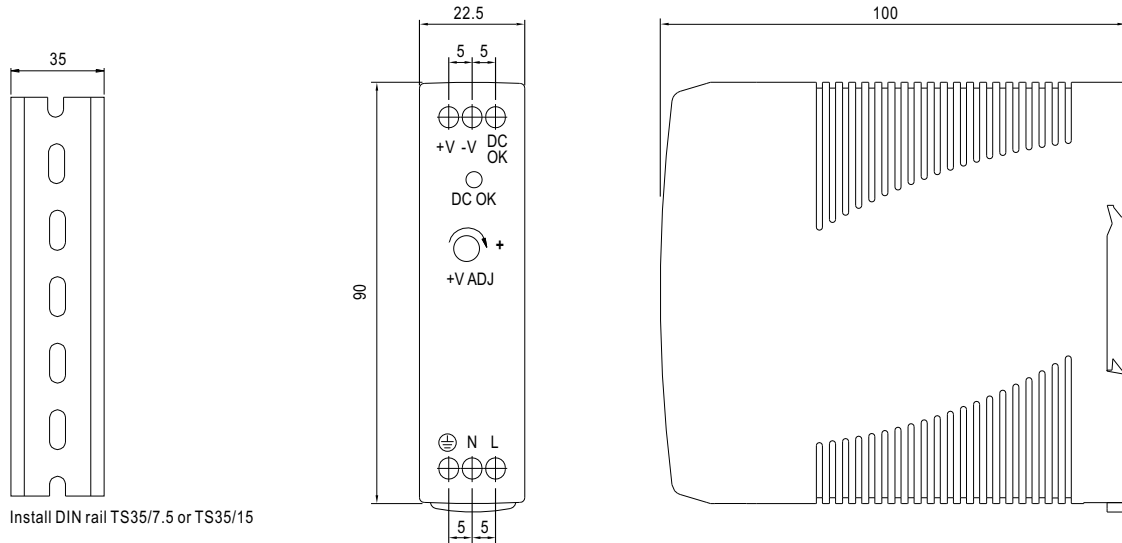


SPECIFICATION

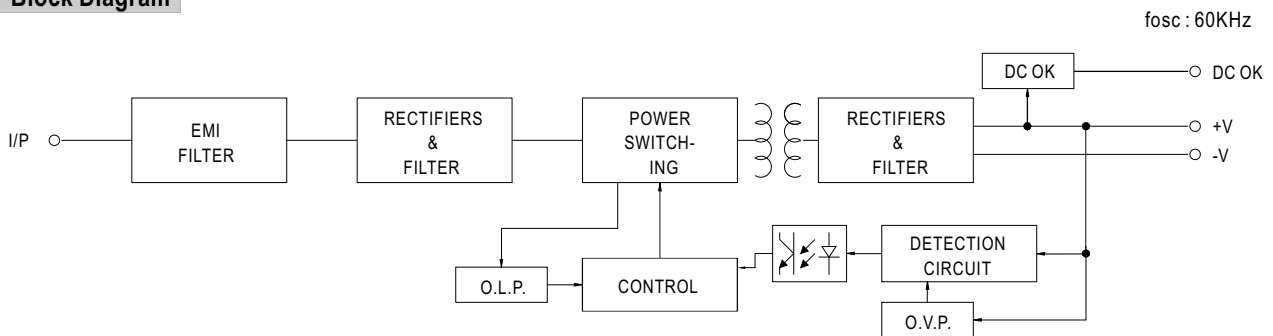
MODEL		MDR-20-5	MDR-20-12	MDR-20-15	MDR-20-24
OUTPUT	DC VOLTAGE	5V	12V	15V	24V
	RATED CURRENT	3A	1.67A	1.34A	1A
	CURRENT RANGE	0 ~ 3A	0 ~ 1.67A	0 ~ 1.34A	0 ~ 1A
	RATED POWER	15W	20W	20W	24W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	120mVp-p	120mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
INPUT	SETUP, RISE TIME Note.5	500ms, 30ms/230VAC 1000ms, 30ms/115VAC at full load			
	HOLD TIME (Typ.)	50ms/230VAC 20ms/115VAC at full load			
	VOLTAGE RANGE	85 ~ 264VAC 120 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	76%	80%	81%	84%
	AC CURRENT (Typ.)	0.55A/115VAC 0.35A/230VAC			
PROTECTION	OVER LOAD	105 ~ 160% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
		Protection type : Shut down o/p voltage, re-power on to recover			
FUNCTION	DC OK ACTIVE SIGNAL (max.)	3.75 ~ 6V / 50mA	9 ~ 13.5V / 40mA	11.5 ~ 16.5V / 40mA	18 ~ 27V / 20mA
ENVIRONMENT	WORKING TEMP.	-20 ~ +70°C (Refer to output load derating curve)			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)			
SAFETY & EMC (Note 4)	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6			
	SAFETY STANDARDS	UL508, TUV EN60950-1 Approved			
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC			
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC			
	EMI CONDUCTION & RADIATION	Compliance to EN55011,EN55022 (CISPR22) Class B			
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3			
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, ENV50204, EN55024,EN61000-6-1,EN61204-3 Light industry level, criteria A			
	MTBF	236.9K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	22.5*90*100mm (W*H*D)			
NOTE	PACKING	0.19Kg; 72pcs/14.7Kg/0.91CUFT			
		1. All parameters NOT specially mentioned are measured at 230VAC 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. 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. 5. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.			

■ Mechanical Specification

Case No. 956 Unit:mm

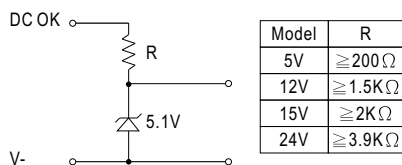


■ Block Diagram

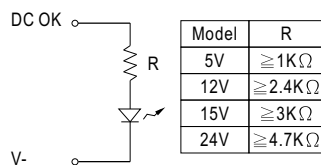


■ Application of DC OK Active Signal

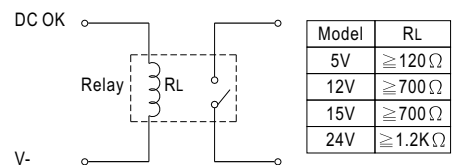
(a) 5V signal



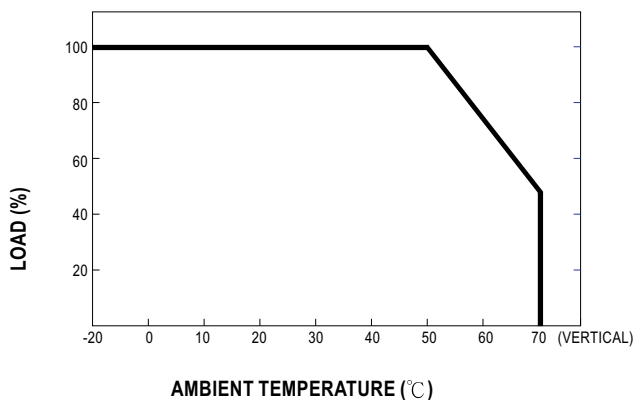
(b) LED



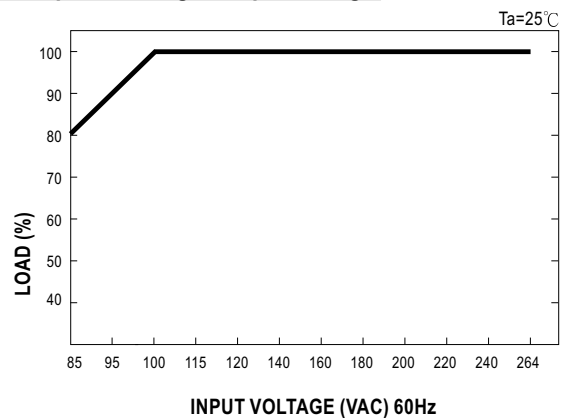
(c) Relay



■ Derating Curve



■ Output Derating VS Input Voltage





■ Features :

- Universal AC input/Full range
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- LED indicator for power on
- DC OK Relay contact
- No load power consumption<0.75W
- 100% full load burn-in test

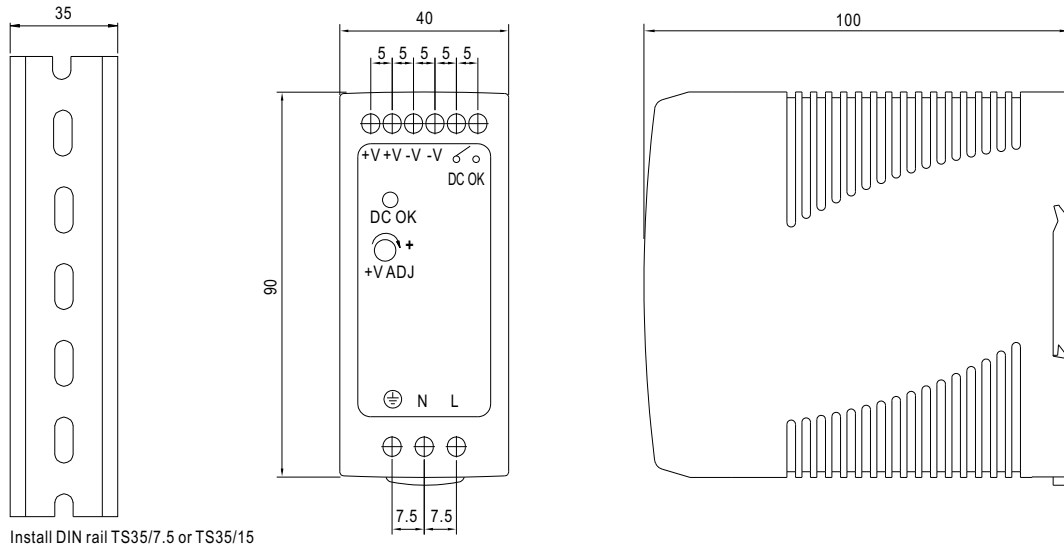


SPECIFICATION

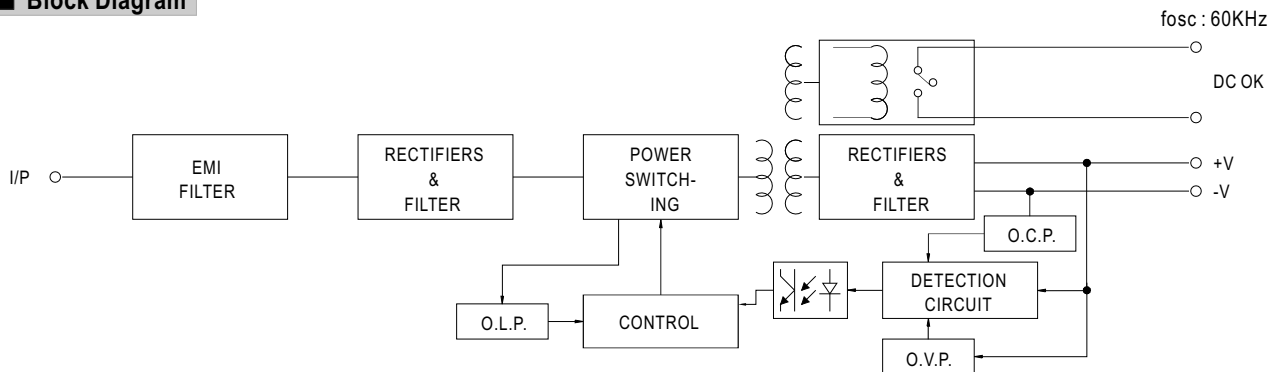
MODEL		MDR-60-5		MDR-60-12		MDR-60-24		MDR-60-48	
OUTPUT	DC VOLTAGE	5V		12V		24V		48V	
	RATED CURRENT	10A		5A		2.5A		1.25A	
	CURRENT RANGE	0 ~ 10A		0 ~ 5A		0 ~ 2.5A		0 ~ 1.25A	
	RATED POWER	50W		60W		60W		60W	
	RIPPLE & NOISE (max.) <small>Note.2</small>	80mVp-p		120mVp-p		150mVp-p		200mVp-p	
	VOLTAGE ADJ. RANGE	5 ~ 6V		12 ~ 15V		24 ~ 30V		48 ~ 56V	
	VOLTAGE TOLERANCE <small>Note.3</small>	±2.0%		±1.0%		±1.0%		±1.0%	
	LINE REGULATION	±1.0%		±1.0%		±1.0%		±1.0%	
	LOAD REGULATION	±1.5%		±1.0%		±1.0%		±1.0%	
	SETUP, RISE TIME <small>Note.5</small>	500ms, 30ms/230VAC		500ms, 30ms/115VAC at full load					
HOLD UP TIME (Typ.)	50ms/230VAC		20ms/115VAC at full load						
INPUT	VOLTAGE RANGE	85 ~ 264VAC		120 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz							
	EFFICIENCY (Typ.)	79%		86%		88%		88%	
	AC CURRENT (Typ.)	1.8A/115VAC		1A/230VAC					
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC		60A/230VAC					
	LEAKAGE CURRENT	<1mA / 240VAC							
PROTECTION	OVERLOAD	105 ~ 150% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed							
	OVER VOLTAGE	6.25 ~ 7.25V		15.6 ~ 18V		31.2 ~ 36V		57.6 ~ 64.8V	
		Protection type : Shut down o/p voltage, re-power on to recover							
FUNCTION	DC OK SIGNAL	Relay contact rating(max.): 30V/1A resistive							
ENVIRONMENT	WORKING TEMP.	-20 ~ +70℃ (Refer to output load derating curve)							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH							
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)							
	VIBRATION	Component : 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes ; Mounting : Compliance to IEC60068-2-6							
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, TUV EN60950-1 Approved							
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC							
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms/500VDC 25℃ 70%RH							
	EMI CONDUCTION & RADIATION	Compliance to EN55011,EN55022 (CISPR22), EN61204-3 Class B							
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3							
	EMS IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, ENV50204, EN55024, EN61000-6-2, EN61204-3 Heavy industry level, criteria A							
OTHERS	MTBF	299.2K hrs min. MIL-HDBK-217F (25℃)							
	DIMENSION	40*90*100mm (W*H*D)							
	PACKING	0.33Kg; 42pcs/14.8Kg/0.82CUFT							
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 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. 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. 5. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.								

Case No.962A Unit:mm

Mechanical Specification



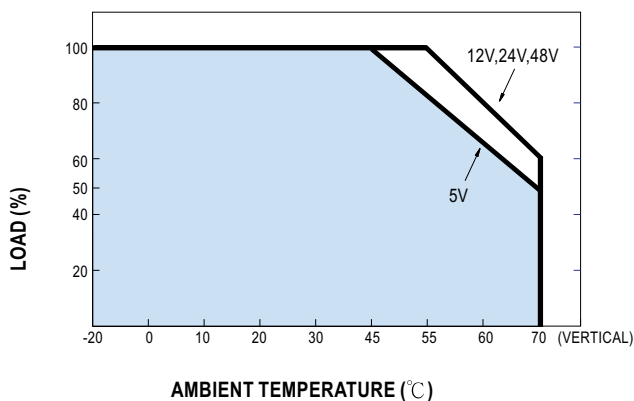
Block Diagram



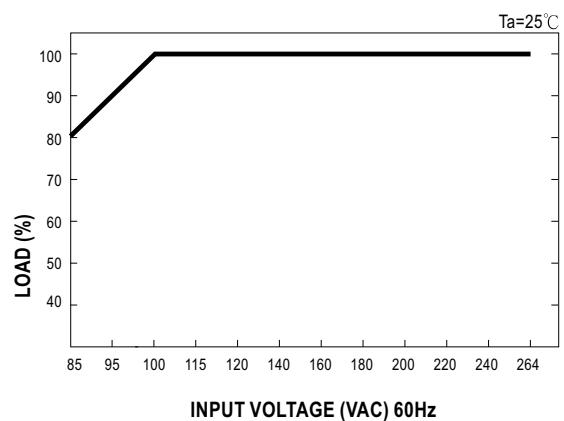
DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop more than 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

Derating Curve



Output Derating VS Input Voltage





Features :

- Universal AC input / Full range
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- LED indicator for power on
- DC OK relay contact
- No load power consumption<1W
- NEC Class 2, limited power source (for 24V,48V only)
- 100% full load burn-in test
- ZCS/ZVS technology to reduce power dissipation

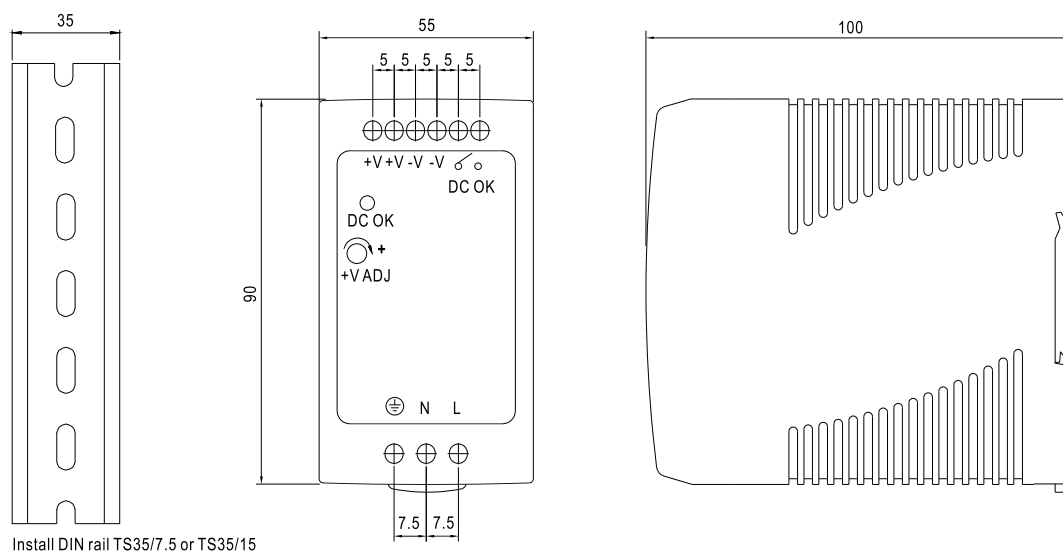


SPECIFICATION

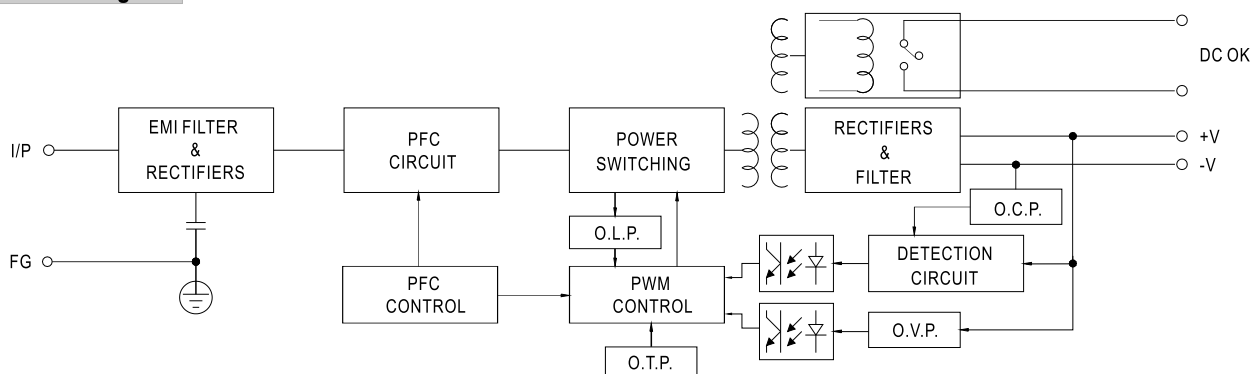
MODEL	MDR-100-12	MDR-100-24	MDR-100-48
OUTPUT	DC VOLTAGE	12V	24V
	RATED CURRENT	7.5A	4A
	CURRENT RANGE	0 ~ 7.5A	0 ~ 4A
	RATED POWER	90W	96W
	RIPPLE & NOISE (max.) Note.2	120mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	12 ~ 15V	24 ~ 30V
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%
	LINE REGULATION	±1.0%	±1.0%
	LOAD REGULATION	±1.0%	±1.0%
	SETUP, RISE TIME Note.5	3000ms, 50ms/230VAC	3000ms, 50ms/115VAC at full load
INPUT	HOLD UP TIME (Typ.)	50ms/230VAC	20ms/115VAC at full load
	VOLTAGE RANGE Note.6	85 ~ 264VAC	120 ~ 370VDC
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	PF ≥ 0.95/230VAC	PF ≥ 0.98/115VAC at full load
	EFFICIENCY (Typ.)	85%	87%
	AC CURRENT (Typ.)	1.3A/115VAC	0.8A/230VAC
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC	60A/230VAC
	LEAKAGE CURRENT	<1mA / 240VAC	
PROTECTION	OVERLOAD	105 ~ 150% rated output power	
		Protection type : Constant current limiting, recovers automatically after fault condition is removed	
	OVER VOLTAGE	15.6 ~ 18V	31.2 ~ 36V
		Protection type : Shut down o/p voltage, re-power on to recover	57.6 ~ 64.8V
FUNCTION	OVER TEMPERATURE	90°C ±10°C (RTH2) detect on heatsink of power transistor	
		Protection type : Shut down o/p voltage, re-power on to recover	
ENVIRONMENT	DC OK SIGNAL	Relay contact rating(max.): 30V/1A resistive	
	WORKING TEMP.	-10 ~ +60°C (Refer to output load derating curve)	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)	
SAFETY & EMC (Note 4)	VIBRATION	Component : 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes ; Mounting : Compliance to IEC60068-2-6	
	SAFETY STANDARDS	UL508, TUV EN60950-1 approved, Design refer to NEC CLASS 2 (for 24V,48V only)	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:>100M Ohms/500VDC 25°C 70%RH	
	EMI CONDUCTION & RADIATION	Compliance to EN55011, EN55022 (CISPR22), EN61204-3 Class B	
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3	
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11, ENV50204, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A	
	MTBF	346K hrs min. MIL-HDBK-217F (25°C)	
	DIMENSION	55*90*100mm (W*H*D)	
	PACKING	0.42Kg; 30pcs/13.6Kg/0.82CUFT	
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC 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. 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. 5. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time. 6. Deating maybe needed under low input voltages, please check the derating curve for more detail.		

Case No.973A Unit:mm

Mechanical Specification



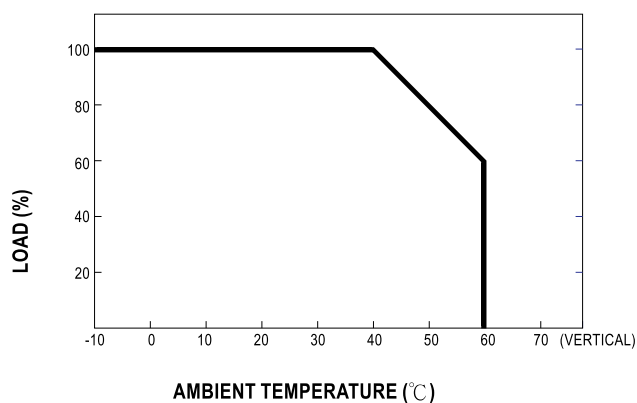
Block Diagram



DC OK Relay Contact

Contact Close	When the output voltage reaches the adjusted output voltage.
Contact Open	When the output voltage drop below 90% output voltage.
Contact Ratings (max.)	30V/1A resistive load

Derating Curve



Output Derating VS Input Voltage

