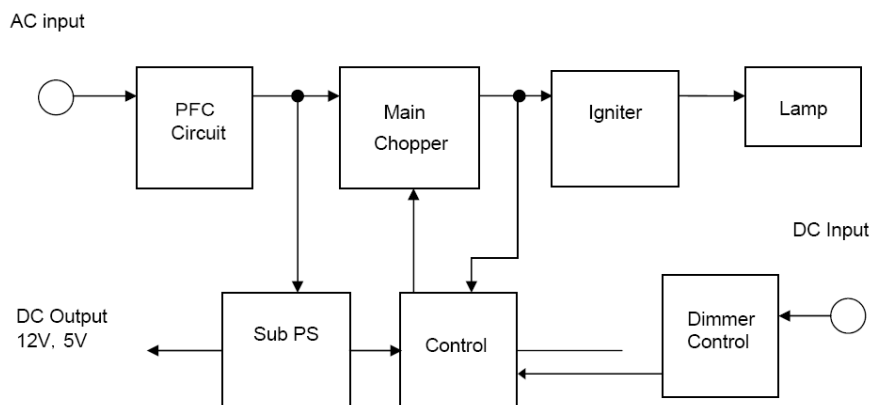


# Electronic Ballast for MH60 Lamps

Input range 90-230 V AC



Data sheet electronic ballast MH60 lamps AC90-230V



## APPLICATION

This specification shall apply to the lamp driver to operate a 60W lamp.

This lamp driver is designed and adjusted for the metal halide lamp.

## STANDARD APPLICATION

The lamp driver is designed to meet these standards when mounted on the set.

## SAFETY STANDARD

UL60950;IEC60950

EMII

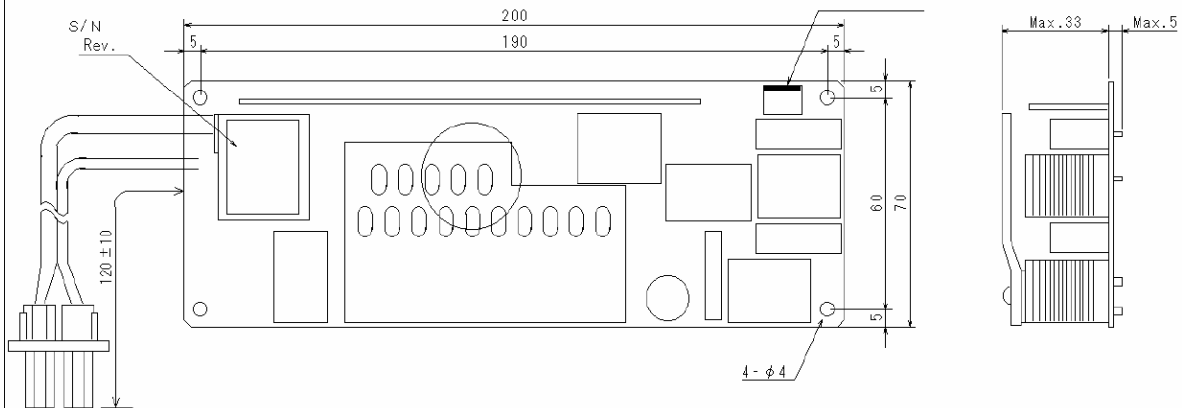
FCC Part18

## Advantages:

- Small dimensions
- Wide input range 90-230V AC
- Dimmable Range 40W-80W
- Wide temperature range
- Small output ripple

## General Specifications

Cooling method	Natural cooling	A forced air-cooling is required where an electricity output exceeds 0.16m <sup>3</sup> /min.
Operational ambient temperature	+0°C - +60°C	
Storage ambient temperature	-20°C+70°C	non condensing
Storage relative humidity	5-90%RH	non condensing
Input Voltage Range V(VAC) Min/Max	AC90-240V	Input Voltage Frequency Range 52-62Hz
Input Power (W) Nomal input	80W±5%	at 100VAC of input voltage
Input current Iin(A)	1.0A (Max 1.3A)	at AC100V
Maximum wattage	80 W max	
Output power		
Power Control Range	60W±25%	By internal VR
	40W±5W	By external VR (min)
	80W±8W	By external VR (max)
	40W±5W	Adjustments by Power Control Signal (0V)
	80W±8W	Adjustments by Power Control Signal (5V)
Peak voltage during ignition	10~20kV0-P	V= AC90~264V
Cycle of HV during ignition	60cycle	V IN=AC100V
Ignition time	Below 2 sec	V IN=AC100V
Output Voltage for DC Fan	11.3~12.7V	Fan electric current I F $\phi$ :25A (Max)
INSULATION RESISTANCE	Primary-Secondary more than 100 M $\Omega$	Test in 500 V of DC and meet the following value.
All characteristics are measured at stable environment (25 $\pm$ 10 $^{\circ}$ ,65% $\pm$ 20%). During the test, both sides of the primary circuit and both side of the secondary circuit needs to be connected.		
WITHSTAND VOLTAGE	Primary-Secondary 3000 (Vrms) Potential 60 sec	The application of an AC potential at a frequency of 50 or 60Hz, cut-off current :10mA
	Primary-Secondary 3000 (Vrms) Potential 2 sec	The production-line test shall be in accordance Condition B of Table.
Operating frequency		
PFC circuit	25~250 kHz	
Main chopper	58 $\pm$ 8 kHz	
Sub PS	100 $\pm$ 10kHz	
PROTECTION		
Over Voltage Protection	140 $\pm$ 20V	Turn off AC power, then turn it on again
Short Current Protection	2.0A typ	Automatically
Thermal Protection	120 $\pm$ 10 $^{\circ}$	Turn off AC power, then turn it on again
Weight	350g	



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Specification of interface J1 JST Mfg CO.,Ltd. B2P3-VH(-B)

AC input connector

Pin No. 1	AC IN	AC Power Source
Pin No. 2	N.C.	No contact
Pin No. 3	AC IN	AC Power Source

Specification of interface J2-1 2pin: J.S.T Mfg CO., Ltd. S2B-PH-SM3

Output control

Pin No. 1	DC5V OUT	DC+5V Output
Pin No. 2	Lamp Input Signal	Lamp ON/OFF(10mA I <sub>ON</sub> 3mA)

Specification of interface J2-2 2pin: J.S.T Mfg CO., Ltd. S2B-PH-SM3

Output Control

Pin No. 1	Lamp Miss Output	Lamp lighting signal (I <sup>-</sup> 3mA)
Pin No. 2	GND	GND

Specification of interface J2-3 2pin:J.S.T Mfg CO., Ltd. S2B-PH-SM3

Output Control

Pin No. 1	For external dimmer	0V Lamp power 40W±5W 5V Lamp power 80W±8W
Pin No. 2	GND	GND

Specification of interface J3 3pin:J.S.T Mfg CO., Ltd. S3B-PH-SM3

VR Connector

Pin No. 1	DC(-)	PS-239X3-LS-120 --- SMK Brand CCT9402-7431
Pin No. 2	DC(+)	PS-239X3-MS-120 --- SHINKO DENKI Brand MC1000-S

Specification of interface J4 3pin:J.S.T Mfg CO., Ltd. S3B-PH-SM3

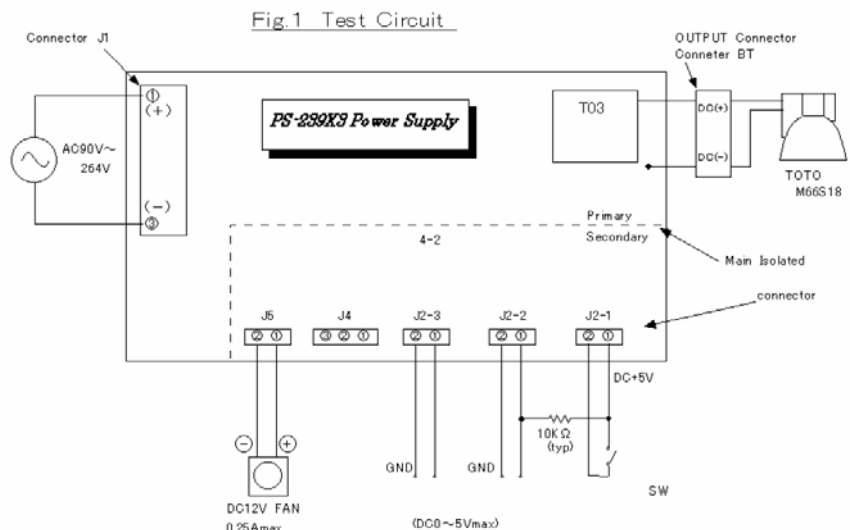
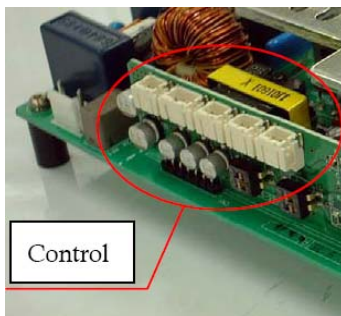
Lamp connector

Pin No. 1	DC5V OUT	DC+5V Output (Dimmer VR at CW side)
Pin No. 2	DC IN	Dimmer DC Power Input (Dimmer VR at center point)
Pin No. 3	GND	GND (Dimmer VR at CCW side)
Note: We recommend the VR to be 10kΩ~1kΩ.		

Specification of interface J5 2pin : J.S.T Mfg CO., Ltd. S2B-PH-SM3

Fan Connector

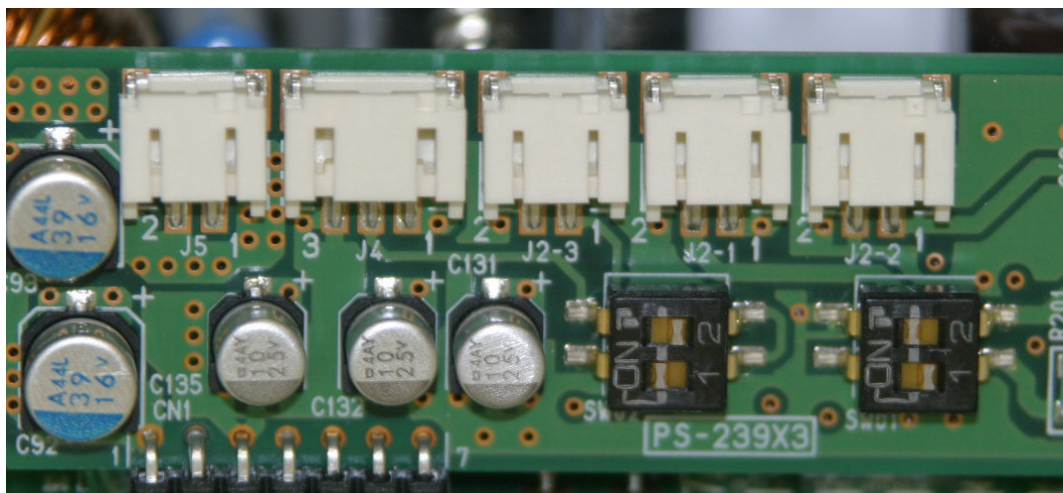
Pin No. 1	DC12V OUT	DC+12V Output (maximum 0.25A)
Pin No. 2	GND	GND



4-3. OPERATING MODE (The primary setting is 4-2)

- (1) Mode 1: AC input power on at 60W (Lamp Signal is unnecessary)
- (2) Mode 2: AC power on, then ignite at 60W
- (3) Mode 3: AC Input only. 40~80W External Power Dimmer (Lamp Signal is unnecessary)
- (4) Mode 4: AC Input, then power on at 40~80W with External Power Dimmer

Mode	Internal Option SW				Power Dimmer	External Parts		
	SW01-1 Lamp Power	SW01-2 Dimmer	SW02-1 External Voltage	SW02-2 External VR		Necessity of SW	Volume	External Power Dimmer
1	ON	Off	Off	Off	Internal VR	no	no	no
2	Off	Off	Off	Off	Internal VR	yes	no	no
3-1	ON	ON	Off	ON	External VR	no	yes	no
3-2	ON	ON	ON	Off	External Voltage	no	no	yes(0~5V)
4-1	Off	ON	Off	ON	External VR	yes	yes	no
4-2	Off	ON	ON	Off	External Voltage	yes	no	yes(0~5V)
forbid den	—	—	ON	ON	—	—	—	—



## MTBF

10,000h and more (surrounding temperature: 140 F (Input Power: AC100V 50Hz Output: Standard Rate) .  
 10,000h. and more (Ambient temperature: 140 F (Input Voltage: 100VAC 50Hz Output : Rated

## ENVIRONMENTAL EXAMINATION

No abnormal factor is found in appearance after the environment examination, satisfying all requirements stated in 4. ELECTRICAL CHARACTERISTICS.

Item	Requirements
High Temp Operation	Temp; 140F, Input voltage; 90VAC 50Hz, Load; 80W 200h
Low Temp Operation	Temp; 32F Input voltage; 90VAC 50Hz, Load; 80W(Non condensing) 96h
High temp. and high humidity operation	Temp; 32F Humidity; 95%RH, Input voltage; 90VAC 50Hz, Load; 80W(Non condensing) 200h
High Temp Stock	Temp; 176F 96h
Low Temp Stock	Temp; -4F,(Non condensing) 96h
High temp and high humidity stock	Temp; 104F, Humidity; 95%RH, (Non condensing) 200h
Thermal Shock	Temp; -4F/30min 158F/30min, (Temperature rise or fall within 5min to next temperature) 10 cycles
Intermittent Movement Examination	Temp; 77F, Input voltage; 90VAC 50Hz, Load; 80W, ON/2min OFF/5min 10,000 cycles
Vibration	Acceleration; $1.96\text{m/S}^2$ (Constant), Frequency range; 10~55Hz, Number of directions; 3(XYZ) 1h
Shock	3 sides 1 time each that it is fixed on the tree board and a drop is optional from the top 30mm based on one in 4 sides.

