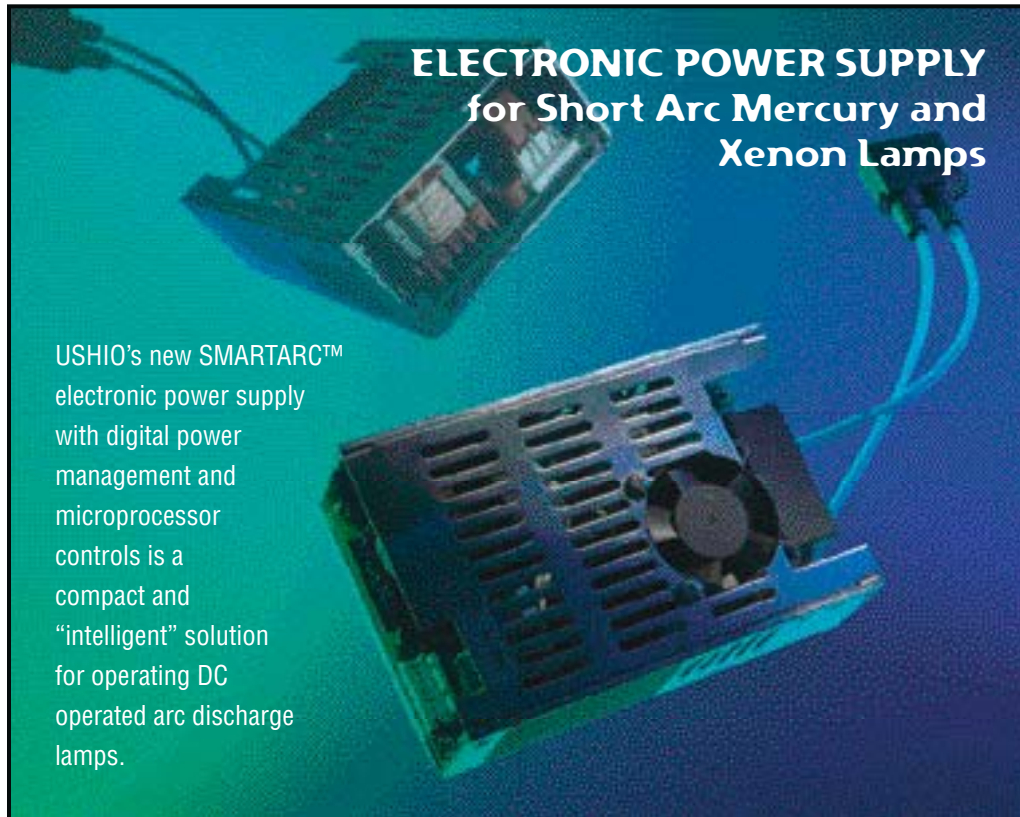


# USHIO

## ELECTRONIC POWER SUPPLY

### SMARTARC™ SERIES

### HBX 76 & HBX 76i



### ELECTRONIC POWER SUPPLY for Short Arc Mercury and Xenon Lamps

USHIO's new SMARTARC™ electronic power supply with digital power management and microprocessor controls is a compact and "intelligent" solution for operating DC operated arc discharge lamps.

## FEATURES AND BENEFITS

- Operates short arc Mercury and Xenon DC lamps in power ranges between 50W, 75W and 100W
- Output power is selectable by DIL 16 step switch set-up
- Power factor corrected line input, built-in EMI-Filter voltage range 90VAC to 264VAC. Meets CE and FCC Part "A"
- Built-in cooling fan — no external cooling needed
- Newly designed anti-aging and arc control circuit for high optical reliability over lamp lifetime
- Digital Power Management and micro-processor controlled with high output stability over life
- Output is short circuit protected and arc to ground protected
- 90°C thermal shut-off feature
- Auto shut-off feature at end of lamp life or lamp failure
- Auxiliary regulated 12V/0.2A output for fan drive available when the lamp is in operation
- Available with "on-board" ignitor as HBX 76 or "off-board" ignitor as HBX 76i

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## HBX 76 Item No. 5001474

### ELECTRICAL DATA

All values are valid at 25° ±5°C, unless otherwise noted

INPUT DATA		
Nominal Operation	Nominal	Tolerance
Input Voltage AC (V)	100 – 240	90 – 264
Input Voltage DC (V)	100 – 300	90 – 340
System Wattage (W)	123	60 – 120*
Input Current (A)	— — —	0.6 – 1.4*
Line Frequency (Hz)	50/60	47 – 63
Power Factor (1)	1.0	0.93 – 1.0

\*Depends on lamp select. Presettable

LAMP OUTPUT DATA			
Ignition	Nominal	Tolerance	Remarks
Ignition Voltage (kV peak)	±14	±12 – ±16	Load capacity <20pF
Ignition Time (sec.)	1	0.9 – 1.1	
Automatic restart counter (1)	5	— — —	attempts
Nominal Operation	Nominal	Tolerance	
Lamp Voltage (V)	12.8 – 34	±5%*	
Lamp Wattage (W)	50, 75, 100*	selectable 50, 75, 100	
Lamp Current (A)	— — —	I max = 7.5*	
Cut-off voltage (V)	43	±2	
Open Circuit Voltage (V)	45	45 – 48	

\*Depends on lamp select. Presettable

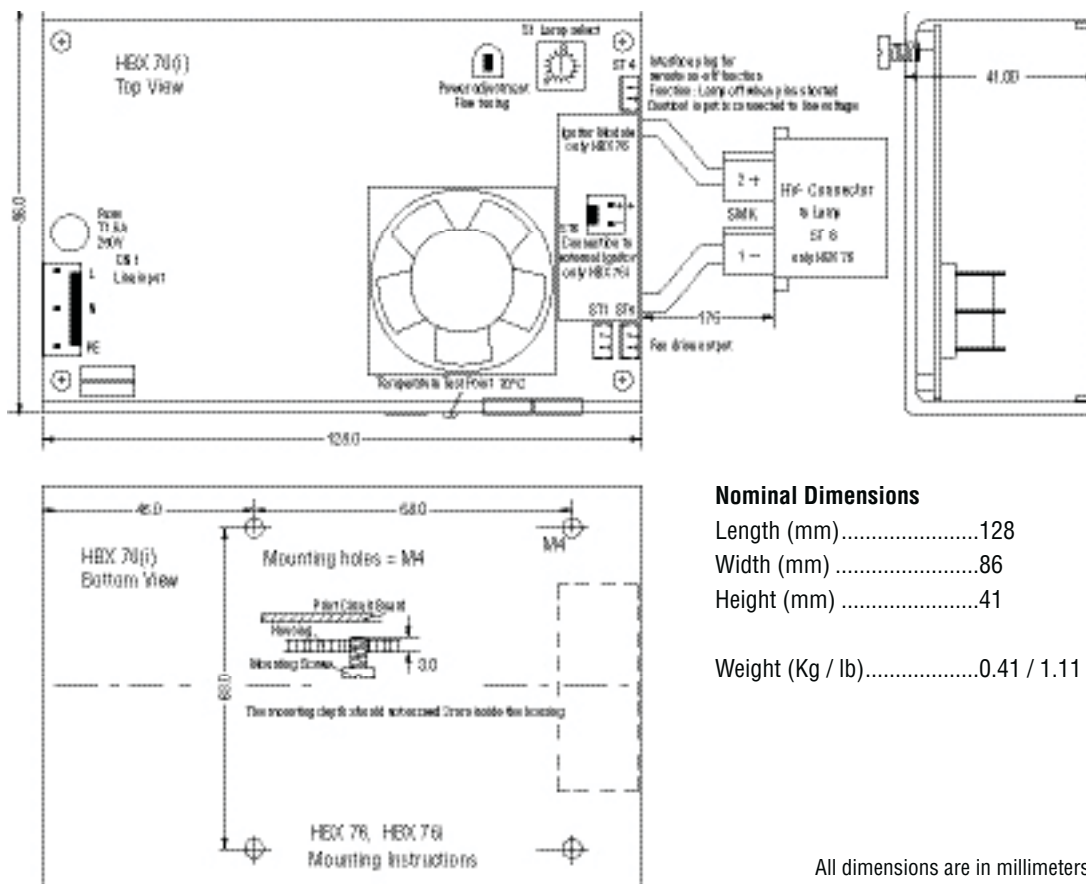
LIFETIME DATA				
	Symbol	Nominal	Tolerance	Remarks
Ballast lifetime (h)	t <sub>Life</sub>	25,000	>25,000	acc. to MIL HDBK for nominal operation

All values for U<sub>i</sub> = 230 V<sub>rms</sub> Temperature at test point = 70° C

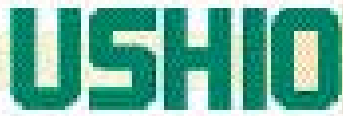
MISCELLANEOUS		
Nominal Operation	Nominal	Tolerance
Efficiency (1)	0.8	0.75 – 0.8
Ambient Temperature (°C)	+25	+10 to +50
Max. Temperature at test point (°C)	+70	Case surface near output at U-profile
Switch off temperature (°C)	+90	+85 to +95

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## HBX 76 TOP & BOTTOM VIEW



Plugs and Cables	Manufacturer / Type	Remarks / Header / Contacts
Ballast Mains Plug	CN1 AMP 643495-2 Wiring with AWG 18, 105°C, 900V recommended	AMP 770 849-5/770522-1
Ballast Interface Plug	ST4 JST/B2B-EH-A	JST EHR-2/SEH-001T-PO.6
Fan Connection Plug	ST 1/ST5, JST/B2B-EH-A For 12V fan 200mA	JST EHR-2/SEH-001T-PO.6
Connection Ballast-Ignitor	ST 6 AMP 640445-2 (HBX 76i)	AMP 770 849-2/770522-1
Ignitor HV-plug to Lamp Lamp Cable	Housing: SMK/101CCT-091-01R Tecnosil/AWG20 UL Style 3239, 20kVDC, 150°C	



## HBX 76

PIN ASSIGNMENT AND FUSE		
Connector	Signal	Description
Line Input ST101 PIN 3 PIN 2 PIN 1	AC in -L- AC in -N- PE	AC wide range input voltage 90V-264VAC DC wide range input voltage 90V300VDC Safety Ground
ST1 & ST5 Fan Drive JST B2B-EHA PIN 1 + PIN 2 -	Fan + 12V Fan - (0V) 200mA (both outputs)	Fan drive output voltage is only available when lamp is lit
Lamp output terminal ST6 PIN 1 - PIN 2 +	Minus lamp voltage Plus and Power	Connection to external ignitor HBX76i or High voltage output to lamp HBX76 SMK standard wiring length 175mm
Fuse	Built-in and fixed T 1.6A 250V	

### COOLING RECOMMENDATIONS

The unit has two 12V terminals for driving one or two fans. One is intended for the power supply and one for the lamp. By default, one is connected to the built-in power supply cooling fan. The combined maximum total output current for both outputs is 200mA. This leaves 135mA for an external fan. Please note that this output voltage is only available when the lamp is in operation. Temperature of the power supply should not exceed 70°C. Temperature overload is protected by an internal temperature switch at 90°C.

### CAUTION!

#### SAFETY

Due to hot restrike capabilities of the power supply, the output voltage to the lamp can reach 15,000 volts. Ensure a minimum 15mm (>1/2") clearance between all lamp terminals to the power supply. All primary wiring must meet all local national safety regulations.

### ENVIRONMENTAL REQUIREMENTS

Storage Temperature Range.....-20° C – +50° C  
Operating Temperature Range.....0° C to 60° C  
Humidity Range .....20% – 95% non-condensing  
Altitude (operating).....0 ft. to 10,000 ft.

### STANDARDS

Safety and Performance  
CSA C22.2 No.60950 UL60950,UL508  
CB-Test and UL must be completed with the final product

Form No. S-SMARTARC/HBX-01103

The specifications on this sheet supercede all previously published specifications and may be subject to change for design and specification improvement without prior notice.