



SmartArc™ HBX 300

For Short-Arc Mercury & Xenon Lamps

Ushio's 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 & BENEFITS

- Power Supply for High Pressure Xenon Lamps
- Lamp Power Range of 150W, 180W, 200W, 250W and 300W
- Output Power Customer Selectable by DIL/16-Step-Switch
- Input Voltage Range from 90V AC to 264V AC, Power Factor Corrected Line Input, Built-In EMI-Filter: Meets CE and FCC Part “A”
- μ P Controlled, Digital Power Management with High Output Stability Over Lamp Lifetime
- Output Short Circuit Protected and “Arc to Ground” Protected
- Galvanic Separation of Lamp Output and Line Input, Thermal Shut-Off at 90°C
- Shut-Off Function for End of Life and Lamp Fail Parameter
- Auxiliary Regulated 24V/ 0.2A Output for Fan Drive (Only Available When Lamp On)
- Optoisolated Control Interface With: Lamp Lit OK Output, Analog Dim Input (Photo Feedback), Remote On-Off Input
- Build-In Fan – No External Cooling Necessary

ELECTRICAL DATA

HBX 300 - Item #5001597

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
System Wattage (W)	—	150 – 350*
Input Current (A)	—	0.6 – 1.4*
Line Frequency (Hz)	50/60	47 – 63
Power Factor (1)	1.0	0.92 – 1.0

*Depends on lamp selected. Presettable.

LAMP OUTPUT DATA

Ignition	Nominal	Tolerance	Remarks
Ignition Voltage with ZG20XE (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)	10 – 29	±5%*	
Lamp Wattage (W)	150, 185, 200, 250, 300	±2%	
Lamp Current (A)	—	22 A Max*	
Cut-Off Voltage, End-Life (V)	30	±2	
Open Circuit Voltage (V)	110	105 – 115	

*Depends on lamp selected. Presettable.

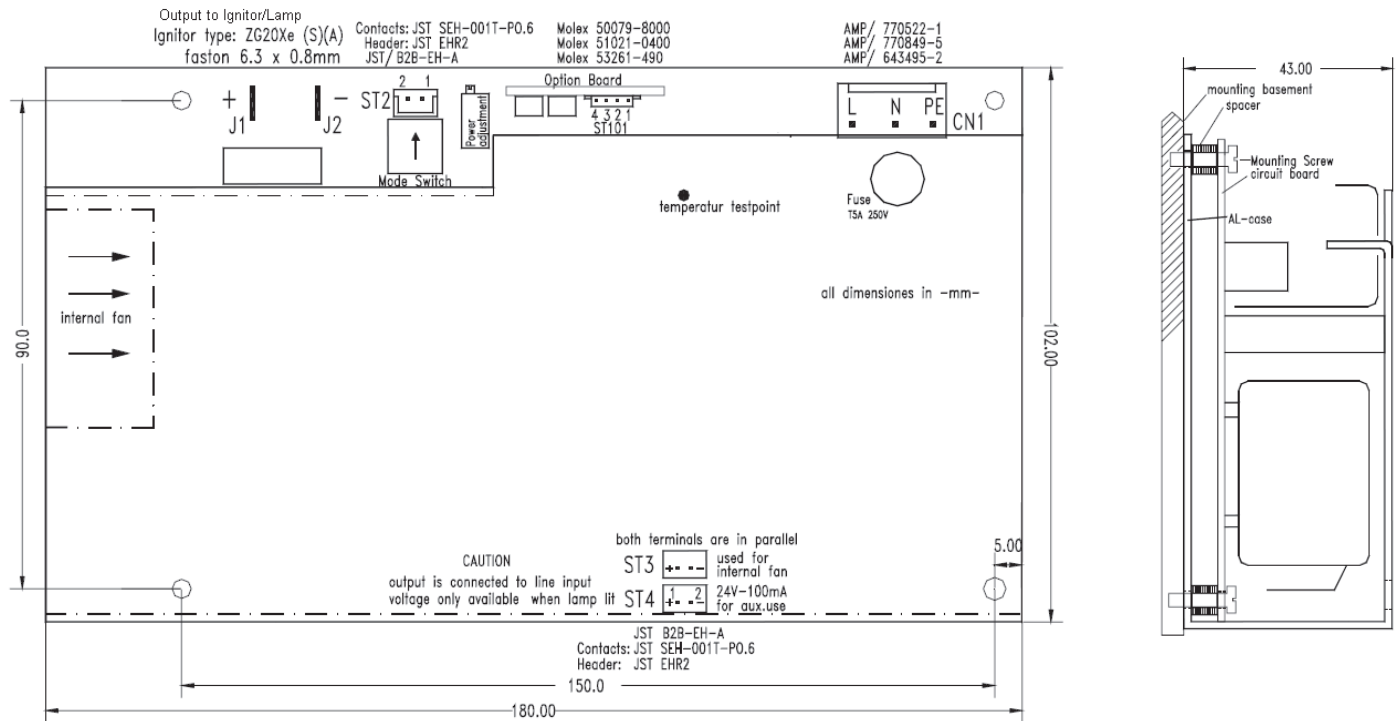
LIFETIME DATA

	Symbol	Nominal	Tolerance	Remarks
Ballast Lifetime (h)	t _{Life}	25,000	>25,000	acc. to MIL HDBK for nominal operation

All values for U_U = 230 V_{rms}. Temperature at test point = 70°C

MISCELLANEOUS

Nominal Operation	Nominal	Tolerance
Efficiency (1)	0.83	0.8 – 0.9
Ambient Temperature (°C)	+25	-10 – +40
Max. Temperature at Test Point (°C)	+80	Case surface near output at U-profile
Switch Off Temperature (°C)	+90	+85 – +95



Nominal Dimensions

- Length (mm) 180
- Width (mm) 102
- Height (mm) 43
- Weight (Kg / lb) 0.7

All dimensions are in millimeters.

Plugs and Cables	Manufacturer / Type	Remarks / Header / Contacts
Ballast Mains Plug	CN1 AMP/MTA-156-3-643495-2 Wiring with AWG 18, 105°C, 900V (recommended)	AMP 770 849-5/770522-1
Ballast Interface Plug	ST2 Not for use in current design CAUTION: Non isolated to line voltage	
Fan Connection Plug	ST3 / ST4, JST/B2B-EH-A for internal 24V fan, ST4 for aux use 100mA, non isolated to line voltage.	JST EHR-2/SEH-001T-P0.6
Connection Ballast-Ignitor	J1 = +, J2 = - Faston 6.3mm x 0.8mm	
Ignitor HV-plug to Lamp Lamp Cable	By screw M3	

SPECIFICATIONS

PIN ASSIGNMENT AND FUSE

Connector	Signal	Description
Line Input CN1 PIN 3 PIN 2 PIN 1	AC in -L- AC in -N- PE	AC wide range input voltage 90V-264VAC Safety Ground
ST1 & ST5 Fan Drive JST B2B-EHA PIN 1 + PIN 2 -	Fan +24V Fan - (0V) 200mA Max. (both outputs)	Caution! Fan drive output voltage is only available when lamp is lit. Fan drive output is connected to line input.
Lamp Output Terminal J 1 + J 2 -	Plus Minus	Connection to external ignitor ZG 20Xe-A (Asymmetric). ZG 20Xe-S (Symmetric). Lamp voltage and power.
Fuse	Internal T 5A / 250V	Caution! For continued protection against risk of fire, replace only with same type and rating of fuse.

COOLING RECOMMENDATIONS:

This unit has one integrated fan, to ensure proper operation at ambient temperatures up to 40°C. In all cases, the temperature test should be done in the final assembled end product. This temperature should not exceed 80°C. Temperature overload is protected by an internal temperature switch at 90°C at the internal heatsink.

ENVIRONMENTAL REQUIREMENTS:

Storage Temperature Range.....-20°C – +60°C
 Operating Temperature Range.....-10° C – 40° C
 Humidity Range20% – 95% non-condensing
 Altitude (Operating).....0 ft. to 10,000 ft.

STANDARDS:

Safety and Performance
 UL 60601-1, IEC 60610-1 (CB)
 CB-Test and UL must be completed with the final product

CAUTION:

SAFETY - Because of instant hot restrike, the output voltage at the lamp can reach values of up to +/-15000 Volts! Please ensure minimum 15mm clearance between all lamp terminals to PE, to prevent arc to ground situation!! Grounding the output will lead to immediate power supply failure! Primary wiring has to meet national requirements for electric safety!

