USHIO Applying Light to Life®

SMARTARC™ UBX 76

For EmArc® & DC Gas Discharge 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

- Operates EmArc® and DC Gas Discharge Lamps, in Powers Ranging Between 50W and 100W
- Output Power and Operation Modes are Selectable by DIL 16 Step Switch Set-Up
- Power Factor Corrected Line Input, Built-In EMI-Filter Voltage Range 90V AC to 264V AC. Meets CE and FCC Part "A"
- Newly Designed Anti-Aging and Arc Control Circuit for High Optical Reliability Over Lamp Lifetime
- Digital Power Management Micro-Processor Controlled With High Output Stability Over Life
- SmartStart™ Operation Ensures Longer Life and Less Lamp Degradation
- Output is Short Circuit Protected and Arc to Ground Protected
- 90ºC Thermal Shut-Off Feature
- Auto Shut-Off Feature at End of Lamp Life or Lamp Failure
- Built in 12V Fan Supply

UBX 76 - Item #5001569

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	900 – 340
System Wattage (W)	—	60 – 120*
Input Current (A)	—	0.6 – 1.4*
Line Frequency (Hz)	50/60 and DC	47 – 63
Power Factor (1)	—	0.93 – 1.0

*Depends on lamp selected. 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)	40 – 80	±5%*	
Lamp Wattage (W)	50, 75, 100*	selectable 50, 75, 100W	
Cut-Off Voltage, End-Life (A)	100	±2	
HF-Ripple of Output Power (ΔP La,rip/PLa)	%<1 p-p		
Ripple 50Hz - 60Hz	%<2 p-p		
Output Power Shift vs. Input Voltage (ΔP La/ΔLI)		<0.005 with nominal values	

*Depends on lamp selected. Presettable.

LIFETIME DATA

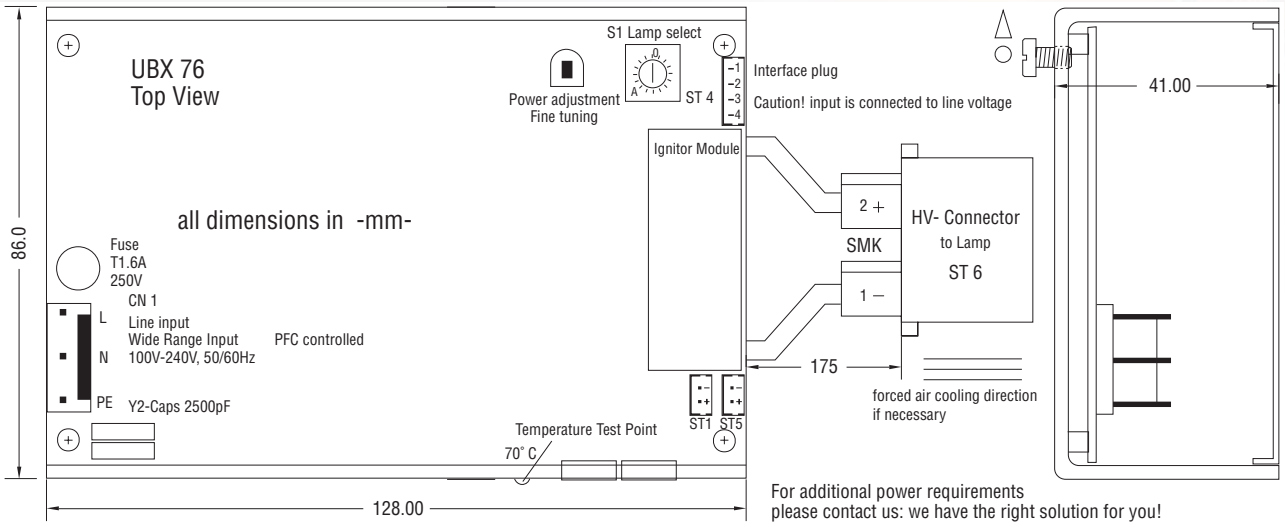
	Symbol	Nominal	Tolerance	Remarks
Ballast Lifetime (h)	t_{Life}	25,000	>25,000	acc. to MIL HDBK for nominal operation

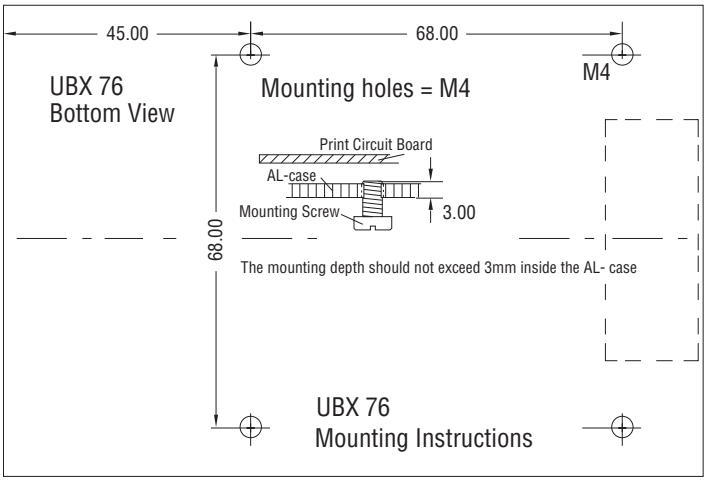
All values for U_u = 230 V_{rms}. Temperature at test point = 70°C

MISCELLANEOUS

Nominal Operation	Nominal	Tolerance
Efficiency (1)	0.85	0.75 – 0.9 depending on lamp power
Ambient Temperature (°C)	+25	+10 – +50
Max. Temperature at Test Point (°C)	+70	Case surface near output at U-profile
Switch Off Temperature (°C)	+90	+85 – +95

TOP & BOTTOM VIEW





Nominal Dimensions

Length (mm) 128
Width (mm) 86
Height (mm) 41
Weight (Kg / lb) ..... 0.41 / 0.90

All dimensions are in millimeters.

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
Fan Connection Plug	ST 1 & ST5, JST/B2B-EH-A	JST EHR-2/SEH-001T-P0.6
Ignitor HV-plug to Lamp Lamp Cable	Housing: SMK/101CCT-091-01R Tecnosil/AWG20 UL Style 3239, 20kVDC, 150°C	

SPECIFICATIONS

PIN ASSIGNMENT AND FUSE

Connector	Signal	Description
Line Input ST101		
PIN 3	AC in -L-	AC wide range input voltage 90V-264VAC
PIN 2	AC in -N-	DC wide range input voltage 90V-340VDC
PIN 1	PE	Safety Ground
ST1 & ST5 Fan Drive JST B2B-EHA		
PIN 1 +	Fan +12V	Fan drive output voltage is only available when lamp is lit.
PIN 2 -	Fan - (0V)	
Lamp Output Terminal ST6		Connection to external ignitor HBX76i or High voltage output to lamp HBX76 SMK standard wiring length 175mm
PIN 1 -	Minus Lamp Voltage	
PIN 2 +	Plus and Power	
Fuse	Built-in and Fixed T 1.6A / 250V	

ENVIRONMENTAL REQUIREMENTS:

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

STANDARDS:

Safety and Performance
UL 60601-1 (Medical)
CSA C22.2 No. 601-1
IEC 60601-1

LAMP POWER SELECTION:

There is a 16-step multimode switch close to the control terminal ST4. The label outside shows the power selection. Please set the correct switch position, before operating a lamp. A wrong selection may damage the lamp!

FAN DRIVE OUTPUT:

The unit has two 12V output terminals for driving one or two fans. The output capacity for both outputs up to 200mA. The fan power is generated from the lamp output power. That means that the lamp power is reduced by Ifan x Ulamp! For example: if a fan used 150mA and the lamp voltage is 55V, then the lamp power is reduced by approximately 8W. **PLEASE NOTE THIS FOR OPTIMAL LAMP OPERATION! FOR HIGH OUTPUT POWER ACCURACY AND LOW RIPPLE, THIS OUTPUT TERMINAL SHOULD NOT BE USED!** During warm-up time of the lamp it may be that the fan drive output does not reach 12V. The fan output voltage and current is limited by a special circuit to 12V/0.2A. The 12V output voltage is only available when the lamp is in operation.

COOLING RECOMMENDATIONS:

For driving a 50W lamp, it would not be necessary to cool down the power supply. When secured, the unit can be cooled down by natural convection. 75W and 100W selection needs forced air-cooling. The power losses are a function of the lamp current and output power. In all cases, the temperature at the temperature test point should be tested to ensure most reliable operation. This temperature must not exceed 70°C. Temperature overload is protected by an internal temperature switch at 90°C at the choke ferrite.

TYPE UBX 76 AND UBX 76i*:

The standard power supply type is UBX 76. This provides a complete, cost effective solution to drive the lamp including the ignitor, without any additional wiring. Only line input and a lamp are necessary.

*For special requirements, it is possible to offer the UBX 76 with a separate external ignitor (i). In this case the lamp and the ignitor can be placed remotely from the ballast unit by longer cables. Please speak with our Regional Sales Manager.

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.

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