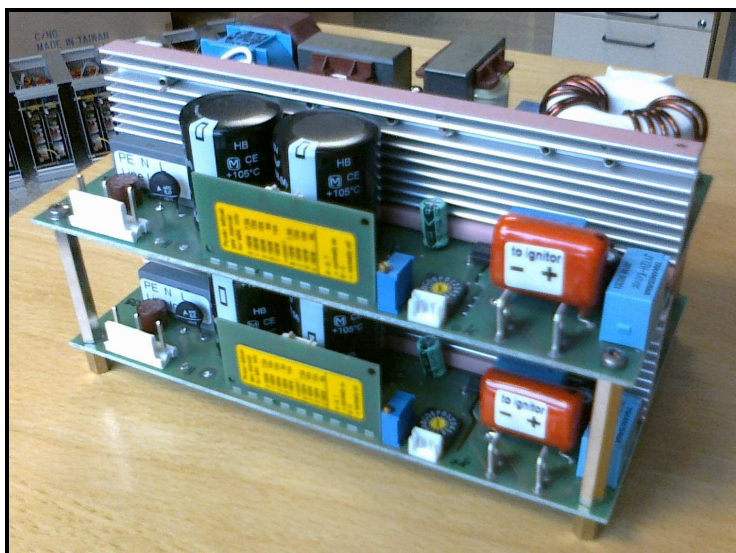


<b>HANSMANN Electronic GmbH &amp; Co. KG</b>	<b>May 2012</b>		<b>Technical Information</b>
<b>Specification</b>	<b>HBX400</b>		<b>Edition: 1.36</b>
Ballast for 400W-short arc discharge lamps	Datasheets:	10 Pages	<b>Status:</b> <i>Valid</i>

Please read this information carefully, before installing and operating the power supply!



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**Electronic Ballast "HBX 400" requires use of ignitor ZG 30Xe-S or ZL30Xe**

<b>Order Code:</b>	<b>HBX 400</b>	Standard Version, HBX400-Y with reduced PE current
	ZG 30Xe-S	Ignitor with symmetric ignition
	ZL 30Xe	Ignitor to add onto lamp
	<b>HBX 400-E</b>	Special version for lamp voltages between 30 and 50V

**OSRAM-Lamps:**

XBO 450 W xxx  
XBO 500W/H OFR  
XBO 550W/HSC OFR  
HBO 500W/2

**Features:**

- Power supply for xenon filled short arc lamps
- Designed for Xenon short arc lamps rated **from 350 to 600W**
- Output power customer selectable by DIL/16step –switch
- Capable to drive lamp voltages ranging from **10 to 29V, ver. E 50 to 90V**
- Certified by **OSRAM** and **USHIO, IEC(UL) 60601 approval**
- Input voltage range from **90V AC to 264V AC**, power factor corrected line input, built-in EMI-filter: meets CE and FCC part "A"
- $\mu$ 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
- Ballast cascadable for use for higher wattage Xenon lamps
- Auxiliary 24V/ 0.2A output for fan drive (available only when lamp lit)
- Flexible Design: new lamps and functions adaptable by software
- Other lamps on request

**Ushio Lamps:**



## Electrical Data

All values are valid at  $25 \pm 5^\circ\text{C}$ , unless otherwise noted

### Input Data

Nominal Operation	Symbol	Unit	Nominal	Tolerances	Remarks
Input voltage AC Line	U	V AC	100-240	90 - 264	
Input voltage DC-Line	U	V DC	DC-input not allowed as fuse is not compatible		
System wattage	$P_{Li}$	W		300 - 780	depends on select
Input current	$I_{Li}$	A		1.2 – 8.6	depends on select
Line frequency	$f_{in}$	Hz	50/60	47 – 63	
Line Power factor	PFC	1	1.0	0.92 to 1.0	
Leakage Current to PE	$I_{Leak\_SA}$ $I_{Leak\_QD}$	$\mu\text{A}$	<150 <300		Standalone Combined w. QD-3023

Other Operation Data	Symbol	Unit	Nominal	Tolerances	Remarks
System wattage during ignition	$P_{ign}$	W	50	<30	
System wattage standby-operation	$P_{LiStby}$	W	1	0.5 – 2.0	

### Lamp Output Data

Ignition	Symbol	Unit	Nominal	Tolerances	Remarks
Ignition voltage with ZG 30Xe	$U_{ign}$	$\text{kV}_{peak}$	$\pm 14$	$\pm 12 - \pm 16$	Load capacity <20pF
Ignition time automatic restart counter	$t_{ign on}$	sec.	1 5	0.9 – 1.1 --	attempts

Run-up Operation	Symbol	Unit	Nominal	Tolerances	Remarks
Run-up Current @ 15V Lampvoltage	$I_{max}$ $I_{max}$	A A	18, 25 28	+/-10% Max.	Inside specified lamp-parameter (select by S1)
In rush Current	$I_{max}$	A	60		0 to 1ms

Nominal Operation	Symbol	Unit	Nominal	Tolerance s	Remarks
Lamp voltage	$U_{La}$	V	10 - 29 10 - 120	+/-5% +/-5%	Depends on lamp select
Lamp wattage	$P_{La}$	W	200 to 420 (see table) 540, 650 (ver E only)	+/-2%	Selectable by Mode Sw. (not implemented yet)
Lamp current	$I_{La}$	A	Up to 30		Depend on select
End-Of Life-Cut off voltage	$U_{La,max}$	V	30	+/-2V	After run-up completed
End-Of-Life-Cut off time	$t_{EOL-Off}$	S	< 0.2		
RF-Ripple of output power	$\Delta P_{La,rip} / P_{La}$	%	< 1 p-p		13V-30V
50Hz –60Hz Ripple		%	< 1 p-p	< 4 p-p	13V 30V
Shift in output power with shift in input voltage	$\Delta P_{La} / \Delta U_{Li}$	1		< 0.005	within nominal values
Open circuit voltage	$U_{ocv}$	V	110	105 –115	

## LIFETIME DATA

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

	Symbol	Unit	Nominal	Tolerances	Remarks
ballast lifetime	$t_{life}$	h	25.000	> 25.000	acc. To MIL HDBK for nominal operation

## MISCELLANEOUS DATA

<b>Nominal Operation</b>	Symbol	Unit	Nominal	Tolerances	Remarks
Power losses at 115V at 230V	$P_V$	W	40 – 130 30 - 110	+/-	Depends on power select
Efficiency	$\eta$	1	0.83	0.8 – 0.9	Depend on Lamp current
Ambient temperature	$T_A$	°C	+ 25	-10 - +40	non condensing
Maximum temperature at test point	$T_c$	°C	+80		Both heat sink temperatures
Internal temp. switch off temperature	$T_{c-off}$	°C	+90	+85 - +95	At heatsink no de-rating till switch off

<b>Standby Mode</b>	Symbol	Unit	Nominal	Remarks
Minimum mains shut-off time for restart	$T_{reset}$	s	3	Standby mode is present when the lamp doesn't light 1. when ignition hasn't been successful 2. when lamp output is shorted 3. when lamp extinguishes while running

<b>Geometry and Weight</b>	Symbol	Unit	Nominal	Tolerances	Remarks
Length	$l$	mm	180	+/-1	See dwg.
Width	$w$	mm	102	+/-1	See dwg.
Height	$h$	mm	90	+/-1	see dwg.
Housing			n.a.		open frame, req. ext. cooling
Weight	$W_B$	Kg	0.7	+/-0.05	

<b>Wiring length</b>	Symbol	Unit	Nominal	Tolerances	Remarks
Between ignitor and lamp	$L_{il}$	mm		t.b.d.	As short as possible
Between ballast and ignitor	$L_{bl}$	mm	t.b.d.	t.b.d.	External Ignitor ZG 30Xe-S or ZL 30Xe-S

<b>Cooling method</b>	Symbol	Unit	By fan	Remarks
	airflow	meter per second		Must be checked in actual application

<b>Plugs and Cables</b>	Manufacturer / Type	Remarks / Header/Contacts
Ballast mains plug	CN 1 AMP/MTA-156-3- 643495-2 Wiring with AWG 18, 105°C, 900V, (recommended)	See drawing on page 8
Ballast interface plug	ST 2 JST / B2B-EH-A Non isolated to line voltage CAUTION !	See drawing on page 8
Fan connection plug	ST 3 / ST 4, JST / B2B-EH-A for internal 24V Fan, ST4 for aux use 100mA, Non isolated to line voltage	See drawing on page 8
Connection Ballast-Ignitor	J1 =+, J2=- Faston 6.3mm x 0.8mm	
Option plug	ST101 Molex 53261-490 or 53261-0471 Functions: See drawing on page 8	See drawing on page 8
Ignitor HV-plug to lamp Lamp cable	By screw M3, details see page 9 and 10	See drawings on page 9, 10

### PIN Assignment and Fuse

Connector		Signal	Status	Description
Line input CN 1	PIN 3 PIN 2 PIN 1	AC in -L- AC in -N- PE		AC - wide range input Voltage 90V – 264V  Safety Ground
ST 3 and ST 4 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 lit.
Lamp output Terminal J1, J2	J 1 + J 2 -	Plus Lamp Voltage Minus and Power		Connection to external Ignitor ZG 30Xe or ZL30Xe, output terminals of both modules to be connected in parallel at ignitor
Option Board terminal ST101 opto-isolated	Pin 1 Pin 2 Pin 3 Pin 4	Dim (PWM with 100Hz) On-Off Lamp Lit feedback Secondary GND		Dim-Input to ballast (100% duty cycle=min P) Function depends on lamp select Conductive to Pin 4 = lamp lit Common GND relative to Pin 1,2 and 3 Further information, refer to drawing
Fuse		Fixed built -in T 5A/ 250Vx2		CAUTION! For Continued Protection Against Risk of Fire, Replace Only with Same Type and Rating of Fuse

Standards	
Safety and performance Certifications	UL 60601-1, IEC 60601-1 (CB) CB- Test, and UL must be completed with the final product
RFI – (Radio Frequency Interferences) (Funkentstörung)	has to be done with complete assembled project, built-in EMI-filter, that meets CE and FCC (A) requirements, for “B” an additional Filter is recommended (has to be tested with final product)

Environmental Requirements	Ambient conditions	Remarks
Storage Temperature Range	-20°C - +60°C	
Operating Temperature Range	-10°C – 40°C	Depend on cooling
Humidity Range	20% - 95% non condensing	
Altitude operating	0 Ft. to 10000 Ft.	
Altitude not operating	0 Ft. to 40000 Ft.	
Vibration operating	G <sub>rms</sub> , 5 Hz to 500 Hz random 10min x y z axis	t.b.d. not tested
Vibration not operating	G <sub>rms</sub> , 5 Hz to 500 Hz random 10min x y z axis	t.b.d. not tested
Shock operating	G <sub>rms</sub> , ½ sine wave, 11ms x y z axis	t.b.d. not tested
Shock not operating	G <sub>rms</sub> , ½ sine wave, 11ms x y z axis	t.b.d. not tested

Specifications subject to change without notice

Power Adjustment by Switch S1 Mode sw

S1	Power	Function	
0	150W	Off-On	7.5A max current
1	180W	Off-On	13A max current
2	180W	Off-On	13A max current
3	150W	Off-On	9A max current
4			Not applicable
5	250W	Off-On	17.5A max current for XBO500
6	250W	Off-On	14A max current for XBO450W in combin. with 2 or 6
7	210W	On-Off	420W Lower and Upper Ballast
8	210W	On-Off	Alternative setting, currently not used
9	250W	On-Off	14A max current for XBO450W in combin. with C or 9
A	250W	On-Off	17.5A max current for XBO500
B	150W	On-Off	7.5A max current
C	180W	On-Off	13A max current
D	180W	On-Off	13A max current
E	150W	On-Off	9A max current
F			Not applicable

USHIO Lamp Series USH----,UXM---,UXL---,UXR---, with corresponding power-  
OSRAM Lamp Series XBO---- and HBO--- with corresponding power-  
- and **rated** voltages below 24V

The above described function “on or off without signal” is available at ST2. Without signal means open or +5V. The signal function is active, when both pins are shorted by contacts (relay, push button contacts a.s.o.) or opto-coupler-transistor.

CAUTION: these pins are connected to line input voltage.

The ballast is equipped with an internal counter that counts the number of operation hours as well as ignition attempts. This feature can only be used by the factory or an appointed service representative.

The remaining switch positions are open for customized functions or different lamp specification.

## *Additional hints for use and safety:*

### **1. Safety**

Because of instant hot restrike, the output voltage to 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!! Primary wiring has to meet national requirements for electric safety!

### **2. Connection**

Model HBX400 has 2 separate input connectors and 2 separate output connectors. It shall be assured that in end use application that inputs as well as outputs are connected in parallel. At the output, positive outputs of both modules are connected and negative outputs are connected respectively as well.

### **3. Lamp power selection:**

By multimode 16-step switch (0-F). (see table above)

### **4. Fan drive output**

The unit has two 24V output terminals for driving one or two fans. One is intended for the power-supply and one for the lamp. The maximum output current for both outputs is total 200mA.

The 24V output voltage is only available, when the lamp is in operation.

CAUTION! This terminal is connected to line voltage!

### **5. Cooling**

This unit requires active cooling by fan. It is necessary to keep air in-and -outlet free.

In all cases, the temperature at the temperature test point should be tested to ensure most reliable operation. This temperature should not exceed 80°C.

Temperature overload is protected by an internal temperature switch at 90°C at the internal heatsink.

### **6. Fuse and Safety**

**CAUTION!** For Continued Protection Against Risk of Fire, Replace Only with same Type and Rating of Fuse! The fuse is a fixed built- in component with T5A / 250V rating.

If the fuse has failed, the power-supply must be returned to the factory for repair.

### **7. Increasing reliability and functions**

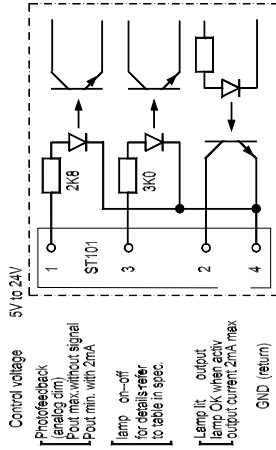
Custom modifications of power curves and adaption to other lamp types are possible upon request.

### **8. Please see the following pages for additional information about wiring, mounting and operating data.**

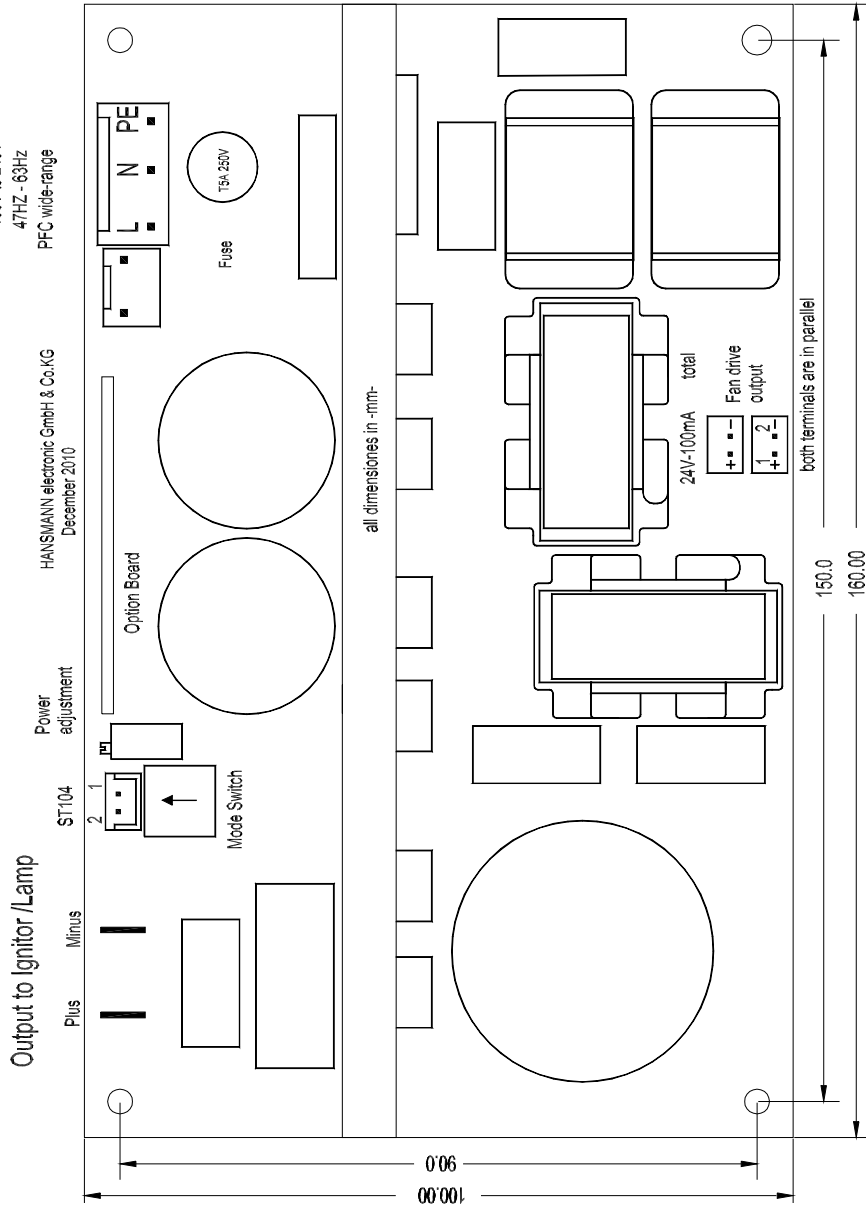
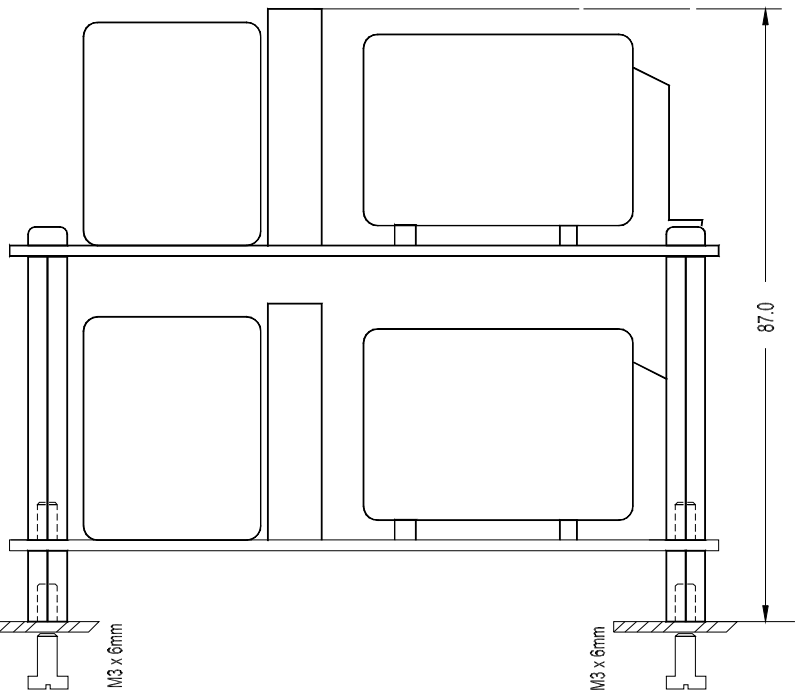
# HBX400

Electronic Powersupply for low voltage high current  
metal halide discharge lamps  
(10V - 30V)

## Functions at the Optionboard



Photofeedback (analog signal)  
Lamp on-off for details refer to table in spec.  
Lamp lit output





### ZG 30 Xe

Self stopping ignitor

Input voltage range: 70V - 140V DC

Continuous Current: 30A DC

HV M4 x 6 for more details see spec.  
+ Lamp

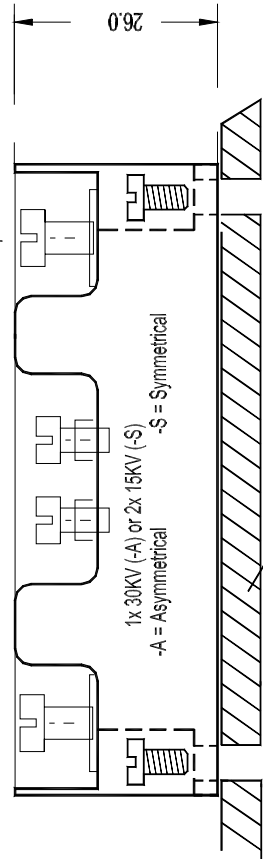
- input M3 x 6

+ input M3 x 6

1x 30kV (-A) or 2x 15kV (-S)

-A = Asymmetrical

-S = Symmetrical

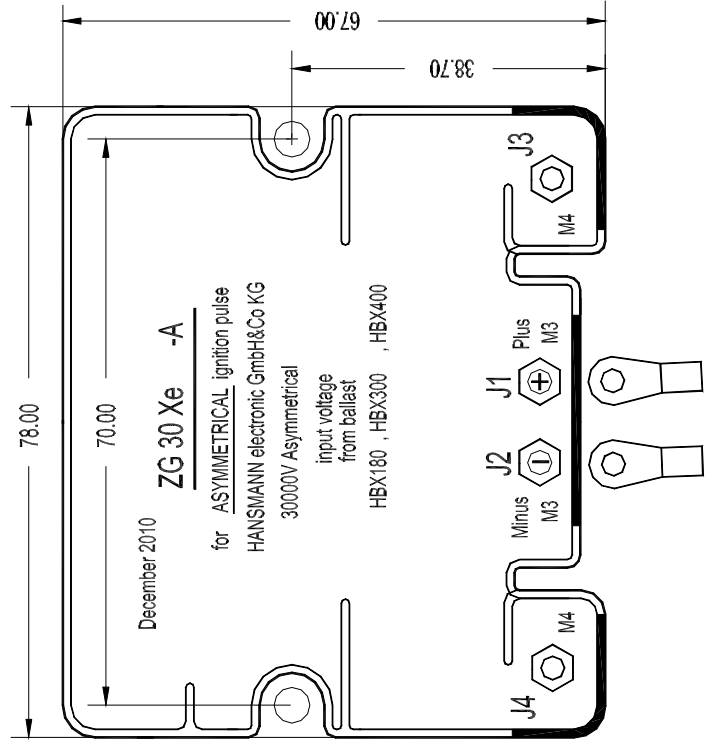
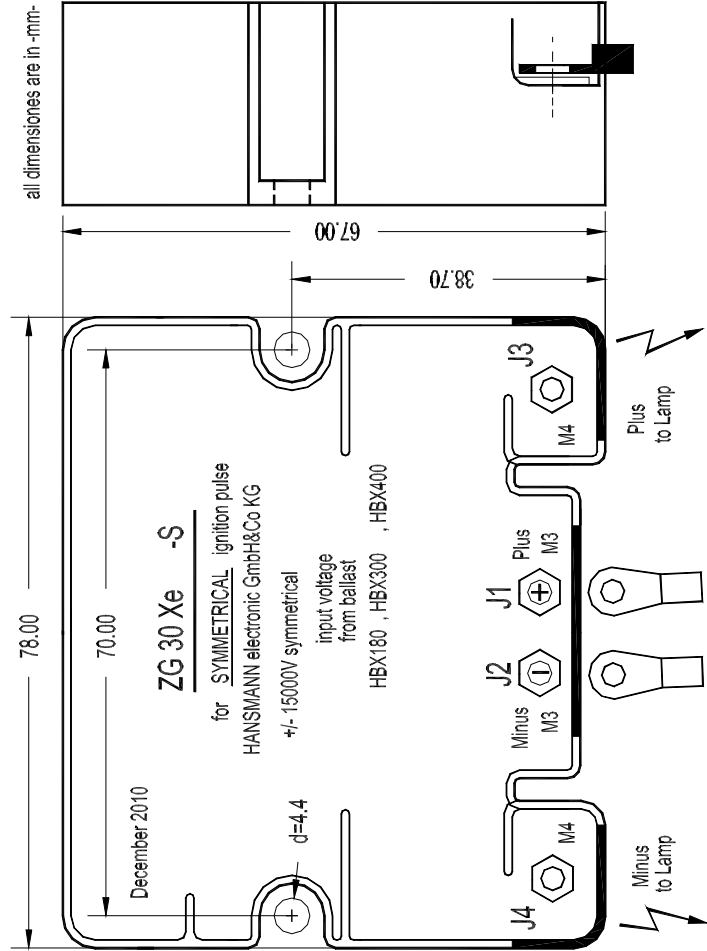
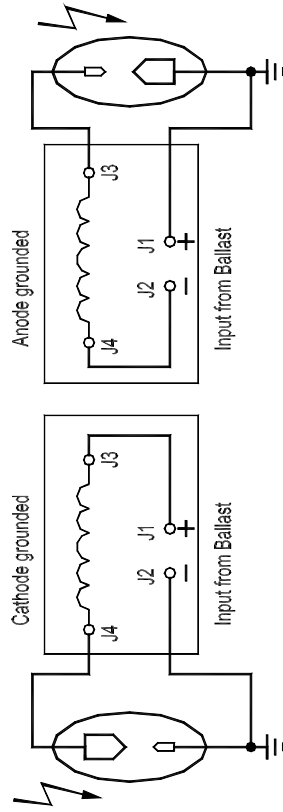


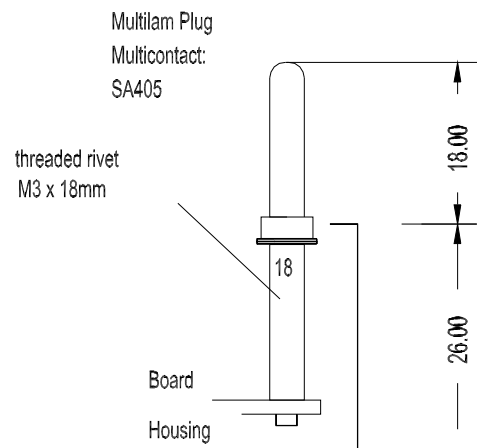
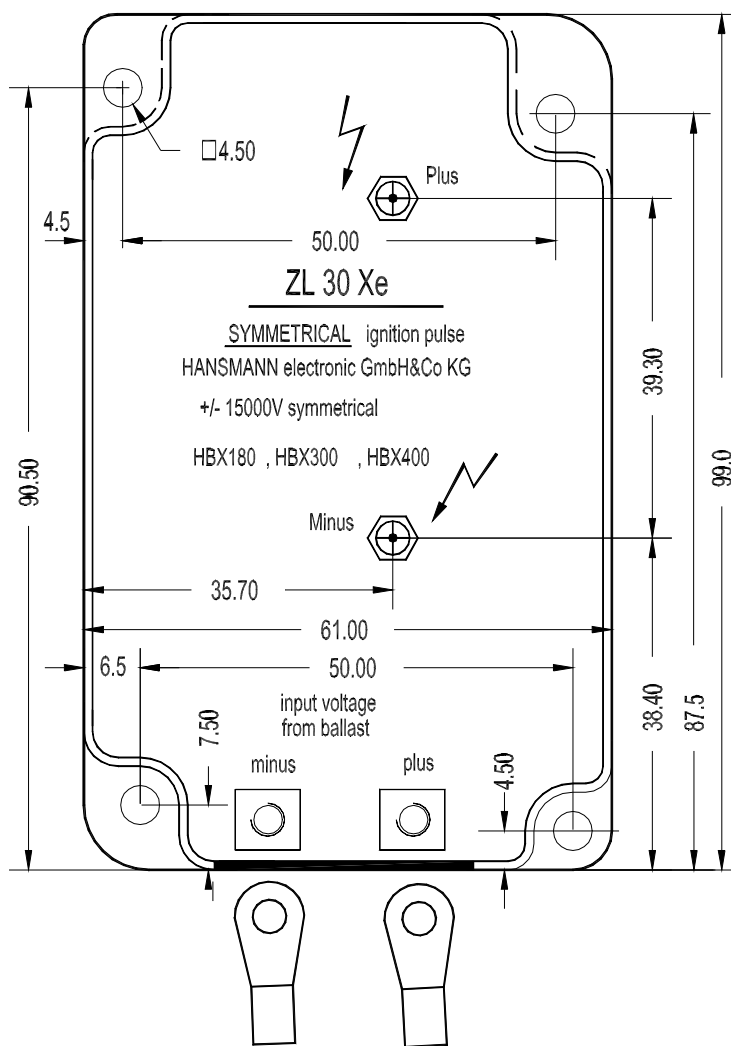
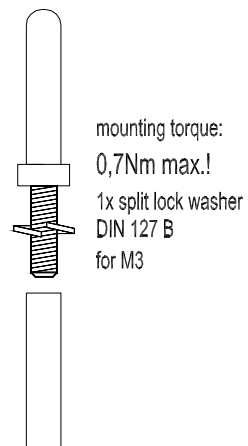
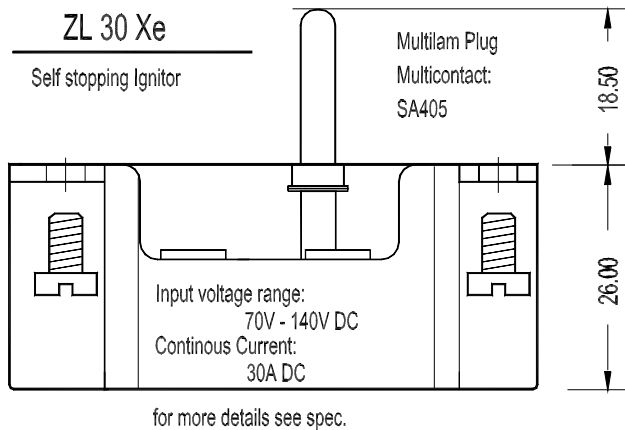
maximum torque for screw terminals:  
for M4 = 1Nm  
for M3 = 0.7Nm

### Application hints for using Asymmetrical Ignitor

### ZG 30 Xe-A

Operation Mode	Junction	Lamp connection
if lamp is grounded with minus side	connect J1 with J3	minus to J2 plus to J4
if lamp is grounded with plus side	connect J2 with J4	minus to J3 plus to J1





all dimensions are in -mm-

Hansmann GmbH & Co.KG Dec 2010

<b>HANSMANN Electronic GmbH &amp; Co. KG</b>	<b>November 2015</b>	<b>Technical Information</b>
<b>Specification</b>	<b>HBX500</b>	<b>Edition: 1.0.1</b>
Ballast for up to 500W-short arc DC- lamps	Datasheets: 9 Pages	<b>Status:</b> <i>valid</i>

Please read this information carefully, before installing and operating the power supply!



Front View



Back View

## Hansmann Electronic GmbH & Co.KG

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<b>Electronic Ballast "HBX 500", requires use of ignitor ZG 30Xe or ZG120Xe</b>	
<b>Order Code:</b>	<b>HBX 500</b> Standard Version
	ZG 30Xe-S 35Amps Ignitor with <b>symmetrical</b> ignition, <b>no</b> Anode or Cathode Ground operating
	ZG 30Xe-A 35Amps Ignitor with <b>asymmetrical</b> ignition, Anode or Cathode Ground operating
	ZG 60Xe 75Amps Ignitor with <b>asymmetric</b> ignition Anode or Cathode Ground operating
	ZG 120Xe 120Amps Ignitor with <b>asymmetric</b> ignition Anode or Cathode Ground operating
<b>Osram Lamps:</b>	<b>Features:</b>
	<ul style="list-style-type: none"> <li>• Power supply for xenon filled short arc lamps</li> <li>• Designed for Xenon short arc lamps rated <b>up to 500W/ 44A</b></li> <li>• Output power customer selectable by controle Voltage <b>0-5V</b></li> <li>• Capable to drive lamp voltage ranges from <b>15 to 29V</b></li> <li>• length x width x height (mm) 170/220/224 x 132/139 x 141, 2,125 kg</li> <li>• <b>Ballast boards inside has IEC(UL) 60601 approval</b></li> </ul>
<b>Ushio Lamps:</b>	<ul style="list-style-type: none"> <li>• Input voltage range from <b>90V AC to 264V AC</b>, power factor corrected line input, built-in EMI-filter: meets CE and FCC part "A"</li> <li>• <math>\mu</math>P controlled, digital power management with high output stability over lamp Lifetime</li> </ul>
<b>Luxtel Lamps:</b>	<ul style="list-style-type: none"> <li>• Output short circuit protected and "Arc to Ground" protected</li> <li>• Operation with Cathode or Anode to Ground/PE possible</li> <li>• Galvanic separation of lamp output and line input, thermal shut off at 90°C</li> <li>• Shut off function for end of life and lamp fail parameter</li> </ul>
<b>Perkin Elmer Lamps:</b>	<ul style="list-style-type: none"> <li>• Ballast cascadable for use for higher wattage Xenon lamps</li> <li>• Auxiliary regulated 24V/ 0.2A output for Subsystems, <b>permanent available</b></li> <li>• Flexible Design: new lamps and functions adaptable by software</li> </ul>



## Electrical Data

All values are valid at  $25 \pm 5^\circ\text{C}$ , unless otherwise noted

### Input Data

Nominal Operation	Symbol	Unit	Nominal	Tolerances	Remarks
Input voltage AC Line	U	V AC	100-240	90 - 264	
Input voltage DC-Line	U	V DC	DC-input is possible but not certified		
System wattage	$P_{LI}$	W		300 -600	depends on select
Input current	$I_{LI}$	A		5 – 14	depends on select
Line frequency	$f_{in}$	Hz	50/60	47 – 63	
Line Power factor	PFC	1	1.0	0.92 to 1.0	
Line inrush current limiting	$A_{peak}$		13	Limiting Element will	be shorted by Relais
Leakage Current to PE	$I_{Leak\_SA}$	$\mu\text{A}$	<500@230V		Standalone

Other Operation Data	Symbol	Unit	Nominal	Tolerances	Remarks
System wattage during ignition	$P_{ign}$	W	25	<30	
System wattage standby-operation	$P_{LIStby}$	W	1,5	0.5 – 2.0	

### Lamp Output Data

Ignition	Symbol	Unit	Nominal	Tolerances	Remarks
Ignition voltage with ZG ..Xe	$U_{ign}$	kV <sub>peak</sub>	30-35		Depends on Ignitor
Ignition time automatic restart counter	$t_{ign on}$	sec.	1 5	0.9 – 1.1 --	attempts

Run-up Operation	Symbol	Unit	Nominal	Tolerances	Remarks
Run-up Current @ 15V Lamp-voltage	$I_{max}$ $I_{max}$	A A	66	+10% Max.	Inside specified lamp-parameter (select by internal Mode-switch)
In rush Current	$I_{max}$	A	80		0 to 1ms

Nominal Operation	Symbol	Unit	Nominal	Tolerance s	Remarks
Lamp voltage	$U_{La}$	V	10 - 29	+/-5%	Depends on lamp select
Lamp wattage	$P_{La}$	W	500	+/-2%	Fixed factory set-up 500W
Lamp current	$I_{La}$	A	Up to 44Amps		Depend on set-up
End-Of Life-Cut off voltage	$U_{La, max}$	V	30	+/-1V	After run-up completed
End-Of-Life-Cut off time	$t_{EOL-Off}$	S	< 0.2		
RF-Ripple of output power	$\Delta P_{La,rip} / P_{La}$	%	< 1 p-p		15,5V-30V
50Hz –60Hz Ripple		%	< 1 p-p	< 4 p-p	13V 30V
Shift in output power with shift in input voltage	$\Delta P_{La} / \Delta U_{LI}$	1		< 0.005	within nominal values
Open circuit voltage for ignition	$U_{ocv}$	V	110	105 –120	

## LIFETIME DATA

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

	Symbol	Unit	Nominal	Tolerances	Remarks
ballast lifetime	$t_{Life}$	h	25.000	> 25.000	acc. To MIL HDBK for nominal operation

## MISCELLANEOUS DATA

<b>Nominal Operation</b>	Symbol	Unit	Nominal	Tolerances	Remarks
Power losses at 115V at 230V	$P_V$	W	30 – 90 25 - 80	+/-	Depends on power select
Efficiency	$\eta$	1	0.85	0.8 – 0.9	Depend on Lamp current
Ambient temperature	$T_A$	°C	+ 25	-10 - +50	non condensing
Internal temp. switch off temperature	$T_{c-off}$	°C	+90	+85 - +95	At heatsink no de-rating till switch off

<b>Standby Mode</b>	Symbol	Unit	Nominal	Remarks
Minimum mains shut-off time for restart	$T_{reset}$	s	3	Standby mode is present when the lamp doesn't light 1. when ignition hasn't been successful 2. when lamp output is shorted 3. when lamp extinguishes while running

<b>Geometry and Weight</b>	Symbol	Unit	Nominal	Tolerances	Remarks
Length	$l$	mm	170/220/224	+/-1	See dwg.
Width	$w$	mm	132/139	+/-1	See dwg.
Height	$h$	mm	141	+/-1	see dwg.
Housing					Closed AL
Weight	$W_B$	g	2125		

<b>Wiring length</b>	Symbol	Unit	Nominal	Tolerances	Remarks
Between ignitor and lamp	$L_{il}$	mm		t.b.d.	As short as possible
Between ballast and ignitor	$L_{bl}$	mm	t.b.d.	t.b.d.	External Ignitor ZG 30Xe/A/S

<b>Cooling method</b>	Symbol	Unit	Nominal	Remarks
	airflow	meter per second	Built in fan	Thermal Situation should be checked in actual application

<b>Plugs and Cables</b>	Manufacturer / Type	Remarks / Header/Contacts
Ballast mains plug CN 1	Screwable for wires up 1.5qmm/ for max. input current = 14Amp	See drawing on page 6
Ballast Control interface plug	ST 1 JST / B6B-EH-A I Isolated to line voltage. GND connected to PE	See drawing on page 6
Connection Ballast to Ignitor	By Screw M5 and Cable-shoes (Cu16-5) for 16qmm	See drawing on page 6

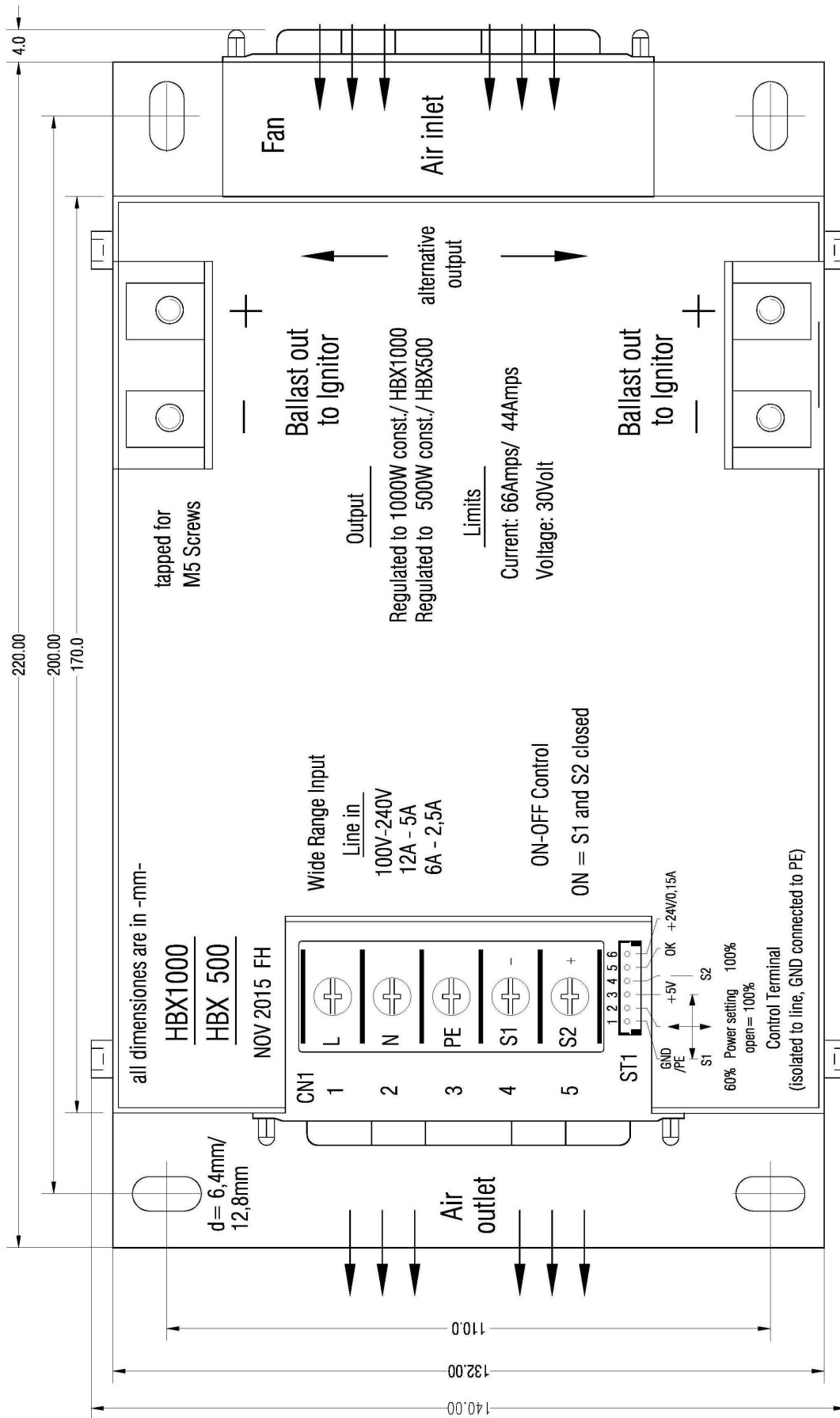
**PIN Assignment and Fuse**

Connector		Signal	Status	Description
Line input CN 1	PIN 1 PIN 2 PIN 3	AC in -L- AC in -N- PE		AC - wide range input Voltage 90V – 264V  Safety Ground
CN 1	PIN 4 (-) PIN 5 (+)	ON-OFF/GND By switch, by open collector or by control voltage 0-24V		Universal ON-OFF control input
Lamp output Terminal	Copper rails, tapped with M5 for cable shoes (Cu16-5)	Plus Lamp Voltage Minus and Power		Connection to external Ignitor ZG 60Xe ZG 120Xe
Option Board terminal ST1 opto-isolated	Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6	GND/PE/CN1-Pin4 Power control input +5V ON-OFF/CN1-Pin5 Lamp Lit feedback +24V-0,15A auxiliary out		GND and 24V return Voltage or PWM control, 5V =500W Use for power-control potentiometer ON-OFF input, Power On = <1V Open collector output (NPN), OK is low For external subsystems
Fuse		Fixed built -in 2xT 5A/ 250V		CAUTION! For Continued Protection Against Risk of Fire, Replace Only with Same Type and Rating of Fuse

Standards	
Safety and performance Certifications	UL 60601-1, IEC 60601-1 (CB) for ballastboards HBX180 CB- Test, and UL must be completed with the final product
RFI – (Radio Frequency Interferences) (Funkentstörung)	has to be done with complete assembled project, built-in EMI-filter, that meets CE and FCC (A) requirements, for “B” an additional Filter is recommended (has to be tested with final product)

Environmental Requirements	Ambient conditions	Remarks
Storage Temperature Range	-20°C - +60°C	
Operating Temperature Range	-10°C – 40°C	Depend on cooling
Humidity Range	20% - 95% non condensing	
Altitude operating	0 Ft. to 10000 Ft.	
Altitude not operating	0 Ft. to 40000 Ft.	
Vibration operating	$G_{rms}$ , 5 Hz to 500 Hz random 10min x y z axis	t.b.d. not tested
Vibration not operating	$G_{rms}$ , 5 Hz to 500 Hz random 10min x y z axis	t.b.d. not tested
Shock operating	$G_{rms}$ , ½ sine wave, 11ms x y z axis	t.b.d. not tested
Shock not operating	$G_{rms}$ , ½ sine wave, 11ms x y z axis	t.b.d. not tested

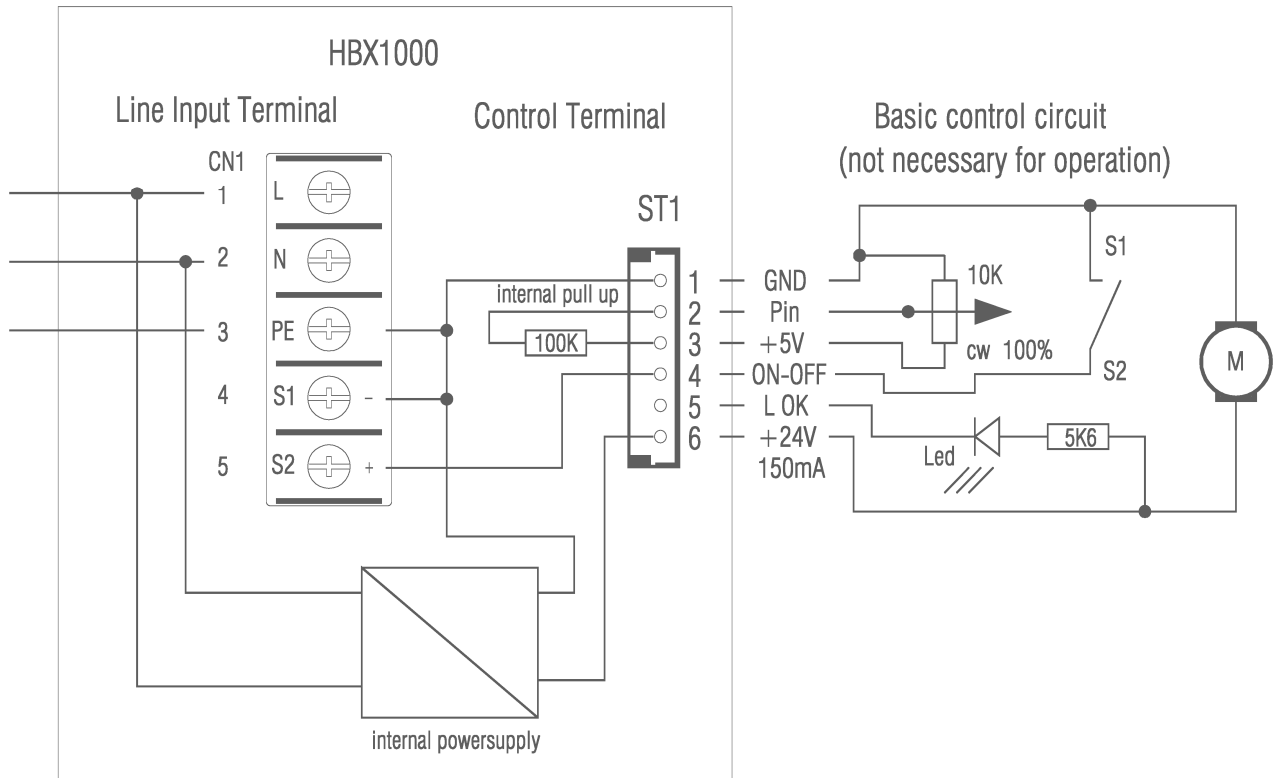
Specifications subject to change without notice



Outline Configuration of HBX500 and HBX1000 is similar



Control Configuration of HBX500 and HBX1000 is similar



Basic circuit for use:

**Pin 4** for ON-OFF is a multiple use universal input, which can be driven by Signals up to 24V. To operate the lamp S1 and S2 must be closed.

**Pin 3** is a high impedance input for Power adjust. It can be driven by voltage between 0V and 5V or by 5V PWM Signals with 100Hz to 500Hz. It can left open for 100% output Power.

**Pin 5** is an open collector Output to drive a Led for amp OK operation.

### *Additional hints for use and safety:*

1. **Safety**

Because of instant hot restrike, the output voltage to 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!! Primary wiring has to meet national requirements for electrical safety!

2. **Lamp power selection:**

By multimode 16-step switch (0-F). Only factory setup. Not for end user.

3. **Auxiliary 24V Output**

The unit has one 24V output terminal for driving subsystems.

The maximum output current for this output is total 150mA.

The 24V output voltage is permanently available, even when the lamp is not in operation!

This terminal is connected to PE with GND (24V return)!

4. **Cooling**

This unit is assembled with an internal fan, which ensures proper operation at ambient temperatures up to 50°C. Nevertheless it is necessary to keep air in- and -outlet free.

Temperature overload is protected by an internal temperature switch at 90°C at the internal heatsink.

5. **Fuse and Safety**

**CAUTION!** For Continued Protection Against Risk of Fire, Replace Only with same Type and Rating of Fuse! The fuse is a fixed built-in component with T5A / 250V rating.

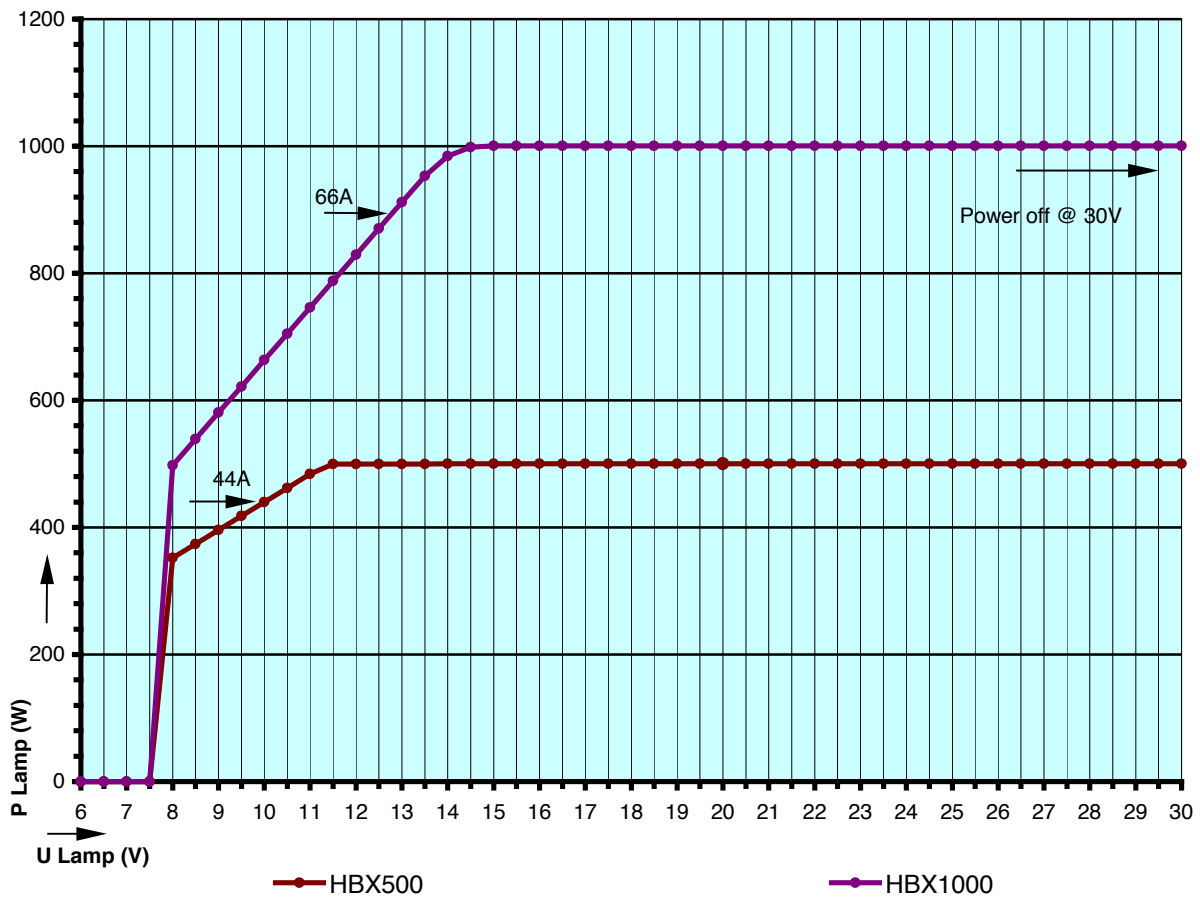
If one of the fuses has failed, the power-supply must be returned to the factory for repair.

6. **Increasing reliability and functions**

Custom modifications of power curves and adaption to other lamp types are possible upon request.

7. Please see the following pages for additional information about wiring, mounting and operating data.

### HBX500- HBX1000 Output Power 500W - 1000W vrs. Ulamp



Standard Factory Set up HBX500, HBX1000; 500W-44A, 1000W-66A