

HSR02401LIRC

DIN Rail

Made in Germany.

240 Watts N+1 Redundant Power Supply
115/230Vac Input Voltage – low inrush

Short Specification:

- Metal housing
- 91% efficiency typ.
- -20°C...+60°C full output power
- Free air convection
- Galvanic insulated
- Continuous short circuit protected
- Overload & low voltage protected
- Soft start & auto-recovery
- Hold up time >30ms
- Minimum load = 0A
- EMI/EMS EN61000-6-2,3, EN55022 class B
- cUL60950/16950 IEC(EN)60950-1
- Series & parallel operation
- DIN Rail 35mm
- Screw terminals AWG20...AWG9
- 24 hours burn in test
- High reliability, shock & vibration resistant
- Active inrush current limiter

N+1 Redundant:
Integrated redundant
decoupling with built in
power diods to balancing
of operations



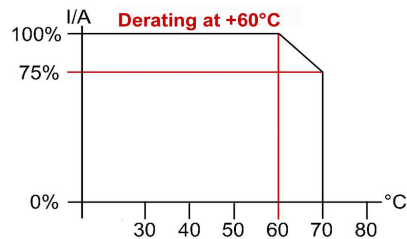
Single-Output: 12V, 15V, 24V, 48V, 60V



In accordance with IEC60950-1

AC Input	90..132Vac / 184..265Vac , 47...63Hz , 250...375Vdc				
AC Input Rating	115VAC <4.8A 230VAC <2.2A				
Rated DC Voltage	12V	15V	24V	48V	60V
Rated DC Current	15,0A	13,0A	10,0A	5,0A	4,0A
Power Boost	18,0A	15,6A	12,0A	6,0A	4,8A
Ripple (230Vac/20MHz/50R)	30mVpp	30mVpp	20mVpp	50mVpp	50mVpp
Output adj. Range	11,4...13,2V	14,2...16,5V	22,5...28,8V	45,6...52,8V	57,0...066V
Stability Load switch 0-100%	± 0,5%	± 0,5%	± 0,3%	± 0,1%	± 0,1%
Order code: HSR02401.VoutTLIRC Example: 24V for DIN-Rail = HSR02401.24TLIRC					

Accuracy of output trim factory	± 1%
Load regulation	< ± 0.5% 10-100%, 100-10%
Minimum Load	0 A
Efficiency	91% typical
Load Protection	1,2x I _{rated} ,auto recovery
Voltage Protection	140% of U _{out} , auto recovery
Short Circuit Protection	Continuous
Temperature Control	Yes
Hold Up Time	> 30ms 230Vac
Inrush Current	10,6Aeff / 15Apeak (230Vac)
Softstart	20ms typical
Cooling	Natural convection
Ambient Temperature	- 20°C...+70°C
Storage Temperature	- 40°C...+85°C
EMI	EN55022 class B
EMS	EN61000-6-2,3
Safety	cUL60950/1950 , EN60950-1
Safety class 1(A)	VDE0805, VDE0100
Air & Surface Leakage Paths	> 8mm
Input/Output	Galvanic insulated 3000Vac
Power Good Relay (opener)	<48Vdc/500mA (galv.ins.≤60V)
MTBF IEC61709	500000h
Dimensions (HxWxD)	124x120x99,5mm
Weight	1200g
Screw Connectors (AC & DC)	AWG20...AWG9



Terminal Connects:

AC
1 = N
2 = L
3 = GND

DC
1 = DC +
2 = DC +
3 = DC -
4 = DC -

A Power Good Relay

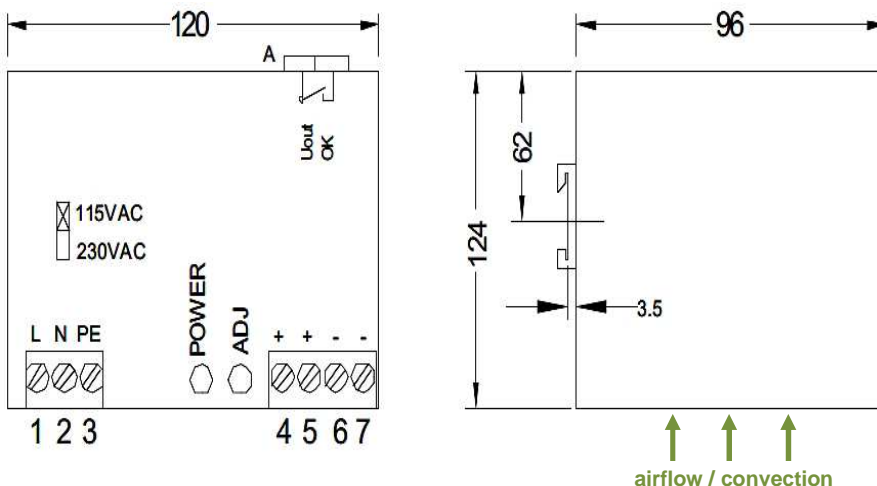
Screw terminal order codes for SK1 & SK2: (each package = 10 pcs)
Art.No.: 3520037
(2 pins for relay)

Conception:

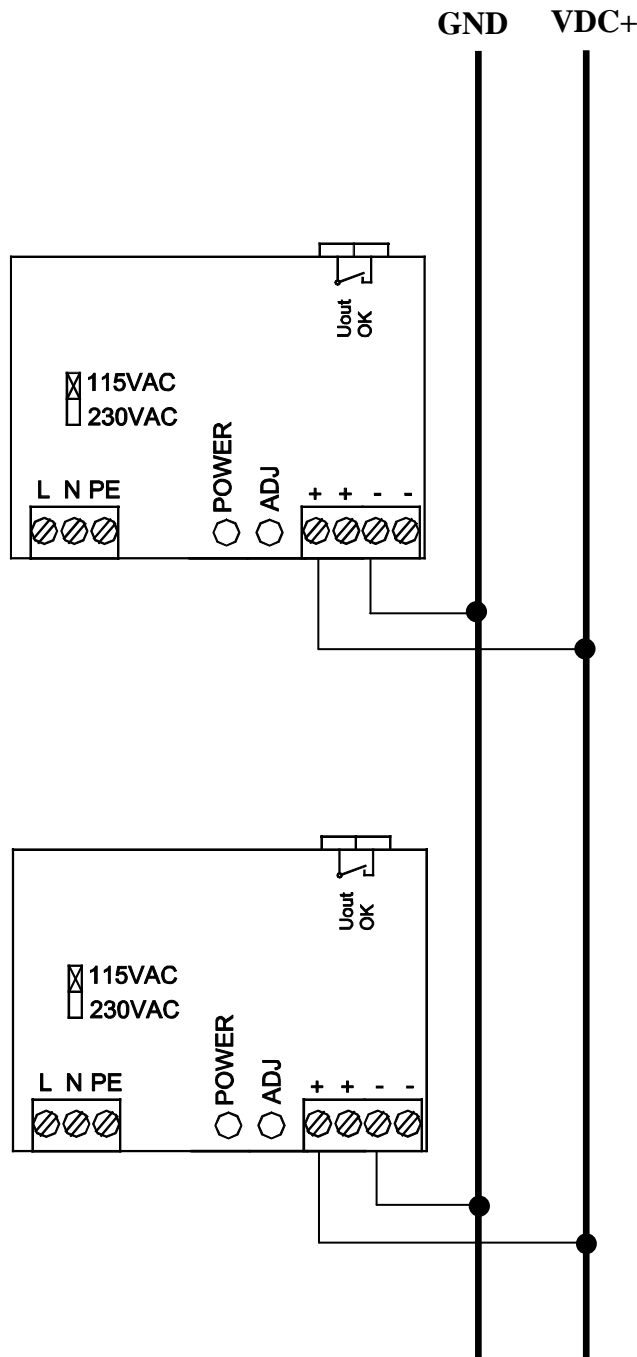
The HSE power supply series realizes very high power efficiency in a space-saving housing. This design enables Green Power applications and allows free air convection. Latest generation electrical devices relate to the high reliability of all Camtec products. The Camtec philosophy is, to employ 125°C low ESR ultra long life capacitors where expedient to achieve a superior lifetime of our products. The used screw terminals allow easy to wire and smooth service.

N+1 Redundancy:

The HSR power supply series is designed for redundant operation. The HSR has a built in power diode for balancing of operations. If one power supply in the installed system breaks down, the other one takes over accurately without any voltage drop to the system. The galvanic insulated power good relay provides full control message. The HSR series distinguishes oneself by using state of the art electrolyte capacitors and all other electrical parts for extreme lifetime conditions. It is a groundbreaking device in technology and performance.



White Sheet of the HSR-Series.



Operating Camtec HSR redundant power supplies in parallel provide decoupled DC-outputs. When a breakdown occurs to one the items, the other one will take over the whole load. A shortcut in the DC-section of the faulty PSU will not affect system availability. Any voltage drop will impact. It is secured that in non-fault operation mode the load will be partitioned absolute equal to each power supply. This increases lifetime and availability. A power good relay contact features continuous control over the operating condition of each HSR power supply.

Observe:

The AC-input wires has to cabled separately to each HSR power supply module to make sure that in case of a cable break the redundant operation will not be endangered. To prevent from different loads to the paralleled power supply sections, we recommend using equal cable lengths from all the DC-outputs to the load. Make sure that the output voltages are being adjusted, accurately.

Double Redundancy Operations In 3phase Networks:

A tricky installation buried in oblivion over the years. Still it is one of easiest and cost effective design-ins to be found. Basically before using a high-maintenance unbreakable power supply (UPS). Wire three equal HSR power supplies to a 3phase AC-network by using its different phases for each of it. Wire all these three HSR modules to the load. Use power bars or better a neutral point to assure equal cable lengths. Even if 2 phases or even 2 power supplies of the will be lost, the application is still kept to be running accurately.

Tip for cost sensitive applications:

If no diode decoupling is prescribed: you may drive 3 equal Camtec standard power supplies same way as above. Instead of using 2 redundant big ones to catch the load, you may use three smaller and equal ones with half of the needed supply. Still you will cover losing one phase of the 3-wire-AC. In case of one power supply breaks down, the residual 2 will take over. It is very improbable that you will lose 1 phase plus a power supply at once. Beware to choose such application in high quiescent systems. If a shortcut in the DC occurs to one of the power supplies it may drag down the whole system supply voltage. But, to have a 3rd stage coverage such kind of installation will be useful if money plays a decisive role.