

Technical Data: Powering Proximity Readers with ESD Switching Power Supplies




Most switching power supplies used in the security industry are built with a standard control integrated circuit that has a fixed operating frequency of 100Khz. These fixed integrated switching power supplies, coupled with minimal filtering systems have caused erratic operation and reduced read range on proximity readers. These switching power supplies loaded with harmonics that interfered with proximity readers have caused the manufacturers of proximity readers to recommend that linear power supplies be used to power their readers.

Our low frequency off-line switching power supplies have a very clean output. They start with a low frequency between 23 and 43 KHz, well below the operating frequency of all proximity readers, and include very extensive filtering inside to produce a very clean, smooth DC power output. Radiated and conductive emissions along with universal AC input, and safety standards, allow them to be used all over the world. This same switching technology is used on the highest quality computers.

With all this quality and high performance you would expect a high price, but in most cases our power supplies are less money with higher performance. Other advantages of our switching power supplies over an equivalent linear supply is that they are considerably smaller, weigh considerably less and they give off a lot less heat during operation.

ESD 12VDC and 24VDC Low frequency Off-Line Power supplies that can used to power Proximity Readers

Part Numbers	Output Voltage	Continuous Current	Outputs	Enclosure	
SPS-3.6M2	12 VDC	3.3 Amps	2	No	Yes
SPS-3.6M2E	12 VDC	3.3 Amps	2	Yes	Yes
SPS-6.5M4	12 VDC	6 Amps	4	No	Yes
SPS-6.5M4E	12 VDC	6 Amps	4	Yes	Yes
SPS-6.5	12 VDC	6 Amps	1	No	Yes
SPS-6.5E	12 VDC	6 Amps	1	Yes	Yes
SPS-6.5EC8	12 VDC	6 Amps	8	Yes	Yes
SPS-10	12 VDC	8 Amps	1	No	Yes
SPS-10EL	12 VDC	8 Amps	1	Yes	No
SPS-10ELC8	12 VDC	8 Amps	8	Yes	Yes
SPS-10ELC16	12 VDC	8 Amps	16	Yes	Yes
SPS-2M2	24 VDC	1.7 Amps	2	No	Yes
SPS-2M2E	24 VDC	1.7 Amps	2	Yes	Yes
SPS-3.3M4	24 VDC	3 Amps	4	No	Yes
SPS-3.3M4E	24 VDC	3 Amps	4	Yes	Yes
SPS-3.3	24 VDC	3 Amps	1	No	Yes
SPS-3.3E	24 VDC	3 Amps	1	Yes	Yes
SPS-3.3EC8	24 VDC	3 Amps	8	Yes	Yes
SPS-5	24 VDC	4 Amps	1	No	Yes
SPS-5EL	24 VDC	4 Amps	1	Yes	No
SPS-5ELC8	24 VDC	4 Amps	8	Yes	Yes
SPS-5ELC16	24 VDC	4 Amps	16	Yes	Yes
Tested SPS-6B and SPS-20 Power Supplies below with the HID 9100 Prox Reader 11/04 with perfect results					
SPS-6B	12/24VDC	6/3 Amps	1-16	Yes	Yes
SPS-20	12/24VDC	20/10 Amps	1-16	Yes	Yes



Electronic Security Devices

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Technical literature specifications subject to change
Date 11/04jb

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TEST DATA

KERI SYSTEMS

Keri Systems proximity readers are all approved by Keri Systems to operate with our low frequency off-line switching power supplies. Keri Systems is a reseller our LP-2, 2 amp linear power supplies for smaller systems and our SPS-10ELC16 off-line switching power supply for larger systems.

Our lab tests have shown a negligible loss of read range (0 to 2% worst case) with our low frequency switching power supplies compared to a linear power supply (benchmark).

HID READERS

HID has done testing of our low frequency switching power supplies in their testing facility. The following is their synopsis of the results.

"I tested both the 12vdc and the 24vdc power supplies and was very happy with the results as compared to previous tests of switching power supplies. However, I have a linear power supply on my bench that I measure against that consistently provides me with maximum read ranges in a best case environment. I am seeing a 5% average decrease in read range across our reader line using your supplies. I tested our three small readers (ProxPoint Plus, ThinLine, and MiniProx) on the 12vdc power supply and the one big reader (MaxiProx) on the 24vdc reader, using both our standard ISOProx and Proxcard II cards. Given an average read range of 5 inches your supplies consistently lose .25 inches of read range. To the average user/installer this would be invisible."

9100 R10 Reader Tested 11/01/04

I tested an HID reader model 9100 R10 13.56 MHz proximity reader with our SPS-6B and our SPS-20 Power Supplies. Both power supplies were operated in the 12v mode for the 12v 9100 reader. Both power supplies were run from zero to 20% over their rated output current of 6 Amps for the SPS-6B and 20 Amps for the SPS-20. Even without stand by battery, both of these supplies operated the reader with no loss of read range or performance when compared to using a perfect linear power power source, a 12v battery. The SPS-6B and the SPS-20 are heavily filtered switch mode power supplies running at the low frequency of 66KHz with under 25mv of ripple peak to peak.

AWID Applied Wireless ID

We tested the AWID MR-1824 Rev. C long-range wireless proximity reader in our lab.

Our results revealed a 3% to 15% reduction in read range. These test were preformed daily for a 2 week period of time. The results were very consistent. No change in temperature on the reader could be measured between the switching power supply to the linear. We also had a spectrum analyzer looking at reader output to view the duty cycle and see interference. No notable changes were viewed unless the power supply was operated in an overloaded condition.



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