QUICK START GUIDE
125-kHz EM PROXIMITY CARD READERS WITH OSDP SUPPORT

This Quick Start Guide is intended for experienced installing technicians. It is a basic reference to ensure all connections are properly made. Models include EM-30-OSDP, EM-50-OSDP, and EM-64-OSDP. For additional information please reference Farpointe Data's website, www.farpointedata.com.

1.0 Introduction
A key component of a physical security electronic access control system, a proximity card reader is based on RFID technology. In operation it is capable of reading data stored on a proximity credential via radio frequency and without physical contact, and then passing the data obtained to the physical access control system. Access control systems typically manage and record the movement of individuals through a protected area, such as a locked door.

2.0 Mounting Provisions
Each reader may be installed either indoors or outdoors. Mounting options shown in the table below. Use supplied #6 mounting screws, or equivalent security screws, for installation.

Model	Mullion Mount	Single-Gang Wall Mount*
EM-30-OSDP	•	
EM-50-OSDP		•
EM-64-OSDP		•

*Plastic or metal.

3.0 Cable Requirements
Cable, 4 conductor, 22 or 24 AWG [65 mm or 51 mm] twisted pair, over-all shield and UL approved (Belden 8723, or equivalent).
Maximum bus length: 4,000 ft – 24 AWG (1,219 m)
Maximum distance between: 1,640 ft – 24 AWG (500 m)

4.0 Reader Wiring

OSDP		
Twisted Pair	*Conductor*	*Function*
Pair 1	Red	DC (5-16 VDC)
	Black	Ground
Pair 2	Green	RS-485 T/R+
	White	RS-485 T/R–

5.0 Output Formats
The SIA standard OSDP protocol is supported for clear and secure channel communication.
Default Address: 0
Default Baud rate: 9600bps (bits per second)
Default Secure Channel Key:
SCBK_D = 0x303132333435363738393A3B3C3D3E3F.

OSDP Protocol Technical Support:
SIA OSDP Application Profile: Basic Reader (OSDP v2.2 and higher)

6.0 Grounding
Shield (drain) continuity must run from the reader to the access panel. Shield (drain) and reader ground must be tied together at the access panel and connect to an earth ground at one point.

7.0 Power
Reader may be powered by the access panel. A linear power supply is recommended for best operation.

8.0 Voltage and Current
Voltage: 5 to 16 VDC
Current Draw: 70mA to 120mA

9.0 Read Mode
Reader (OSDP "PD") operation is controlled by the access panel (OSDP "ACU") per the OSDP specification.

10.0 Connection
Connection must be done in accordance with NFPA 70. Do not connect to a receptacle controlled by a switch. Connect to a power limited DC voltage source.

11.0 Troubleshooting
1. When the reader is first powered on it will beep 4-times.
2. Presenting a supported access credential will result in the reader beeping once.
3. OSDP communications with the panel will be established after the reader has completed its start-up sequence. The panel can query the reader for status using OSDP commands. Note, at this point, the access panel controls the reader beeper and LED functionality.

If the reader does not recognize the card or tag (no beep, no LED flash), refer to possibe OSDP communications errors detected at the access control panel. Please see the following table for additional possible causes and solutions.

See additional troubleshooting information on reverse.

Farpointe Data®
Readers • Credentials

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Possible Cause	Corrective Action
OSDP misconfiguration, not configured for OSDP, secure channel mismatch	Confirm panel is configured for OSDP. Confirm panel and reader are both configured for Secure Channel (or both unencrypted.) Confirm PD address and speed.
Incorrect cabling	Verify gauge, connections and cabling length. Verify RS-485 OSDP connections (T/R+ and T/R–).
Not enough power	12 VDC recommended, 5 VDC at reader is minimum
Incorrect card used	Verify if card technology is supported
Reader/access panel not properly grounded	Earth ground needed—verify shield and reader ground are tied at access panel and connect to ground at one point
Supply generating interference	Linear power supply recommended, verify switching power supply before use

Should any of the corrective actions mentioned above not improve performance, disconnect the reader from the access panel and power it with a separate power supply or 9VDC battery, and re-test card functionality, with an OSDP panel simulator if necessary. By powering the readers separately, most variables that may lead to reduced performance can be eliminated. OSDP issues often require a packet trace, which the installer or panel vendor should be prepared to provide if there are problems. Should the problem persist, please contact Farpointe directly.

Operating Temperature: –31° F to +150° F (–35° C to +66° C)
Operating Humidity: 0% to 90% Relative Humidity

IP Rating: IP67

For proper PIN security with keypad readers, please review our PIN Best Practices Reference Document.

Many Farpointe Data Readers carry the following certifications:

FCC Compliance Statement: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Changes or modifications not expressly approved by Farpointe Data could void the user's authority to operate the equipment.

Product can be used without license conditions or restrictions in all European Union countries, including Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden, United Kingdom, as well as other non-EU countries, including Iceland, Norway, and Switzerland.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause unde-sired operation of the device.

Cet appareil est conforme à Industrie Canada exempts de licence standard RSS (s). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas provoquer d'interférences et (2) ce dispositif doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Details on compliance and certifications can be found at: https://www.farpointedata.com/resources/certifications.php.

Farpointe Data reserves the right to change specifications without notice.

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