# ALR-F800

## Fifth Generation Enterprise RFID Reader

Alien® ALR-F800 is a best in class, **self-optimizing** Enterprise class reader that enables users to deploy best-in-class EPC Gen 2 RFID solutions for retail, supply chain, manufacturing, mobile asset tracking and asset management applications.

## FEATURES

- Global EPC Gen 2 platform
- Automatic inventory optimization
- Feature-rich Alien Reader Protocol
- Dynamic Authentication of Higgs ICs
- Exceptional sensitivity and performance
- Automode, with on-board state machine
- High read rates for demanding applications
- Enhanced noise rejection for reliable data capture
- RSSI & speed filters
- Easy RFID software integration
- Easily configurable and upgradable
- Industrial, installation-friendly I/O connector
- Antenna reflection cancellation optimization
- Supports extended / custom Higgs™ IC features

- Auto "Seek" function for low duty cycle applications
- RoHS EU 2002/95/EC compliant



| Feature | Enabled By | Benefit |
|---|---|---|
| **Ease of Use** | • Alien Reader Protocol or LLRP (coming)<br>• Smart reader/autonomous mode<br>• Alien Reader Control Architecture & Ruby<br>• Power over Ethernet | • Easy to set up and deploy<br>• No additional costly controllers<br>• Less maintenance and overhead |
| **Industry leading PoE transmit power & power source agnostic** | • Under PoE power, outputs 31.5dBm – significantly more than other readers<br>• Dynamically switches between power sources when power fails | • No power supply expense or bulk<br>• Uses standard PoE<br>• Best read sensitivity when plenum/ceiling mounted<br>• Increased reliability |
| **Dynamically self-optimizing for best possible real-world performance**<br><br>e.g. noisy or multi-reader environments | • Dynamic "Smart-throttling" in adverse RF environments<br>• Intelligent real-time Phase Cancellation<br>• Maximizes the sensitivity and interference rejection in all environments<br>• Other confidential techniques | • Robust against significant tag collisions<br>• Maintains optimal sensitivity even in highly reflective environments<br>• More likely than competitors to read tags in high interference environments (other readers and RF sources) |
| **Extensible and obsolescence proof** | • Reconfigurable RF subsystem – Enables RF performance upgrades<br>• MicroSD slot<br>• USB Host | • Firmware modernization<br>• Enables virtually any amount of memory to be added<br>• Add external peripherals including cellular, WiFi or BT |

## Reader Practicality and Power

The ALR-F800 introduces a paradigm shift in RFID reader practicality. The reader providers the highest transmit power of any reader when operating from Power-over-Ethernet (PoE) power yet offers seamless switching between DC power and PoE power. This removes the need to decide about power source in order to obtain optimal reader performance. Just pick the most cost effective source for your application.

## Usable Performance

Many readers lay claims to the "best performance" and can throw datasheet numbers to "prove" it. However, as soon as these solutions are implemented in real-life complex RF environment their performance drops-off dramatically. The ALR-F800 is different. The system monitors the RF environment in real-time and manipulates a number of parameters, filters and tuning metrics dynamically and provides "Smart Throttling" that gently changes the readers behavior to maximize the tags read. Non-Alien readers degrade their performance down to a minimum while the ALR-F800 throttles down using smart algorithms.

## Industry Standard I/O and Firmware Personality

The reader is extensible via industry standard I/O including micro-SD cards (for adding memory) and USB (for accessing wireless I/O such as Wifi and cellular modems). Most readers are programmable but this reader also has the ability for the RF subsystem to be updated via firmware. These updates help protect the ALR-F800 from obsolesce.

## Reader Kits

| Kit Name | Kit Model Number xxx = Country Code | Contents |
|---|---|---|
| **Reader** | **ALR-F800-xxx** | Reader only (country/region specific) |
| | | I/O mating connector |
| **Reader Kit** | **ALR-F800-xxx-KIT** | ALR-F800 Reader (country/region specific) |
| **(Targeted at Developers)** | | PoE Injector |
| | | Two Ethernet cables |
| | | USB Cable (Type B to A) |
| | | I/O mating connector |
| **Reader Dev Kit** | **ALR-F800-xxx-DEVC** | ALR-F800 Reader (country/region specific) |
| **(Targeted at Developers)** | | PoE Injector |
| | | Two Ethernet cables |
| | | DC Power Supply Unit |
| | | Serial cable |
| | | USB Cable (Type B to A) |
| | | One ALR-8697 Antenna |
| | | 20ft antenna cable |
| | | Tag sample pack |
| | | Micro-SD Card |
| | | I/O mating connector |
| | | VESA Mounting Bracket |
| | | Black carry case with foam inserts |

| Model Number | ALR-F800 (All Models and Country Variants) |
|---|---|
| Architecture | ARM9 677MHz processor, Linux, 512 MBytes DDR3 RAM, 2 GBytes Flash |
| Supported RFID Tag Protocols | EPC Gen 2; ISO 18000-6c |
| Reader Protocols | Alien Reader Protocol (now), LLRP (coming) firmware upgradable |
| LAN Protocols | TCP/IP, NTP, DNS, DHCP, SNMP |
| Dense reader management | Dense Reader Mode, auto event triggering and event management |
| Power | Power over Ethernet or robust universal AC-DC power converter; 100-240 VAC, 50/60Hz |
| Reader Power (with PoE) | ≥31.5 dBm |
| Communications | LAN TCPI/IP (RJ-45), RS-232 (DB-9 F), USB Host, USB Console |
| Antennas | 4 reverse polarity TNC monostatic ports; circular or linear polarization; near and far field compatible |
| General Purpose I/O | Optically isolated. 0-24VDC rail. 4 inputs. 8 outputs (1500mA capacity). |
| Dimensions | (L) 20.2 cm x  (W) 19.1 cm x (D) 2.8 cm  (7.5" x 7.9" x 1.1") |
| Weight | 0.85 kg  (1.88 lb) |
| Operational Temperature | -20°C to +50°C   (-4°F to +122°F) |
| Environmental Rating | IP53 |
| LED Indicators | Power, CPU, Read, Sniff, Ant 0-3 |
| Software SDK | Java, .NET, Ruby APIs |
| RoHS | EU 2002/95/EC compliant |

| Model Number | ALR-F800 (US FCC) | ALR-F800EMA (Europe, Middle East & Africa, New Zealand, South Africa) | ALR-F800-CHN (China, Singapore) |
|---|---|---|---|
| Frequency | 902 MHz – 928 MHz | 865.7 MHz – 867.5 MHz | 920.625 MHz – 924.375 MHz |
| Transmit Channels | 50 | 4 | 16 |
| Channel Spacing | 500 KHz | 600 KHz | 250 KHz |
| RF Power | 4 watts EIRP | 2 watts ERP | 2 watts ERP |
| Compliance Certification | Emissions:  FCC Part 15 Safety:  cTUVus tested to: CAN/CSA–C22.2 No.60950-1-03, and UL 60950-1:2007 specifications IEC 60950-1 and EN60950-1 | Emissions: ETSI EN 302-208-2 (4 channel plan), EN 301-489. Safety: EN 60950, EN 50364. | Emissions: CMII Safety: IEC 60950-1:2005 2nd edition & CCC |

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