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
- DSA (Dynamic Self-Adapting) real-time read optimization
- Alien GATESCAPE ease-of-use
- Power source agnostic and auto-switching
- 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
- Plenum Rated (EAHS) per UL 2043

Feature	Enabled By	Benefit
Ease of Use	• Alien GATESCAPE enhanced built-in configuration tool (via web interface) • Alien Reader Protocol or LLRP • Smart reader/autonomous mode • Alien Reader Control Architecture & Ruby • Power over Ethernet	• Built in confutation tools • Easy to set up and deploy • No additional costly controllers • Less maintenance and overhead
Industry leading PoE transmit power & power source agnostic	• Under PoE power, outputs 31.5dBm – significantly more than other readers • Dynamically switches between power sources when power fails	• No power supply expense or bulk • Uses standard PoE • Best read sensitivity when plenum/ceiling mounted • Increased reliability
DSA Capability: Dynamically Self-Adapting for best possible real-world performance e.g. noisy or multi-reader environments	• Dynamic "Smart-throttling" in adverse RF environments • Intelligent real-time Phase Cancellation • Maximizes the sensitivity and interference rejection in all environments • Other confidential techniques	• Robust against significant tag collisions • Maintains optimal sensitivity even in highly reflective environments • 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 • MicroSD slot • USB Host	• Firmware modernization • Enables virtually any amount of memory to be added • 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.

Alien GATESCAPE built-in configuration tool simplifies reader set-up and configuration via a simple and modern web interface.

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. Aliens **DSA** (Dynamic Self-Adapting) 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	Target User	Kit Model Number XXX = Country Code	Contents	Notes
Reader	Large installations that have an existing PoE power supply infrastructure.	ALR-F800-XXX-RDR-ONLY	Reader only (country/region specific) I/O mating connector	No power supply (DC or Power-over- Ethernet Injector) provided. If you need one, order the "Kit" below.
Reader Kit	Someone planning to evaluate or develop with the reader and required a power source to power the reader. Good for working on a lab bench.	ALR-F800-XXX-RDR-KIT	ALR-F800 Reader (country/region specific PoE Injector Power Cable for PoE injector/reader Two Ethernet cables USB Cable (Type B to A) I/O mating connector	Reader with a power supply in the form of a Power-over-Ethernet Injector (which supplies both power and data to the reader). Comes complete with power cord for the injector and 2 Ethernet cables, one for data and one for both data and power).
Reader Dev Kit	Someone planning to evaluate or develop with the reader and required a power source to power the reader. Good for working on a lab bench. Provides an antenna, antenna cable, tags, and all miscellaneous cables, brackets in a carry case for one-stop-shop evaluation.	ALR-F800-XXX-DEV-C	ALR-F800 Reader (country/region specific PoE Injector Power Cable for PoE injector/reader Two Ethernet cables USB Cable (Type B to A) I/O mating connector DC Power Supply Unit Serial cable One ALR-8697 Antenna 20ft antenna cable Tag sample pack Micro-SD Card VESA Mounting Bracket Black carry case with foam inserts	Reader with a power supply in the form of a Power-over-Ethernet Injector (which supplies both power and data to the reader). Comes complete with power cord for the injector and 2 Ethernet cables, one for data and one for both data and power). Provides everything possible for complete system evaluation without the need to purchase RFID antenna, coax cables etc.

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, LLRP
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 (lower as required by law in specific regions - see tables below)
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 Ratings	IP53 and Plenum rated UL-2043
LED Indicators	Power, CPU, Read, Sniff, Ant 0-3
Software SDK	Java, .NET, Ruby APIs
RoHS	EU 2002/95/EC compliant

ALR-F800 Self-Optimizing, Enterprise RFID Reader

Fifth Generation, Self Optimizing, Easy to Deploy/Manage

Models by Country

Model Number	Countries	Frequency	Transmit Channels	Channel Spacing	RF Power	Compliance Certification
ALR-F800-RDR-KIT	USA, Bolivia, Canada, Colombia, Mexico, Panama, Puerto Rico, Venezuela	902 - 928 MHz	50	500 KHz	4W EIRP	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, UL 2043 ATT, CRC, IFETEL, ASEP, CONATEL
ALR-F800-ARG-RDR-KIT	Argentina *	902 - 928 MHz	50	500 KHz	4W EIRP	Enacom
ALR-F800-BRA-RDR-KIT	Brazil	902 - 907.5 MHz & 915 - 928 MHz	35	500 KHz	4W EIRP	Emissions: Agência Nacional de Telecomunicações - ANATEL Safety: UL Brazil
ALR-F800-CHN-RDR-KIT	China, Singapore	920 - 925 MHz	16	250 KHz	2W EIRP	Emissions: CMII Safety: IEC 60950-1:2005 2nd edition & CCC
ALR-F800-EMA-RDR-KIT	Europe, UAE, New Zealand, South Africa	865.7 - 867.5 MHz	4	600 KHz	2W EIRP	Emissions: ETSI EN 302-208-2 (4 channel plan), EN 301-489. Safety: EN 60950, EN 50364
ALR-F800-EMA-RDR-KIT-IND	India	865.7-866.9 MHz	3	600 KHz	2W EIRP	Emissions: ETSI EN 302-208-2, EN 301-489. Safety: EN 60950, EN 50364
ALR-F800-ID-RDR-KIT	Indonesia	923 - 925 MHz	4	500 KHz	2W ERP	Ministry of Communications and Information Technology
ALR-F800-JP3-RDR-KIT	Japan *	915.8 - 921.4 MHz	4	1200KHz	4W EIRP	ARIB STD-T106
ALR-F800-KR2-RDR-KIT	South Korea *	916.7 - 920.9 MHz	6	600KHz	4W EIRP	KC
ALR-F800-MY-RDR-KIT	Malaysia	919-923 MHz	8	500 KHz	2 W ERP	SIRIM
ALR-F800-RSA-RDR-KIT	South Africa	915.4 - 919 MHz	17	200KHz	4W EIRP	Emissions: ICASA Safety: NRCS
ALR-F800-TAI-RDR-KIT	Taiwan	922 - 928 MHz	19	250KHz	1W ERP	NCC
ALR-F800-URY-RDR-KIT	Uruguay, Peru	916 - 928 MHz	23	500 KHz	4W EIRP	Unidad Reguladora de Servicios de Comunicaciones (URSEC), Ministerio de Transportes y Comunicaciones
ALR-F800-VN1-RDR-KIT	Vietnam	918 - 923 MHz	9	500 KHz	500 mW ERP	QCVN 47:2015/BTTTT, QCVN 18:2014/BTTTT
ALR-F800-WR1-RDR-KIT	Australia, Hong Kong, Thailand	920 - 925 MHz	8	500 KHz	4W EIRP	ACMA, OFTA

* Due to country specific regulations, power supplies must be obtained locally for Argentina, Japan and South Korea

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HANDLING PRECAUTIONS Observe standard handling practices to minimize ESD.
DISCLAIMER Application recommendations are guidelines only - actual results may vary and should be confirmed. This is a general purpose product not designed or intended for any specific application.

This product is covered by one or more of the following U.S. patents: 7716208, 7716160, 7688206, 7671720, 7659822, 7619531, 7615479, 7598867, 7580378, 7576656, 7562083, 7561221, 7559486, 7559131, 7554451, 7411503, 7385284, 7377445, 7364084, 7353598, 7342490, 7324061, 7321159, 7301458, 7295114, 7288432, 7265675, 7262686, 7215249, 7214569, 7199527, 7193504, 7173528, 7172910, 7172789, 7141176, 7113250, 7101502, 7080444, 7070851, 7068224, 7046328, 6998644, 6988667, 6985361, 6980184, 6970219, 6952153. Other patents pending.

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