



ALR-F3700 “HYDRA” SERIES

INTERCONNECTED READER/ANTENNA COMBINATION
WITH SELF-HEALING POWER AND DATA NETWORKING

Hydra is a totally novel UHF Passive RFID Reader solution designed to lower RFID implementation and running costs while enabling the realization quality read zones. Hydra readers combine a full-power 30dBm UHF reader, 8dBic antenna and a patent pending “Hydra” power and data router technology.

FEATURES

- 30dBm EPC Gen 2 Class 1 UHF Passive RFID Reader
- 8dBic Slimline Antenna
- Built-in Multiple-PoE Switch to Network Readers Together
- “Hydra” Power and Data Routing
- Low-Cost Reader Installation and Management
- Works seamlessly with the ALR-F800-X with Emissary

APPLICATIONS

- Warehouse
- Dock doors
- Work in Progress
- Retail
- Commissioning Station



Hydra Daisy Chaining (Data AND Power)

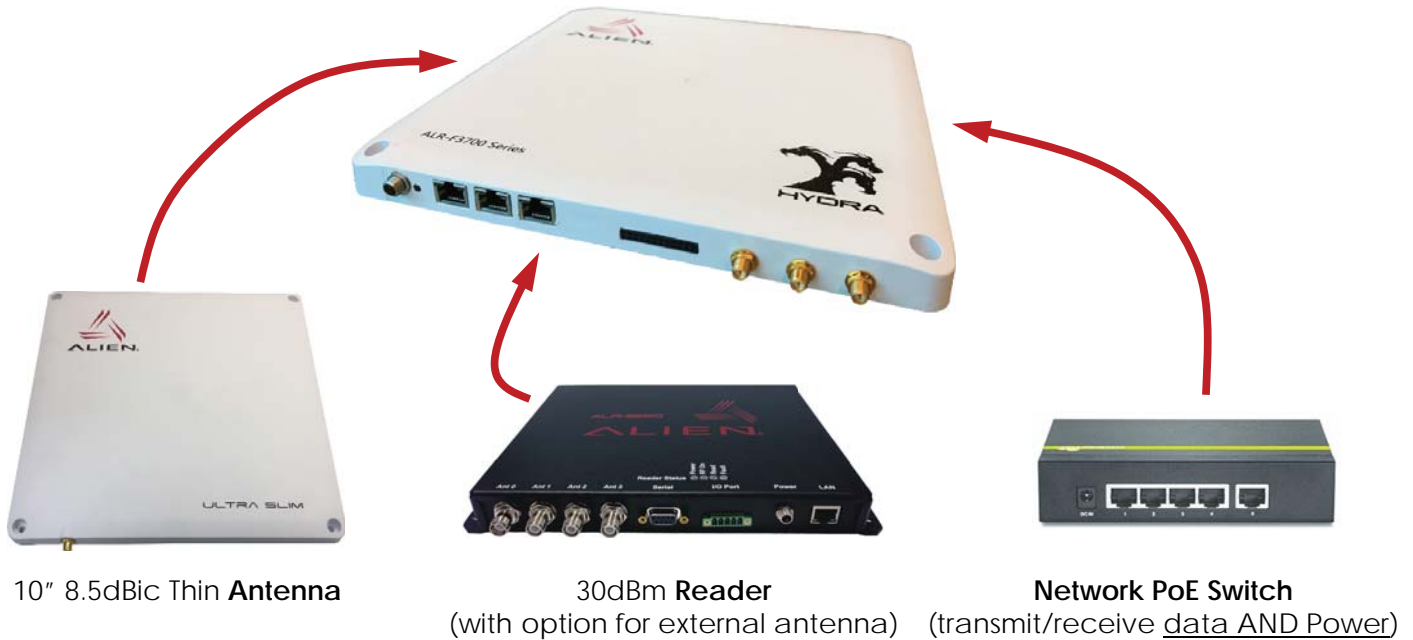


Feature	Enabled By	Benefit
Lowest Implementation and Running Costs	<ul style="list-style-type: none"> • Low-cost read point with integrated antenna • Simply connect PoE for data and power • Just connect each reader to its nearest neighbor minimizing long cable runs. 	<ul style="list-style-type: none"> • Less up-front cost for capital equipment • Smaller cable runs (less cable to purchase) • Less cable means less installation costs
Extensible Solution - grows or shrinks with your RFID needs	<ul style="list-style-type: none"> • Each reader inputs and outputs both power and data via Power-over-Ethernet (PoE) to the next reader. • Low cost per read point • Each reader contains an antenna • A poor read zone is addressed by adding another low cost read point and connecting it to its nearest neighbor for both power and data. 	<ul style="list-style-type: none"> • Allows all desired tags to be irradiated and made visible to at least one read point. • Bad read zones can be fixed by “daisy-chaining” another low-cost read point without breaking the Return-on-Investment (ROI) model • No long cable runs for added read points
Massively Simplifies Network Connectivity	<ul style="list-style-type: none"> • PoE (power and data) in and out • ALR-3720 supports two PoE ports for daisy chaining • ALR-3733<i>di</i> supports 3 PoE ports for adding more complex topologies for data/power robustness 	<ul style="list-style-type: none"> • Simple, low cost installation • Lowers infrastructure and cable costs • Less to maintain
Designed to Work Seamlessly with the ALR-F800-X with Emissary	<ul style="list-style-type: none"> • Like all Alien readers, Hydra’s send a self-discovery heart-beat over the network • F800-X with Emissary manages a subnet of Hydra readers directly • License free Emissary manages the network and describes the work-flow of any alien reader combination 	<ul style="list-style-type: none"> • No need for a server to control a reader network • ALR-F800-X manages the Hydra network configuration and work flows...no programming required.
Robustness	<ul style="list-style-type: none"> • Self healing network re-configuration on a cable failure • ALR-3733<i>di</i> enables more complex network topologies 	<ul style="list-style-type: none"> • Solution can be configured to tolerate certain network failures and automatically reconfigure both power and data (no human intervention required)



ALR-F3700 "Hydra" Series

Interconnected Reader/Antenna Combination

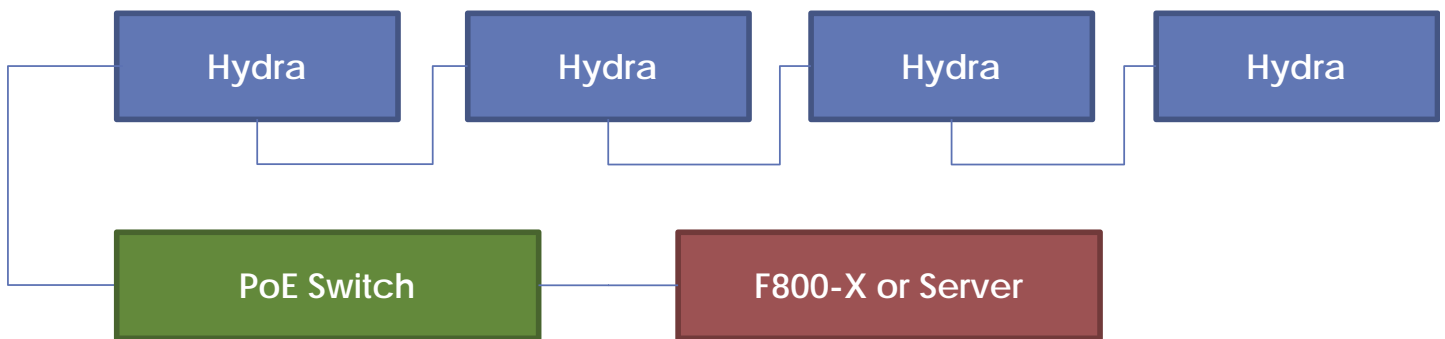


Three Capabilities Combined

Each Hydra reader contains a full 30dBm UHF Passive RFID reader, an 8dBic slim-line antenna and a network PoE switch capable of passing through (backwards or forwards) data and power.

Each Hydra reader has at least 2 PoE ports allowing them to be daisy chained together into a "string" of read points by simply connecting

the PoE cable from one Hydra reader to the PoE port of the next reader. This enables very simple low cost connectivity and minimal cabling costs. In the diagram below, Hydra Readers are simply daisy chained together with an ALR-F800-X (with Emissary) or your existing PC/Server at the head of the chain of Hydra's.



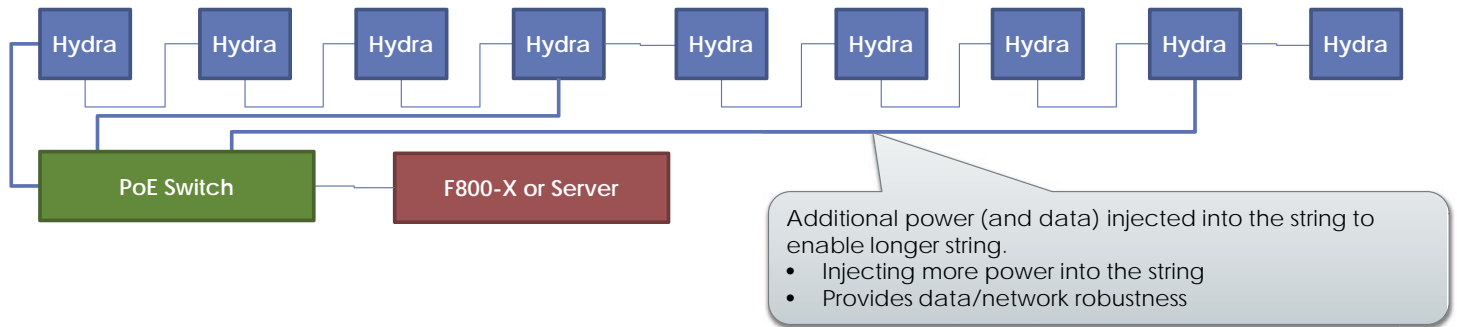
A Network of Daisy-Chained Hydra readers

Data and Power Robustness

Hydra supports more complex network topologies for solutions where additional PoE power is needed or where there is a desire to build in more robustness.

Examples include where a mesh type network



is desired for data/power robustness or where there is a need to have a long network chain with power injected at different points down the network to extend the chain further.



A Network of Hydra Readers Configured for Data and Power Robustness or Power Injection into the Chain

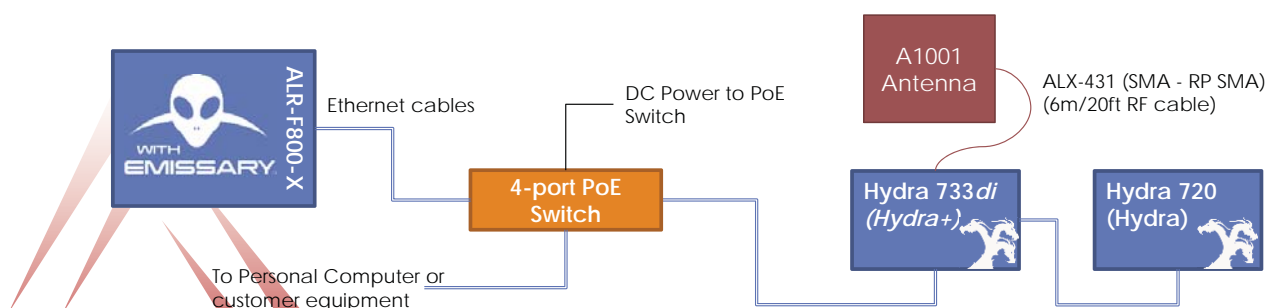
Two Hydra Products

Hydra current comes in two varieties.

Feature	Hydra (ALR-3720) aka Hydra-720	Hydra+ (ALR-3733di) aka Hydra-733di
Number of PoE Ports	2	3
DC Power Input	No	Yes
Activity LED	Yes	
Reverse Polarity SMA	None	3
Internal 8 dBic antenna	Yes	
Reader	30dBm UHF Passive reader	
GPIO	None	Four 3 to 24V inputs; Four 3 to 24V outputs. 24V DC internally supplied (even when PoE sourced).
		

Developers Kit (Currently US Only)

For customers that want to trial with Hydra, Alien offers a Developer Kit that includes one of each Hydra, an ALR-F800-X with Emissary to control them, an antenna and a 4-port PoE switch to power the whole network.





ALR-F3700 "Hydra" Series

Interconnected Reader/Antenna Combination

Reader Specifications

Feature	Hydra (ALR-3720) aka Hydra-720	Hydra+ (ALR-3733di) aka Hydra-733di
Air Interface Protocol	GS1/EPC global UHF Gen2 (ISO 18000-6C)	
External Antenna Ports	None	3 Reverse Polarity SMA Female
Supported Regions	FCC (TWYIPJREV), EU (CE Mark, ETSI EN408 208 v1.4.1)	
Transmit Power	30 dBm Nominal	
Application Interfaces	Low level binary protocol, low level reader protocol	
	DII and SDK developer interfaces: C, C++, .Net libraries	
Network Connectivity	10/100BASE-T auto-negotiate (full/half) w/ auto-sensing MDI/MX for auto-crossover	
	2 Standard RJ-45 Ethernet jacks	3 Standard RJ-45 Ethernet jacks
IP Address Configuration	DHCP, Static, or Link Local Addressing (LLA)	
Management Interfaces	Ethernet TCP commands	
Firmware Upgrades	Push from ALR-F800-X or from software management console	
Management	Via ALR-F800-X (Emissary) or a Windows-based GUI	
GPIO	None	Four-3 to 24V inputs; Four-3 to 24V outputs; 24V DC internally supplied power available
Power Sources	Power over Ethernet (PoE) IEEE 802.3at	
	No DC input	Listed/Certified power supply, marked LPS or Class 2, w/ 48Vdc output, rated min 2.5A

Physical Specifications

Feature	Description
Dimensions (LxWxD):	250 mm x 250 mm x 21 mm
	9.85 in. x 9.85 in. x 0.55 in.
Weight:	0.75kg / 1.6 lbs.
Radome Material:	UV-Resistant ABS
Environmental Rating:	IP53
Operating / Storage Temperature:	-20° to +55°C / -30° to +65°C
	-4° to +131°F / -22° to +149°F
Shock Drop	Mil Std 810G 26 drops @ 48"
Electrical Safety	UL Listed (US and Canada), EN 60950-1:2006 A11:2009 / A1:2010 / A12:2011
Humidity	5-95% Non-Condensing
RoHS	Compliant-European Union directive 2011/65/EU
Mounting:	Flush or VESA mount



Antenna Specifications

Feature	Description
Frequency Range:	865 – 867 MHz / 902 – 928 MHz (different product SKU's)
Polarization:	RH Circular
Far-field Gain:	8.5 dBic
Far-field 3dB beam width:	68° in both planes
Front to back ratio:	20dB
Axial Ratio:	1dB typical
Mounting:	Flush or VESA mount

Ordering Information

Device	Mount Type	Description	Model Number
Hydra (US) Reader	Standard flush mount / through hole mount	Low-end Hydra reader/antenna combo with 2 PoE ports	ALR-F3720-USA-S-RDR-ONLY
Hydra+ (US) Reader		High-end Hydra reader/antenna combo with 3 PoE + 3 SMA + DC power in + digital IO	ALR-F3733 <i>df</i> -USA-S-RDR-ONLY
Hydra (US) Reader	VESA 100mm studded mount	Low-end Hydra reader/antenna combo with 2 PoE ports	ALR-F3720-USA-V-RDR-ONLY
Hydra+ (US) Reader		High-end Hydra reader/antenna combo with 3 PoE + 3 SMA + DC power in + digital IO	ALR-F3733 <i>df</i> -USA-V-RDR-ONLY
F800-X and Hydra Developers Kit (US)	Standard flush mount / through hole mount	ALR-F800-X w/Emissary, two Hydra reader/antenna combo's (ALR-F3720-USA-S+ALR-F3733 <i>df</i> -USA-S), ALR-A1001-F-S antenna, ALX-431-6 antenna cable, Ethernet cables (4), 4-port PoE switch, serial cable, micro-SD card and black carry case.	ALR-F8XHYD-DEV-KIT
Antenna cable for Hydra and ALR-A1001 or ALR-A0501 Antenna (or other SMA antenna)		SMA (antenna) to Reverse Polarity SMA (Hydra) Cable - 10ft/3m	ALX-431-3
		SMA (antenna) to Reverse Polarity SMA (Hydra) Cable - 20ft/6m	ALX-431-6
		SMA (antenna) to Reverse Polarity SMA (Hydra) Cable - 30ft/9m	ALX-431-9

NOTE: Currently Hydra is only available in the US. Other regions will be introduced soon.

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Draft - Subject to Change

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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, 6952157. Other patents pending.

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