

# Molex RFID Solutions



Molex has partnered with Alien Technology to offer best-in-class RFID readers to use with Molex passive RFID tags for an easy-to-use robust, high-performing tracking and control management solution

## Features and Advantages

### Passive RFID Tags

#### Read-range options

Various read ranges allow for scalable performance per application

#### Rugged and weather-resistant

High/low temperature, vibration and impact, and wet environment resistance allow RFID technology to exist in previously challenging applications



#### Low-profile options

Simplifies implementation by minimizing footprint space

#### Multi-surface use

Delivers flexibility to use with different packaging or container materials

### Alien ALR-F800-X Enterprise RFID Readers with Emissary

#### Combines an enterprise RFID reader and edge service to provide multiple-reader visualization and management

Simplifies RFID infrastructure installation, operations and maintenance

#### Emissary comes imbedded inside the ALR0F800-X Reader

- Enables the ALR F800-X Reader to support up to five readers without requiring additional Edge Servers
- Visualizes readers, antenna and other I/O devices in a customer-centric logical view
- Creates a complete multi-reader/device workflow



#### 2-in-1 enterprise reader and edge service device; multiple reader controller with no additional hardware or boxes; simplified multi-reader installation, configuration and maintenance

- Minimizes time-to-system live date and cost-of-system realization
- Decreases chance of malfunction and need for replacement through implementation of less hardware

### Alien ALR-F800 Enterprise RFID Readers

#### Alien Gatescape-enhanced built-in configuration tool (via web interface); Alien Reader protocol or LLRP; smart reader/autonomous mode

- Easy to set up and deploy
- No additional controllers needed
- Requires less maintenance and overhead

#### Dynamic "smart throttling" in adverse RF environments; intelligent real-time phase cancellation; maximizes the sensitivity and interference rejection in all environments

- Maintains optimal sensitivity even in very noisy RF environments
- More likely than competitors to read tags in high-interference environments (other readers and RF sources)



#### Uses PoE power with 31.5dBm output, significantly more than other readers; dynamically switches between sources when power fails (when 12V DC is also connected)

- Uses standard PoE switch/power injector
- Flexibility to choose power source
- Simplified installation

#### Ability to add new features via OS or conventional firmware update; MicroSD and USB slots available

- Field upgradeable/updatable
- Increase memory via microSD or USB
- Add external peripherals via USB

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## Features and Advantages

### *Alien ALR-9650 Smart Antenna Readers*

#### Ease of use

- Easy to set up and deploy
- No additional costly controllers
- Less maintenance and overhead
- Minimizes network infrastructure
- Can be set up in areas with no power
- Small footprint



#### Deployable in commercial environments

- Compact
- Few cables required
- Blends into deployment location
- No additional housing required

### *Alien ALR-9680 Commercial 4-Port RFID Reader*

#### Easy to set-up and use

- 4 antenna ports
- Communicates via Alien Reader Protocol – no additional controllers necessary
- Less maintenance and overhead
- Minimizes network infrastructure
- Power-over-Ethernet (PoE) capability to work in areas with no power
- Remote firmware management



#### Robust, slim design

- Robust metal chassis
- 1.25" enables fit in narrow vertical locations
- All cables located on one side

### *Alien ALR-H460 Android Portable Ruggedized Computer for Data Collection*



#### Ease of use

- Large 5.2" 1920x1080 resolution display
- High-capacity Lithium-polymer battery
- Open source Android software for custom applications

#### High Performance

- High-performance antenna for superior read range
- Fast data collection and processing
- Android 6.0 Operating System for speed and agility

#### A Feature-rich Handheld

- Wi-Fi, limited 4G, Bluetooth, GPS for wireless simplicity and connectivity
- 13MP auto-focus camera with flash

#### Robust Design

- Dust and water ingress protection to IP64
- Drop-tested design to 1.0m/3.28'
- Shock-resistant rubber seals

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## Markets and Applications

### Industrial, Commercial, Oil and Gas

- Logistics
- Supply chain visibility
- Food and beverage
- Cold chain/temperature monitoring
- Real-time location (RTL) systems
- People tracking
- Contractors
- Staffing
- Visitors
- Safety for emergency responders



Pallet Tracking



Equipment Tracking



Medical Equipment/Tools Tracking

### Automotive and Commercial Vehicle

- Device and rental unit tracking
- Vehicles with equipment

### Data Center

- Valuable asset tracking
- Security access control

### Medical




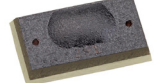




- Asset and inventory management
- Uniform and laundry management
- Patient tracking

## Alien Technology Fixed RFID Reader Comparison

| Molex Part Number          | 134210001                                  | 134220001               | 134290001          | 134230001                                      | 134250001                  |
|----------------------------|--|-------------------------|--------------------|--|----------------------------|
| Alien Technology Model No. | ALR-F800-X-RDR-ONLY                        | ALR-F800-RDR-ONLY       | ALR-9680           | ALR-9650                                       | ALR-H460                   |
| Type                       | Enterprise with multiple reader management | Enterprise              | Commercial         | Commercial                                     | Handheld                   |
| Self Optimizing            | Yes  | Yes                     | No                 | No   | No                         |
| PoE Transmit Power         | Extremely high                             | Extremely high          | Good               | Good   | N/a – battery powered      |
| Protocol                   | ARP/LLRP                                   | ARP/LLRP                | ARP                | ARP  | N/a for handheld reader    |
| Operating System           | Linux                                      | Linux                   | Linux              | Linux  | Android 6.0                |
| Emissary*                  | Yes  | No                      | No                 | No   | No                         |
| Memory                     | 1 GB RAM                                   | 512 MB RAM              | 64 MB RAM          | 64 MB RAM                                      | 2GB RAM                    |
|                            | 2 GB Flash                                 | 2 GB Flash              | 64 MB Flash        | 64 MB Flash                                    | 16GB Flash                 |
| Number of Antennas         | Up to 4                                    | Up to 4                 | Up to 4            | 1 internal smart-antenna + 1 optional external | 1 dBIL / 4 dBiC (Circular) |
| GPIOs                      | 4 in / 8 out (Isolated)                    | 4 in / 8 out (Isolated) | 2 in / 2 out (TTL) | 2 in / 2 out (TTL)                             | N/a for handheld reader    |

# Standard Passive RFID Products Comparison

## Molex Asset Tracking Solutions: Standard Passive RFID Products Comparison

| PRODUCT     | Product Name                 | 13356-0571  | 13356-1151  | 13356-1351   | 13356-1401  | 13356-1431   | 13358-0681   | 13358-0821  | 13358-0861  |
|-------------|------------------------------|---|---|--|---|--|--|---|---|
| ELECTRICAL  | Air Interface Protocol       | UHF, EPC Class 1 Gen 2, ISO 18000-6C  | UHF, EPC Class 1 Gen 2, ISO 18000-6C  | UHF, EPC Class 1 Gen 2, ISO 18000-6C   | UHF, EPC Class 1 Gen 2, ISO 18000-6C  | UHF, EPC Class 1 Gen 2, ISO 18000-6C   | UHF, EPC Class 1 Gen 2, ISO 18000-6C   | UHF, EPC Class 1 Gen 2, ISO 18000-6C  | UHF, EPC Class 1 Gen 2, ISO 18000-6C  |
|             | Operating Frequency          | 902-928 MHz (North America)   | 902-928 MHz (North America)   | 902-928 MHz (North America)  | 902-928 MHz (North America)   | 902-928 MHz (North America)  | 902-928 MHz (North America)  | 902-928 MHz (North America)   | 865-928 MHz (Compatible with North America and EU standards)  |
|             | IC Type                      | Alien Technology Higgs3   | Alien Technology Higgs3   | Alien Technology Higgs3  | Impinj Monza R6-P   | Impinj Monza R6-P  | Alien Technology Higgs3  | Alien Technology Higgs3   | Alien Technology Higgs3   |
|             | Memory                       | 96-bit EPC, 512-bit user memory   | 96-bit EPC  | 96-bit EPC, 512-bit user memory  | Up to 128-bit EPC, 96 bits serialized TID, Up to 64-bit user memory                   | Up to 128-bit of EPC, 96 bits serialized TID with 48-bit serial number, Up to 64 bits of user memory | 96-bit EPC, 512-bit user memory  | 96-bit EPC, 512-bit user memory   | 96-bit EPC, 512-bit user memory   |
|             | Max. Read Distance           | 7.62m (25') at 36 dBm ERP   | 4.57m (15')   | 2.4-2.7m (8-9') at 36 dBm ERP  | 1.8-2.1m (6-7') at 36 dBm ERP   | 0.9-1.2m (3-4') at 36 dBm ERP  | 25.9m (85') on metal, 19.8m (65') off metal  | 4.6m (15') at 36 dBm ERP  | 3.0-3.7m (10-12')   |
|             | Applicable Surface Materials | Metal surfaces  | Metal surfaces  | Metal surfaces   | Metal surfaces  | Metal surfaces   | Metal or nonmetal surfaces   | Indoor; plastic or metal surfaces   | Nonmetal surfaces   |
| MECHANICAL  | Tag Form Factor              | Hard tag (Polypropylene encasement)   | Hard tag (One piece, no welding construction)                                       | Hard tag   | Hard tag  | Hard tag   | Hard tag (rigid polycarbonate and stainless steel backplate)   | Hard tag  | Flex tag  |
|             | Attachment Method            | 2 screws or rivets; VHB adhesive  | 2 screws or rivets; VHB adhesive  | Acrylic adhesive   | Site-applied adhesive   | Site applied adhesive  | 2 screws or rivets; acrylic adhesive   | Acrylic adhesive  | Acrylic adhesive  |
|             | Dimensions                   | 67.60 x 26.20 x 6.10mm (2.66 x 1.03 x 0.24")  | 61.47 x 17.02 x 7.62mm (2.42 x 0.67 x 0.30")  | 45.97 x 7.62 x 1.57mm (1.81 x 0.30 x 0.062")   | 10.80 x 5.80 x 3.00mm (0.42 x 0.22 x 0.12")   | 6.00mm diameter x 3.60mm tall (0.24 x 0.14")   | 145 x 37.50 x 6.80mm (5.70 x 1.48 x 0.27")   | 70.00 x 17.00 x 1.80mm (2.76 x 0.67 x 0.07")  | 50mm x 14mm x 0.4mm (1.97" x 0.55" x 0.016")  |
|             | Weight                       | 12.5g   | 7.5g  | 1.5g   | 1g  | 0.5g   | 55g  | 2g  | 1g  |
| ENVIRONMENT | Operating Temperature        | -50°C to +85°C (-58°F to +185°F)  | -40°C to +85°C (-40°F to +185°F)  | -50°C to +85°C (-58°F to +185°F)   | -50°C to +85°C (-58°F to +185°F)  | -50°C to +85°C (-58°F to +185°F)   | -50°C to +185°C (-58°F to +365°F)  | -50°C to +85°C (-58°F to +185°F)  | -50°C to +85°C (-58°F to +185°F)  |
|             | Classification               | IP68  | IP68  | IP67   | IP68  | IP68   | IP67   | IP67  | IP67  |
|             | Web Photo                    |  |  |  |  |                 |                                   |  |                      |
| MARKETS     | Industries                   | Oil & Gas, Manufacturing, Construction, Agriculture                                 | Oil & Gas, Manufacturing, Construction, Mining, Agricultural Equipment              | Manufacturing, Construction, Government/Military                                     | Manufacturing, Oil Field Assets, Government/Military                                  | Service & Maintenance, Government/Military, Manufacturing  | Transportation, Aerospace, Automotive, Heavy Machinery, Military and Defense   | Financial Services, Health Care, Academia   | Academia, Automotive, Healthcare, Financial Services  |
|             | Applications                 | Yard management, Returnable transport items, Equipment rental                       | Yard management, Returnable transport items, Equipment rental                       | Metal tools, Work in process, Weapons management                                     | Metal tools, Work in process, Weapons Management                                      | Metal tools, Work in process & finished goods, Electrical & Mechanical parts & assemblies            | Yard/fleet management, Cargo & container tracking, Pallet tracking, Intermodal transportation, Military asset tracking | IT assets, Laptops, Office assets   | Personal ID devices, Plastic containers, Plastic sterilization trays, Composite aircraft/automotive parts |

[www.molex.com/link/rfid.html](http://www.molex.com/link/rfid.html)

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