

# AutomationDirect Standalone HF (13.56 MHz) RFID Read/Write Unit

## RFID

RFID (Radio Frequency IDentification) technology is useful in a wide range of automation and logistics applications.

This technology allows objects to be identified by means of electronic labels (also known as tags or transponders). Compared to more traditional approaches such as bar codes or laser marking, RFID technology offers a number of significant advantages. For example:

- A direct line of sight between the tag and the read/write module is not needed to read or write data.
- Information stored in the tag can be added, modified or replaced.
- Human error is reduced while increasing reliability, flexibility and traceability.

There are three standard frequencies for RFID:

- Low-Frequency (30 to 300 KHz – most are 125 to 134.2 KHz). Various application-specific standards apply
- High-Frequency (13.56 MHz) (ISO/IEC 15693)
- Ultra High-Frequency (international range 860 to 960 MHz, US range 902-928 MHz) (ISO/IEC 18000-63)

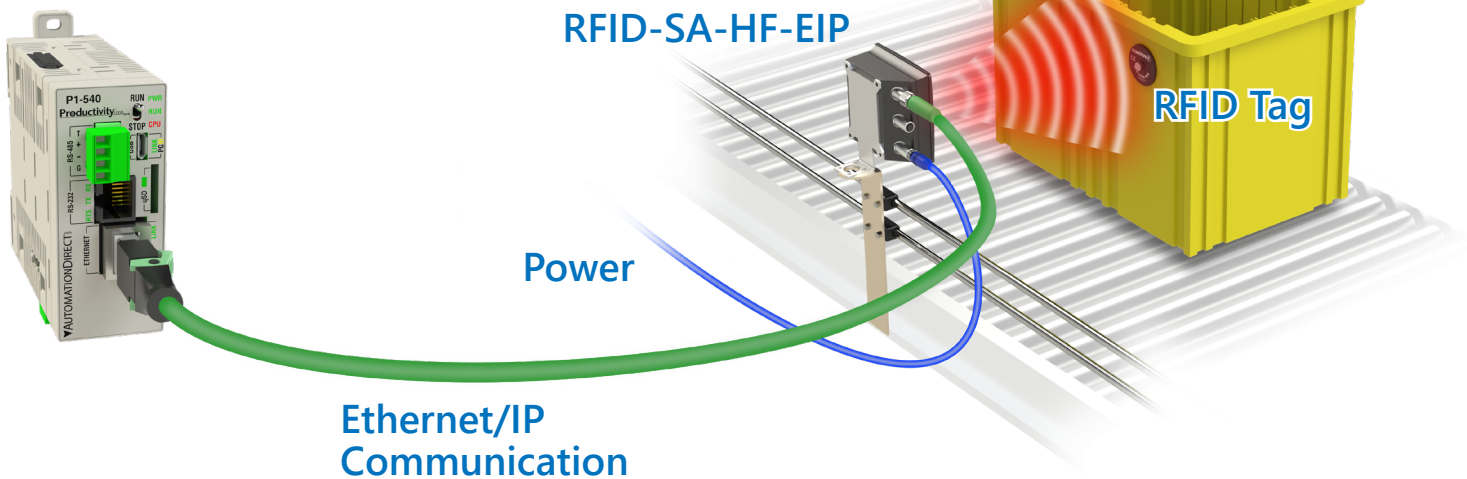
It is worth noting that NFC (Near Field Communication) also operates on the 13.56 MHz frequency. The NFC standard is detailed in ISO14443 and ISO18092. Some items that comply with NFC also comply with ISO15693. However, not all items that comply with 15693 also comply with NFC.

While there are pros and cons for each type of system, the High Frequency systems allow for fast communication between transponder and read/write modules. AutomationDirect RFID technology operates on 13.56 MHz and complies with ISO/IEC 15693 and is therefore compatible with any components that meet this standard. The series has been designed for easy, cost-effective integration into existing control systems.



**RFID-SA-HF-EIP**

## Productivity PLC



# AutomationDirect Standalone HF (13.56 MHz) RFID Read/Write Unit



**RFID-SA-HF-EIP**

Designed for simple integration into an existing network, the AutomationDirect Standalone HF Read/Write unit is optimized for high speed, high payload data transfer. The unit also contains an internal Ethernet switch for easy incorporation into a prewired network.

## Features

- Compact standalone unit with antenna, evaluation unit and integrated communication fieldbus
- EtherNet/IP communications
- Two configurable digital I/O points
- Complies with ISO/IEC

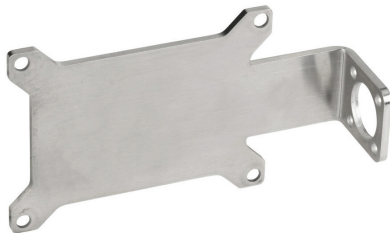
## Applications

- Track and trace
- Production automation
- Process control
- Automatic sorting systems
- Logistics and distribution
- Access control
- Machine tools
- Robotics
- Packaging System
- Automotive Industry
- Pharmaceutical

### AutomationDirect RFID Read/Write Unit Selection Guide

| Part Number                  | Price    | IP Rating | Communication Protocol | Drawing             |
|------------------------------|----------|-----------|------------------------|---------------------|
| <b><u>RFID-SA-HF-EIP</u></b> | \$647.00 | IP 67     | Ethernet/IP            | <a href="#">PDF</a> |

## Mounting Bracket



**RFID-SA-BA1**

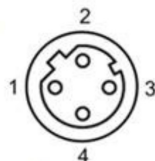
### AutomationDirect RFID Unit Mounting Bracket Selection Guide

| Part Number               | Price   | Material            | Weight         | Drawing             |
|---------------------------|---------|---------------------|----------------|---------------------|
| <b><u>RFID-SA-BA1</u></b> | \$25.50 | 304 stainless steel | 0.37 lb [168g] | <a href="#">PDF</a> |

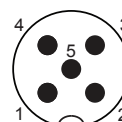
## Electrical Connections

| Connection<br>(M12 D-Coded Ethernet) |                       |
|--------------------------------------|-----------------------|
| Pin                                  | Signal                |
| 1                                    | TxD+, transmit data + |
| 2                                    | RxD+, receive data +  |
| 3                                    | TxD-, transmit data - |
| 4                                    | RxD-, receive data -  |

Note: Unit provides two M12 D-coded Ethernet connections.



| M12 5-Pin Connections |       |                        |
|-----------------------|-------|------------------------|
| Pin                   | Color | Signal                 |
| 1                     | Brown | +24V                   |
| 2                     | White | Digital Input/Output 2 |
| 3                     | Blue  | 0V                     |
| 4                     | Black | Digital Input/Output 1 |
| 5                     | Gray  | Not Used               |



# AutomationDirect Standalone HF (13.56 MHz) RFID Read/Write Unit

| AutomationDirect RFID Read/Write Unit General Specifications |                                                                                             |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Electrical Data                                              |                                                                                             |
| Operating Voltage                                            | 19.2 to 28.8 VDC                                                                            |
| Current Consumption                                          | 500mA                                                                                       |
| Protection Class                                             | III                                                                                         |
| Operating Frequency                                          | 13.56 MHz                                                                                   |
| RFID Standard                                                | ISO 15693                                                                                   |
| Outputs                                                      |                                                                                             |
| Maximum Current Load Per Output                              | 100mA                                                                                       |
| Monitoring Range                                             |                                                                                             |
| Maximum Distance to ID Tag                                   | 220mm                                                                                       |
| Interfaces                                                   |                                                                                             |
| Communication Interface                                      | Ethernet                                                                                    |
| Protocol                                                     | Ethernet/IP                                                                                 |
| Default Settings, Ethernet – TCP/IP                          |                                                                                             |
| Protocol                                                     | TCP/IP                                                                                      |
| Factory Settings                                             | IP address: 192.168.0.79<br>Subnet mask: 255.255.255.0<br>Gateway IP address: 192.168.0.100 |
| Usage Type                                                   | Parameter setting: Data transmission                                                        |
| Operating Conditions                                         |                                                                                             |
| Ambient Temperature                                          | -20 to 60°C [-4 to 140°F]                                                                   |
| Storage Temperature                                          | -25 to 80°C [-13 to 176°F]                                                                  |
| Protection                                                   | IP 67                                                                                       |
| Tests/Approvals                                              |                                                                                             |
| EMC                                                          | EN 301489-3                                                                                 |
| Shock Resistance                                             | IEC 60028-2-27<br>50g (11ms) / single shock                                                 |
| Vibration Resistance                                         | EN 60068-2-6<br>2g (10 to 150 Hz)                                                           |
| Radio Approval                                               | EN 300 330 V2.1.1                                                                           |
| MTTF                                                         | 130 years                                                                                   |
| Mechanical Data                                              |                                                                                             |
| Weight                                                       | 640.5 g [22.58 oz]                                                                          |
| Material                                                     | PBT/PC, stainless steel, aluminum                                                           |
| Displays/Operating Elements                                  |                                                                                             |
| Voltage Supply                                               | 1xLED, green                                                                                |
| Signal Strength LED Display                                  | 4x LED, yellow                                                                              |
| Ethernet Status (per Ethernet Port)                          | 2x LED, green/yellow                                                                        |

# Contrinex 13.56 MHz HF RFID Tags

## Working Distance Tables

| Typical Working Distances When Using RFID-SA-HF-EIP |                     |                 |                 |
|-----------------------------------------------------|---------------------|-----------------|-----------------|
| Tag (Transponder) Part Number                       | $S_{max}$ (mm [in]) | $S_o$ (mm [in]) | $D_o$ (mm [in]) |
| Ø 9 <a href="#">RTH-D09RA-NF0-901</a>               | Not recommended*    |                 |                 |
| Ø 16 <a href="#">RTH-D16RA-NF0-901</a>              | 50 [1.97]           | 20 [0.79]       | 100 [3.94]      |
| Ø 20 <a href="#">RTH-D20QA-NF0-901</a>              | 80 [3.15]           | 30 [1.18]       | 130 [5.12]      |
| Ø 20 <a href="#">RTH-D20QA-ND0</a>                  | 75 [2.95]           | 30 [1.18]       | 130 [5.12]      |
| Ø 26 <a href="#">RTP-0263-020</a>                   | 90 [3.54]           | 40 [1.57]       | 135 [5.31]      |
| Ø 30 <a href="#">RTH-D30QA-NF0-901</a>              | 100 [3.94]          | 50 [1.97]       | 140 [5.51]      |
| Ø 30 <a href="#">RTH-D30QA-ND0</a>                  | 95 [3.74]           | 50 [1.97]       | 140 [5.51]      |
| Ø 50 <a href="#">RTH-D50QA-NF0</a>                  | 170 [6.69]          | 65 [2.56]       | 150 [5.91]      |
| Ø 50 <a href="#">RTH-D50QA-ND0</a>                  | 165 [6.50]          | 65 [2.56]       | 150 [5.91]      |

\* The size of this particular tag requires extremely short distances to work. For this reason this particular tag is not recommended for use with the RFID-SA-HF-EIP RFID unit.

