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.

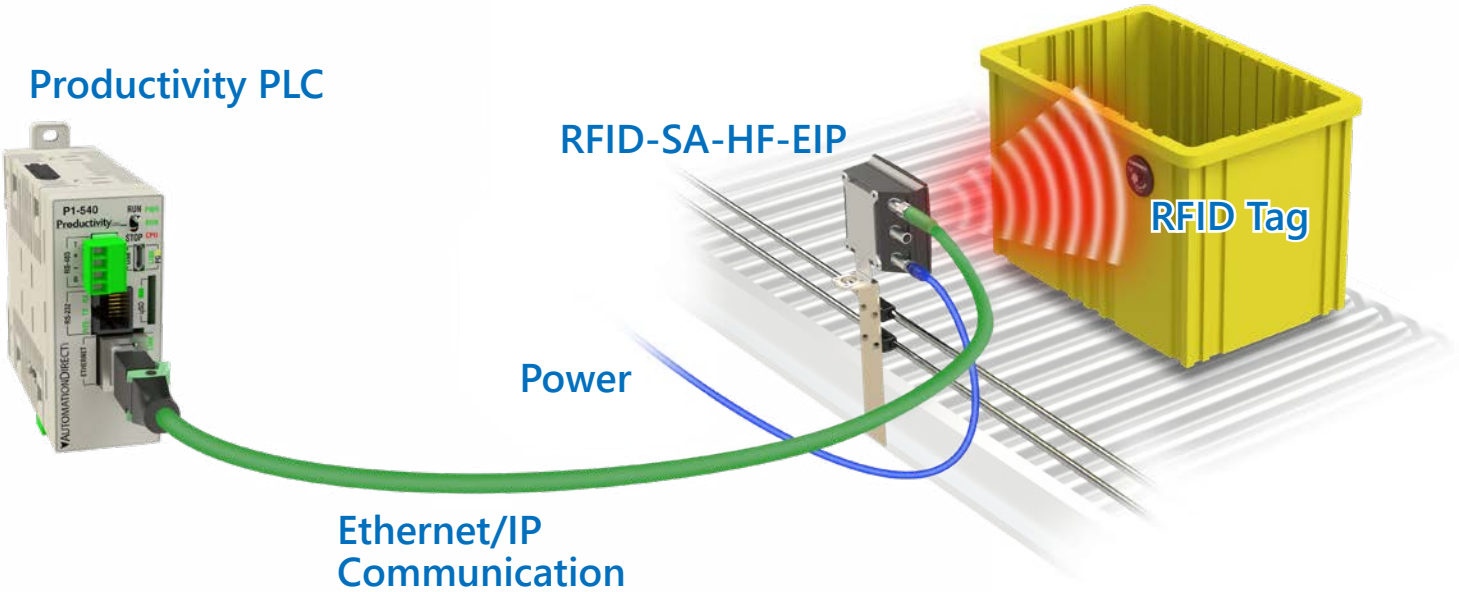
There are three standard frequencies for RFID:

- 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



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
RFID-SA-HF-EIP	$05yn#:	IP 67	Ethernet/IP	PDF

Mounting Bracket

RFID-SA-BA1

AutomationDirect RFID Unit Mounting Bracket Selection Guide

Part Number	Price	Material	Weight	Drawing
RFID-SA-BA1	$;5yn!:	304 stainless steel	0.37 lb [168g]	PDF

Electrical Connections

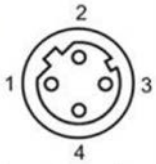
Connection (M12 D-Coded Ethernet)

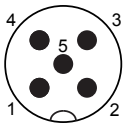
Pin	Signal
1	TxD+, transmit data +
2	RxD+, receive data +
3	TxD-, transmit data –
4	RxD-, receive data –

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 Subnet mask: 255.255.255.0 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 50g (11ms) / single shock
Vibration Resistance	EN 60068-2-6 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 RTH-D09RA-NF0-901	Not recommended*		
Ø 16 RTH-D16RA-NF0-901	50 [1.97]	20 [0.79]	100 [3.94]
Ø 20 RTH-D20QA-NF0-901	80 [3.15]	30 [1.18]	130 [5.12]
Ø 20 RTH-D20QA-ND0	75 [2.95]	30 [1.18]	130 [5.12]
Ø 26 RTP-0263-020	90 [3.54]	40 [1.57]	135 [5.31]
Ø 30 RTH-D30QA-NF0-901	100 [3.94]	50 [1.97]	140 [5.51]
Ø 30 RTH-D30QA-ND0	95 [3.74]	50 [1.97]	140 [5.51]
Ø 50 RTH-D50QA-NF0	170 [6.69]	65 [2.56]	150 [5.91]
Ø 50 RTH-D50QA-ND0	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.