

# High Frequency Industrial Radio Frequency Identification (HF RFID)

## Smart Track and Trace Solutions

### Features and Benefits

- Production efficiency – detailed tracking of who, when, where and what was done to build product(s)
- Rugged IP67 (M18 and M30) and IP68 and IP69K (4040) enclosures for harsh industrial applications
- Pre-programmed batches – tags identify which recipe to load automatically, reducing errors
- Data storage – tags can retain data that can be modified by the control system
- Read/write transceivers and reusable tags in a variety of sizes and styles for application flexibility
- Seamless integration into Rockwell Automation EtherNet/IP architecture

### What is IO-Link?

IO-Link Technology is a worldwide open-standard protocol that integrates sensors and other field devices into our Connected Enterprise by connecting the IO-Link enabled device into an IO-Link master module.

Benefits of IO-Link technology include:

- Reduced inventory and operating costs
- Increased uptime/productivity
- Simplified design, installation, setup and maintenance
- Enhanced flexibility and scalability



 **IO-Link**  
**EtherNet/IP™**

In today's global market, manufacturers are challenged more than ever to reduce costs and improve quality to stay competitive. At the same time, new regulations that impact business procedures – especially in the plant floor or process environment – must be factored into those efforts. In some cases, the tracking of product genealogy and history may also be required to meet evolving regulations.

Allen-Bradley® High Frequency Industrial Radio Frequency Identification (RFID) systems provide a rugged and reliable solution for tracking and documenting products as they move through the manufacturing process. Designed to withstand harsh environments, Allen-Bradley industrial RFID systems feature a range of read/write transceivers and reusable read/write tags that allow for optimal flexibility with information and applications. In addition to our 56RF EtherNet/IP-enabled RFID system, our new 59RF family of IO-Link high frequency (13.56 MHz, per ISO 15693) read/write transceivers have been designed for easy, cost-effective, seamless integration into The Connected Enterprise, delivering data from the plant floor directly into a control system to help minimize downtime and increase productivity.

With simplified plug-and-play installation, these high frequency RFID systems reduce installation costs in a wide range of industries and applications, for example:

- Automotive – tags identify door color, type and storage location
- Packaging – track product through production process
- AGV – tags embedded in the floor guide unmanned vehicle through building
- Pharmaceutical – track drugs via tray through process for traceability, accuracy and warranty

We offer two different RFID systems to address different application requirements. They can be operated either as IO-Link devices or in standard I/O mode (SIO) with conditional binary outputs. In stand-alone SIO mode, output switching is conditional on tag presence, data comparison and various alarm conditions.

## Specifications

	56RF EtherNet/IP HF RFID Range	59RF IO-Link HF RFID Range
Communication	Ethernet	IO-Link
Sensing Distance maximum	55...168 mm (2.16...6.6 in.)	40...78 mm (1.59...3.07 in.)
Read/Write Speed maximum	26.5 Kbps	26.5 Kbps
Operating Voltage	24V DC	24V DC
Data Storage Size	M18, M30 / 40 x 40, 80 x 90	M18, M30 / 40 x 40
Frequency	13.56 MHz	13.56 MHz
Output Current maximum	100 mA per transceiver	200 mA per transceiver
Tag Memory	Up to 8 KB, SLI, SLIX & FRAM	Varying sizes up to 128 KB, SLI, SLIX & FRAM

## Product Selection

### High Frequency 13.56 MHz ICODE with EtherNet/IP Interface

#### 56RF EtherNet/IP Transceivers

Communication	Dimensions [mm (in.)]	Recommended Sensing Distance [mm (in.)]	Max. Sensing Distance* [mm (in.)]	Operating Temperatures [C (F)]	Cat. No.
EtherNet/IP	Rectangular 80 x 90 (3.15 x 3.54)	100 (3.94)	168 (6.61)	-25...+70 °C (-13...+158 °F)	56RF-TR-8090
	Square 40 x 40 (1.57 x 1.57)	50 (1.97)	85 (3.35)	-25...+60 °C (-13...+140 °F)	56RF-TR-4040
	Cylindrical M30	45 (1.77)	75 (3)	-25...+70 °C (-13...+158 °F)	56RF-TR-M30
	Cylindrical M18	30 (1.18)	55 (2.16)	-25...+70 °C (-13...+158 °F)	56RF-TR-M18

\*Based on 50 mm tag

#### 56RF EtherNet/IP Interface Blocks

RFID Ports	Inputs	Outputs	Operating Temperatures [C (F)]	Cat. No.
2	1	1	-20...+60 °C (-4...+140 °F)	56RF-IN-IPD22
2	2	–	-20...+60 °C (-4...+140 °F)	56RF-IN-IPD22A
1	1	1	-20...+60 °C (-4...+140 °F)	56RF-IN-IPD12

#### 59RF IO-Link Transceivers IO-Link








Communication	Dimensions [mm (in.)]	Recommended Sensing Distance [mm (in.)]	Max. Sensing Distance* [mm (in.)]	Operating Temperatures [C (F)]	Cat. No.
IO-Link	Square 40 x 40 (1.57 x 1.57)	40 (1.57)	80 (3.14)	-25...+80 °C (-13...+176 °F)	59RF-TR-4040
	Cylindrical M30	27.5 (1.08)	59 (2.3)	-25...+80 °C (-13...+176 °F)	59RF-TR-M30
	Cylindrical M18	15.5 (0.61)	40.5 (1.5)	-25...+80 °C (-13...+176 °F)	59RF-TR-M18

\*Based on 50 mm tag

#### 59RF IO-Link Masters IO-Link





Description	Cat. No.
Point I/O IO-Link Master Module (In cabinet)	1734-4IOL
ArmorBlock IO-Link Master (On machine)	1732E-8IOLM12R

## Tags

Description	Type	Memory Size	Dimensions (mm)	Cat. No.
<b>Disc</b> 	SLI	128 Bytes	8	56RF-TG-16
			10	56RF-TG-10
			16	56RF-TG-16
			20	56RF-TG-20
			50	56RF-TG-50
	SLI-S	256 Bytes	10	56RF-TG-10-256B
<b>Disc – High-Impact Resistant (Extreme Durability)</b> 	SLI	128 Bytes	35	56RF-TG-35HIR
<b>Disc – Mount on Metal</b> 	SLI	128 Bytes	50	56RF-TG-50MOM
	FRAM	2K Bytes	50	56RF-TG-50-2KBMOM
<b>Disc – FRAM</b> 	FRAM	2K Bytes	20	56RF-TG-20-2KB
			30	56RF-TG-30-2KB
			50	56RF-TG-50-2KB
<b>Label (Adhesive Backing)</b> 	SLI	128 Bytes	54 x 86	56RF-TG-5486
			50 x 50	56RF-TG-5050
<b>Smart Card</b> 	SLI	128 Bytes	54 x 86	56RF-TG-5486SC
<b>Square – High Temperature (240 °C Max)</b> 	SLI	128 Bytes	50 x 50	56RF-TG-50HT

## Required Cordsets and Accessories

Description	Cat. No.
DC Micro (M12) female straight to male straight QD patchcord, 5-pin, 2 m (6.5 ft)	889D-F5FCDM-J2
DC Micro (M12) female straight to male straight QD patchcord, 4-pin, 2 m (6.5 ft)	889D-F4ACDM-2
M12 D-code patchcords	1585D-M4TBDM-2

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