RFID

LOW AND HIGH FREQUENCY

HIGHLIGHTS

- ✓ Low- and high-frequency (LF and HF) systems networkable on ContriNET or on conventional PC using USB connection
- ✓ Widest fieldbus coverage on market

LF SYSTEM

- ✓ All-metal housings, IP68 and IP69K
- ✓ Food safe and saltwater resistant (316L/V4A)
- ✓ All tags embeddable in metal

HF SYSTEM

- ✓ ISO/IEC 15693 compatible
- ✓ Fast data transfer time
- ✓ User-defined password protection features

NEW

- ✓ HF Read/Write Modules with IO-Link
- ✓ HF tags for high temperatures
- ✓ LF and HF Read/Write Modules with USB connection

RFID SYSTEMS

RFID (Radio Frequency IDentification) is used in numerous automation and logistics domains. It allows objects to be identified by means of electronic labels (transponders or tags).

Compared to classic systems, such as bar codes or laser marking, RFID technology offers important advantages. Transponder information can be read or written even when there is no direct line of sight between it and the Read/Write Module. In addition, information can be added, modified or replaced. It is a useful technology for automated production, reducing human error while increasing reliability, flexibility and traceability.

ConIdent® (also called ConID) is the general name of the Contrinex RFID system, including transponders, Read/Write Modules and interfaces in both low-frequency (LF) and high-frequency (HF) technology.

ContriNET is the product name of the Contrinex RFID network and protocol. The ContriNET protocol uses an RS-485 physical layer, which allows LF and/or HF Read/Write Modules to be daisy-chained, reducing the total number of interfaces.

Up to 10 ContriNET RWMs with one USB interface
Up to 31 ContriNET RWMs with one industrial bus interface
Up to 254 ContriNET RWMs on a half-duplex RS-485 interface

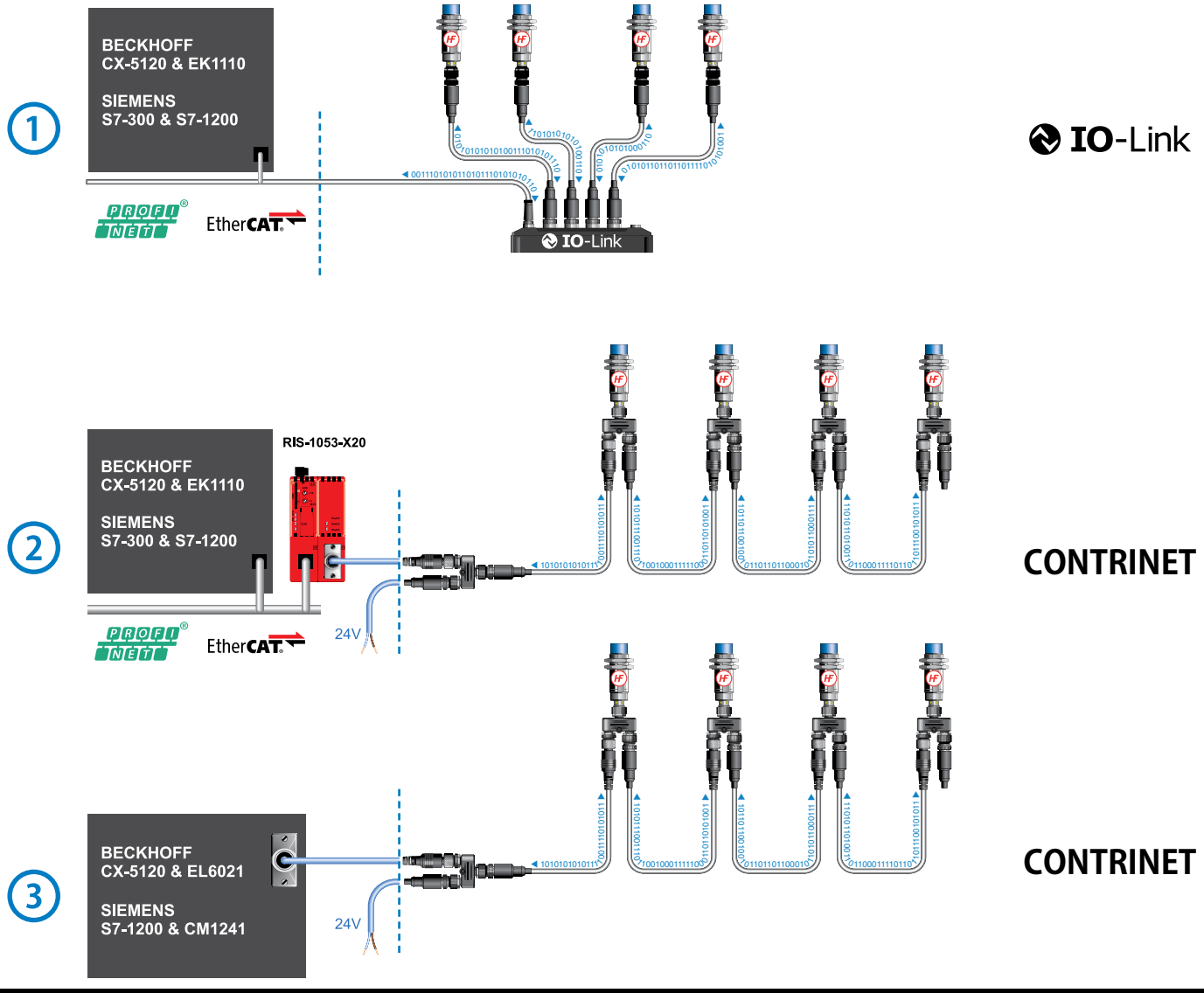
While the usual interfaces allow connection of a limited number of Read/Write Modules (typically 4), ContriNET RWMs can be used to reduce the number of interfaces, which makes the cost of a ConID system more economic than competitive RFID products.

In principle, a ContriNET network can extend to a length of 200 m.

IO-Link is a point to point communication standard (ISO 61131-9), allowing the connection of a maximum of 8 RFID RWMs in parallel on a single IO-Link master, allowing a fast and easy machine setup and reducing programming cost.

RFID datas are exchanged over process data registers (input/output) at a constant cycle time (typically 10 ms) and Contrinex RWMs are compatible with any ISO 15693 transponder on the market. Maximum cable length between an IO-link device and a master is limited by the standard at 20 m.

Every RFID system can have one of the following three topologies:



TECHNOLOGY

LOW-FREQUENCY (LF) RFID (31.25 kHz)

Contrinex LF RFID technology features not only conventional plastic components, but also a range of all-metal Read/Write Modules and transponders in stainless steel. These devices are particularly suitable for difficult operating environments where they will be exposed to cleaning, harsh chemicals, water and frost. They are also highly resistant to mechanical shocks.

- Non-standard technology (proprietary data communication)
- Reads and writes through metal
- Works in a metallic environment (fully embeddable)
- High resistance in harsh environments

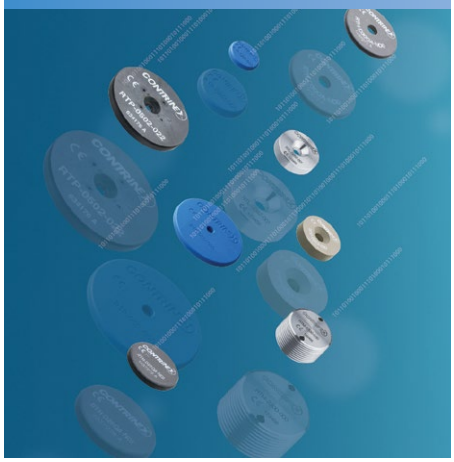
HIGH-FREQUENCY (HF) RFID (13.56 MHz)

Contrinex HF RFID technology complies with ISO/IEC 15693 and is therefore open to any components that meet this standard. HF systems allow fast communication between transponders and Read/Write Modules as well as extended functionality for tag data protection.

- ISO/IEC 15693
- Anti-collision, in case of multiple tag detection
- High-temperature tags embeddable in metal (180°C / 356°F)
- High-temperature tags for PWIS/LABS free applications (250°C / 428°F)

RFID COMPONENTS

TRANSPONDERS (TAGS)



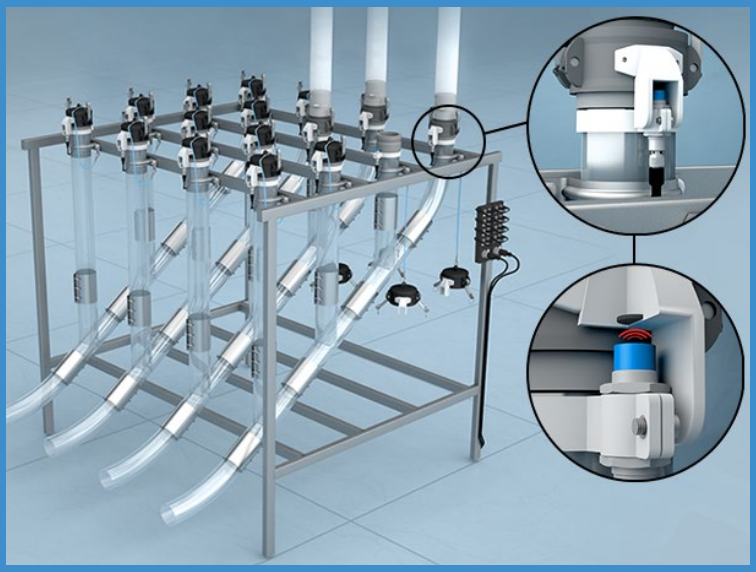
A transponder is an electronic product that stores data. Transponder memory includes a unique pre-set number as an identifier and a memory area for writing user application data in relation to tagged product information. Writeable data may include, for example, the object's history or the parameters of operations to which it will be subjected.

READ/WRITE MODULES (RWMs)

A Read/Write Module is a device that allows data to be read from or written to a transponder.

INTERFACES

An interface connects the Read/Write Modules to an industrial fieldbus. ConID interfaces are available for PROFIBUS, DeviceNet, EtherNet/IP, PROFINET, EtherCAT, POWERLINK, Ethernet TCP/IP and USB.



APPLICATION

RFID technology with IO-Link connectivity eliminates hose-coupling errors in fluidized pneumatic-transport systems

Bulk-handling- and pneumatic-transport-system designers use RFID technology to eliminate connection errors at manual hose-coupling stations for fluidizable materials. Coupling stations, with IO-Link-enabled RWMs mounted on each outlet pipe, use manual quick-release hoses to feed materials to multiple machines. RFID tags, mounted integrally within each hose coupling and blanking cap, identify the mating parts uniquely, allowing individual outlet/hose combinations to be verified at the time of connection.

INDUSTRIES

Automotive production and supply, machine tool, packaging, logistics, materials handling, assembly, automation, robotics

Machine tools

Packaging systems

Automotive industry

Robotics

IO-Link R/W MODULES

RFID

IO-Link – EASY TO GO!

Ideal for Industry 4.0 solutions, IO-Link read/write modules (RWMs) combine two of the key communication standards in one device: ISO 15693 at the read-write head for communication with tags and ISO 61131-9 at the S12 connector for communication with the control system. Their simplified, plug-and-play installation ensures easy, cost-effective integration.

KEY ADVANTAGES

- ✓ IO-Link protocol V1.1 with a single operating mode
  - ✓ IO-Link Device:
    - ✓ Scan UID and Read/Write RFID data on transponder whether automatically or trigger based
    - ✓ Two alarms configurable to monitor transponder-in-range time or RSSI level
    - ✓ Get UID history list with time stamps
    - ✓ Secure mode to add security in the transponder memory access
    - ✓ Locate/FindMe function to quickly identify RWM mounted in a machine
    - ✓ New Diagnostic function such as individual system time, power-on cycle counter, RFID Error counter
- ✓ Stand-alone SIO: Switching on tag presence, data comparison and alarm conditions
- ✓ Temperature range −25°C … +80°C (−13 … 176°F)
- ✓ Integral S12 connector with integrated bi-color LED
- ✓ IP67 (IP68 and IP69K for C44)

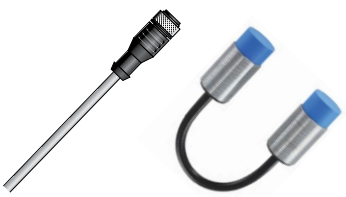
PRODUCT OVERVIEW

IO-Link

Housing size mm	M18	M30	C44
Read/write distance max (mm)	26/42	58/60	80

ACCESSORIES

Go to page 290 to see all the accessories



Cables and couplers

Handheld devices

Starter kits

OUTPUT

Housing size
[M18] Cylindrical M18 [M30] Cylindrical M30
[C44] Cubic C44

RLH-[**xxx**]PA-NIS

Housing size
[18] M18 [30] M30

RLS-1[**xx**]1-320

Reference key on pages 294–297

ACCESSORIES

Starter kits
See page 292

Handheld devices
See page 292

RFID couplers
See page 293

Cables
See page 288

Go to page 298 for details

RFID IO-Link READ/WRITE MODULES

FAMILY	READ/WRITE DISTANCE MAX. (mm)	HOUSING SIZE (mm)	OPERATING FREQUENCY	STANDARD
IO-Link	26	M18	HF	ISO/IEC 15693
	42	M18		ISO/IEC 15693
	58	M30		ISO/IEC 15693
	60	M30		ISO/IEC 15693
	80	40 × 40 (C44)		ISO/IEC 15693

KEY ADVANTAGES

- ✓ **IO**-Link protocol V1.1 with a single operating mode
- ✓ **IO**-Link Device:
  - Scan UID and Read/Write RFID data on transponder whether automatically or trigger based
  - Two alarms configurable to monitor transponder in range time or RSSI level
  - Get UID history list with time stamps
  - Secure mode to add security in the transponder memory access
  - Locate/FindMe function to quickly identify RWM mounted in a machine
  - New Diagnostic function such as individual system time, power-on cycle counter, RFID Error counter
- ✓ Stand-alone SIO: Switching on tag presence, data comparison and alarm conditions
- ✓ Temperature range −25°C … +80°C (−13 … 176°F)
- ✓ Integral S12 connector with integrated bi-color LED
- ✓ IP67 (IP68 and IP69K for C44)

	USER MEMORY SIZE (BYTE)	HOUSING MATERIAL	MOUNTING	INTERFACE	CONNECTION / CONNECTOR	AMBIENT TEMPERATURE	PART REFERENCE
	96	Chrome-plated brass	Non-embeddable	IO-Link × RFID	M12	−25 … +80°C	**RLH-M18PA-NIS**
	16	Chrome-plated brass	Non-embeddable	IO-Link × RFID	M12	−25 … +80°C	**RLS-1181-320**
	96	Chrome-plated brass	Non-embeddable	IO-Link × RFID	M12	−25 … +80°C	**RLH-M30PA-NIS**
	16	Chrome-plated brass	Non-embeddable	IO-Link × RFID	M12	−25 … +80°C	**RLS-1301-320**
	96	PBTP	Non-embeddable	IO-Link × RFID	M12	−25 … +80°C	**RLH-C44PA-NIS**

APPLICATION

RFID technology for automated testing and tracking of individual motors

Product testing lines tipically comprise several test stations, each performing a fixed sequence of tests. For efficient real-time monitoring, identification systems must integrate well into the overall control system.
In a typical RFID system, part carriers are equipped with tags and every test station has an RWM. To program the testing machine, the RWM reads from each tag the type of test required for an individual part. After each test, the RWM writes the results back into the appropriate tag memory address/location. Test reports are automatically forwarded to the controller for product acceptance or rejection and fault correction.

INDUSTRIES

Automotive production and supply, machine tool, packaging, logistics, materials handling, assembly, automation, robotics

Automotive industry

Packaging systems

Machine tools

Robotics

BASIC AND USB SYSTEM

RFID

FIRST CHOICE FOR HIGH AND LOW FREQUENCY

Basic transponders (tags) and read/write modules (RWMs) provide cost-effective solutions with ISO/IEC 15693-compatible HF transponders or proprietary LF transponders. Data protection is excellent, transfer time is fast and all components use the same ContriNET protocol with an RS-485 or USB physical layer. For hardware connection to a PC computer, USB RWMs are an ideal solution as they provide an USB output on their integral connector cable (2 m).

KEY ADVANTAGES

Basic RWMs and tags

- ✓ ContriNET RS-485 protocol with outstanding fieldbus coverage
- ✓ LF and HF RWMs can be daisy-chained on same network
- ✓ HF and LF passive tags, no battery required
- ✓ LF tags embeddable in metal
- ✓ Insensitive to dirt
- ✓ Tag temperature range −40 … +125°C (−40 … +257°F), IP67
- ✓ RWM temperature range −25 … +80°C (−13 … +176°F), IP67, integral S12 connector

USB RWMs and interface

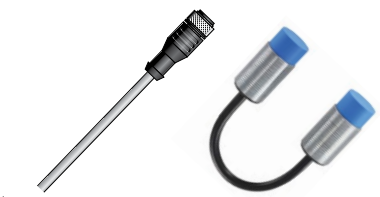
- ✓ ContriNET USB protocol for direct connection to PC (non-networkable)
- ✓ Compatible with ContriNET BASIC support tools and DEMO software
- ✓ DLL for easy development of custom solutions
- ✓ Temperature range −25 … +70°C (−13 … +158°F), IP67, integral USB A male connector

PRODUCT OVERVIEW

Housing size mm	M18	M30	C44
Read/write distance max (mm)	26/31/36	41/58/60	80

ACCESSORIES

Go to page 290 to see all the accessories



Cables and couplers

Handheld devices

Starter kits

OUTPUT

Housing size
[M18] Cylindrical M18 [M30] Cylindrical M30
[C44] Cubic C44

RLH-[**xxx**]PA-NSS

Housing size
[18] M18 [30] M30

Technology
[2] ConIdent HF [3] ConIdent LF

RLS-1[**xx**][**x**]-0[**x**]0

Material
[1] PBTP / Chrome-plated brass
[3] PBTP / Stainless steel V2A

Reference key on pages 294–297

ACCESSORIES

Starter kits
See page 292

Handheld devices
See page 292

RFID couplers
See page 293

Cables
See page 288

Go to page 298 for details

RFID BASIC AND USB SYSTEM READ/WRITE MODULES

FAMILY	READ/WRITE DISTANCE MAX. (mm)	HOUSING SIZE (mm)	OPERATING FREQUENCY	STANDARD
BASIC	26	M18	HF	ISO/IEC 15693
	31	M18	HF	ISO/IEC 15693
	36	M18	LF	Proprietary
	41	M30	LF	Proprietary
	58	M30	HF	ISO/IEC 15693
	60	M30	HF	ISO/IEC 15693
	80	40 × 40 (C44)	HF	ISO/IEC 15693
USB	31	M18	HF	ISO/IEC 15693
	31	M18	HF	ISO/IEC 15693
	36	M18	LF	Proprietary
	41	M30	LF	Proprietary
	60	M30	HF	ISO/IEC 15693
	60	M30	HF	ISO/IEC 15693

KEY ADVANTAGES

- ✓ Powerful RS-485 network protocol for LF and HF systems
- ✓ Threaded Read/Write Modules (RWMs) with S12 connector and RS-485 output
- ✓ LF and HF RWMs can be mixed on the same network

	USER MEMORY SIZE (BYTE)	HOUSING MATERIAL	MOUNTING	INTERFACE	CONNECTION / CONNECTOR	AMBIENT TEMPERATURE	PART REFERENCE
	400	Chrome-plated brass	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLH-M18PA-NSS**
	400	Stainless steel V2A	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLS-1183-020**
	400	Chrome-plated brass	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLS-1181-030**
	400	Chrome-plated brass	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLS-1301-030**
	400	Chrome-plated brass	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLH-M30PA-NSS**
	400	Stainless steel V2A	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLS-1303-020**
	400	PBTP	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLH-C44PA-NSS**
	400	Chrome-plated brass	Non-embeddable	ContriNET USB × RFID		−25 … +70°C	**RLS-1181-220**
	400	Chrome-plated brass	Non-embeddable	ContriNET USB × RFID		−25 … +70°C	**RLS-1181-220-120**
	400	Chrome-plated brass	Non-embeddable	ContriNET USB × RFID		−25 … +70°C	**RLS-1181-230**
	400	Chrome-plated brass	Non-embeddable	ContriNET USB × RFID		−25 … +70°C	**RLS-1301-230**
	400	Chrome-plated brass	Non-embeddable	ContriNET USB × RFID		−25 … +70°C	**RLS-1301-220**
	400	Chrome-plated brass	Non-embeddable	ContriNET USB × RFID		−25 … +70°C	**RLS-1301-220-120**

OUTPUT

Size
[D20] ⌀20 mm [D30] ⌀30 mm [D50] ⌀50 mm

RTH-[**xxx**]QA-N[**x**]0

Communication compatibility
[C] ICODE SLI-X
[D] FRAM MBR89R118C

Size
[##] Diameter in mm

Material
[0] Epoxy [1] PBTP

RLS-1[**xx**][**x**]-0[**x**]0

Technology
[0] Low Frequency
[2] High Frequency ICode SLI-S ISO 15693

Reference key on pages 294–297

ACCESSORIES

Starter kits
See page 292

Handheld devices
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RFID couplers
See page 293

Cables
See page 288

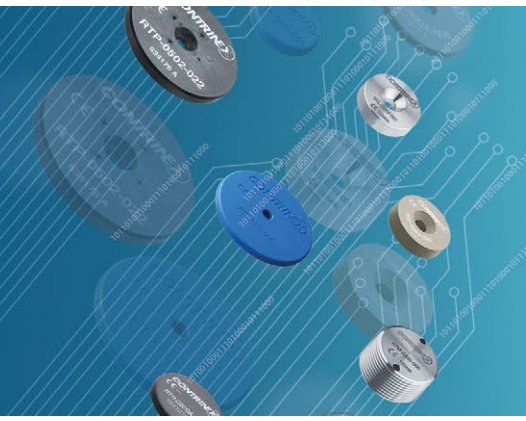
Go to page 298 for details

RFID BASIC AND USB SYSTEM TRANSPONDERS

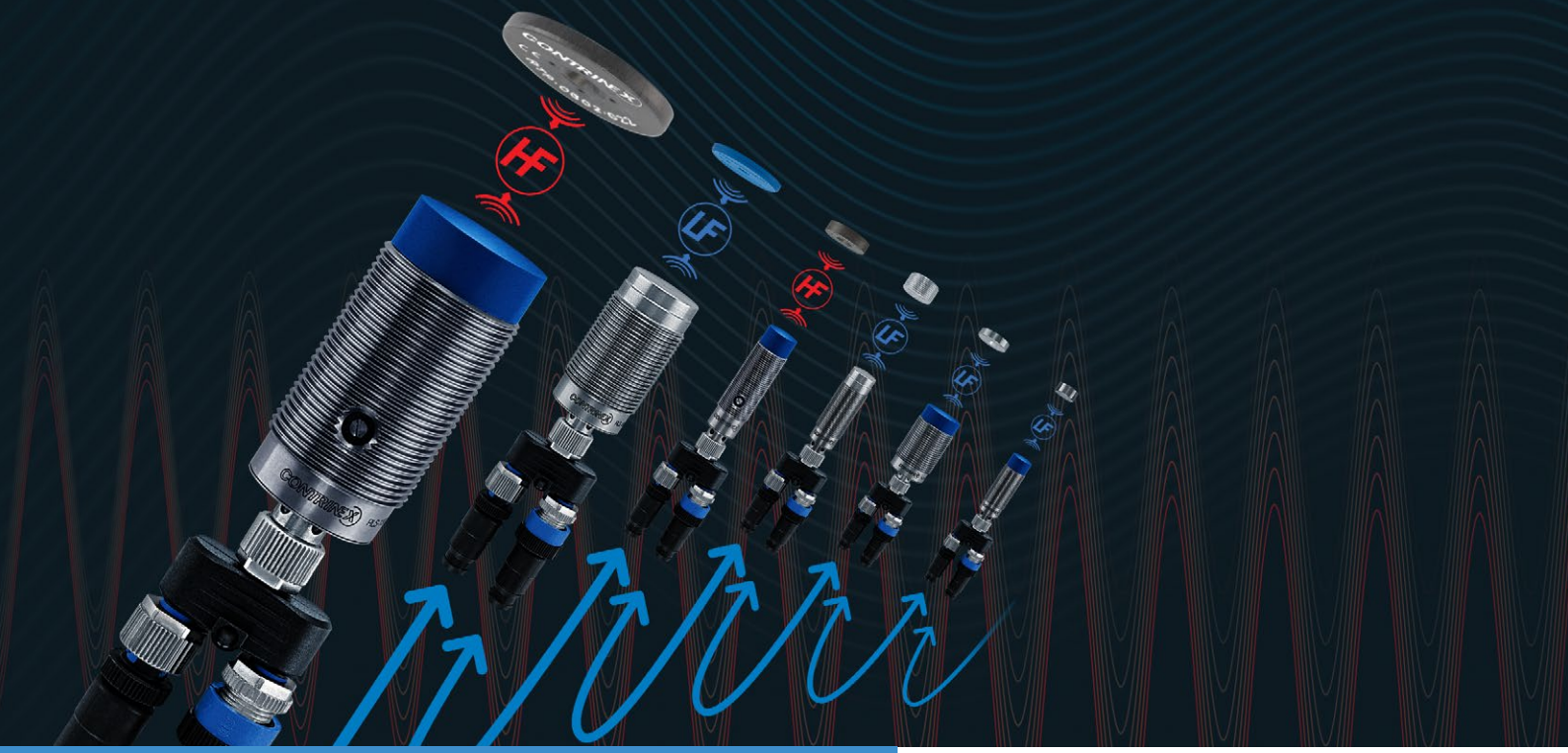
FAMILY	HOUSING SIZE (mm)	USER MEMORY SIZE (BYTE)	READ/WRITE DISTANCE MAX. (mm)
BASIC AND USB	⌀ 9	160	14
	⌀ 16	160	30
	⌀ 20	112	34
	⌀ 20	160	25
	⌀ 20	240	28
	⌀ 20	2000	27
	⌀ 30	112	44.5
	⌀ 30	160	45
	⌀ 30	240	29
	⌀ 30	2000	45.5
	⌀ 50	112	67
	⌀ 50	160	60
	⌀ 50	240	41
	⌀ 50	2000	64.5

KEY ADVANTAGES

- ✓ ContriNET RS-485 protocol with outstanding fieldbus coverage
- ✓ HF and LF passive tags, no battery required
- ✓ LF tags embeddable in metal
- ✓ Insensitive to dirt
- ✓ Tag temperature range −40 … +125°C (−40 … +257°F), IP67



	OPERATING FREQUENCY	STANDARD	HOUSING MATERIAL	MOUNTING	INTERFACE	STORAGE TEMPERATURE	AMBIENT TEMPERATURE	PART REFERENCE
	HF	ISO/IEC 15693	PPS + epoxy	Non-embeddable	RFID	−20 … +110°C	−20 … +85°C	**RTP-0090-020**
	HF	ISO/IEC 15693	PPS + epoxy	Non-embeddable	RFID	−20 … +110°C	−20 … +85°C	**RTP-0160-020**
	HF	ISO/IEC 15693	PPA	Non-embeddable	RFID	−40 … +90°C	−25 … +80°C	**RTH-D20QA-NC0**
	HF	ISO/IEC 15693	PBTP	Non-embeddable	RFID	−40 … +125°C	−25 … +85°C	**RTP-0201-020**
	LF	Proprietary	PBTP	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTP-0201-000**
	HF	ISO/IEC 15693	PPA	Non-embeddable	RFID	−40 … +90°C	−25 … +80°C	**RTH-D20QA-ND0**
	HF	ISO/IEC 15693	PPA	Non-embeddable	RFID	−40 … +90°C	−25 … +80°C	**RTH-D30QA-NC0**
	HF	ISO/IEC 15693	PBTP	Non-embeddable	RFID	−40 … +125°C	−25 … +85°C	**RTP-0301-020**
	LF	Proprietary	PBTP	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTP-0301-000**
	HF	ISO/IEC 15693	PPA	Non-embeddable	RFID	−40 … +90°C	−25 … +80°C	**RTH-D30QA-ND0**
	HF	ISO/IEC 15693	PPA	Non-embeddable	RFID	−40 … +90°C	−25 … +80°C	**RTH-D50QA-NC0**
	HF	ISO/IEC 15693	PBTP	Non-embeddable	RFID	−40 … +125°C	−25 … +85°C	**RTP-0501-020**
	LF	Proprietary	PBTP	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTP-0501-000**
	HF	ISO/IEC 15693	PPA	Non-embeddable	RFID	−40 … +90°C	−25 … +80°C	**RTH-D50QA-ND0**



APPLICATION

RFID technology used to identify workpiece carriers and initiate automated washing

In the harsh environment of a washing station, RFID tags and RWMs are exposed to hot water, mechanical shocks, corrosive chemicals and high-pressure jetting. Despite these challenges, identification systems must operate continuously with high reliability.
Typically, RFID tags are mounted on the part carriers. On arrival at the washing station, information from the tag is used to select the correct washing cycle for the part type and process.

INDUSTRIES

Automotive production and supply, maritime, food and beverage

Autoclave application

Automotive part sensing

Maritime industry

Brewery production equipment

EXTREME AND WASHDOWN RFID

HIGHEST MECHANICAL AND CHEMICAL RESISTANCE

Read/write modules (RWMs) and embeddable tags from these two ranges feature robust, full-metal, stainless-steel construction. They offer outstanding performance in metallic environments and are insensitive to dirt and metal chips. For the highest mechanical and chemical resistance, **Washdown** components in food-grade stainless steel (V4A/AISI 316L) are fully sealed and laser welded. They function reliably when immersed in fluids such as water or oil.

KEY ADVANTAGES

- ✓ LF passive tags, no battery required
- ✓ If the ContriNET protocol is used, LF components can share one network with HF types, including the full range of interfaces
- ✓ Insensitive to dirt
- ✓ Outstanding performance in metallic environments
- ✓ Tags readable/writable through metal
- ✓ Tags fully embeddable, including in metal
- ✓ Enclosure rating IP68 & IP69K

Extreme RWMs and tags

- ✓ All-metal, stainless-steel housings (V2A/AISI 304) resist corrosion, impacts and abrasion
- ✓ Suitable for use in harsh environments, such as the steel industry, agriculture and other outdoor applications
- ✓ Temperature range: tags −40 … +95°C (−40 … +203°F), RWMs −25 … +80°C (−13 … +176°F)

Washdown RWMs and tags

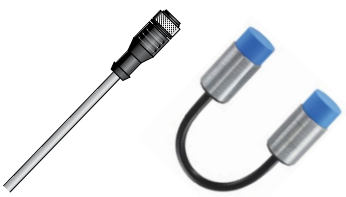
- ✓ All-metal housings in food-grade stainless steel (V4A/AISI 316L) resist saltwater, solvents, corrosion, impacts and abrasion
- ✓ Designed for demanding clean-in-place (CIP) applications within the food, pharmaceutical and other industries
- ✓ Temperature range −40 … +125°C (−40 … +257°F)

PRODUCT OVERVIEW

Housing size mm	M18	M30
Read/write distance max (mm)	12	12

ACCESSORIES

Go to page 290 to see all the accessories



Cables and couplers

Handheld devices

Starter kits

OUTPUT

Housing size
[18] M18 [30] M30

Temperature
[0] Standard up to +80°C
[1] High up to +125°C

RLS-1[**xx**][**x**]-03[**x**]

Material
[0] Stainless steel V2A
[2] Stainless steel V4A

Reference key on pages 294–297

ACCESSORIES

Starter kits
See page 292

Handheld devices
See page 292

RFID couplers
See page 293

Cables
See page 288

Go to page 298 for details

RFID EXTREME AND WASHDOWN SYSTEM

READ/WRITE MODULES

FAMILY	READ/WRITE DISTANCE MAX. (mm)	HOUSING SIZE (mm)	OPERATING FREQUENCY	STANDARD	
EXTREME	12	M18	LF	Proprietary	
	12	M30	LF	Proprietary	
WASH-DOWN	12	M18	LF	Proprietary	
	12	M30	LF	Proprietary	

KEY ADVANTAGES

- ✓ If the ContriNET protocol is used, LF components can share one network with HF types, including the full range of interfaces
- ✓ Insensitive to dirt
- ✓ Outstanding performance in metallic environments
- ✓ Enclosure rating IP68 & IP69K
- ✓ Rugged all-metal LF RWMs with impervious sensing face

Extreme

- ✓ Temperature range −25 … +80°C (−13 … +176°F)

Washdown

- ✓ Temperature range −40 … +125°C (−40 … +257°F)

	USER MEMORY SIZE (BYTE)	HOUSING MATERIAL	MOUNTING	INTERFACE	CONNECTION / CONNECTOR	AMBIENT TEMPERATURE	PART REFERENCE
	400	Stainless steel V2A	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLS-1180-030**
	400	Stainless steel V2A	Non-embeddable	ContriNET × RFID	M12	−25 … +80°C	**RLS-1300-030**
	400	Stainless steel V4A	Non-embeddable	ContriNET × RFID	M12	−40 … +125°C	**RLS-1182-031**
	400	Stainless steel V4A	Non-embeddable	ContriNET × RFID	M12	−40 … +125°C	**RLS-1302-031**

OUTPUT

Series
[F] All metal [L] All metal, laser welded [M] Metal

Size
[##] Diameter in mm

RT[x]-1[xx][x]-00[x]

Type
[0] Smooth sleeve
[1] Non-embedabble
[2] Embedabble

Temperature
[0] Standard up to +80°C
[1] High up to +125°C

Reference key on pages 294–297

ACCESSORIES

Starter kits
See page 292

Handheld devices
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RFID couplers
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Cables
See page 288

Go to page 298 for details

RFID EXTREME AND WASHDOWN SYSTEM

TRANSPONDERS

FAMILY	HOUSING SIZE (mm)	USER MEMORY SIZE (BYTE)	READ/WRITE DISTANCE MAX. (mm)
EXTREME	Ø 10	240	17
	Ø 16	240	19
	M16	240	13
	Ø 26	240	26
	M30	240	18
	M30	240	23
WASHDOWN	Ø 10	240	17
	Ø 16	240	13
	M16	240	13
	Ø 26	240	26
	M30	240	18
	M30	240	18

KEY ADVANTAGES

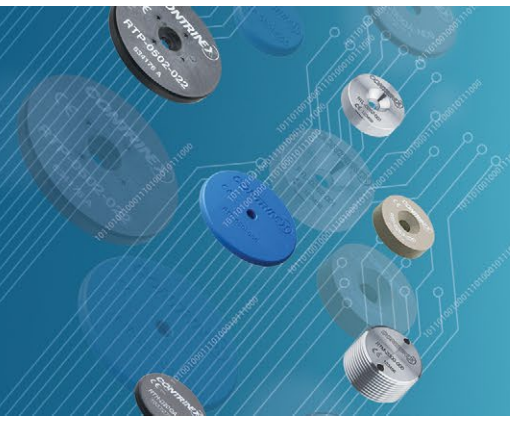
- ✓ LF passive tags, no battery required
- ✓ If the ContriNET protocol is used, LF components can share one network with HF types, including the full range of interfaces
- ✓ Insensitive to dirt
- ✓ Outstanding performance in metallic environments
- ✓ Tags readable/writable through metal
- ✓ Tags fully embeddable, including in metal
- ✓ Enclosure rating IP68 & IP69K

Extreme

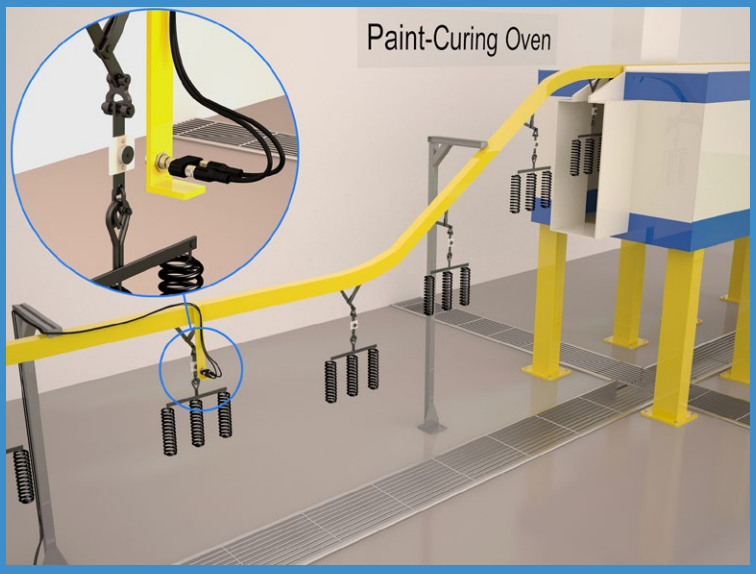
- ✓ Temperature range −40 … +95°C (−40 … +203°F)

Washdown

- ✓ Temperature range −40 … +125°C (−40 … +257°F)



	OPERATING FREQUENCY	STANDARD	HOUSING MATERIAL	MOUNTING	INTERFACE	STORAGE TEMPERATURE	AMBIENT TEMPERATURE	PART REFERENCE
	LF	Proprietary	Stainless steel V2A	Embeddable	RFID	−40 … +95°C	−40 … +80°C	**RTM-0100-000**
		Proprietary	Stainless steel V2A	Embeddable	RFID	−40 … +95°C	−40 … +80°C	**RTM-0160-000**
		Proprietary	Stainless steel V2A	Embeddable	RFID	−40 … +95°C	−40 … +80°C	**RTM-2160-000**
		Proprietary	Stainless steel V2A	Embeddable	RFID	−40 … +95°C	−40 … +80°C	**RTM-0260-000**
		Proprietary	Stainless steel V2A	Embeddable	RFID	−40 … +95°C	−40 … +80°C	**RTM-2300-000**
		Proprietary	Stainless steel V2A	Non-embeddable	RFID	−40 … +95°C	−40 … +80°C	**RTF-1300-000**
	LF	Proprietary	Stainless steel V4A	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTL-0102-001**
		Proprietary	Stainless steel V4A	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTL-0162-001**
		Proprietary	Stainless steel V4A	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTL-2162-001**
		Proprietary	Stainless steel V4A	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTL-0262-001**
		Proprietary	Stainless steel V4A	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTL-1302-001**
		Proprietary	Stainless steel V4A	Embeddable	RFID	−40 … +125°C	−40 … +125°C	**RTL-2302-001**



APPLICATION

RFID tags withstand elevated temperatures during automotive paint curing

Identification components in paint shops are exposed to a variety of rinsing, coating and burning operations, including electrophoresis. Since soiling makes visual identification difficult or impossible, rugged RFID systems are an excellent solution. The RFID tag accompanies each product throughout all painting processes. It can store individual data, including customer requirements, directly on the product or carrier. This allows highly automated customized processes, with smaller batches and central data storage.

INDUSTRIES

Automotive production and supply, maritime, food and beverage

Paint shop in automotive industry

Maritime industry

Brewery production equipment

Automotive part sensing

HIGH TEMPERATURE TAGS

RFID

READY TO BAKE

Designed for environments up to 180 or 250°C, **High Temperature** tags offer exceptional longevity and a thermal-cycling reliability of 1000 hours (or 1000 cycles). Tags are insensitive to dirt and provide between 112 and 2000 Bytes of user memory. As passive devices, no battery or other power source is required. Housings are impervious (IP68 and IP69K).

KEY ADVANTAGES

- ✓ High frequency, fully compatible with ISO/IEC 15693
- ✓ Exceptionally long life-expectancy, even under intense read/write and temperature cycling
- ✓ Insensitive to dirt

∅26 mm, PPS housing

- ✓ Temperature range −25…+180°C (−13…+356°F)
- ✓ Embeddable in metal
- ✓ User memory size (EEPROM): 160 Byte

∅50 mm, LCP housing

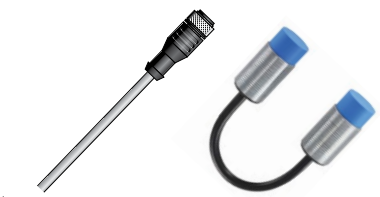
- ✓ Temperature range −25…+250°C (−13…+482°F)
- ✓ 100% silicone-free, ideal for paint-shop applications (LABS-free, PWIS-free)
- ✓ User memory size:
  - ✓ FRAM technology: 2000 Byte (RTP-0502-062)
  - ✓ EEPROM technology: 112 Byte (RTP-0502-082) and 160 Byte (RTP-0502-022)

PRODUCT OVERVIEW

Housing size mm	∅26 mm	M30
Read/write distance max (mm)	12	12

ACCESSORIES

Go to page 290 to see all the accessories



Cables and couplers

Handheld devices

Starter kits

OUTPUT

Size
[26] ∅26 mm [50] ∅50 mm

Technology
[2] IC NxP ICODE SLI-S
[6] IC FUJITSU FRAM MB89R118C
[8] IX NxP ICODE SLI

RTP-0[xx][x]-0[x][x]

Material
[2] LCP
[3] PPS

Temperature
[0] Very high up to +150°C
[2] Ultra high up to +250°C

Reference key on pages 294–297

ACCESSORIES


Starter kits
See page 292


Handheld devices
See page 292


RFID couplers
See page 293


Cables
See page 288

Go to page 298 for details

RFID HIGH TEMPERATURE TRANSPONDERS

HIGH TEMPERATURE

FAMILY	HOUSING SIZE (mm)	USER MEMORY SIZE (BYTE)	READ/WRITE DISTANCE MAX. (mm)
	∅ 26	160	31
	∅ 50	112	42.5
	∅ 50	160	50
	∅ 50	2000	44.5

KEY ADVANTAGES

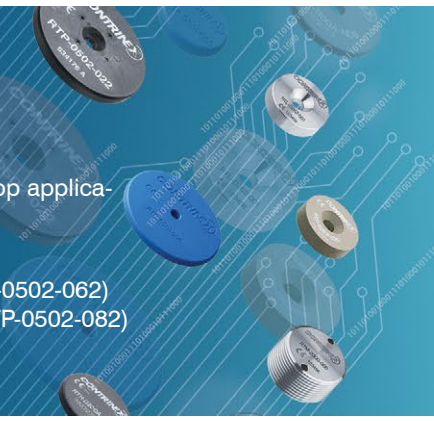
- ✓ High frequency, fully compatible with ISO/IEC 15693
- ✓ Exceptionally long life expectancy, even under intense read/write and temperature cycling
- ✓ Insensitive to dirt
- ✓ PWIS free

Ø26 mm, PPS housing

- ✓ Temperature range −25 … +180°C (−13 … +356°F)
- ✓ Embeddable in metal
- ✓ User memory size (EEPROM): 160 Byte

Ø50 mm, LCP housing

- ✓ Temperature range −25 … +250°C (−13 … +482°F)
- ✓ 100% silicone-free, ideal for paint-shop applications (LABS-free, PWIS-free)
- ✓ User memory size:
  - FRAM technology: 2000 Byte (RTP-0502-062)
  - EEPROM technology: 112 Byte (RTP-0502-082) and 160 Byte (RTP-0502-022)



	OPERATING FREQUENCY	STANDARD	HOUSING MATERIAL	MOUNTING	INTERFACE	STORAGE TEMPERATURE	AMBIENT TEMPERATURE	PART REFERENCE
	HF	ISO/IEC 15693	PPS	Embeddable	RFID	−40 … +180°C	−25 … +180°C	**RTP-0263-020**
		ISO/IEC 15693	LCP (liquid crystal polymer)	Non-embeddable	RFID	−40 … +250°C	−25 … +150°C	**RTP-0502-082**
		ISO/IEC 15693	LCP (liquid crystal polymer)	Non-embeddable	RFID	−40 … +250°C	−25 … +150°C	**RTP-0502-022**
		ISO/IEC 15693	LCP (liquid crystal polymer)	Non-embeddable	RFID	−40 … +250°C	−25 … +150°C	**RTP-0502-062**

To bring overall system-integration cost down, an RFID interface is an ideal solution. It simplifies the software-integration effort, which typically represents up to 50% of the total implementation cost for a small project. Assuring shortened software-development time at a modest cost premium, Contrinex interfaces are ready to tackle the most demanding and time-critical tasks.

INTERFACES
RFID

MARKET-LEADING FIELDBUS COVERAGE

KEY ADVANTAGES

- ✓ Widest fieldbus coverage on market
- ✓ Interfaces for connection of ContriNET to PROFIBUS, DeviceNet, EtherNet/IP, PROFINET, EtherCAT, POWERLINK and Ethernet TCP/IP
- ✓ Comprehensive accessories including T-connectors and line terminators
- ✓ TCP/IP interface in lightweight plastic, 120 × 80 × 30 mm

INTERFACES

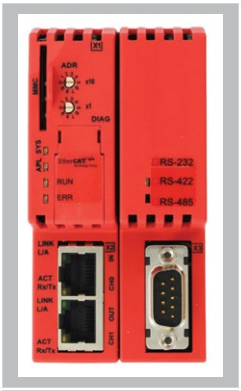
- ✓ Compact, ready-to-use device
- ✓ Allows connection of ContriNET to an industrial fieldbus
- ✓ Synthetic housing in ABS
- ✓ Mounting on rail DIN EN 60715

USB ADAPTOR

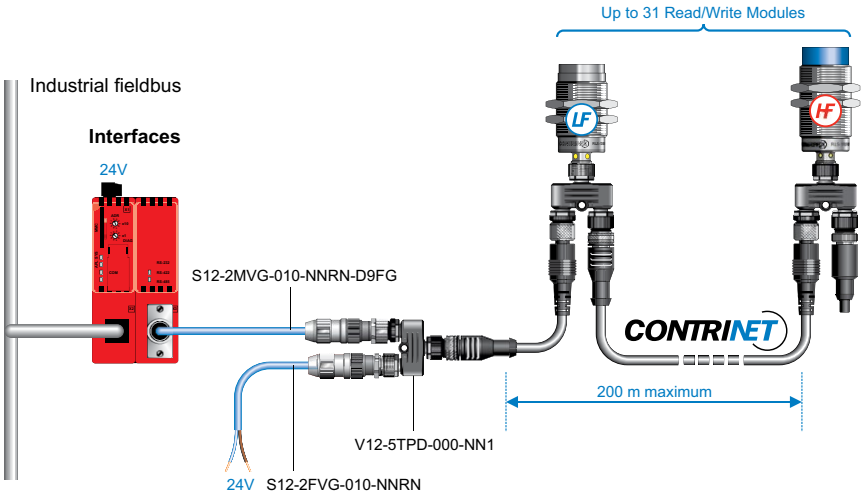
- ✓ Synthetic ABS housing
- ✓ Serial RS-485 connection to ContriNET
- ✓ USB connection to control PC

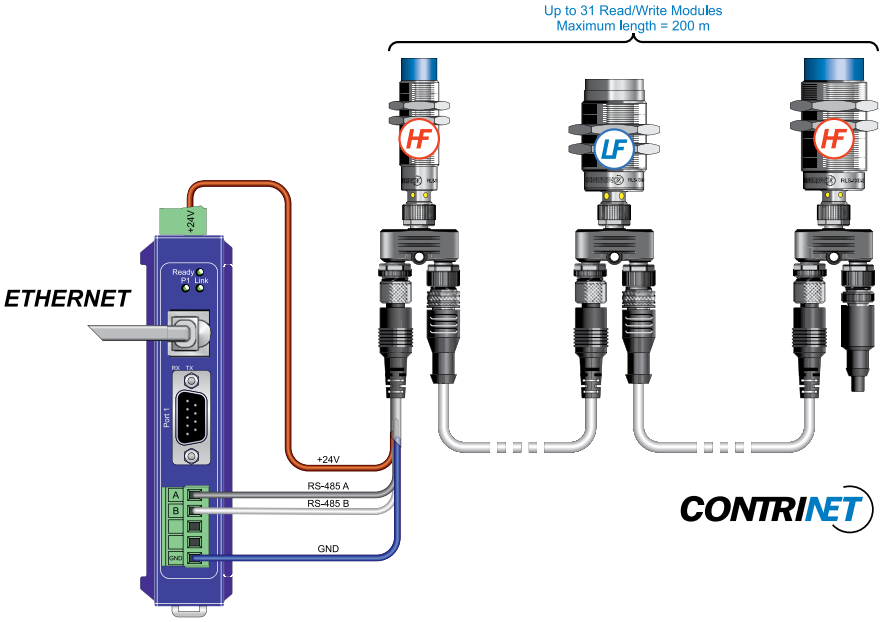
PRODUCT OVERVIEW

Interfaces			TCP/IP industrial interface	USB Adaptor	Cables and connectors
					

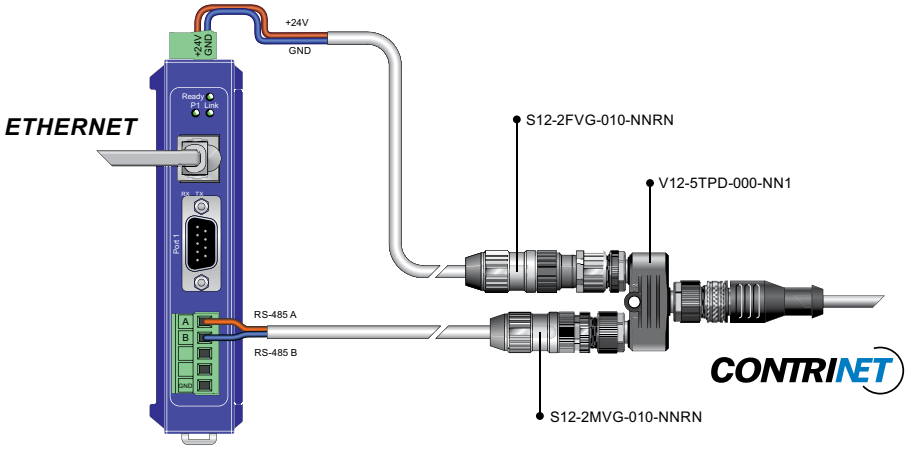
	INDUSTRIAL INTERFACES FOR PLC			INDUSTRIAL INTERFACE FOR PC	USB ADAPTOR FOR PC
					
FIELDBUS	Profibus-DP	Devicenet	Ethernet/IP / Profinet IO Ethercat / Powerlink	Ethernet TCP/IP	USB
HOUSING SIZE (mm)	100 × 52 × 64	100 × 52 × 64	100 × 52 × 64	155 × 96 × 44	67 × 66 × 28
HOUSING MATERIAL	ABS	ABS	ABS	Metal	ABS
MOUNTING	DIN rail EN 60715	DIN rail EN 60715	DIN rail EN 60715	DIN rail EN 60715	–
AMBIENT TEMPERATURE RANGE	0 … +50°C / +32 … +122°F	0 … +50°C / +32 … +122°F	0 … +50°C / +32 … +122°F	−10 … +80°C / −14 … +176°F	0 … +50°C / +32 … +122°F
STORAGE TEMPERATURE RANGE	0 … +50°C / +32 … +122°F	0 … +50°C / +32 … +122°F	0 … +50°C / +32 … +122°F	−20 … +85°C / −14 … +185°F	−40 … +85°C / −40 … +185°F
WEIGHT	150 g	150 g	150 g	635 g	67 g
POWER SUPPLY	18 … 30 V	18 … 30 V	18 … 30 V	10 … 48 V	24 V
MAX. CURRENT CONSUMPTION	130 mA	130 mA	130 mA	160 mA	625 mA
CONNECTION (RS-485 SIDE)	Connector DB9	Connector DB9	Connector DB9	Terminal block	Connector S12
PART REFERENCE	RIS-1053-120	RIS-1053-220	RIS-1053-E20	RIS-1208-400	RAS-6766-020

CONTRINET APPLICATION WITH INTERFACES





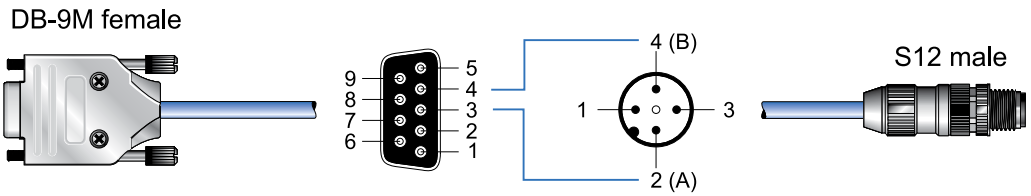
RIS-1208-400
MINICONNECT



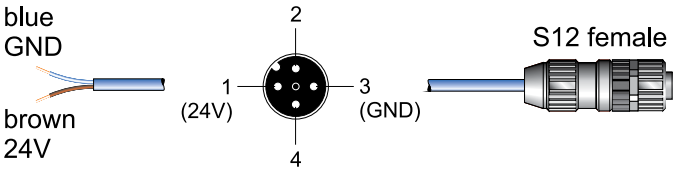
RIS-1208-400
S12-2MVG

ACCESSORIES TO CONNECT INTERFACES TO CONTRINET

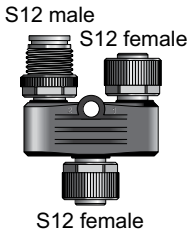
S12-2MVG-010-NNR2-D9FG



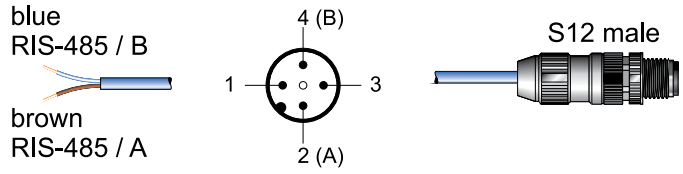
S12-2FVG-010-NNRN



V12-5TPD-000-NN1



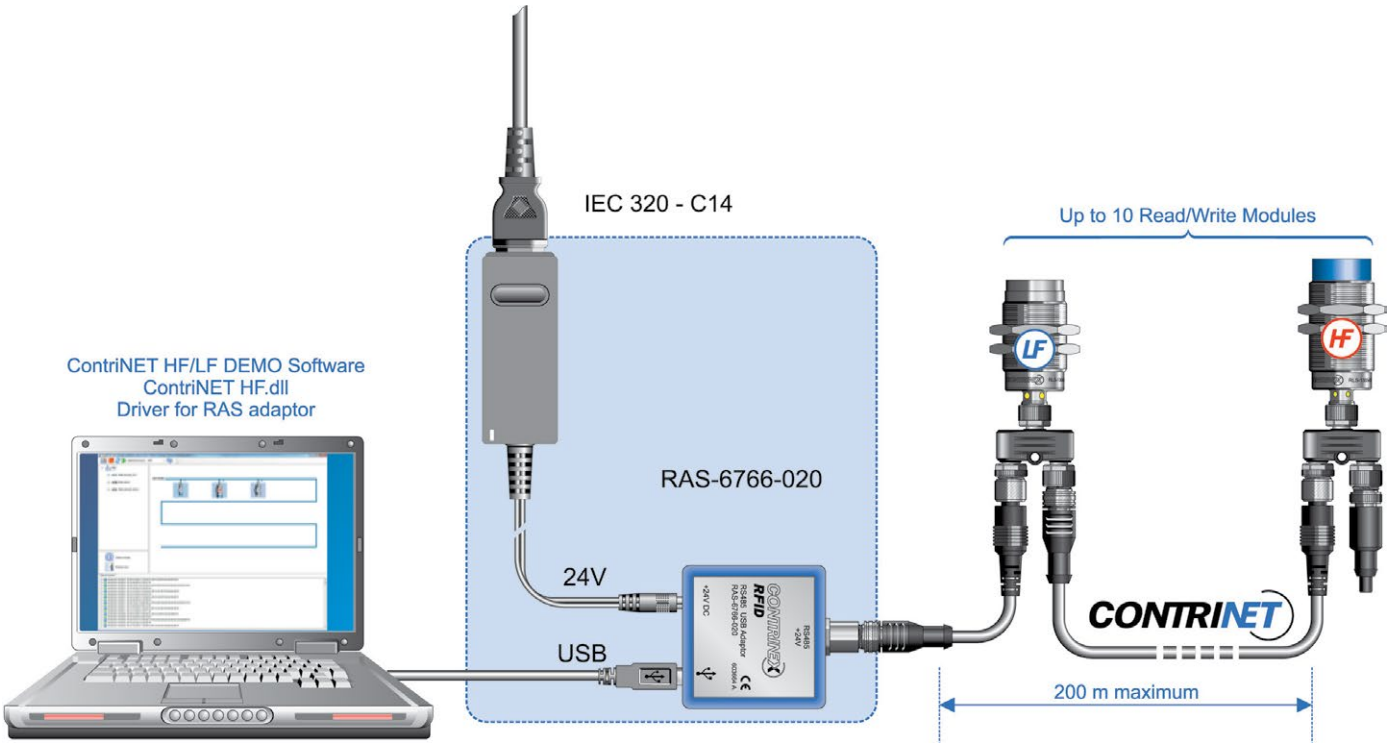
S12-2MVG-010-NNRN



S12-5MNG-000-NNRN-120W

DATA	
S12-2MVG-010-NNRN-D9FG	DB9 – S12, RS-485 A/B cable – PVC 1 m
S12-2FVG-010-NNRN	24V – S12, power supply cable – PVC 1 m
S12-2MVG-010-NNRN	2-wire – S12, RS-485 A/B cable – PVC 1 m
V12-5TPD-000-NN1	S12 T-connector
S12-5MNG-000-NNRN-120W	S12 ContriNET terminator 120 Ω

ACCESSORIES FOR USB INTERFACE



CONNECTION

The adaptor acts as the interface between a network of Read/Write Modules and the USB port of the control PC. The delivery package includes a USB cable.

EXTERNAL POWER SUPPLY UNIT

An external power supply unit (24V / 15W, 625 mA) is included in the delivery package.

DRIVERS AND SOFTWARE

Drivers compatible with the various Windows versions and software for demonstration and training (ContriNET HF/LF) can be downloaded from the RAS-6766-020 product page of the Contrinex website.

Contrinex RFID accessories make it easy for system designers to develop simple applications from scratch. RFID Starter Kits, available with either LF or HF technology, contain all the elements needed to build a basic RFID system – including RWMs, transponders, cables, connectors and power supply – in a handy carry-case.

For hard-to-reach applications where it's impossible to mount a powered RWM close to a tag, passive RFID couplers extend the sensing distance without the need for any physical connection. Optionally, for LF applications, a hand-held reader with an integral RWM offers a non-contact alternative.

ACCESSORIES
RFID

KEY ADVANTAGES

STARTER-KIT RFID LF
- ✓ Set containing all the components needed to develop a simple LF RFID application
- ✓ 2 read/write modules (RWM)
- ✓ 6 transponders
- ✓ 1 USB adaptor with power supply
- ✓ Connection cables

HANDHELD DEVICE
- ✓ Portable and light
- ✓ No connector
- ✓ Robust and ergonomic housing
- ✓ Simple navigation
- ✓ Integrated RFID read/write module
- ✓ Belt clip
- ✓ Integrated clock and calendar
- ✓ Dock-in/charging station included

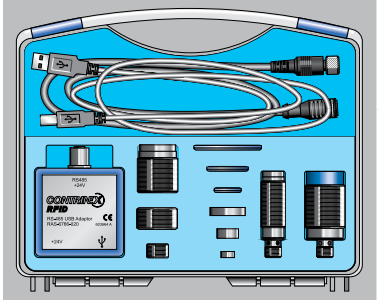
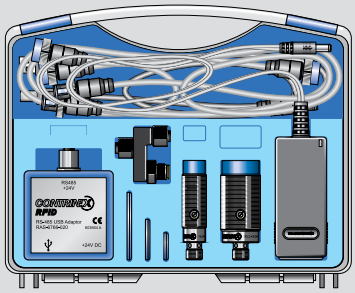
STARTER-KIT RFID HF
- ✓ Set containing all the components needed to develop a simple HF RFID application
- ✓ 2 read/write modules (RWM)
- ✓ 5 transponders
- ✓ 1 USB adaptor with power supply
- ✓ Connection cables

RFID COUPLERS
- ✓ Metal threaded cylindrical housings
- ✓ Sensing face of PBTP (polybutylene terephthalate) or stainless steel V2A
- ✓ Insensitive to dirt
- ✓ Passive (without power supply)

PRODUCT OVERVIEW

Starter kits		Handheld device	RFID couplers
			

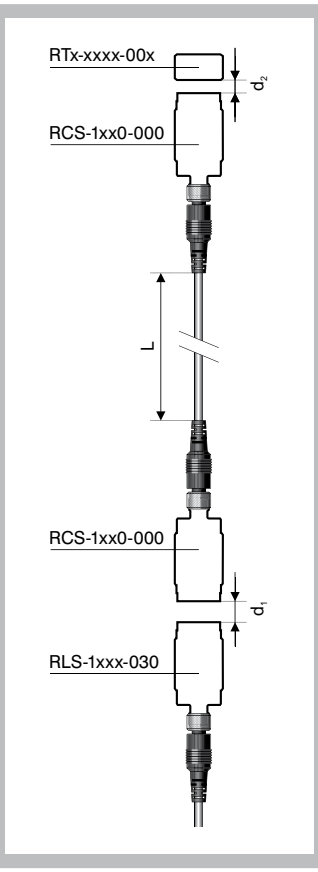
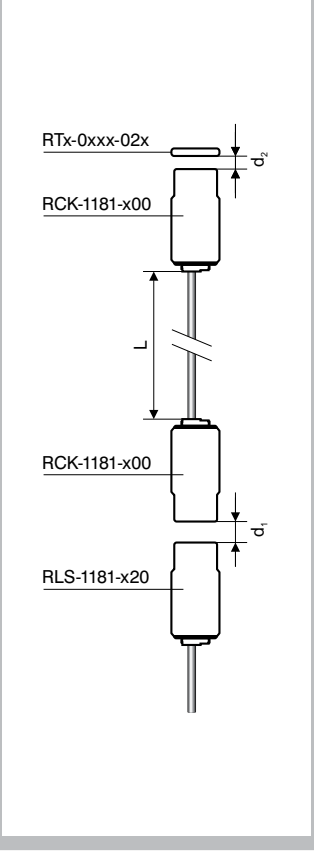
STARTER KITS

STARTER KITS		HOUSING SIZE (mm)	CONTENTS
STARTER-KIT RFID		255 × 205 × 60	1 USB adaptor, 2 RWMs, 6 tags, 2 T-connectors, 1 power supply, 1 USB cable, 2 connecting cables
STARTER-KIT RFID		255 × 205 × 60	1 USB adaptor, 2 RWMs, 5 tags, 2 T-connectors, 1 power supply, 1 USB cable, 2 connecting cables

HANDHELD DEVICE

HANDHELD DEVICE	HOUSING SIZE (mm)	PART REFERENCE	
	155 × 75 × 49 (with docking station)	RPA-0111-000	Handheld read/write device with docking station with EU adapter
		RPA-0110-000	Handheld read/write device without docking station
		RPA-0101-000	Docking station with EU adapter
		RPA-0112-000	Handheld read/write device with docking station with US adapter
		RPA-0102-000	Docking station with US adapter

RFID COUPLERS

DATA	LF	HF
		
HOUSING SIZE	M18/M30	M18
HOUSING MATERIAL	Stainless steel V2A/Chrome-plated brass	Chrome-plated brass
SENSING FACE MATERIAL	Stainless steel V2A/PBTP	PBTP
MOUNTING	Non-embeddable	Non-embeddable
AMBIENT TEMPERATURE RANGE	–25 … +80°C / –13 … +176°F	–25 … +80°C / –13 … +176°F
STORAGE TEMPERATURE RANGE	–25 … +80°C / –13 … +176°F	–25 … +80°C / –13 … +176°F
CONNECTION TYPE	Connector S12	PVC cable, 2 m
DEGREE OF PROTECTION	IP68 & IP69K/IP67	IP67
WEIGHT (WITH NUTS)	51 g/120 g	80 g
PART REFERENCE	RCS-1180-000 RCS-1181-000 RCS-1300-000 RCS-1301-000	RCK-1181-020

RFID REFERENCE KEY

NEW RFID DESIGNATION

RLH-C44PA-NIS

RFID PRODUCTS — R

RFID SYSTEM TYPE — L

Adapter	A
Data coupler	C
Interface	I
Reader	L
Portable reader	P
Transponder	T

RFID TECHNOLOGY — S

ConIdent LF (31.25 kHz)	L
ConIdent HF (13.56 MHz)	H

HOUSING TYPE

Smooth sleeve	D
Threaded cylindrical	M
High-pressure resistant	P
Squared	C
Rectangular	R

HOUSING SIZE

Cylindrical devices	
M18	18
M30	30
Cubic devices	
Cubic 4# mm × 4# mm	44

SENSING FACE MATERIAL

Stainless steel V2A	M
PBTP	P
Stainless steel V4A	L
Epoxy	0
PPA	Q
PPS	R
LCP	S

CONNECTION / PROGRAMMING

Blank Programming	0
Pre-programmed	1
Cable connection	K
Plug connection	S
Terminal block connection	T
Rotating ring connection	V

COMMUNICATION COMPATIBILITY

EM4056	A
ICODE SLI-S	B
ICODE SLI-X	C
FRAM MBR89R118C	D
ICODE SLI	E
Serial Output	S
Logic Output	L
USB connector	U
IO-Link Output	I
RS-485	0
PROFIBUS	1
DeviceNet	2
Ethernet/IP	3
TCP/IP	4
PROFINET	5
EtherCAT	6
POWERLINK	8

EMBEDDABILITY

Embeddable	E
Non-Embeddable	N

SERIAL PERFORMANCE

Standard version (+80°C)	A
High temperature (+120°C)	H
Very high temperature (+180°C)	V
Ultra high temperature (+250°C)	U

RTM-0160-000

RFID PRODUCT — R

TRANSPONDER — T

SERIES

All metal	F
All metal, laser welded	L
Metal	M
Plastic	P

TYPE

Smooth sleeve	0
Non-embeddable	1
Embeddable	2

SIZE

Diameter [mm]	XX

TEMPERATURE

Standard up to +80°C	0
High up to +125°C	1
Ultra high up to +250°C	2

TECHNOLOGY

Low Frequency	0
High Frequency – ISO 15693 IC NxP ICODE SLI-S	2
High Frequency – ISO 15693 IC Fujitsu FRAM MBR89	6
High Frequency – ISO 15693 IC NxP ICODE SLI	8

PROGRAMMING

Blank	0
Preprogrammed	1

MATERIAL

Epoxy	0
PBTP	1
LCP	2
PPS	3

RFID REFERENCE KEY

INTERFACES

RIS-1053-120

RFID PRODUCTS	R

MODULE	
Adaptor	A
Interface	I

CONNECTOR	S

SIZE	
RAS	
66 × 67 mm	6766
RIS	
100 × 52 × 64 mm	105

CONNECTIVITY	
Fieldbus / ContriNet	3

COMMAND SET	
Standard	0

PROTOCOL	
ContriNet	2

FIELDBUS	
RAS	
USB	0
RIS	
PROFIBUS-DP	1
DeviceNet	2
EtherNet/IP	3
PROFInet IO	5
EtherCAT	6
POWERLINK	8
TCP/IP	400

READ/WRITE MODULES

RLS-1181-030

RFID PRODUCTS	R

READ/WRITE MODULE	L

CONNECTION	
S12 connector, 4-pins	S

TYPE	
Smooth sleeve	0
Non-embedabble	1
Embeddable	2

SIZE	
M18	18
M30	30

TEMPERATURE	
Standard up to +80°C	0
High up to +125°C	1

TECHNOLOGY	
ConIdent HF	2
ConIdent LF	3

NETWORK	
ContriNet	0
USB	2
IO-Link	3

MATERIAL	
Stainless steel V2A	0
PBTP/Chrome-plated brass	1
Stainless steel V4A	2
PBTP/Stainless steel V2A	3