High and Low-frequency Radio Frequency Identification Systems (RFID)

CONTRINEX

HIGHLIGHTS

Reading & writing through metal

Mechanically & chemically resistant all-metal components (V2A & V4A)

High-temperature resistant up to 125 °C

Impervious: IP68 & IP69K

Networkable: direct connection to RS485 bus (HF)

ISO/IEC 15693 compatible (HF)

Anticollision algorithm (HF)

INTRODUCTION

RFID COMPONENTS

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).

The transponder memory contains a unique preset number as well as a zone in which complementary data relative to the object, either for tracing its history or for programming the parameters of the operations to which it will be subjected, can be inscribed by means of a read/write module.

The advantages of RFID technology compared to classic systems, such as bar codes or laser marking, reside in the fact that, on the one hand, the transponder information can be read or written even if there is no direct line of vision between it and the read/write module and, on the other, transponder information can be supplemented, modified or deleted.

Contrinex **low-frequency RFID technology** features not only conventional components, but also a range of all-metal read/write modules and transponders executed in stainless steel. These devices are particularly well suited for difficult operating environments that are exposed to cleaning, chemical products, water and frost. They are moreover highly resistant to mechanical shocks.

Contrinex **high-frequency RFID technology** (13.56 MHz) meets the requirements of ISO/IEC 15693 and is therefore not limited to transponders of a specific manufacturer. The new Contrinex high-frequency system is moreover particularly user friendly. Up to 10 read/write modules can be connected to the RS485 network and controled directly by a PC via a USB adaptor developed by Contrinex. The physical address of the read/write module can be defined by means of a built-in selector.

LOW-FREQUENCY TECHNOLOGY

HIGHLIGHTS:

- ✓ All-metal components for aggressive operating environments
- ✓ Embeddable transponders
- ✓ Transponders can be written to and read through metal
- ✓ Memory of transponders: 120 words, 16 bit each
- ✓ Various transponder memory protection possibilities
- ✓ Interface possibilities with bus RS485, PROFIBUS, DeviceNet and EtherNet/IP
- ✓ USB adaptor

MAX. READ/WRITE DISTANCES

TRANSPONDERS	Read/write module RLS-1180-000 / RLS-1182-001	Read/write module RLS-1181-000	Read/write module RLS-1300-000 / RLS 1302-001	Read/write module RLS-1301-000
RTP-0201-000	13 mm	20 mm	18 mm	25 mm
RTP-0301-000	17 mm	26 mm	23 mm	33 mm
RTP-0501-000	20 mm	33 mm	28 mm	42 mm
RTM-0100-000 / RTL-0102-001	8 mm	13 mm	9 mm	17 mm
RTM-0160-000 / RTL-0162-001	11 mm	17 mm	12 mm	23 mm
RTM-0260-000 / RTL-0262-001	13 mm	20 mm	16 mm	30 mm
RTM-2160-000 / RTL-2162-001	7 mm	11 mm	---	16 mm
RTM-2300-000 / RTL-2302-001	9 mm	13 mm	10 mm	20 mm
RTF-1300-000 / RTL-1302-001	11 mm	19 mm	15 mm	28 mm

Detailed data sheets for these products can be found on the Contrinex website:

CONIDENT® RFID SYSTEM

As a general rule, a Contrinex radio frequency identification (ConIdent®) system comprises:

- a **transponder** consisting of an integrated circuit connected to an antenna,
- a **read/write module,**
- an **interface device**, which establishes the connection between a field bus and several read/write modules,
- **software**: configuration and test, programming libraries.

By means of an RS485 point-to-point connection, it is possible to work directly with the read/write module without using an interface device, should the need arise. The ConIdent® interface device can be equipped with a built-in swiveling read/write module with two antennas, one frontal and one lateral. In addition, three remote read/write modules may be connected to it. The other alternative is to replace the built-in read/write module by a supplementary connection possibility.

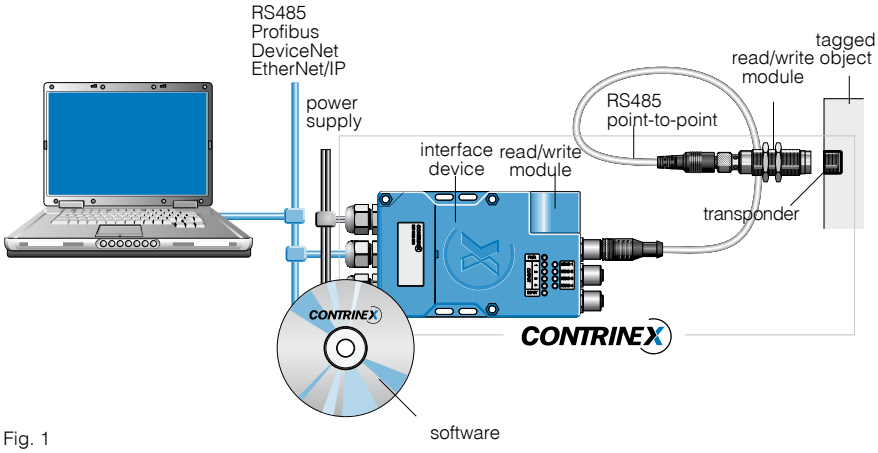


Fig. 1

OPERATING PRINCIPLE

Transponders are passive, i.e. they have no built-in battery. The operating energy required is transmitted by the read/write module in the form of a carrier (electromagnetic wave). During communication between the transponder and the read/write module, this carrier is modulated by the data exchanged.

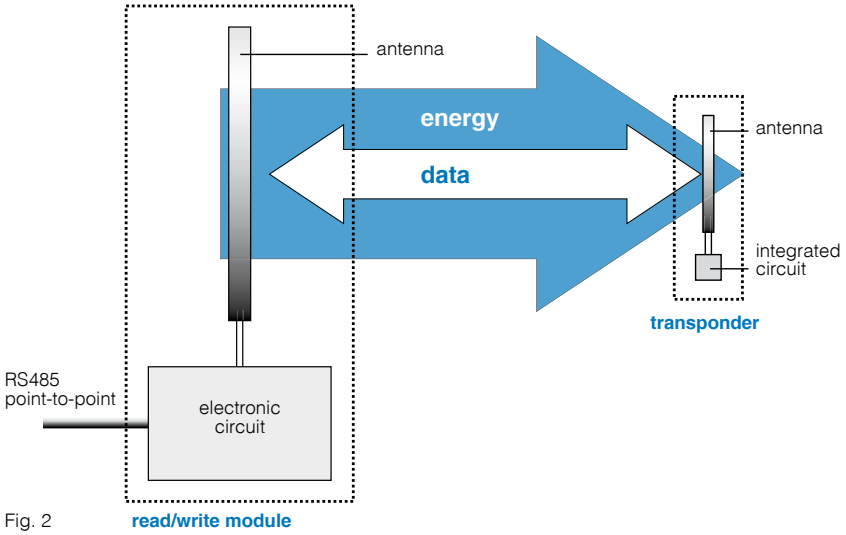


Fig. 2

TRANSPONDER MEMORY

The transponder's integrated circuit consists of a memory which, generally speaking, can be "read only", "read/write", or even writable once, then read only (One Time Programmable, OTP). ConIdent® transponders are all of the type read/write.

Users have 120 words, each of 16 bit, at their disposal for recording data relative to the tagged object. It should be emphasized that, if users so wish, memory zones of their choice can be "read" and/or "write" protected by a personal identification number (PIN) or by protection bits.

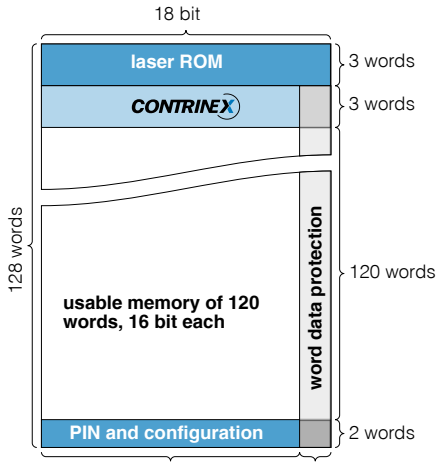


Fig. 3

READ/WRITE MODULE AND INTERFACE DEVICE

In the absence of a command from the user, the ConIdent® read/write module tries to detect the presence of a transponder cyclically by attempting to read an identification number. This is its default operating mode.

When the read/write module's field is deactivated, or when, after the execution of a command, the read/write module is waiting for the reply request from the interface device, it is in the "wait" mode.

The ConIdent® interface device successively and periodically interrogates the various read/write modules connected to it, in order to determine their state. At each interrogation, it registers the state of the read/write module.

Due to the sampling, there is a time delay between, on the one hand, the transponder's physical presence and the read/write module's "transponder present" state and, on the other, between the read/write module's "transponder present" state and the status of this same module at the interface level. Before a command can be executed, in addition to the transponder's physical presence, the condition "transponder present" has to be met, both at the interface level as well as by the read/write module itself.

The read/write module retains the identification number of the last transponder detected in its memory until it is again interrogated by the interface.

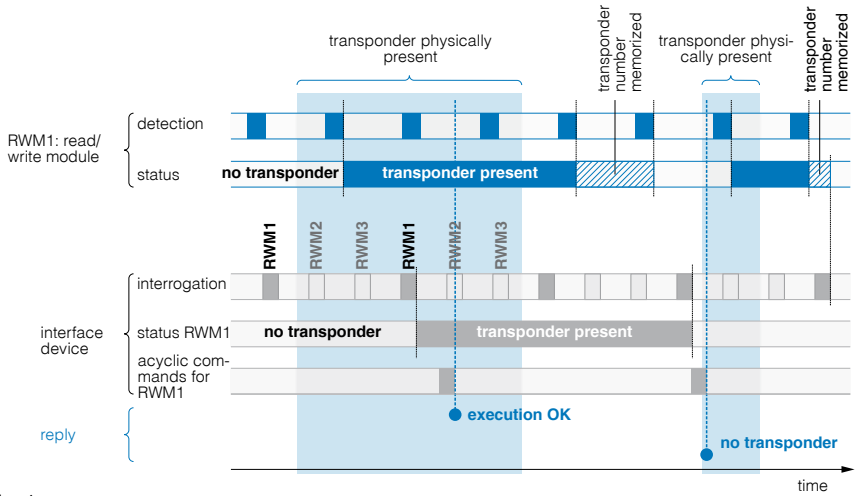


Fig. 4

As soon as a command has been passed to a read/write module, the latter's state and its status at the interface level are reset.

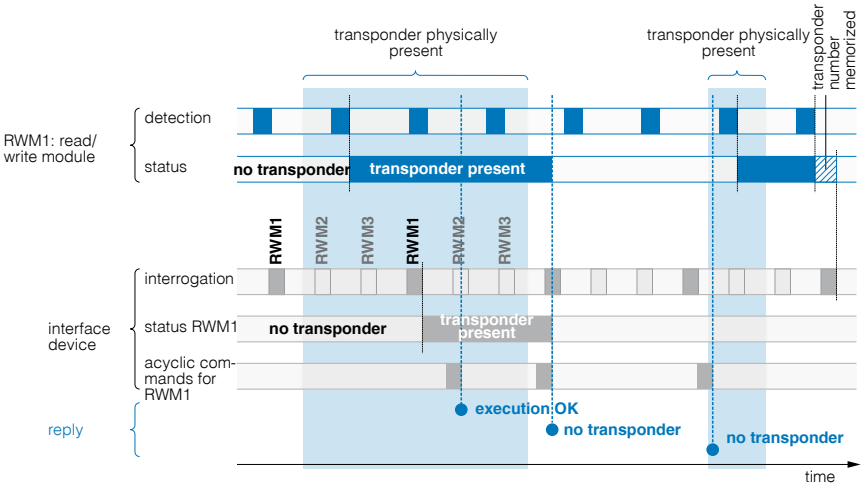


Fig. 5

When a command is sent to the read/write module, it takes a certain time for it to be executed. The interface device calculates the maximum duration for this operation, starts an internal timer that informs it when the duration has ended, and resumes its other tasks. When the time is up, the interface device interrogates the read/write module concerned. After termination of the task, the read/write module itself waits for the request from the interface device to give its reply and to resume its cyclic activity of detecting transponders. It should be noted that a command being processed by the read/write module cannot be interrupted. All requests received during the execution of a command are thus ignored. On the other hand, it is possible to put a command on hold at the interface level.

SOFTWARE

The ConIdent® RFID system is supplied with software which comprises

- a set of commands that permit configuration of the interface device and the read/write modules,
- a set of commands for intervening in the usable memory of transponders,
- a set of commands for configuring transponder data protection,
- a set of commands allowing control over interface inputs/outputs,
- a set of help tools for programming and system testing.

DELIVERY PROGRAM

ConIdent® transponders are available either encapsulated in synthetic material or in stainless-steel housings, open or closed at the back.

ConIdent® read/write modules are available in four different versions:

- metal devices with read/write head of PBTP (polybutylene terephthalate)
- one-piece stainless-steel devices (read/write head included)
- swiveling read/write head with two antennas integrated in the interface device
- hand-held device

The all-metal, impervious transponders and read/write modules are a Contrinex specialty which permit operation in very rough conditions that other RFID systems are unable to resist.

The ConIdent® interface devices are available in three different executions, all for connection to RS485 bus, Profibus, EtherNet/IP and DeviceNet.

READ/WRITE DISTANCES

The read/write distance depends on various factors.

The first is the relationship between the antenna diameters of the transponder and the read/write module. The larger these diameters, the greater the read/write distance. In order to obtain the best results, the most appropriate read/write module is specified for each ConIdent® transponder.

The second factor is the transponder type. Compared to a metal one, a synthetic transponder gives a superior read/write distance.

Finally, the third factor is the environment in which the transponder operates. In an electromagnetically neutral environment, the read/write distance is greater than in a metallic environment where differences occur depending on whether the transponder is embeddable (shorter read/write distances) or non-embeddable (longer read/write distances).

SMOOTH METAL TRANSPONDERS

AT A GLANCE

- Very rugged smooth cylindrical housing of stainless steel V2A
- High-performance models: hermetically closed housing (IP 68 & IP 69K) of food-safe and corrosion-resistant stainless steel V4A (AISI 316L); suitable for high-temperature applications (up to +125 °C)
- Embeddable
- Passive (no battery)
- Usable memory: 120 words of 16 bit
- Possibility to protect memory ranges with password (PIN)
- Possibility to protect words by protection bits
- Read/write distances from 17 mm to 30 mm, depending on type

TECHNICAL DATA

Housing construction	back open (RTM) / closed (RTL)
Compatible IC type	EM4056
Read/write memory	240 byte
Read only memory	12 byte
Configuration and PIN	4 byte
Degree of protection	IP 68 (RTM) / IP 68 & IP 69K (RTL)
Number of "write" cycles	100,000
Number of "read" cycles	unlimited
Data retention period	10 years

ALL-METAL HOUSING

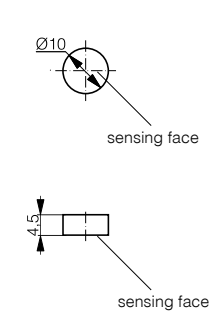
Standard as well as high-performance all-metal transponders are a Contrinex specialty. They permit operation in particularly difficult operating conditions.

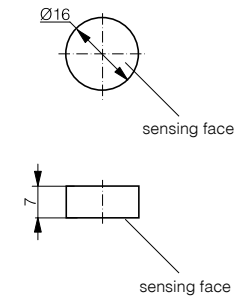
HOUSING SIZE	Ø 10 mm	Ø 16 mm	Ø 26 mm
MAX. READ/WRITE DISTANCE	17 mm	23 mm	30 mm

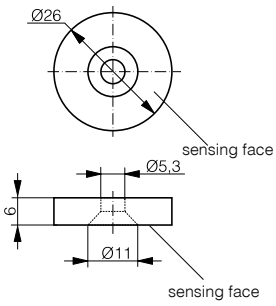


Dimensions:

all-metal	all-metal	all-metal









TYPE-SPECIFIC DATA

Max. read/write distance	17 mm	23 mm	30 mm
Housing material	stainless steel V2A / V4A (-001)	stainless steel V2A / V4A (-001)	stainless steel V2A / V4A (-001)
Mounting	embeddable	embeddable	embeddable
Weight	1.1 g	2.7 g	7.0 g
Compatible read/write module	see page 4	see page 4	see page 4

PART REFERENCE

Ambient temp. -40 … +80 °C	**RTM-0100-000**	**RTM-0160-000**	**RTM-0260-000**
Ambient temp. -40 ... +125 °C*	**RTL-0102-001****	**RTL-0162-001****	**RTL-0262-001****

* up to +150 °C for 2 hours

** back closed (laser welded)

THREADED METAL TRANSPONDERS

AT A GLANCE

- Very rugged threaded cylindrical housing of stainless steel V2A
- High-performance models: hermetically closed housing (IP 68 & IP 69K) of food-safe and corrosion-resistant stainless steel V4A (AISI 316L); suitable for high-temperature applications (up to +125 °C)
- Embeddable (M16, M30) and non-embeddable (M30)
- Passive (no battery)
- Usable memory: 120 words of 16 bit
- Possibility to protect memory ranges with password (PIN)
- Possibility to protect words by protection bits
- Read/write distances from 16 mm to 28 mm, depending on type

TECHNICAL DATA

Housing construction	back open (RTM) / closed (RTF & RTL)
Compatible IC type	EM4056
Read/write memory	240 byte
Read only memory	12 byte
Configuration and PIN	4 byte
Degree of protection	IP 68 (RTM) / IP 68 & IP 69K (RTF & RTL)
Number of "write" cycles	100,000
Number of "read" cycles	unlimited
Data retention period	10 years

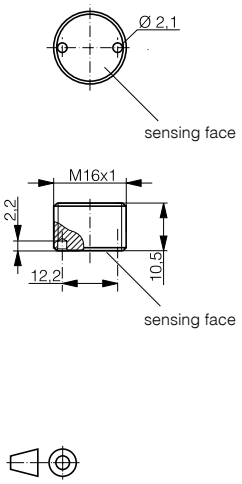
ALL-METAL HOUSING

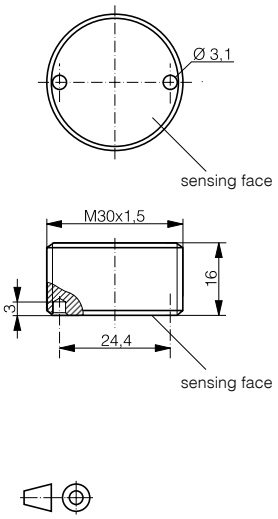
Standard as well as high-performance all-metal transponders are a Contrinex specialty. They permit operation in particularly difficult operating conditions.

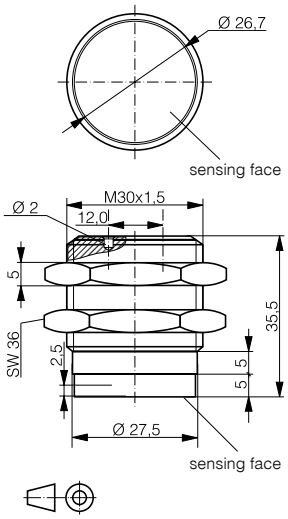
HOUSING SIZE	M16	M30	M30
MAX. READ/WRITE DISTANCE	16 mm	20 mm	28 mm

Dimensions:

all-metal	all-metal	all-metal







TYPE-SPECIFIC DATA

Max. read/write distance	16 mm	20 mm	28 mm
Housing material	stainless steel V2A / V4A (-001)	stainless steel V2A / V4A (-001)	stainless steel V2A / V4A (-001)
Mounting	embeddable	embeddable	non-embeddable
Weight	6.9 g	31.4 g	98.7 g
Compatible read/write module	see page 4	see page 4	see page 4

PART REFERENCE

Ambient temp. -40 … +80 °C	**RTM-2160-000**	**RTM-2300-000**	**RTF-1300-000**
Ambient temp. -40 ... +125 °C *	**RTL-2162-001****	**RTL-2302-001****	**RTL-1302-001****

* up to +150 °C for 2 hours

** back closed (laser welded)

SYNTHETIC TRANSPONDERS

AT A GLANCE

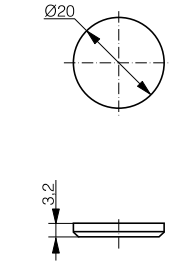
- Smooth cylindrical housing of glass-fiber reinforced PBTP (polybutylene terephthalate)
- Embeddable
- Passive (no battery)
- Usable memory: 120 words of 16 bit
- Possibility to protect memory ranges with password (PIN)
- Possibility to protect words by protection bits
- Read/write distances from 25 mm to 42 mm, depending on type

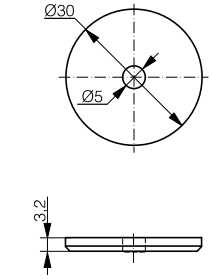
TECHNICAL DATA

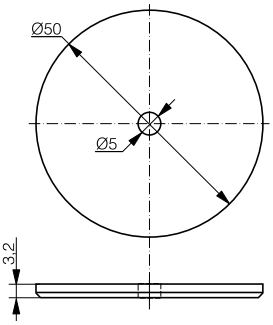
Ambient temperature range	-40 … +125 °C
Compatible IC type	EM4056
Read/write memory	240 byte
Read only memory	12 byte
Configuration and PIN	4 byte
Degree of protection	IP 67
Number of "write" cycles	100,000
Number of "read" cycles	unlimited
Data retention period	10 years

HOUSING SIZE	Ø 20 mm	Ø 30 mm	Ø 50 mm
MAX. READ/WRITE DISTANCE	25 mm	33 mm	42 mm

Dimensions:







TYPE-SPECIFIC DATA

Max. read/write distance	25 mm	33 mm	42 mm
Housing material	PBTP glass-fiber reinforced	PBTP glass-fiber reinforced	PBTP glass-fiber reinforced
Mounting	embeddable	embeddable	embeddable
Weight	1.3 g	2.3 g	5.7 g
Compatible read/write module	see page 4	see page 4	see page 4

PART REFERENCE

	RTP-0201-000	**RTP-0301-000**	**RTP-0501-000**

READ/WRITE MODULE

AT A GLANCE

- Very rugged all-metal models with impervious sensing face
- High-temperature models (for up to +125 °C)
- Threaded cylindrical housings
- Serial output RS485 point-to-point

TECHNICAL DATA

Supply voltage range U_B	18 ... 36 VDC
No-load supply current	15 mA
Output type	serial RS485, point-to-point
Compatible IC type	EM4056
Data transfer rate RS232	19,200 baud
Data transfer rate (RWM - transponder)	500 baud
Degree of protection	IP 67
Short-circuit protection	built-in
Polarity-reversal protection	built-in
Overload protection	built-in

CONSTRUCTION

Excepting the one that is part of the interface device, the ConIdent® read/write modules are all integrated into threaded cylindrical metal housings. The read/write head can be of PBTP (polybutylene terephthalate) or it can be integrated into an at the sensing face impervious one-piece stainless-steel (V2A or V4A) housing. These all-metal models are a Contrinex specialty.

LED

The yellow LED

- lights up when the read/write module is connected
- flashes when a transponder is detected
- lights up continuously when a command is being carried out

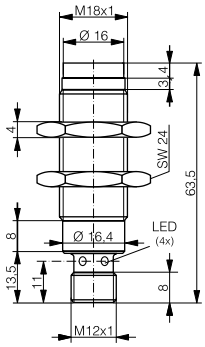
CONNECTION

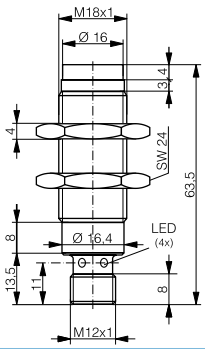
ConIdent® read/write modules are supplied as S12, 4-pole connector versions.

HOUSING SIZE	M18	M18	
MAX. READ/WRITE DISTANCE	20 mm	20 mm	

	all-metal	all-metal / -40 ... +125 °C	

Dimensions:





TYPE-SPECIFIC DATA

Sensing face / housing material	stainless steel V2A	stainless steel V4A*	
Max. current consumption	35 mA	35 mA	
Mounting	non-embeddable	non-embeddable	
Ambient temperature range	-25 … +80 °C	-40 … +125 °C	
Storage temperature range	-25 … +80 °C	-40 … +125 °C**	
Connection type	connector S12	connector S12	
Weight (incl. nuts)	51 g	51 g	
Compatible transponders:	Read/write distance	Read/write distance	
RTP-0201-000	13 mm	13 mm	
RTP-0301-000	17 mm	17 mm	
RTP-0501-000	20 mm	20 mm	
RTM-0100-000 / RTL-0102-001***	8 mm	8 mm	
RTM-0160-000 / RTL-0162-001***	11 mm	11 mm	
RTM-0260-000 / RTL-0262-001***	13 mm	13 mm	
RTM-2160-000 / RTL-2162-001***	7 mm	7 mm	
RTM-2300-000 / RTL-2302-001***	9 mm	9 mm	
RTF-1300-000 / RTL-1302-001***	11 mm	11 mm	

PART REFERENCE

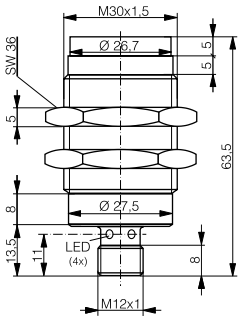
	RLS-1180-000	RLS-1182-001	

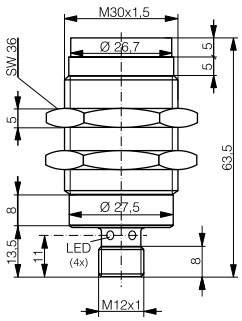
* AISI 316L / DIN 1.4435 (food-safe) ** up to +150 °C for max. 2 hours *** high-performance model

HOUSING SIZE	M30	M30	
MAX. READ/WRITE DISTANCE	28 mm	28 mm	

all-metal	all-metal / -40 ... +125 °C

Dimensions:





TYPE-SPECIFIC DATA

Sensing face / housing material	stainless steel V2A	stainless steel V4A*	
Max. current consumption	40 mA	40 mA	
Mounting	non-embeddable	non-embeddable	
Ambient temperature range	-25 … +80 °C	-40 … +125 °C	
Storage temperature range	-25 … +80 °C	-40 … +125 °C**	
Connection type	connector S12	connector S12	
Weight (incl. nuts)	120 g	120 g	
Compatible transponders:	Read/write distance	Read/write distance	
RTP-0201-000	18 mm	18 mm	
RTP-0301-000	23 mm	23 mm	
RTP-0501-000	28 mm	28 mm	
RTM-0100-000 / RTL-0102-001***	9 mm	9 mm	
RTM-0160-000 / RTL-0162-001***	12 mm	12 mm	
RTM-0260-000 / RTL-0262-001***	16 mm	16 mm	
RTM-2160-000 / RTL-2162-001***	---	---	
RTM-2300-000 / RTL-2302-001***	10 mm	10 mm	
RTF-1300-000 / RTL-1302-001***	15 mm	15 mm	

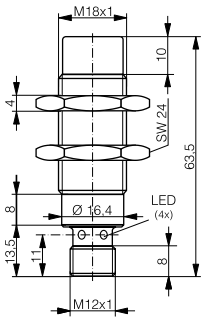
PART REFERENCE

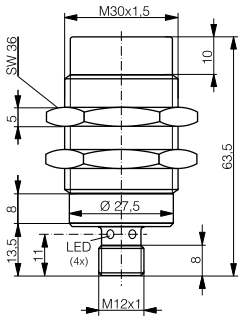
	RLS-1300-000	RLS-1302-001	

* AISI 316L / DIN 1.4435 (food-safe) ** up to +150 °C for max. 2 hours *** High-performance model

HOUSING SIZE	M18	M30	
MAX. READ/WRITE DISTANCE	33 mm	42 mm	

Dimensions:





TYPE-SPECIFIC DATA

Sensing face / housing material	PBTP / chrome-plated brass	PBTP / chrome-plated brass	
Max. current consumption	40 mA	45 mA	
Mounting	non-embeddable	non-embeddable	
Ambient temperature range	-25…+80 °C	-25…+80 °C	
Storage temperature range	-25…+80 °C	-25…+80 °C	
Connection type	connector S12	connector S12	
Weight (incl. nuts)	51 g	126 g	
Compatible transponders:	Read/write distance	Read/write distance	
RTP-0201-000	20 mm	25 mm	
RTP-0301-000	26 mm	33 mm	
RTP-0501-000	33 mm	42 mm	
RTM-0100-000 / RTL-0102-001*	13 mm	17 mm	
RTM-0160-000 / RTL-0162-001*	17 mm	23 mm	
RTM-0260-000 / RTL-0262-001*	20 mm	30 mm	
RTM-2160-000 / RTL-2162-001*	11 mm	16 mm	
RTM-2300-000 / RTL-2302-001*	13 mm	20 mm	
RTF-1300-000 / RTL-1302-001*	19 mm	28 mm	

PART REFERENCE

	RLS-1181-000	**RLS-1301-000**	

* High-performance model

AT A GLANCE

- 4 read/write module connections: serial RS485 point-to-point (series 1491)
- 3 read/write module connections: serial RS485 point-to-point (series 1492)
- User connections by means of connector block or connectors: RS485 and RS232 bus

TECHNICAL DATA

Supply voltage range U_B	14 ... 36 VDC
Average no-load supply current without RWM	80 ... 100 mA (U_B = 24 V)
Additional no-load supply current per RWM	40 mA (U_B = 24 V)
Reference voltage INPUT IN-	-10 V ... +30 V
INPUT range (IN+ ... IN-)	5 ... 25 V
Max. INPUT current	30 mA at U_B = 25 V
OUTPUT V_{ref-}	-10 V ... +30 V
Range (V_{ref+} ... V_{ref-})	25 V
OUTPUT current	30 mA per output
Interface RS485 / RS232:	
Connector (bus side)	connector block (RIT) / connectors (RIS)
Data transfer rate RS232	9,600 ... 115,200 baud
Data transfer rate (RWM - transponder)	500 baud
Connection type (RWM side)	RS485 point-to-point
Compatible IC type	EM4056
Degree of protection	IP 65
Short-circuit protection	built-in
Polarity-reversal protection	built-in
Overload protection	built-in

CONSTRUCTION

For RIT versions, the wires (bus, power supply) can be passed through three grommets to an internal connector block. A flap provides access to the connector block, thus enabling connection of the wires.

For RIS versions, the connector block and the grommets have been replaced by bus-specific connectors.

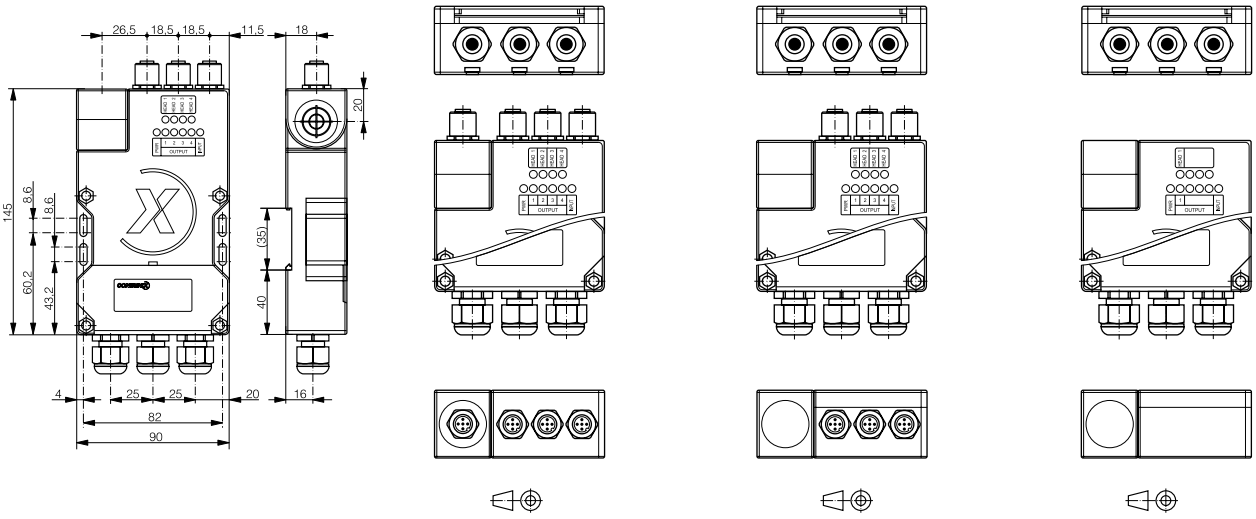
The external read/write modules are connected to the interface device by means of three fixed S12 sockets (series 1491 and 1492 only). The swiveling element may contain a read/write module with two antennas (lateral and frontal) - series 1490 and 1492 - or an additional S12 socket - series 1491.

SOFTWARE

The ConID software can be downloaded from the Contrinex website.

HOUSING SIZE	RS485 ☐ 145 X 90 X 36 mm		
NUMBER OF RWM CONNECTIONS	**4 RWM**	**3 & 1 RWM**	**1 RWM**

Dimensions:



TYPE -SPECIFIC DATA

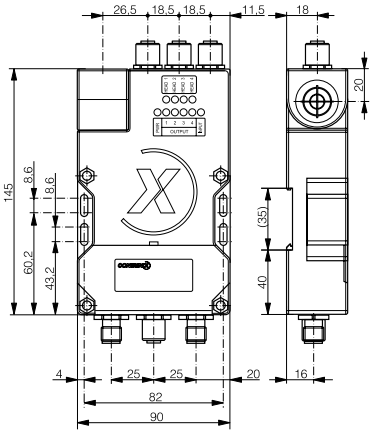
Housing material	ABS	ABS	ABS
Ambient temperature range	0…+60 °C	0…+60 °C	0…+60 °C
Storage temperature range	-25…+80 °C	-25…+80 °C	-25…+80 °C
Swiveling integrated RWM	0	1	1
Swiveling connector	1	0	0
Fixed connectors	3	3	0
Connection type	connector block	connector block	connector block
Weight	300 g	300 g	300 g

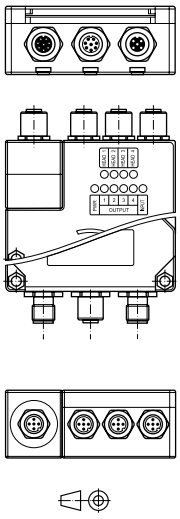
PART REFERENCE

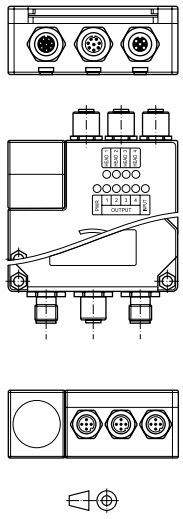
4 RWM	**RIT-1491-000**		
3 & 1 RWM		**RIT-1492-000**	
1 RWM			**RIT-1490-000**

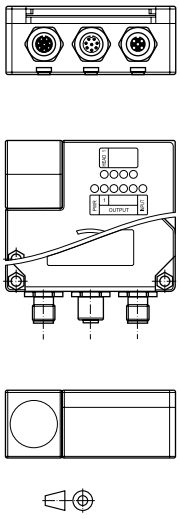
HOUSING SIZE	RS485 ☐ 145 X 90 X 36 mm		
NUMBER OF RWM CONNECTIONS	**4 RWM**	**3 & 1 RWM**	**1 RWM**

Dimensions:









TYPE-SPECIFIC DATA

Housing material	ABS	ABS	ABS
Ambient temperature range	0…+60 °C	0…+60 °C	0…+60 °C
Storage temperature range	-25…+80 °C	-25…+80 °C	-25…+80 °C
Swiveling integrated RWM	0	1	1
Swiveling connector	1	0	0
Fixed connectors	3	3	0
Connection type	connectors S12	connectors S12	connectors S12
Weight	300 g	300 g	300 g

PART REFERENCE

4 RWM	**RIS-1491-000**		
3 & 1 RWM		**RIS-1492-000**	
1 RWM			**RIS-1490-000**

Detailed data sheets for these products can be found on the Contrinex website:

INTERFACE DEVICES (PROFIBUS)

AT A GLANCE

- 4 read/write module connections: serial RS485 point-to-point (series 1491)
- 3 read/write module connections: serial RS485 point-to-point (series 1492)
- User connections by means of connector block or connectors: PROFIBUS and RS232 bus

TECHNICAL DATA

Supply voltage range U_B	14 ... 36 VDC
Average no-load supply current without RWM	80 ... 100 mA (U_B = 24 V)
Additional no-load supply current per RWM	40 mA (U_B = 24 V)
Reference voltage INPUT IN-	-10 V ... +30 V
INPUT range (IN+ ... IN-)	5 ... 25 V
Max. INPUT current	30 mA at U_B = 25 V
Connector (bus side)	connector block (RIT) / connectors (RIS)
Data transfer rate RS232	9,600 ... 115,200 baud
Data transfer rate (RWM - transponder)	500 baud
Connection type (RWM side)	RS485 point-to-point
Compatible IC type	EM4056
Degree of protection	IP 65
Short-circuit protection	built-in
Polarity-reversal protection	built-in
Overload protection	built-in

CONSTRUCTION

For RIT versions, the wires (bus, power supply) can be passed through three grommets to an internal connector block. A flap provides access to the connector block, thus enabling connection of the wires.

For RIS versions, the connector block and the grommets have been replaced by bus-specific connectors.

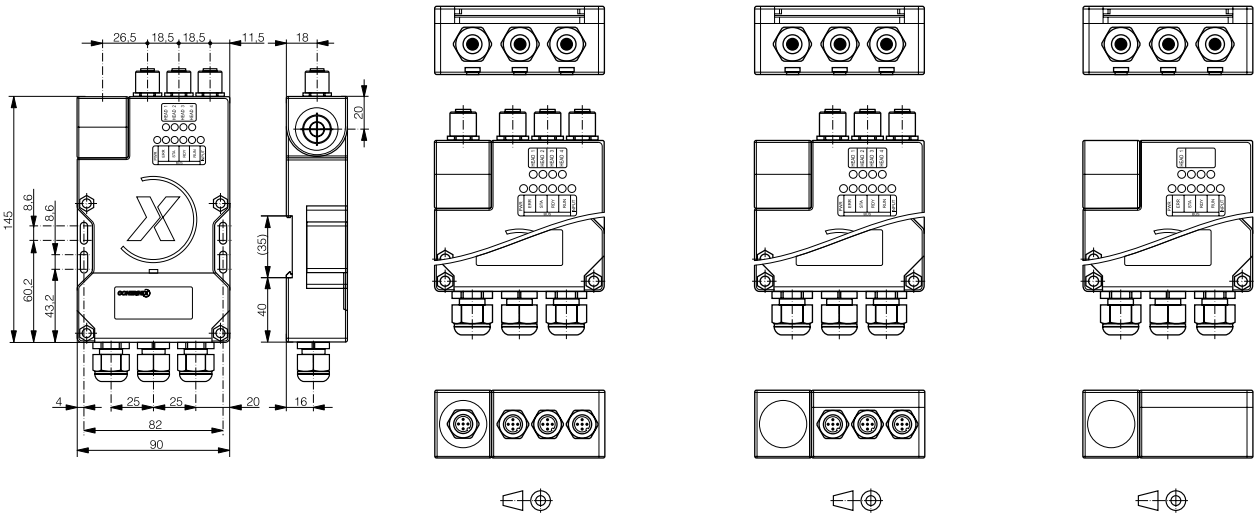
The external read/write modules are connected to the interface device by means of three fixed S12 sockets (series 1491 and 1492 only). The swiveling element may contain a read/write module with two antennas (lateral and frontal) - series 1490 and 1492 - or an additional S12 socket - series 1491.

SOFTWARE

The ConID software can be downloaded from the Contrinex website.

HOUSING SIZE	PROFIBUS ☐ 145 X 90 X 36 mm		
NUMBER OF RWM CONNECTIONS	**4 RWM**	**3 & 1 RWM**	**1 RWM**

Dimensions:



TYPE-SPECIFIC DATA

Housing material	ABS	ABS	ABS
Ambient temperature range	0…+60 °C	0…+60 °C	0…+60 °C
Storage temperature range	-25…+80 °C	-25…+80 °C	-25…+80 °C
Swiveling integrated RWM	0	1	1
Swiveling connector	1	0	0
Fixed connectors	3	3	0
Connection type	connector block	connector block	connector block
Weight	300 g	300 g	300 g

PART REFERENCE

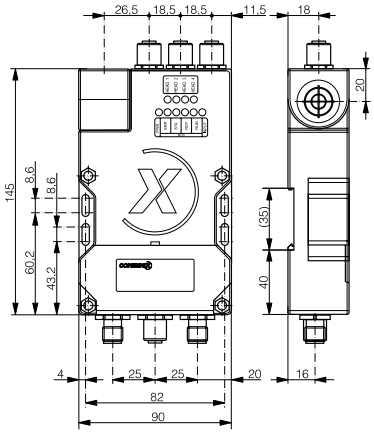
4 RWM	**RIT-1491-100**		
3 & 1 RWM		**RIT-1492-100**	
1 RWM			**RIT-1490-100**

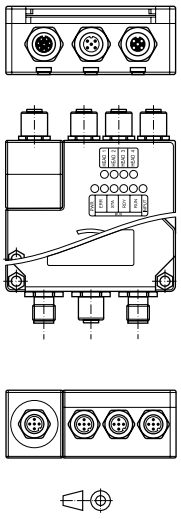
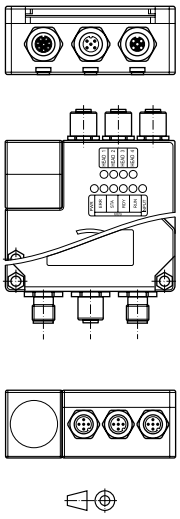
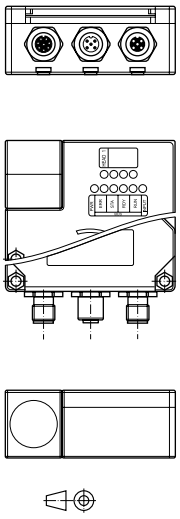
Detailed data sheets for these products can be found on the Contrinex website:

HOUSING SIZE	PROFIBUS ☐ 145 X 90 X 36 mm		
NUMBER OF RWM CONNECTIONS	**4 RWM**	**3 & 1 RWM**	**1 RWM**



Dimensions:



TYPE-SPECIFIC DATA

Housing material	ABS	ABS	ABS
Ambient temperature range	0…+60 °C	0…+60 °C	0…+60 °C
Storage temperature range	-25…+80 °C	-25…+80 °C	-25…+80 °C
Swiveling integrated RWM	0	1	1
Swiveling connector	1	0	0
Fixed connectors	3	3	0
Connection type	connectors S12	connectors S12	connectors S12
Weight	300 g	300 g	300 g

PART REFERENCE

4 RWM	**RIS-1491-100**		
3 & 1 RWM		**RIS-1492-100**	
1 RWM			**RIS-1490-100**

INTERFACE DEVICES (DEVICENET)

AT A GLANCE

- 4 read/write module connections: serial RS485 point-to-point (series 1491)
- 3 read/write module connections: serial RS485 point-to-point (series 1492)
- User connections by means of connector block or connectors: DeviceNet and RS232 bus

TECHNICAL DATA

Supply voltage range U_B	14 ... 36 VDC
Average no-load supply current without RWM	100 ... 110 mA (U_B = 24 V)
Additional no-load supply current per RWM	40 mA (U_B = 24 V)
Reference voltage INPUT IN-	-10 V ... +30 V
INPUT range (IN+ ... IN-)	5 ... 25 V
Max. INPUT current	30 mA at U_B = 25 V
Connector (bus side)	connector block (RIT) / connectors (RIS)
Data transfer rate RS232	9,600 ... 115,200 baud
Data transfer rate (RWM - transponder)	500 baud
Connection type (RWM side)	RS485 point-to-point
Compatible IC type	EM4056
Degree of protection	IP 65
Short-circuit protection	built-in
Polarity-reversal protection	built-in
Overload protection	built-in

CONSTRUCTION

For RIT versions, the wires (bus, power supply) can be passed through three grommets to an internal connector block. A flap provides access to the connector block, thus enabling connection of the wires.

For RIS versions, the connector block and the grommets have been replaced by bus-specific connectors.

The external read/write modules are connected to the interface device by means of three fixed S12 sockets (series 1491 and 1492 only). The swiveling element may contain a read/write module with two antennas (lateral and frontal) - series 1490 and 1492 - or an additional S12 socket - series 1491.

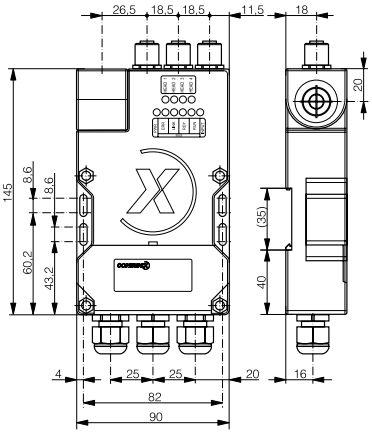
SOFTWARE

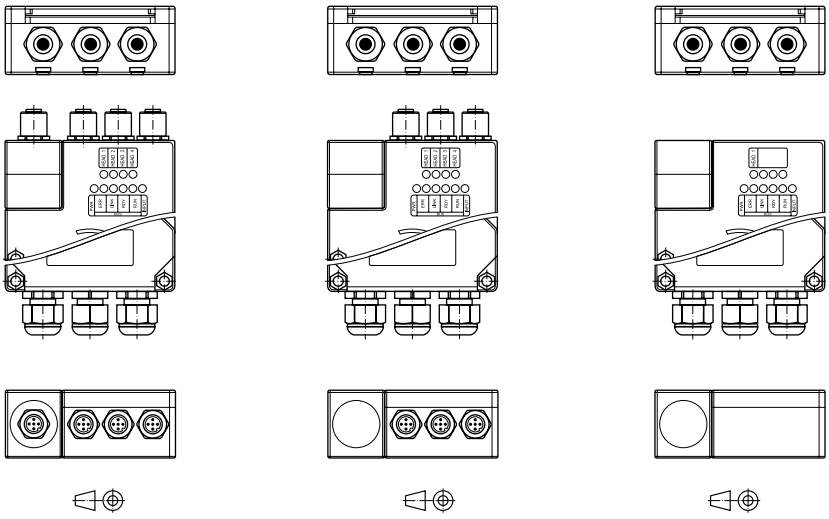
The ConID software can be downloaded from the Contrinex website.

HOUSING SIZE	DEVICENET ☐ 145 X 90 X 36 mm		
NUMBER OF RWM CONNECTIONS	4 RWM	3 & 1 RWM	1 RWM



Dimensions:





TYPE-SPECIFIC DATA

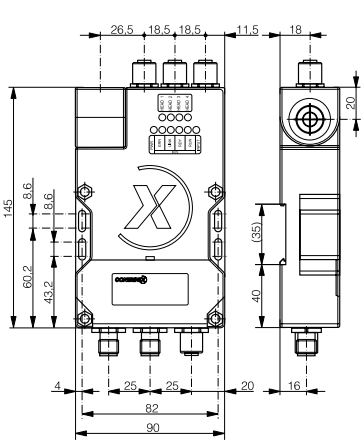
Housing material	ABS	ABS	ABS
Ambient temperature range	0…+60 °C	0…+60 °C	0…+60 °C
Storage temperature range	-25…+80 °C	-25…+80 °C	-25…+80 °C
Swiveling integrated RWM	0	1	1
Swiveling connector	1	0	0
Fixed connectors	3	3	0
Connection type	connector block	connector block	connector block
Weight	310 g	310 g	310 g

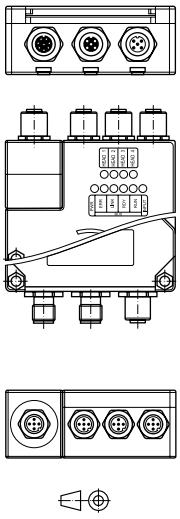
PART REFERENCE

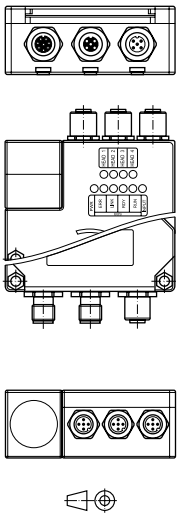
4 RWM	**RIT-1491-200**		
3 & 1 RWM		**RIT-1492-200**	
1 RWM			**RIT-1490-200**

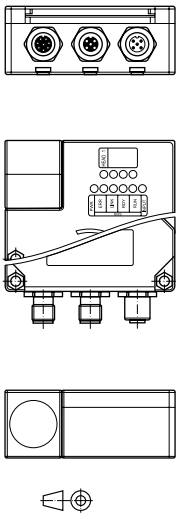
HOUSING SIZE	DEVICENET ☐ 145 X 90 X 36 mm		
NUMBER OF RWM CONNECTIONS	**4 RWM**	**3 & 1 RWM**	**1 RWM**

Dimensions:









TYPE-SPECIFIC DATA

Housing material	ABS	ABS	ABS
Ambient temperature range	0…+60 °C	0…+60 °C	0…+60 °C
Storage temperature range	-25…+80 °C	-25…+80 °C	-25…+80 °C
Swiveling integrated RWM	0	1	1
Swiveling connector	1	0	0
Fixed connectors	3	3	0
Connection type	connectors S12	connectors S12	connectors S12
Weight	310 g	310 g	310 g

PART REFERENCE

4 RWM	**RIS-1491-200**		
3 & 1 RWM		**RIS-1492-200**	
1 RWM			**RIS-1490-200**

Detailed data sheets for these products can be found on the Contrinex website:

INTERFACE DEVICES (ETHERNET/IP)

AT A GLANCE

- 4 read/write module connections: serial RS485 point-to-point (series 1491)
- 3 read/write module connections: serial RS485 point-to-point (series 1492)
- User connections by means of connector block or connectors: EtherNet/IP and RS232 bus

TECHNICAL DATA

Supply voltage range U_B	14 ... 36 VDC
Average no-load supply current without RWM	100 ... 110 mA (U_B = 24 V)
Additional no-load supply current per RWM	40 mA (U_B = 24 V)
Reference voltage INPUT IN-	-10 V ... +30 V
INPUT range (IN+ ... IN-)	5 ... 25 V
Max. INPUT current	30 mA at U_B = 25 V
Connector (bus side)	connector block (RIT) / connectors (RIS)
Data transfer rate RS232	9,600 ... 115,200 baud
Data transfer rate (RWM - transponder)	500 baud
Connection type (RWM side)	RS485 point-to-point
Compatible IC type	EM4056
Degree of protection	IP 65
Short-circuit protection	built-in
Polarity-reversal protection	built-in
Overload protection	built-in

CONSTRUCTION

For RIT versions, the wires (bus, power supply) can be passed through three grommets to an internal connector block. A flap provides access to the connector block, thus enabling connection of the wires.

For RIS versions, the connector block and the grommets have been replaced by bus-specific connectors.

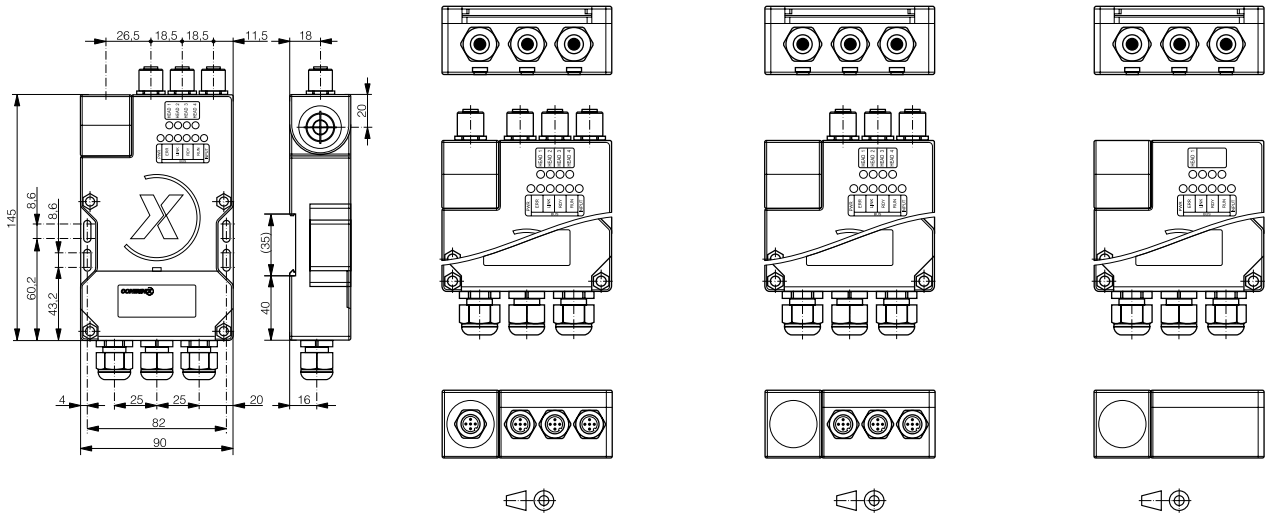
The external read/write modules are connected to the interface device by means of three fixed S12 sockets (series 1491 and 1492 only). The swiveling element may contain a read/write module with two antennas (lateral and frontal) - series 1490 and 1492 - or an additional S12 socket - series 1491.

SOFTWARE

The ConID software can be downloaded from the Contrinex website.

HOUSING SIZE	ETHERNET/IP ☐ 145 X 90 X 36 mm		
NUMBER OF RWM CONNECTIONS	**4 RWM**	**3 & 1 RWM**	**1 RWM**

Dimensions:



TYPE-SPECIFIC DATA

Housing material	ABS	ABS	ABS
Ambient temperature range	0…+60 °C	0…+60 °C	0…+60 °C
Storage temperature range	-25…+80 °C	-25…+80 °C	-25…+80 °C
Swiveling integrated RWM	0	1	1
Swiveling connector	1	0	0
Fixed connectors	3	3	0
Connection type	connector block	connector block	connector block
Weight	310 g	310 g	310 g

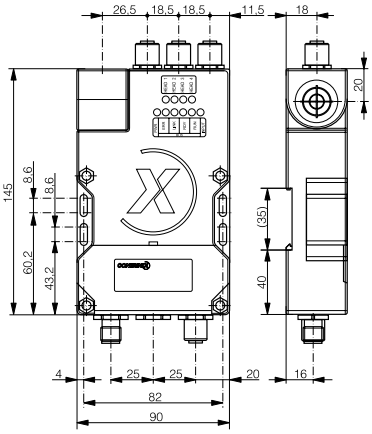
PART REFERENCE

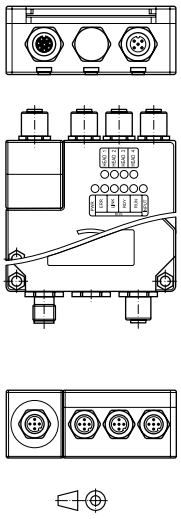
4 RWM	**RIT-1491-300**		
3 & 1 RWM		**RIT-1492-300**	
1 RWM			**RIT-1490-300**

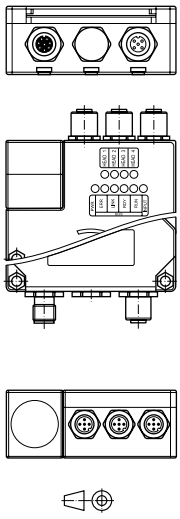
Detailed data sheets for these products can be found on the Contrinex website:

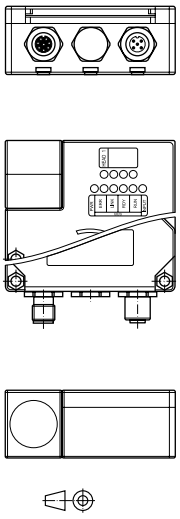
HOUSING SIZE	ETHERNET/IP ☐ 145 X 90 X 36 mm		
NUMBER OF RWM CONNECTIONS	4 RWM	3 & 1 RWM	1 RWM

Dimensions:









TYPE-SPECIFIC DATA

Housing material	ABS	ABS	ABS
Ambient temperature range	0…+60 °C	0…+60 °C	0…+60 °C
Storage temperature range	-25…+80 °C	-25…+80 °C	-25…+80 °C
Swiveling integrated RWM	0	1	1
Swiveling connector	1	0	0
Fixed connectors	3	3	0
Connection type	connectors S12	connectors S12	connectors S12
Weight	310 g	310 g	310 g

PART REFERENCE

4 RWM	**RIS-1491-300**		
3 & 1 RWM		**RIS-1492-300**	
1 RWM			**RIS-1490-300**

ADAPTOR

AT A GLANCE

- Serial RS485 connection to RWM or to ConID RS485 interface device
- Serial RS232 connection to ConID interface device switched to RS232
- USB connection to control PC

TECHNICAL DATA

Supply voltage range U_B	5 V supplied by USB
Max. total current consumption	500 mA
Connection (RS485 / RS232 side)	connectors S12
RS485 / RS232 side:	
Data transfer rate RS232	9,600 ... 115,200 baud
Data transfer rate RS485	9,600 ... 115,200 baud
Ambient temperature range	-25 … +80 °C
Storage temperature range	-25 … +80 °C
Degree of protection	IP 50
Short-circuit protection	built-in

CONNECTION

The adaptor acts as the interface between a read/write module and the USB port of the control PC. The delivery package includes a USB cable.

DRIVERS

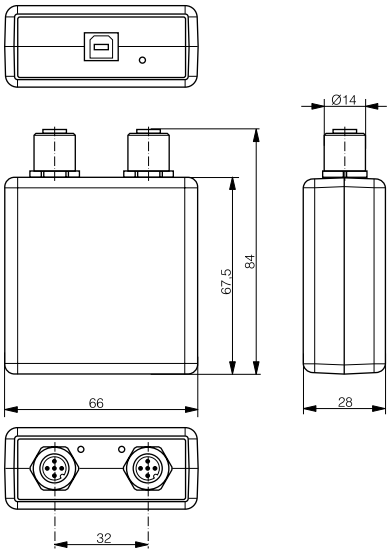
ConID Driver: compatible with Windows 2000, XP
ConID Driver v101: compatible with Windows Vista

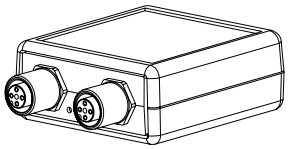
SOFTWARE

ConID Software: compatible with Windows 2000, XP, Vista
The ConID software can be downloaded from the Contrinex website.

HOUSING SIZE	☐ 67 X 66 X 28 mm
	USB ADAPTOR

Dimensions:





TYPE-SPECIFIC DATA

Housing material	ABS
Weight	85 g

PART REFERENCE

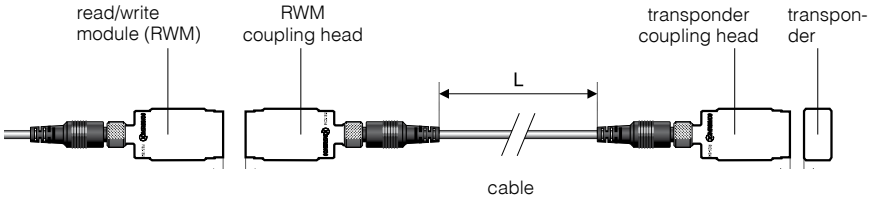
	RAS-6766-011

AT A GLANCE

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

An RFID coupler consists of two coupling heads linked by a cable. It is passive and enables data to be transferred between the read/write module and the transponder, acting as a contact-free extension for data transfer.

A coupler is used whenever a double mechanical interface is required.



CONNECTION

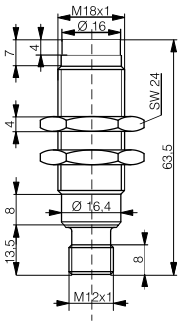
The coupling heads feature 4-pole S12 connectors. The cable connectors have been designed specifically for use with RFID couplers and are equipped with 4-pole sockets at both ends.

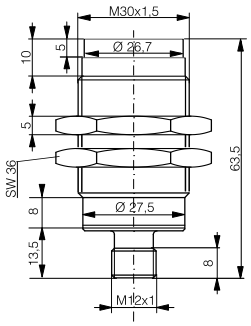
The coupling heads must not be connected to the power supply, nor to an interface device.

HOUSING SIZE	M18	M30	
	COUPLING HEAD	COUPLING HEAD	

	all-metal	all-metal	

Dimensions:





TYPE-SPECIFIC DATA

Housing material	stainless steel V2A	stainless steel V2A	
Sensing face material	stainless steel V2A	stainless steel V2A	
Mounting	non-embeddable	non-embeddable	
Ambient temperature range	-25…+80 °C	-25…+80 °C	
Storage temperature range	-25…+80 °C	-25…+80 °C	
Connection type	connector S12	connector S12	
Degree of protection	IP 67	IP 67	
Weight (with nuts)	51 g	120 g	

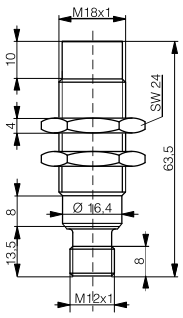
PART REFERENCE

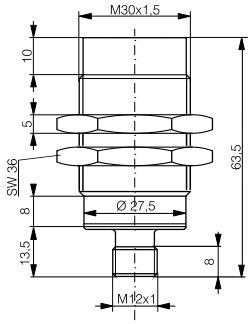
	RCS-1180-000*	**RCS-1300-000***	

*** Coupling heads must not be connected to the power supply, nor to an interface device!**

HOUSING SIZE	M18	M30	
	COUPLING HEAD	COUPLING HEAD	

Dimensions:





TYPE-SPECIFIC DATA

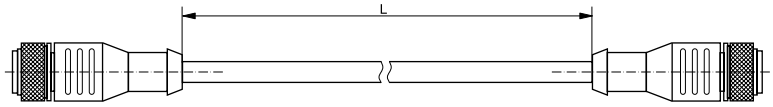
Housing material	chrome-plated brass	chrome-plated brass	
Sensing face material	PBTP	PBTP	
Mounting	non-embeddable	non-embeddable	
Ambient temperature range	-25…+80 °C	-25…+80 °C	
Storage temperature range	-25…+80 °C	-25…+80 °C	
Connection type	connector S12	connector S12	
Degree of protection	IP 67	IP 67	
Weight (incl. nuts)	51 g	120 g	

PART REFERENCE

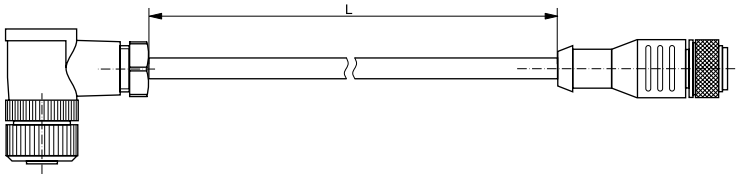
	RCS-1181-000*	**RCS-1301-000***	

*** Coupling heads must not be connected to the power supply, nor to an interface device!**

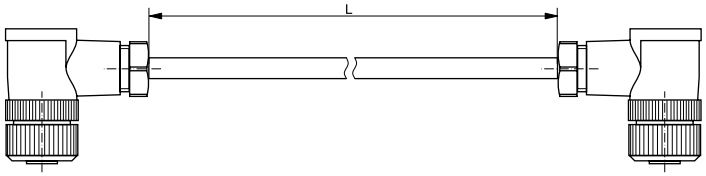
CABLE CONNECTORS FOR RFID COUPLERS



TYPE	Cable	Protection	Size	Poles	Length	Part reference
Socket, straight / socket, straight	PUR	IP 67	S12	4	1 m	S12-4FUG-010-NNRN-12FG
Socket, straight / socket, straight	PUR	IP 67	S12	4	2 m	S12-4FUG-020-NNRN-12FG
Socket, straight / socket, straight	PUR	IP 67	S12	4	5 m	S12-4FUG-050-NNRN-12FG



TYPE	Cable	Protection	Size	Poles	Length	Part reference
Socket, right angle / socket, straight	PUR	IP 67	S12	4	1 m	S12-4FUW-010-NNRN-12FG
Socket, right angle / socket, straight	PUR	IP 67	S12	4	2 m	S12-4FUW-020-NNRN-12FG
Socket, right angle / socket, straight	PUR	IP 67	S12	4	5 m	S12-4FUW-050-NNRN-12FG



TYPE	Cable	Protection	Size	Poles	Length	Part reference
Socket, right angle / socket, right angle	PUR	IP 67	S12	4	1 m	S12-4FUW-010-NNRN-12FW
Socket, right angle / socket, right angle	PUR	IP 67	S12	4	2 m	S12-4FUW-020-NNRN-12FW
Socket, right angle / socket, right angle	PUR	IP 67	S12	4	5 m	S12-4FUW-050-NNRN-12FW

ACCESSORIES

STARTER KIT

255 X 205 X 60 mm

The starter kit contains all components necessary for a simple RFID application:

- 1 USB adaptor RAS-6766-011
- 1 all-metal read/write module M18
- 1 read/write module M30
- 1 set of transponders
- Cable connectors

The necessary ConID software can be downloaded from www.contrinex.com.

PART REFERENCE

STARTER KIT RFID

CABLE CONNECTORS

INTERFACE DEVICE - READ/WRITE MODULE

RS485 cable connectors make the connection between the ConIdent® interface devices RI#-1491-#00/RI#-1492-#00 and the ConIdent® read/write modules. Available in two lengths, the cables are of PUR and feature an S12 socket at one end and an S12 plug at the other.

Other cable lengths and types on request.

TYPE	Cable	Protection	Size	Poles	Length	Part reference
Socket, straight / Plug, straight	PUR	IP 67	S12	4	2 m	S12-4FUG-020-NWRN-12MG
Socket, straight / Plug, straight	PUR	IP 67	S12	4	5 m	S12-4FUG-050-NWRN-12MG

HAND-HELD READ/WRITE DEVICE

155 X 75 X 49 mm (WITH DOCKING STATION)

The hand-held read/write device may be used for writing to and reading ConIdent® transponders. Its most important features are as follows:

- Portable and light
- No connector
- Robust and ergonomic housing
- Simple navigation
- Integrated RFID read/write module
- Alphanumerical LC display with 16 characters
- 34 alphanumerical and function keys
- Integrated clock and calendar
- Belt clip
- 128 KB memory

The hand-held read/write device features a Ni-MH accu, which charges automatically when positioned on its docking station. The latter enables the read/write device to communicate with a PC by means of an RS232 interface.

TYPE-SPECIFIC DATA

Memory	128 KB	
Ambient temperature range	0 … +40 °C	
Storage temperature range	-20 … +60 °C	
Interface docking station	RS232	
Communication software	BARCom 2.4	
Degree of protection	IP 52	
Weight (incl. batteries)	180 g	

PART REFERENCE

R/W device without docking station	**RPA-0110-000**	
R/W device with docking station	**RPA-0111-000**	
Docking station + adaptor	**RPA-0101-000**	

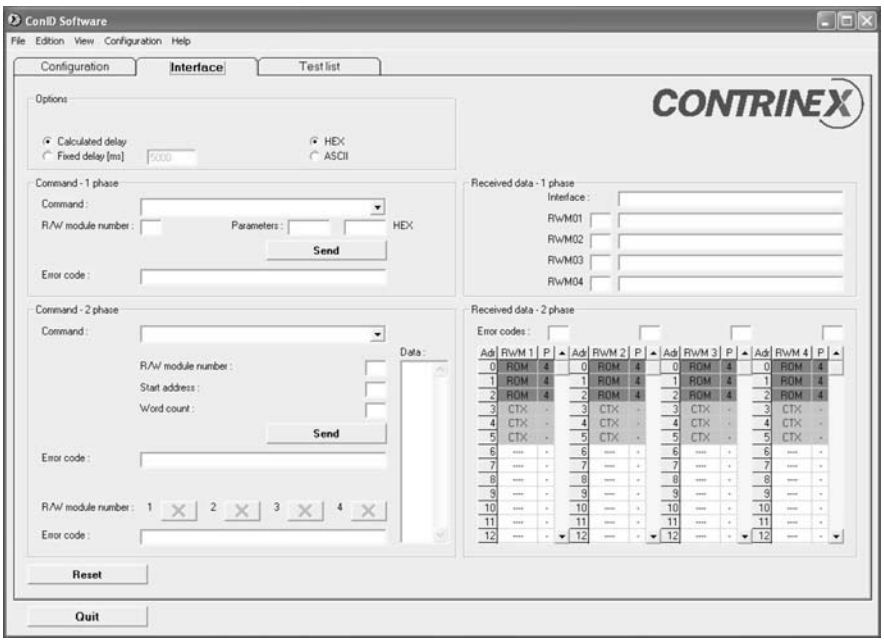
SOFTWARE

ConID H01 / ConID H02

RFID system functions for the hand-held read/write device (H01).
RFID system functions for the hand-held read/write storage device (H02).

ConID SOFTWARE

Software for the configuration and programming of ConIdent® RFID systems.
The ConID software, which can be downloaded from www.contrinex.com, enables the user not only to configure his system, but also to structure the totality of commands to best suit a specific application.



The commands of the ConID low-frequency software are described in detail on the data sheets of the read/write modules, which can be downloaded from www.contrinex.com.

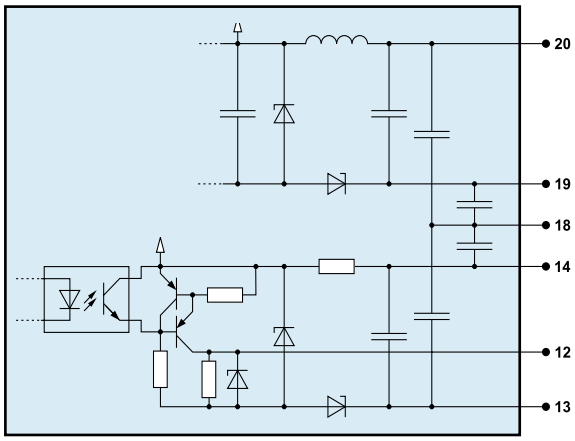
PROGRAMMING SUPPORT

DLL.NET for the use of read/write modules.

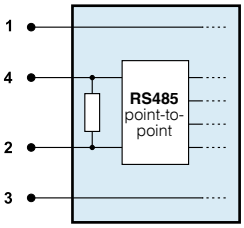
WIRING DIAGRAMS

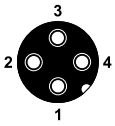
INTERFACES DEVICES

Connector block (user side)



Connector S12



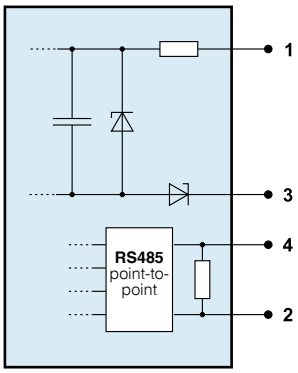


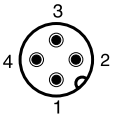
1 $+V_{in}$
2 Data A
3 0V
4 Data B

View onto device

READ/WRITE MODULES

Connector S12



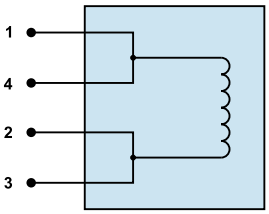


1 $+V_{in}$
2 Data A
3 0V
4 Data B

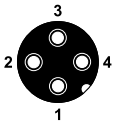
View onto device

COUPLING HEADS

Connector S12



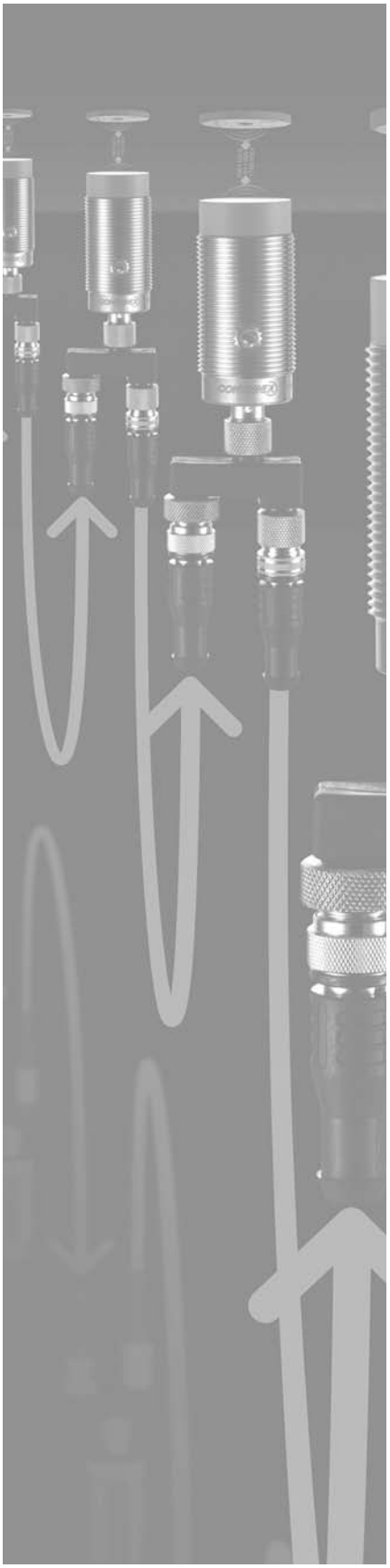
Coupling head



1 Data 1
2 Data 2
3 Data 2
4 Data 1

View onto device

HIGH-FREQUENCY TECHNOLOGY (13.56 MHZ)



HIGHLIGHTS:

- ✓ Compatible with ISO/IEC 15693 standard
- ✓ User memory: 160 byte
- ✓ Anticollision algorithm
- ✓ USB adaptor
- ✓ Direct connection of read/write module to RS485 bus

HIGH-FREQUENCY TECHNOLOGY

MAX. READ/WRITE DISTANCE

	RLS-1183-020	RLS-1303-020
RTP-0090-020	12 mm	12 mm
RTP-0201-020	14 mm	25 mm
RTP-0301-020	26 mm	45 mm
RTP-0501-020	31 mm	60 mm

INTRODUCTION

The operating principle of 13.56 MHz systems is comparable to that of low-frequency technology: Transponders are passive, i.e. they have no built-in battery. The operating energy required is transmitted by the read/write module in the form of a carrier (electromagnetic wave). During communication between the transponder and the read/write module, this carrier is modulated by the data exchanged. Since the read/write distances of high-frequency components are greater than those of low-frequency models, the high-frequency technology features an anticollision algorithm. This algorithm allows for all transponders in the vicinity of a read/write module to be recognized and for a specific transponder to be addressed.

HF CONIDENT® RFID SYSTEM

Contrinex has developed a range of high-frequency RFID components which are compatible with ISO/IEC 15693. Consequently, Contrinex read/write modules may communicate with all compliant tags, i.e. not only with those offered by Contrinex.

The table below shows all transponders that can be used with the Contrinex HF RFID system (incl. manufacturer information).

Manufacturer	Type	User memory (byte)	Memory type	Specific functions (not covered by standard)
EM Marin	EM4135	304	EEPROM	
EM Marin	EM4034	56	EEPROM	EAS
EM Marin	EM4035	400	EEPROM	EAS / Crypto
Infineon	SRF55V02P	256	EEPROM	
Infineon	SRF55V02S	256	EEPROM	Safety
Infineon	SRF55V10P	1024	EEPROM	
Infineon	SRF55V10S	1024	EEPROM	Safety
LEGIC	ATC128-MV	128	EEPROM	Safety, crypto
LEGIC	ATC256-MV	256	EEPROM	Safety, crypto
LEGIC	ATC1024-MV	1024	EEPROM	Safety, crypto
NXP	I-CODE SL2 ICS20	96	EEPROM	EAS
NXP	I-CODE SLI-L SL2 ICS50/51	64	EEPROM	EAS, safety, “KILL”
NXP	I-CODE SLI-S SL2 ICS53/54	256	EEPROM	EAS, safety, “KILL”
TI	Tag-it HF-I Plus	256	EEPROM	
TI	Tag-it HF-I Pro	32	EEPROM	
TI	Tag-it HF-I Standard	32	EEPROM	
ST	LRI2k	256	EEPROM	Kill Code
ST	LRIS2k	256	EEPROM	Kill Code Password
FUJITSU	MB89R118	2000	FRAM	EAS

Initially, Contrinex transponders are equipped with an I-CODE SLI-S SL2 ICS53/54 provided by NXP. It should be pointed out that the specific functions not covered by ISO/IEC 15693 are only offered by tags supplied by Contrinex.

MEMORY STRUCTURE

The EEPROM has a memory capacity of 2048 bit and is divided into 16 pages of 4 data blocks, which corresponds to 64 data blocks of 4 byte each (1 data block = 32 bit).

The data block is the smallest accessible unit.

The page is the smallest unit that can be password protected.

The memory is split in 2 parts.

CONFIGURATION ZONE

The configuration zone consists of the 24 lower data blocks and contains the UID (Unique IDentifier), the EPC (Electronic Product Codes) memory, the safety functions, the write access conditions as well as additional data, such as the AFI (Application Family Identifier) and the DSFID (Data Storage Format IDentifier).

There is no direct access to this memory zone.

USER MEMORY

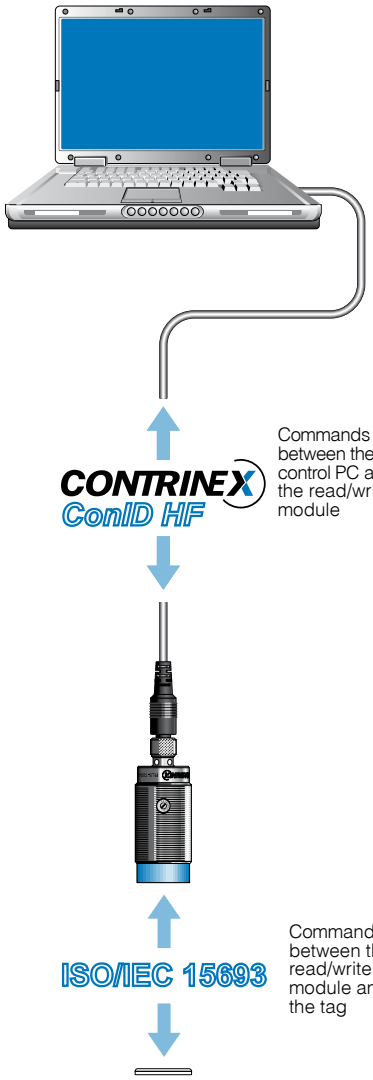
The user memory consists of the 40 upper data blocks and contains the user data. Read as well as write access to this zone is possible, provided that the safety conditions and the write protection allow it.

Pages	Blocks	Byte 0	Byte 1	Byte 2	Byte 3
9	39				
	38				
	37				
	36				
8	35				
	34				
	33				
	32				
2	11				
	10				
	09				
	08				
1	07				
	06				
	05				
	04				
0	03				
	02				
	01				
	00				
-1	-01				
	-02				
	-03				
	-04				
-5	-17				
	-18				
	-19				
	-20				
-6	-21				
	-22				
	-23				
	-24				

User memory
40 blocks
160 byte

Configuration zone
24 blocks
96 byte

STANDARD COMMANDS



The standard commands between the read/write module and the transponder covered by Contrinex are the following:

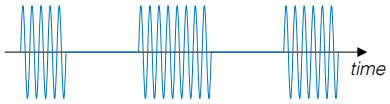
	Commands	
	Name of function	Meaning
Compulsory	Inventory	After the anticollision sequence, the transponder returns the DSFID and UID
	Stay quiet	Puts the transponder in the rest state
Optional commands	Read single bloc	Reads the specified block & returns its value
	Write single block	Writes the specified data in the specified block
	Lock block	Write protects the specified block permanently
	Select	Puts the transponder concerned into "selected" mode
	Reset to ready	Puts the transponder concerned into "ready" mode
	Write AFI	Writes the AFI value in the configuration memory of the transponder
	Lock AFI	Blocks the AFI value definitely
	Write DSFID	Writes the DSFID value in the configuration memory of the transponder
	Lock DSFID	Blocks the DSFID definitely
	Get system information	Returns system information, such as memory size, IC reference, etc.

COMMUNICATION BETWEEN READ/WRITE MODULES AND TAGS

(Standard options chosen by Contrinex.)

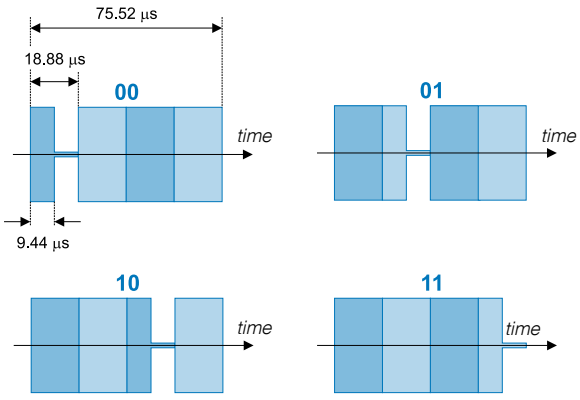
MODULATION

- Carrier frequency: 13.56 MHz ± 7 kHz
- ASK (Amplitude-Shift Keying) modulation at 100%



INFORMATION ENCODING

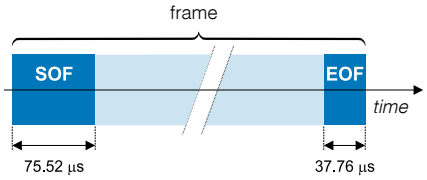
- 1 out of 4: two bits are encoded at the same time
- Data transfer rate: 26.48 kbit/s

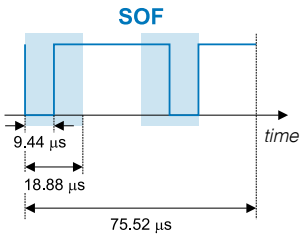


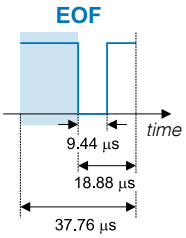
START AND END OF THE FRAME SENT BY THE READ/WRITE MODULE

Each frame sent by the read/write module starts with **start of frame** (SOF) and terminates with **end of frame** (EOF). The start of frame determines the type of information encoding.

For the HF ConID RFID system:



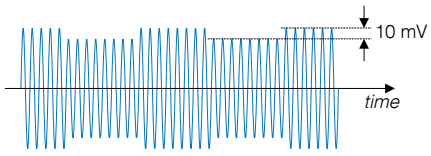




COMMUNICATION BETWEEN TAGS AND READ/WRITE MODULES

MODULATION

Minimum modulation amplitude per load: 10 mV.



SUBCARRIER

Simple subcarrier with a high data transfer rate: 26.48 kbit/s.

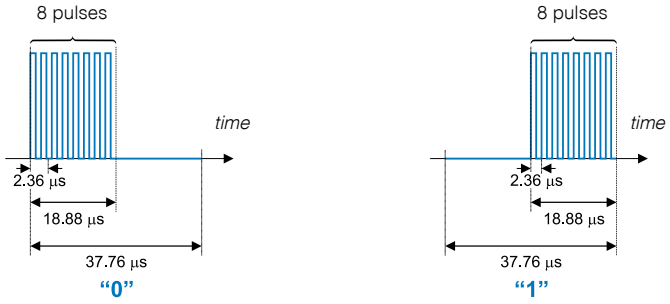
ENCODING

Bit encoding with simple subcarrier.

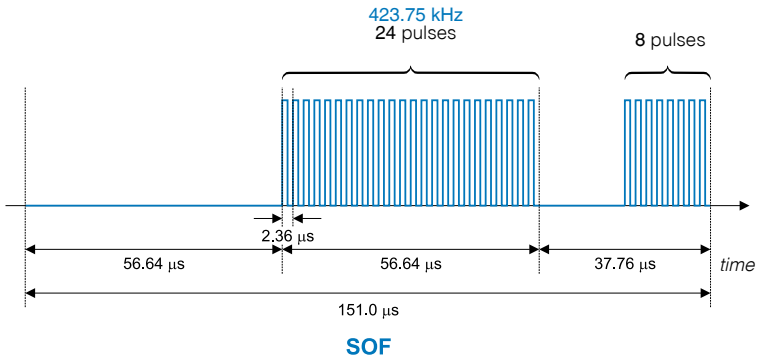
Data transfer rate: 26.48 kbit/s.

START AND END OF FRAME SENT BY TRANSPONDER

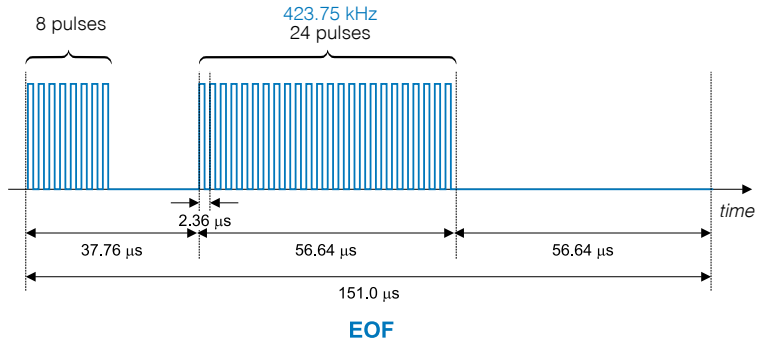
The frames returned by the transponder are also demarcated by **start of frame** (SOF) and **end of frame** (EOF).



Start of frame:



End of frame:



SYNTHETIC TRANSPONDERS

AT A GLANCE

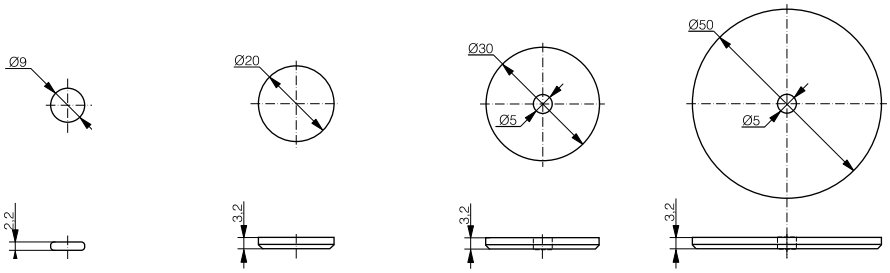
- Smooth cylindrical housing of glass-fiber reinforced PBTP (polybutylene terephthalate) or PPS + Epoxy (RTP-0090-020)
- Passive (no battery)
- Insensitive to dirt
- Anticollision algorithm
- Usable memory: 40 data blocks of 32 bit
- Various password protection possibilities
- OTP write protection of data blocks
- Read/write distances from 12 mm to 60 mm, depending on RWM/TAG combination

TECHNICAL DATA

Ambient temperature range	-25… +85 °C
Storage temperature range	-40 … +125 °C / -20 ... +110 °C (-0090)
Compatible IC type	SL2 ICS53 I·Code SLI-S
Operating frequency	13.56 MHz
Max. transfer speed	53 kbit/s
EEPROM memory	2048 bit
User memory	40 blocks, 160 byte
Configuration zone	24 blocks, 96 byte
Unique identification (UID)	8 byte
Degree of protection	IP 67
Number of "write" cycles	100,000
Number of "read" cycles	unlimited
Data retention period	10 years

HOUSING SIZE	Ø 9 mm	Ø 20 mm	Ø 30 mm	Ø 50 mm
MAX. READ/WRITE DISTANCE	12 mm	25 mm	45 mm	60 mm

Dimensions:



TYPE-SPECIFIC DATA

Max. read/write distance				
with RWM RLS-1303-020	12 mm	25 mm	45 mm	60 mm
with RWM RLS-1183-020	12 mm	14 mm	26 mm	31 mm
Housing material	PPS + Epoxy	PBTP*	PBTP*	PBTP*
Mounting	non-embeddable	non-embeddable	non-embeddable	non-embeddable
Weight	0.25 g	1.2 g	2.7 g	6.4 g

PART REFERENCE

	RTP-0090-020	**RTP-0201-020**	**RTP-0301-020**	**RTP-0501-020**

* glass-fiber reinforced

READ/WRITE MODULES

AT A GLANCE

– Threaded cylindrical metal housings
– Sensing face of PBTP (polybutylene terephthalate)
– Insensitive to dirt
– Serial output RS485

TECHNICAL DATA

Supply voltage range U_B	14 ... 32 VDC
Carrier frequency	13.56 MHz
Compatible IC type	ISO 15693
Data transfer rate	115,200 baud
Data transfer rate (RWM - transponder)	max. 24 kbit/s
Degree of protection	IP 67
Short-circuit protection	built-in
Polarity-reversal protection	built-in
Overload protection	built-in

NETWORK CONNECTION OF HF READ/WRITE MODULES

Contrinex HF read/write modules can be connected directly to an RS485 bus, which permits the construction of a network containing up to 253 read/write modules. Physically, by means of a planetary potentiometer built into the read/write modules, up to 10 different addresses can be defined, whereas logically, by programming each read/write module separately, 253 different addresses may be contacted.

LED

The yellow LED

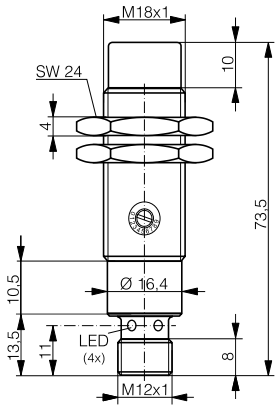
– lights up when the read/write module is connected
– flashes when a transponder is detected

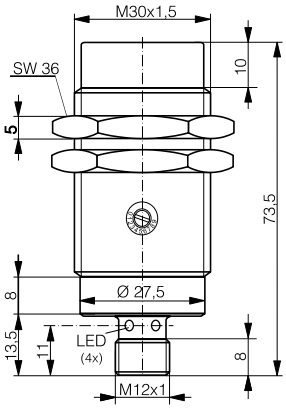
CONNECTION

ConIdent® read/write modules are supplied as S12, 4-pole connector versions.

HOUSING SIZE	M18	M30	
MAX. READ/WRITE DISTANCE	31 mm	60 mm	

Dimensions:





TYPE-SPECIFIC DATA

Sensing face / housing material	PBTP / stainless steel V2A	PBTP / stainless steel V2A	
Max. current consumption	60 mA	60 mA	
Mounting	non-embeddable	non-embeddable	
Ambient temperature range	-25 … +80 °C	-25 … +80 °C	
Storage temperature range	-25 … +80 °C	-25 … +80 °C	
Connection type	connector S12	connector S12	
Weight (incl. nuts)	37 g	95 g	
Compatible transponders:	Read/write distance	Read/write distance	
RTP-0090-020	12 mm	12 mm	
RTP-0201-020	14 mm	25 mm	
RTP-0301-020	26 mm	45 mm	
RTP-0501-020	31 mm	60 mm	

PART REFERENCE

	RLS-1183-020	**RLS-1303-020**	

ADAPTOR

AT A GLANCE

- Synthetic ABS housing
- Serial RS485 connection to RWM
- USB connection to control PC

TECHNICAL DATA

Supply voltage range U_B	24 V supplied by external power supply unit
Max. total current consumption	625 mA
Connection (RS485 side)	Connector S12
RS485 side:	
Data transfer rate RS485	115,200 baud
Ambient temperature range	0…+50 °C (with external power supply unit)
Storage temperature range	-40 … +85 °C
Degree of protection	IP 50
Short-circuit protection	built-in

LEDS

Red LED:

Describes the connection control PC - USB connector.

Green LED:

Indicates that the device is fed by an external power supply unit.

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

ConID Driver: compatible with Windows 2000, XP

ConID Driver v101: compatible with Windows Vista

ConID Driver 7: compatible with Windows Vista and Windows 7

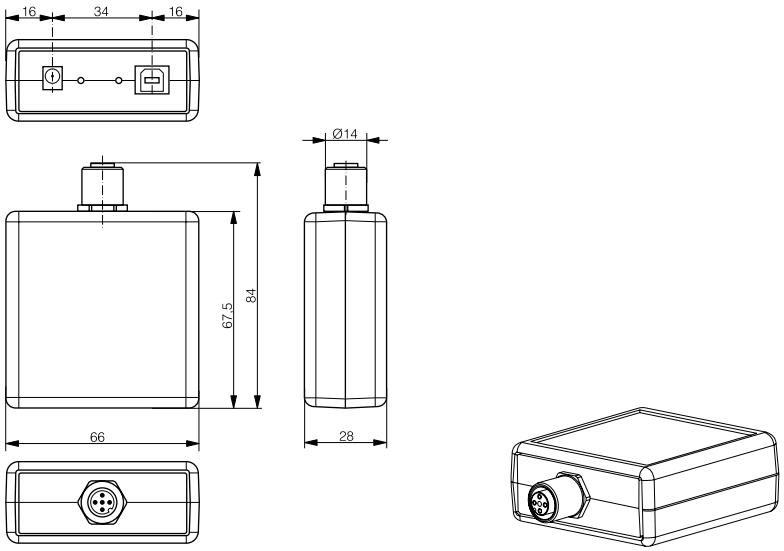
SOFTWARE

ConID HF: compatible with Windows 2000 (SP6), XP, Vista and Windows 7.

The ConID HF software can be downloaded from the Contrinex website.

HOUSING SIZE	☐ 67 X 66 X 28 mm
	USB ADAPTOR

Dimensions:



TYPE-SPECIFIC DATA

Housing material	ABS
Weight	67 g

PART REFERENCE

	RAS-6766-020

ACCESSORIES

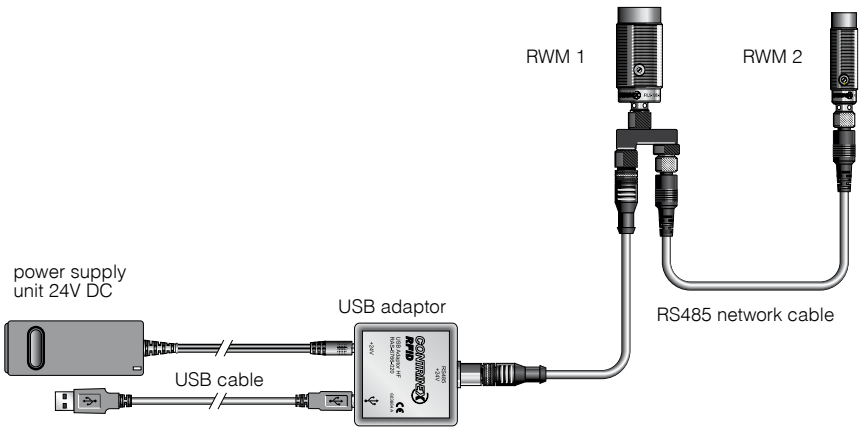
STARTER KIT

255 X 205 X 60 mm

The starter kit contains all components necessary for a simple RFID application:

- 1 USB adaptor RAS-6766-020
- 2 read/write modules (M18 & M30)
- 1 set of transponders
- Cable connectors

The necessary ConID HF software can be downloaded from www.contrinex.com.



PART REFERENCE

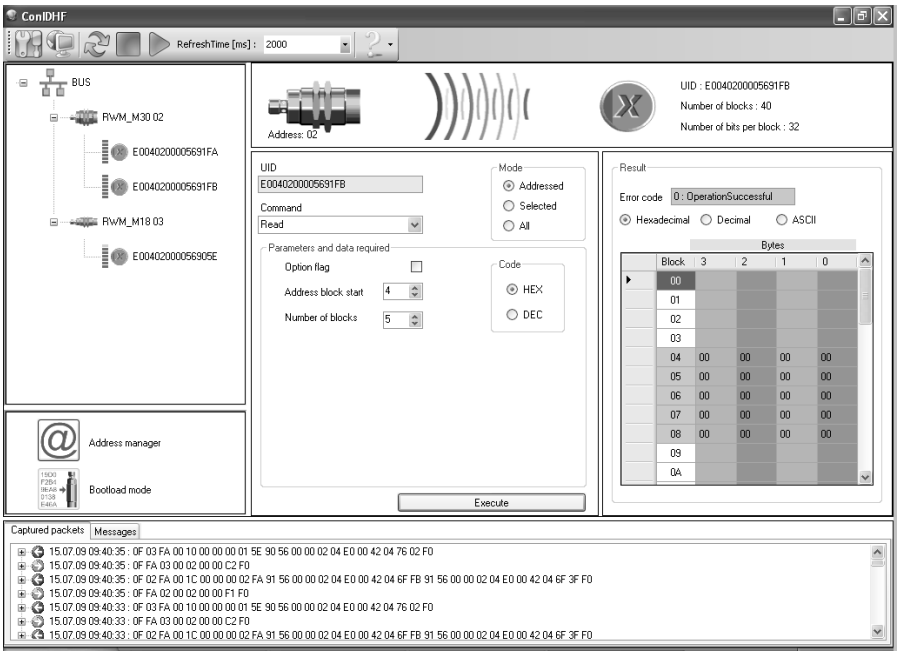
STARTER KIT RFID HF

SOFTWARE

CONID HF SOFTWARE

Software for the configuration and programming of the ConIdent® HF RFID system.

The ConID HF software, which can be downloaded from www.contrinex.com, enables the user not only to configure his system, but also to structure the totality of commands to best suit a specific application.

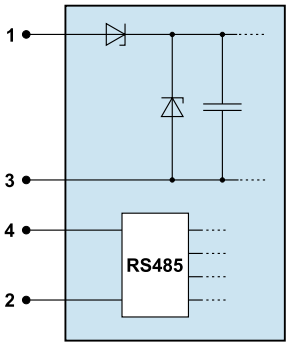


The commands of the ConID HF software are described in detail on the data sheets of the read/write modules, which can be downloaded from www.contrinex.com.

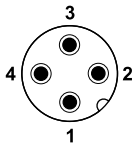
WIRING DIAGRAM

READ/WRITE MODULES

Connector S12



1 $+V_{in}$
2 Data A
3 0V
4 Data B



S12

View onto device

CONTRINEX

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