Radio Frequency Identification System (RFID)

Highlights:

- 125 kHz technology
- Transponders with 2 kbit of read/write memory
- Impervious transponders in all-metal housings
- Compact read/write modules
- Read/write modules in all-metal housings
- Interface devices for connection to Profibus, DeviceNet and RS485
- Possibility to connect up to 4 read/write modules per interface device
- User-friendly software

CONTRINEX

RFID components
Introduction

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.

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.
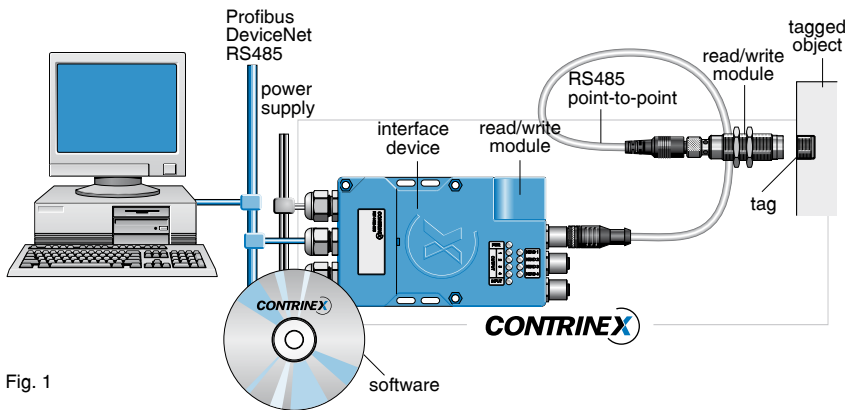
Fig. 1

Fig. 3

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.
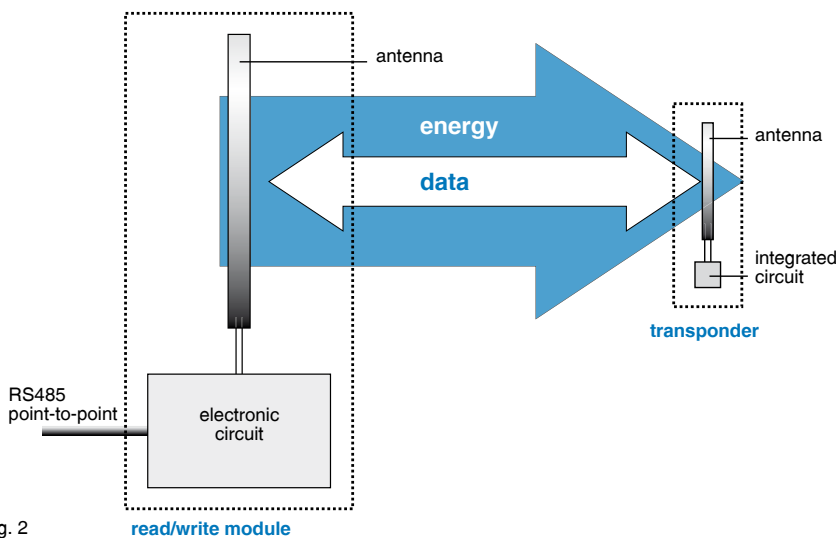

Fig. 2   **read/write module**

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.
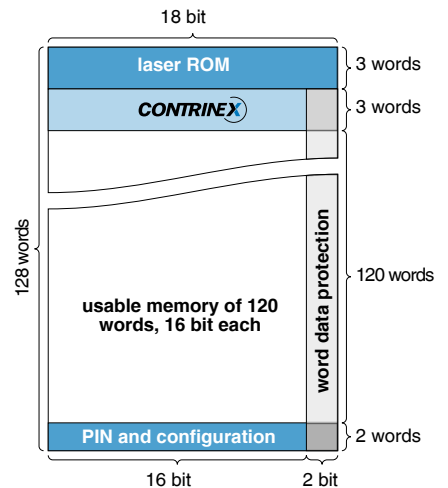
Read/write module and interface device

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.
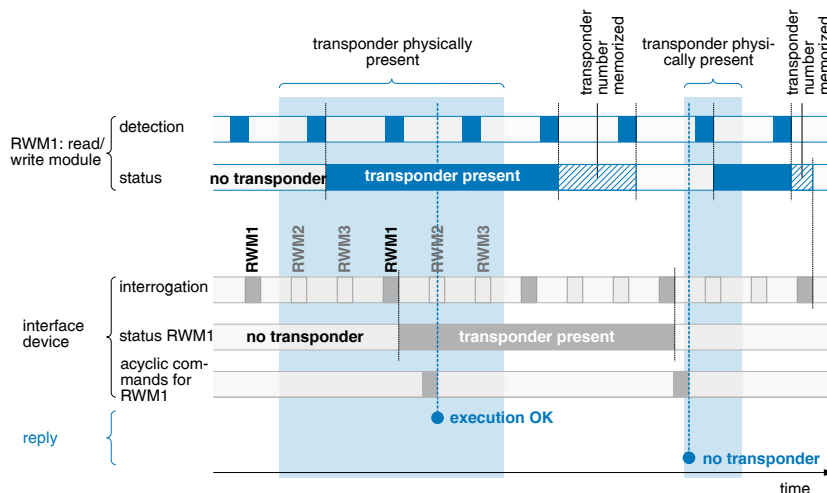

Fig. 4

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.

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
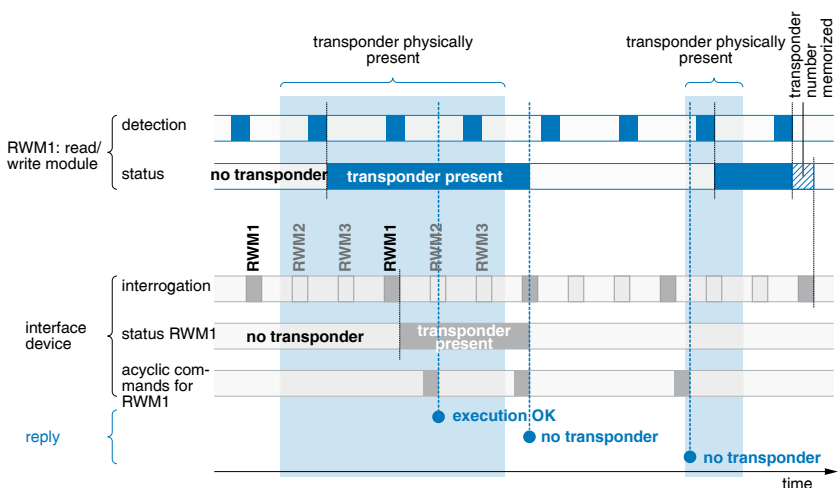

Fig. 5

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

– 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 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).

Ø 10 mm

At a glance:

– Very rugged metal housings

– Compact components

– 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 of 8 to 17 mm, depending on type

– High degree of protection: IP 68

Construction

The transponders are integrated into smooth cylindrical stainless-steel (V2A) housings.

Metallic transponders are a CONTRINEX specialty and permit operation in particularly severe conditions.

Technical data:

|	
Ambient temperature range	-40 … +80 °C
Storage temperature range	-40 … +95 °C
Degree of protection	IP 68
Number of "write" cycles	100,000
Number of "read" cycles	unlimited
Data retention period	10 years
Housing	open back
Material	stainless steel V2A

Data sheets

Detailed data sheets with additional technical information are available for all models. These may be retrieved from the CONTRINEX website (www.contrinex.com), or ordered cost-free from our sales offices.

Drawings

The mechanical drawings may be downloaded as data files from the CONTRINEX website, and imported directly into construction drawings.

Delivery package
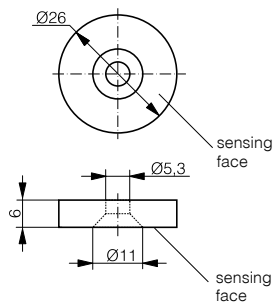
Transponder and instructions.

Ø10
sensing face

4.5
sensing face
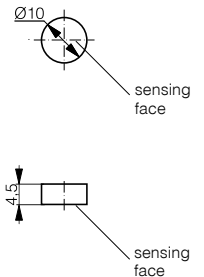
Maximum read/write distance	8 mm
Mounting	embeddable
Type of integrated circuit	EM4056
R/W memory	240 bytes
RO memory	12 bytes
Configuration and PIN	4 bytes
Weight	1.1 g
Appropriate read/write module	RLS-1180-000
Part reference	**RTM-0100-000**

Smooth metal transponders
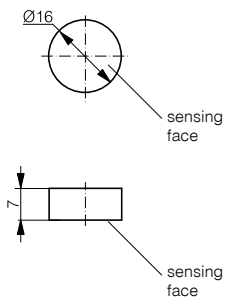
Ø 16 mm	Ø 26 mm	
10 mm	17 mm	
embeddable	embeddable	
EM4056	EM4056	
240 bytes	240 bytes	
12 bytes	12 bytes	
4 bytes	4 bytes	
2.7 g	7.0 g	
RLS-1180-000	RLS-1300-000	
RTM-0160-000	**RTM-0260-000**	

At a glance:

- Very rugged metal housings
- Compact components
- 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 of 8 to 15 mm, depending on type
- High degrees of protection: IP 68 / IP 68 & IP 69K

Construction

The transponders are integrated into threaded cylindrical stainless-steel (V2A) housings. Hermetically-sealed model available.

Impervious metallic transponders are a CONTRINEX specialty and permit operation in particularly severe conditions.

Technical data:

Ambient temperature range	-40 … +80 °C
Storage temperature range	-40 … +95 °C
Number of "write" cycles	100,000
Number of "read" cycles	unlimited
Data retention period	10 years
Material	stainless steel V2A

Data sheets

Detailed data sheets with additional technical information are available for all models. These may be retrieved from the CONTRINEX website (www.contrinex.com), or ordered cost-free from our sales offices.
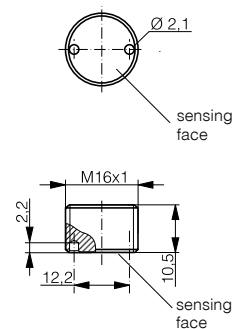
Drawings

The mechanical drawings may be downloaded as data files from the CONTRINEX website, and imported directly into construction drawings.

Delivery package

Transponder (non-embeddable transponders are supplied with two fixing nuts) and instructions.
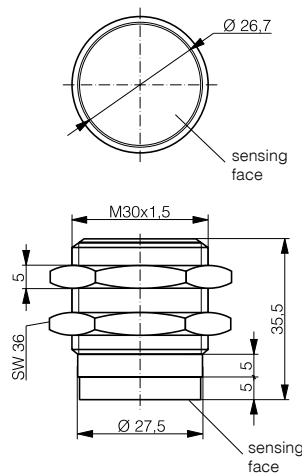
M16

Ø 2,1

sensing face

M16x1

2,2

10,5

12,2

sensing face

Maximum read/write distance	8 mm
Mounting	embeddable
Housing	open back
Degree of protection	IP 68
Type of integrated circuit	EM4056
R/W memory	240 bytes
RO memory	12 bytes
Configuration and PIN	4 bytes
Weight	6.9 g
Appropriate read/write module	RLS-1180-000
Part reference	**RTM-2160-000**

Threaded metal transponders

M30	M30	
13 mm	15 mm	
embeddable	non-embeddable	
open back	closed back	
IP 68	IP 68 & IP 69K	
EM4056	EM4056	
240 bytes	240 bytes	
12 bytes	12 bytes	
4 bytes	4 bytes	
31.4 g	98.7 g	
RLS-1300-000	RLS-1300-000	
RTM-2300-000	**RTF-1300-000**	
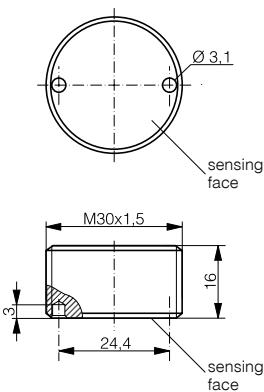
At a glance:

- Compact components
- 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 of 25 to 50 mm, depending on type
- High degree of protection: IP 67

Construction

The transponders are integrated into a smooth cylindrical synthetic housing.

Data sheets

Detailed data sheets with additional technical information are available for all models. These may be retrieved from the CONTRINEX web-site (www.contrinex. com), or ordered cost-free from our sales offices.

Drawings

The mechanical drawings may be downloaded as data files from the CONTRINEX website, and imported directly into construction drawings.

Delivery package

Transponder and instructions.

Technical data:

Ambient temperature range	-40…+125 °C
Storage temperature range	-40…+150 °C
Degree of protection	IP 67
Number of "write" cycles	100,000
Number of "read" cycles	unlimited
Data retention period	10 years
Material	nylon PA6

Ø 20 mm

Ø20

3
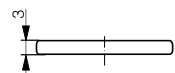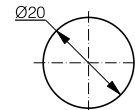
Maximum read/write distance	25 mm
Mounting	non-embeddable
Type of integrated circuit	EM4056
R/W memory	240 bytes
RO memory	12 bytes
Configuration and PIN	4 bytes
Weight	1.3 g
Appropriate read/write module	RLS-1181-000
Part reference	**RTP-0200-000**

Synthetic transponders
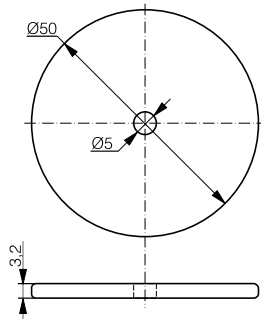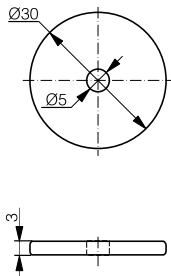
Ø 30 mm	Ø 50 mm	
35 mm	50 mm	
non-embeddable	non-embeddable	
EM4056	EM4056	
240 bytes	240 bytes	
12 bytes	12 bytes	
4 bytes	4 bytes	
2.3 g	5.7 g	
RLS-1301-000	RLS-1301-000	
RTP-0300-000	**RTP-0500-000**	

At a glance:

– Very rugged all-metal models
– Compact devices, ready to be connected
– Cylindrical threaded housings
– Serial output RS485 point-to-point
– High degree of protection: IP 67

Construction

Excepting the one that can be part of the interface, 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) housing, a CONTRINEX specialty.

Technical data:

Supply voltage range	14 ... 36 VDC
No-load supply current	15 mA
Ambient temperature range	-25 … +80 °C
Storage temperature range	-25 … +80 °C
Output type	serial RS485 point-to-point
Connector	S12
Compatible IC type	EM4056
Data transfer rate	500 baud
Read time for 16 bit word	118 ms
Write time for 16 bit word	194 ms

Protection

The ConIdent® read/write modules are protected against overloads, short-circuits and all possible wire reversals. Furthermore, protection against short voltage spikes on power supply lines is built in.

LED

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.

Data sheets

Detailed data sheets with additional technical information are available for all models. These may be retrieved from the CONTRINEX website (www.contrinex.com), or ordered cost-free from our sales offices.

Drawings

The mechanical drawings may be downloaded as data files from the CONTRINEX website, and imported directly into construction drawings.
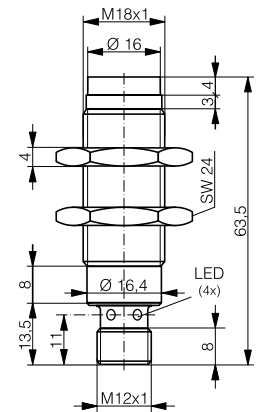
Delivery package

Read/write module, 2 fixing nuts and instructions.

M18

Max. current consumption	35 mA
Degree of protection	IP 67
Sensing face/housing material	Stainless steel V2A
Weight (incl. nuts)	51 g
Compatible transponders	Read/write distance
RTP-0200-000	---
RTP-0300-000	---
RTP-0500-000	---
RTM-0100-000	8 mm
RTM-0160-000	10 mm
RTM-0260-000	---
RTM-2160-000	8 mm
RTM-2300-000	---
RTF-1300-000	---
Part reference	**RLS-1180-000**

Read / write modules
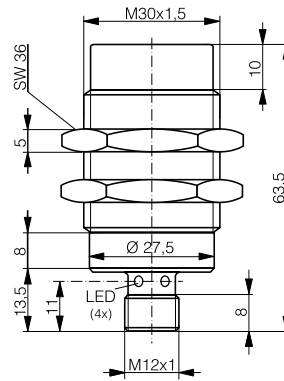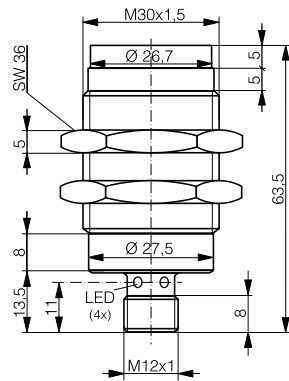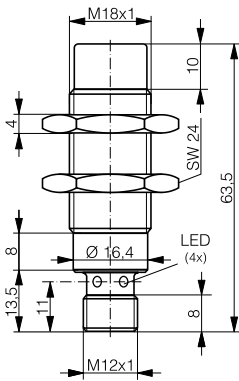
M18	M30	M30	
40 mA	40 mA	45 mA	
IP 67	IP 67	IP 67	
PBTP / chrome-plated brass	Stainless steel V2A	PBTP / chrome-plated brass	
51 g	120 g	126 g	
Read/write distance	Read/write distance	Read/write distance	
25 mm	---	---	
---	---	35 mm	
---	---	50 mm	
---	---	---	
---	---	---	
---	17 mm	---	
---	---	---	
---	13 mm	---	
---	15 mm	---	
RLS-1181-000	**RLS-1300-000**	**RLS-1301-000**	

At a glance:

– Compact devices, ready for use

– User connections on connector block: RS485 bus, Profibus, DeviceNet or RS232 point-to-point

– Degree of protection: IP 65

Construction

ABS housing fitted with a flap for accessing the connector block. Three grommets allow the user to arrange the connections leading to the connector block at will.

The device features a swiveling element containing a read/write module with two antennas (lateral and frontal).

Protection

The ConIdent® interface devices are protected against overloads, short-circuits and all possible wire reversals. Furthermore, protection against short voltage spikes on power supply lines is built in.

LED

1 bicolored LED (red/green) HEAD 1:

– Off: read/write module not activated

– Green on: read/write module activated

– Green flashing: transponder detected

– Orange (red and green simultaneously): execution of a command

– Red: error

4 yellow LEDs OUTPUT 1 … 4:
Describe the logical output states (configured by the user in the "Configuration page" of the interface):

– On: logic state "1"

– Off: logic state "0"

1 green LED PWR:
– On: interface device initialized

1 yellow LED INPUT:
Describes the logical input state (configured by the user in the "Configuration page" of the interface):

– On: logic state "1"

– Off: logic state "0"

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
Connection (user side)	connector block
Interface RS485/RS232:	
OUTPUT V_{ref-}	-10 V ... +30 V
Range ($V_{ref+}...V_{ref-}$)	25 V max.
OUTPUT current	30 mA per output
Data transfer rate	9,600 ... 115,200 baud
Interface Profibus/RS232	see standard
Interface DeviceNet/RS232	see standard
Read time for 16 bit word	160 ms
Write time for 16 bit word	250 ms
Data transfer rate RWM to tag	500 baud
Compatible IC type	EM4056
Ambient temperature range	-25 … +80 °C
Storage temperature range	-25 … +80 °C
Material	ABS
Degree of protection	IP 65

Connection

The interface devices are equipped with a 20-contact connector block on the user side. The connector block is accessible via 3 grommets.

Data sheets

Detailed data sheets with additional technical information are available for all models. These may be retrieved from the CONTRINEX website (www.contrinex.com), or ordered cost-free from our sales offices.

Drawings

The mechanical drawings may be downloaded as data files from the CONTRINEX website, and imported directly into construction drawings.

Delivery package
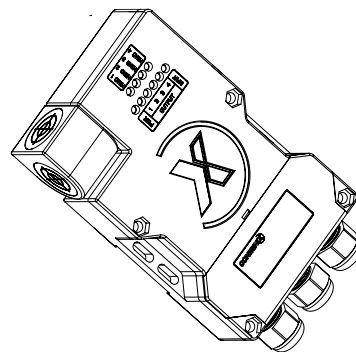
Interface device and user manual.

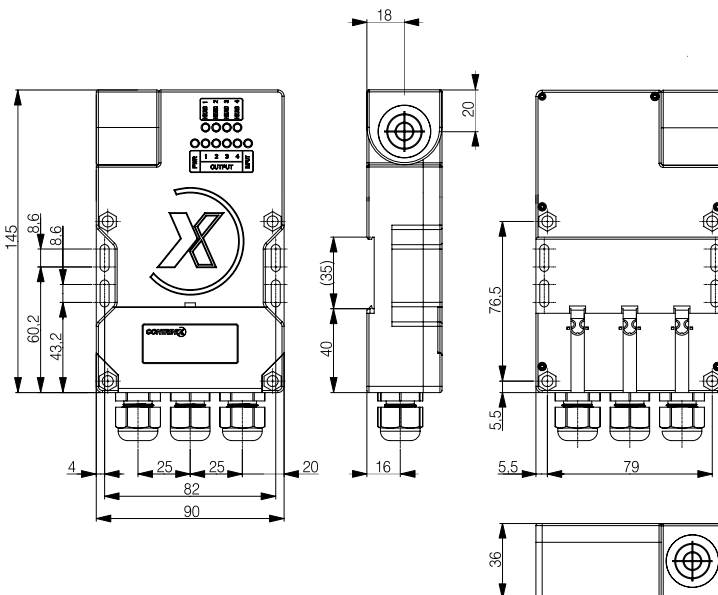## Software

The ConIdent® software is available from the CONTRINEX website or, on demand, can be obtained from our sales offices on CD-ROM.

Swiveling integrated RWM	
Swiveling connector	
Fixed connector	
Weight	
Part references:	
RS485	
Profibus	
DeviceNet	

□ 145x90

1	
0	
0	
300 g	
RIT-1490-000	
RIT-1490-100	
RIT-1490-200	

At a glance:

- Compact devices, ready for use
- 4 read/write module connections: serial RS485 point-to-point
- User connections on connector block: RS485 bus, Profibus, DeviceNet or RS232 point-to-point
- Degree of protection: IP 65

Construction

ABS housing fitted with a flap for accessing the connector block. Three grommets allow the user to arrange the connections leading to the connector block at will.

Access to external read/write modules is via three fixed connectors. In addition, a swiveling element contains a supplementary connector.

Protection

The ConIdent® interface devices are protected against overloads, short-circuits and all possible wire reversals. Furthermore, protection against short voltage spikes on power supply lines is built in.

LED

4 bicolored LEDs (red/green) HEAD 1 ... 4:

- Off: no read/write module
- Green on: read/write module connected
- Green flashing: transponder detected
- Orange (red and green simultaneously): execution of a command
- Red: error

4 yellow LEDs OUTPUT 1 … 4:
Describe the logical output states (configured by the user in the "Configuration page" of the interface):

- On: logic state "1"
- Off: logic state "0"

1 green LED PWR:
- On: interface device initialized

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
Connection (user side)	connector block
Interface RS485/RS232:	
OUTPUT V_{ref-}	-10 V ... +30 V
Range ($V_{ref+}...V_{ref-}$)	25 V max.
OUTPUT current	30 mA per output
Data transfer rate	9,600 ... 115,200 baud
Interface Profibus/RS232	see standard
Interface DeviceNet/RS232	see standard
Read time for 16 bit word	160 ms
Write time for 16 bit word	250 ms
Interface to RWM	RS485 point-to-point
Data transfer rate RWM to tag	500 baud
Compatible IC type	EM4056
Ambient temperature range	-25 … +80 °C
Storage temperature range	-25 … +80 °C
Material	ABS
Degree of protection	IP 65

1 yellow LED INPUT:
Describes the logical input state (configured by the user in the "Configuration page" of the interface):

- On: logic state "1"
- Off: logic state "0"

Connection

The interface devices are equipped with 4 4-pole S12 female connectors on the read/write module side and a 20-contact connector block on the user side. The connector block is accessible via 3 grommets.

Data sheets

Detailed data sheets with additional technical information are available for all models. These may be retrieved from the CONTRINEX website (www.contrinex.com), or ordered cost-free from our sales offices.

Drawings

The mechanical drawings may be downloaded as data files from the CONTRINEX website, and imported directly into construction drawings.

Delivery package

Interface device and user manual.

Software

The ConIdent® software is available from the CONTRINEX website or, on demand, can be obtained from our sales offices on CD-ROM.
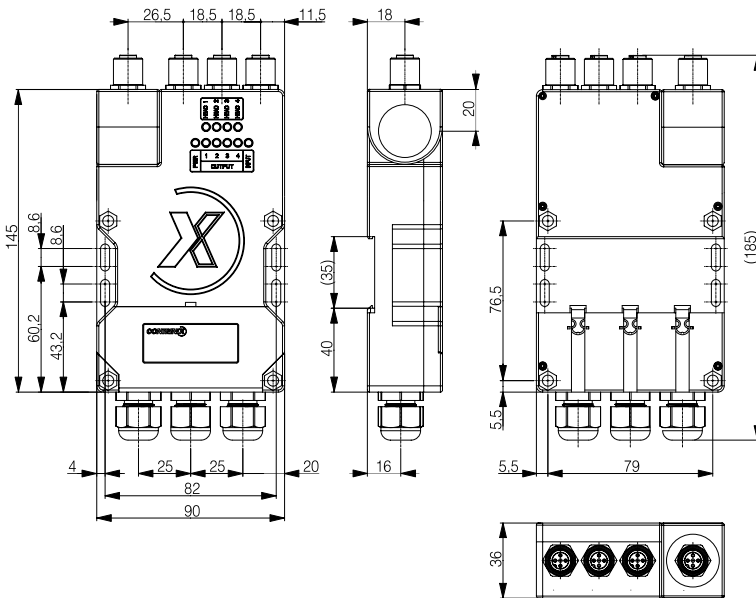
Swiveling integrated RWM	
Swiveling connector	
Fixed connector	
Weight	
Part references:	
RS485	
Profibus	
DeviceNet	

☐ 145x90

0	
1	
3	
300 g	

RIT-1491-000	
RIT-1491-100	
RIT-1491-200	

At a glance:

– Compact devices, ready for use

– 3 read/write module connections: serial RS485 point-to-point

– User connections on connector block: RS485 bus, Profibus, DeviceNet or RS232 point-to-point

– Degree of protection: IP 65

Construction

ABS housing fitted with a flap for accessing the connector block. Three grommets allow the user to arrange the connections leading to the connector block at will.

Access to external read/write modules is via three fixed connectors. In addition, a swiveling element contains a read/write module with two antennas (lateral and frontal).

Protection

The ConIdent® interface devices are protected against overloads, short-circuits and all possible wire reversals. Furthermore, protection against short voltage spikes on power supply lines is built in.

LED

4 bicolored LEDs (red/green) HEAD 1 ... 4:

– Off: no read/write module

– Green on: read/write module connected

– Green flashing: transponder detected

– Orange (red and green simultaneously): execution of a command

– Red: error

4 yellow LEDs OUTPUT 1 … 4:

Describe the logical output states (configured by the user in the "Configuration page" of the interface):

– On: logic state "1"

– Off: logic state "0"

1 green LED PWR:

– On: interface device initialized

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
Connection (user side)	connector block
Interface RS485/RS232:	
OUTPUT V_{ref-}	-10 V ... +30 V
Range ($V_{ref+}...V_{ref-}$)	25 V max.
OUTPUT current	30 mA per output
Data transfer rate	9,600 ... 115,200 baud
Interface Profibus/RS232	see standard
Interface DeviceNet/RS232	see standard
Read time for 16 bit word	160 ms
Write time for 16 bit word	250 ms
Interface to RWM	RS485 point-to-point
Data transfer rate RWM to tag	500 baud
Compatible IC type	EM4056
Ambient temperature range	-25 … +80 °C
Storage temperature range	-25 … +80 °C
Material	ABS
Degree of protection	IP 65

1 yellow LED INPUT:

Describes the logical input state (configured by the user in the "Configuration page" of the interface):

– On: logic state "1"

– Off: logic state "0"

Connection

The interface devices are equipped with 3 4-pole S12 female connectors on the read/write module side and a 20-contact connector block on the user side. The connector block is accessible via 3 grommets.

Data sheets

Detailed data sheets with additional technical information are available for all models. These may be retrieved from the CONTRINEX website (www.contrinex.com), or ordered cost-free from our sales offices.

Drawings

The mechanical drawings may be downloaded as data files from the CONTRINEX website, and imported directly into construction drawings.

Delivery package

Interface device and user manual.

Software

The ConIdent® software is available from the CONTRINEX website or, on demand, can be obtained from our sales offices on CD-ROM.
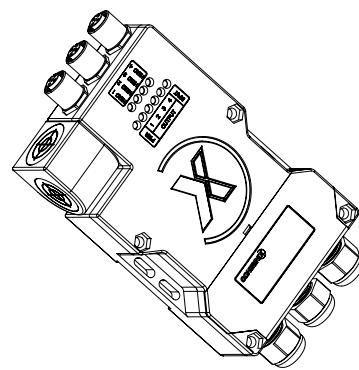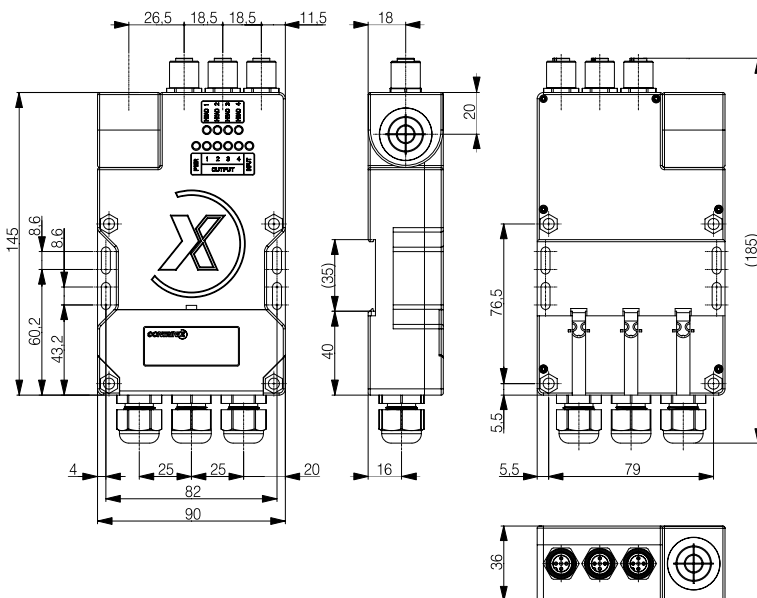
Swiveling integrated RWM	
Swiveling connector	
Fixed connector	
Weight	
Part references:	
RS485	
Profibus	
DeviceNet	

□ 145x90

1	
0	
3	
300 g	
RIT-1492-000	
RIT-1492-100	
RIT-1492-200	

Wiring diagrams

Interface device

Connector block
(user side)

Connector S12

1	+V$_{in}$	
2	DataA	
3	0V	
4	DataB	

View onto device

RS485 point-to-point

Read/write module

Connector S12

1	+V$_{in}$	
2	DataA	
3	0V	
4	DataB	

View onto device

RS485 point-to-point
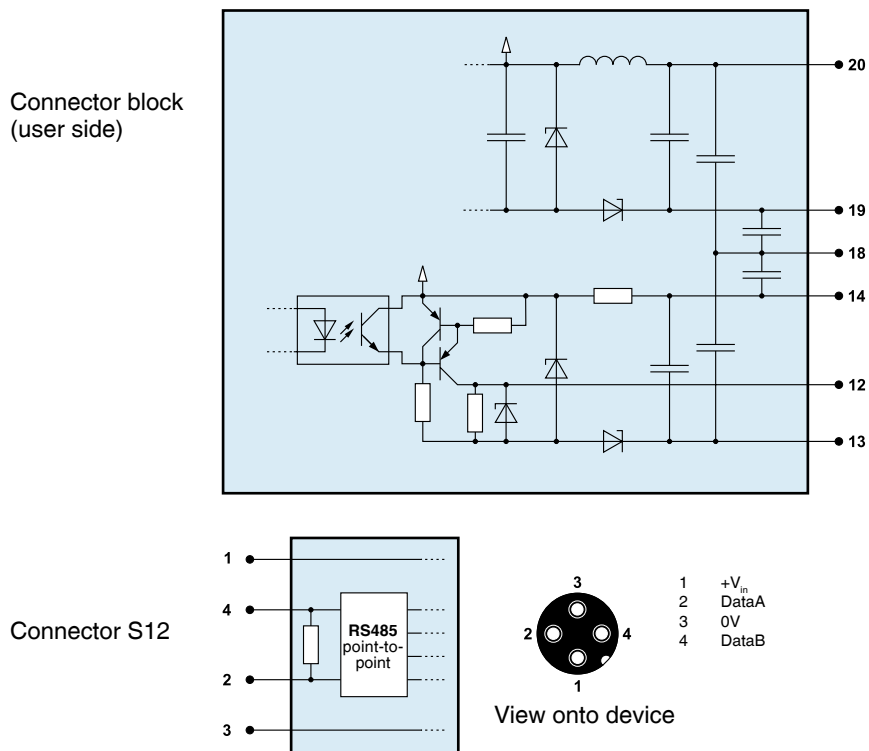
Detailed data sheets for these products can be found on the CONTRINEX website:

RFID accessories

Hand-held read/write device

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 (180 g)

– No connector

– Robust and ergonomic housing

– Simple navigation

– Integrated RFID read/write module

– Alphanumerical LCD 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.

Part references:

Hand-held read/write device with docking station	**RPA-0111-000**
Hand-held read/write device without docking station	**RPA-0110-000**
Docking station	**RPA-0101-000**

Connecting cables interface device - read/write modules

The RS485 connecting cables make the connection between the ConIdent® interface devices RIT-1491-#00/RIT-1492-#00 and the ConIdent® read/write modules. Available in two lengths, the cables are of PUR and feature a male as well as a female 4-pole S12 connector.

Part references:

Connecting cable 2 m	**S12-4FUG-020-WR-12MG**
Connecting cable 5 m	**S12-4FUG-050-WR-12MG**

Software

ConIdent® software

Software for configuring and programming the ConIdent® RFID system

The ConIdent® software, downloadable from www.contrinex.com, on the one hand allows users to configure their systems and, on the other, to structure the range of commands so that the application covers their needs.
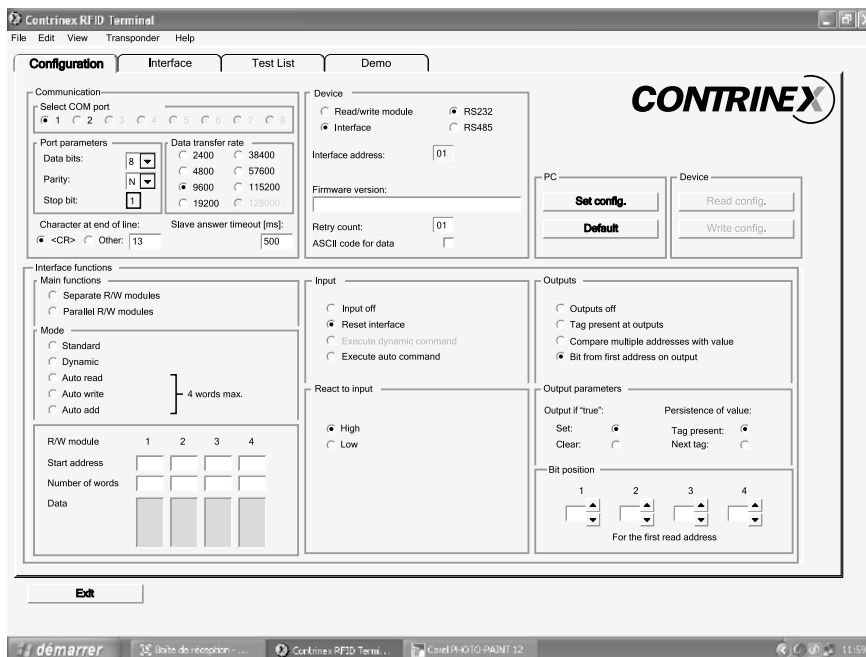

The ConIdent® software allows single-phase commands to be sent to read/write modules in the absence of tags, or to interface devices:

- Control of the read/write module state and the presence of a transponder
- Reading of firmware version of the read/write module
- Number of times that the read/write module has to try to access the transponder
- Deactivating the read/write module's antenna
- Activating the read/write module's antenna
- Choice of active antenna in the case of the read/write module integrated in the interface device
- Data transfer rate of the read/write module with the PC or interface device
- Memorization of transponder's password in the read/write module

The ConIdent® software also gives access to two-phase commands, i.e. commands that concern the read/write module in the presence of a transponder. The first phase is the command passed to the read/write module and the second phase is the latter's reply. With respect to the first phase, the following commands are available:

- Reading a given amount of transponder data starting from a specified address
- Writing a range of data onto a transponder starting from a specified address
- Comparison of data contained at a specified address on a transponder with the data introduced by the user
- Addition of data contained at a specified address on a transponder with data introduced
- Access to the transponder's protected part
- Modification of the transponder's password
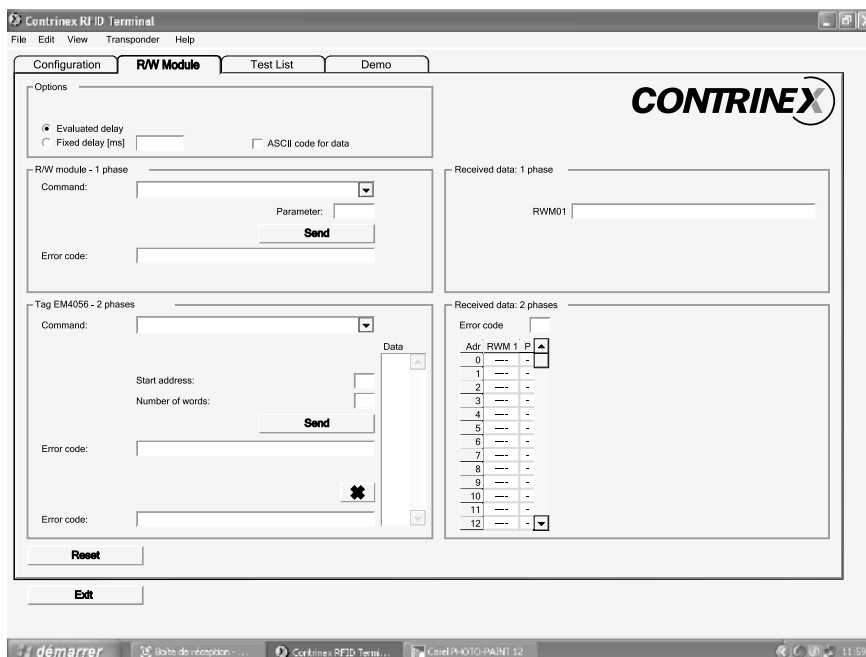
The "R/W Module" tab screen also allows, on request or after modification, all the memory positions of the transponder which may be present in front of the read/write module to be seen.

The "Interface" tab allows the same commands as those found under the "R/W Module" tab with, in addition, specification of the interface device's address with which the user wants to work and specification of the address of the read/write module connected to this interface device. The following can also be found:

– Reading of interface device's firmware version

– Reading the state of the interface device's outputs

– Modification of the state of the interface device's outputs

– Reading the state of the interface device's input

The "Interface" tab screen also allows, on request or after modification, all the memory positions of transponders that may be present in front of the read/write module connected to the interface device to be seen.

Finally, a "Test List" tab allows users to assure the conformity and appropriateness of a list of commands that they intend to send to the system.

all over the world
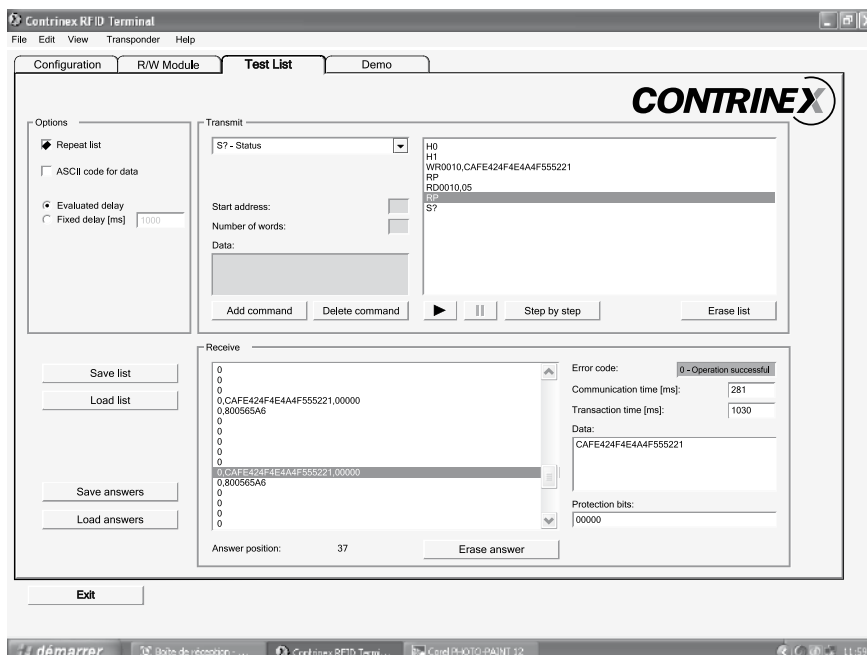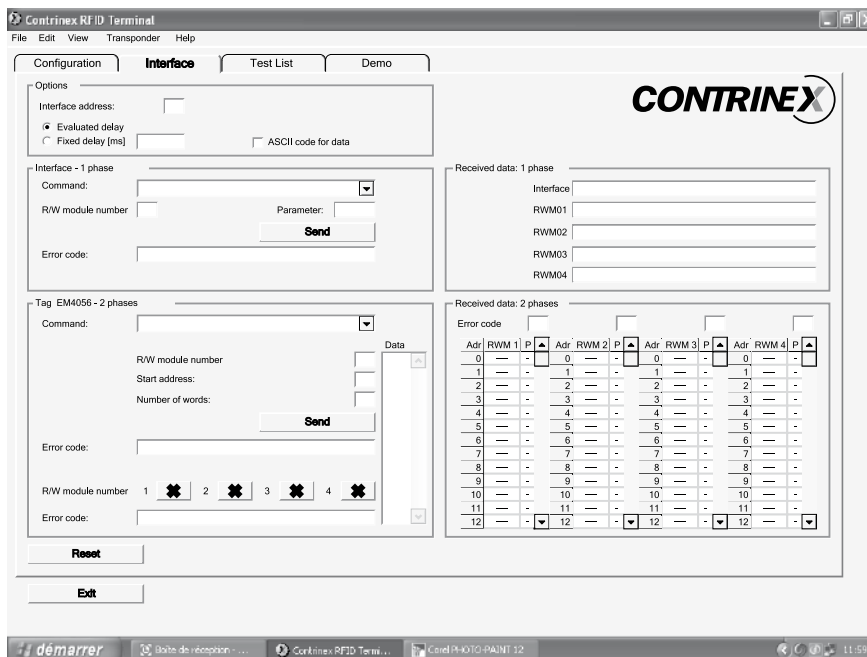
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