



Operating instructions
RF-identification system

GB

DTI110
DTI111
DTI120
DTI121
DTI130
DTI131
DTI124
DTI125
DTI134
DTI135

Read/write head

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1 Preliminary note

You will find instructions, technical data, approvals and further information using the QR code on the unit / packaging or at documentation.ifm.com.

1.1 Symbols used

- ✓ Requirement
- ▶ Instructions
- ▷ Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference
-  Important note
Non-compliance may result in malfunction or interference.
-  Information
Supplementary note

1.2 Legal and copyright information

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All product names, pictures, companies or other brands used on our pages are the property of the respective rights owners.

1.3 Open source information



For more open source information see: documentation.ifm.com.

2 Safety instructions

General

- The unit described is a subcomponent for integration into a system.
 - The system architect is responsible for the safety of the system.
 - The system architect undertakes to perform a risk assessment and to create documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the architect of the system.
- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ Intended use).
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.
- Installation, electrical connection, set-up, operation and maintenance of the product must be carried out by qualified personnel authorised by the machine operator.
- Protect units and cables against damage.

Radio equipment

In general, radio equipment must not be used in the vicinity of petrol stations, fuel depots, chemical plants or blasting operations.

- ▶ Do not transport and store any flammable gases, liquids or explosive substances near the unit.

Interference of electronic and medical devices

Operation can affect the function of electronic devices that are not correctly shielded.

- ▶ Disconnect the device in the vicinity of medical equipment.
- ▶ Contact the manufacturer of the corresponding device in case of any interference.

2.1 Cybersecurity

Installation

The device is suitable for operation in a secure environment according to IEC 62443-1-1.

The device was designed for operation behind a firewall.

- ▶ Carry out a risk assessment of the system according to IEC 62443-1-1.
- ▶ Take measures to ensure physical security.

Operation

- ▶ Observe the security functions described in the product documentation and the recommendations for their use.

Maintenance

- ▶ Regularly check whether software updates are available for the device.
- ▶ Back up system configuration and system data in accordance with your company's change management processes.

Decommissioning

- ▶ Ensure that no sensitive information can fall into unauthorised hands.
- ▶ Always reset the system settings to the factory settings before decommissioning the device.

3 Intended use

The read/write head reads and writes **ID tags** without contact.

The data is made available as process data via the **IO-Link** interface.

Predictive incorrect use:

The device must not be used as a sub-component in a safety-related system.

The device must not be used in hazardous areas.

3.1 Application area

Permitted application area:

- Material flow control in production lines
- Warehouse management by the automatic detection of stored products
- Tank management, order picking or product tracking
- Indoors

The device safety is rated for use under the following operating conditions according to EN IEC 62368-1:

- Indoor use
- Altitudes up to 2000 m
- Relative air humidity up to max. 90 %, non condensing
- Pollution degree 2



The device may only be operated in countries listed in the radio approval document. In other countries, protected frequency ranges may be subject to interference.

► Observe the radio approval document.

▷ The radio approval of the device is available on the Internet: documentation.ifm.com



The unit is not approved for safety-related tasks in the field of operator protection.



Electromagnetic compatibility (EMC):

The unit is designed for use in industrial environments.

This product may cause radio interference in domestic areas.

► If required, take appropriate EMC screening measures.

4 Items supplied

- Read/write head
- 2X mounting nut



The device is supplied without ID tags, installation and connection accessories.

Available accessories: www.ifm.com.

When using accessories from other manufacturers, optimal function is not guaranteed.

5 Function

5.1 ID tags

The **ID tags** are passively operated without a battery. The energy required for operation is provided by the read/write head.

The energy is provided via an inductive coupling. The integrated antenna coil in the read/write head generates a magnetic field which partly penetrates the antenna coil of the ID tag. A voltage is generated by induction that supplies the data carrier with energy.

The device supports ID tags in accordance with ISO 15693 and ISO 14443, type A.

NFC Forum Type 4

ID tags according to NFC Forum Type 4 use file-based data storage. These ID tags can be used to a limited extent:

- Byte 0 and 1 of the user data are reserved for the data length specification.
- Data can only be written to the ID tag at the beginning of the user memory. The address must be 0x00 and the data must begin with the length specification.
- The length of the data to be read must not be greater than the length of the first two bytes of the user memory.
- Write and password protection is not available.

Memory areas

The memory areas for configuration and status data are blocked for use by the user for many ID tags. This means:

- Only the memory areas that can be used by the user can be addressed via IO-Link.
- The address details of an ID tag may differ in the data sheet and in the information read out via IO-Link.

Password protection

Password protection protects the memory area of an ID tag that can be used by the user against read and write access.

Password protection is available for the following ID tags:

- I-Code SLIX2 (ISO 15693)
- EM4233SLI (ISO 15693)
- NXP Mifare Ultralight, Ultralight EV1 (ISO 14443, Type A)
- NXP Mifare NTAG210 bis NTAG216 (ISO 14443, Type A)

To access password-protected areas, the 32-bit password must be set with the IO-Link parameter [ID tag password]: **ID tag password** (→ [24](#)). The password-protected area can then be read and written to.

A new password is written to the ID tag using the [Write ID tag password] command.

Setting the password 0x00 0x00 0x00 0x00 cancels the password protection of the ID tag. The memory area of the ID tag is then unprotected against read and write access.



Some ID tags are not recognised by the device if an incorrect password has been saved with the IO-Link parameter [ID tag password] and

- the [Auto-read data]/[Auto-write data] operating mode is used or
- the [ID tag history] records the user data.

If an incorrect password is saved with the IO-Link parameter [ID tag password], some ID tags will no longer be recognised by the device. Specifically, the ID tag is only recognised for a short time when it enters the detection range of the device and is then no longer visible.

- Set the correct 32-bit password in the IO-Link parameter [ID tag password] .

Write protection

Write protection protects individual data blocks of an ID tag from write access.



Write protection is irreversible and cannot be cancelled.

The data stored on an ID tag is divided into blocks. Depending on the type of ID tag, the size of a data block is 4, 8, 16 or 32 bytes. If an address within a data block is write-protected, this affects all addresses within the data block.

Data block	Byte
0	0
	1
	2
	3
1	4
	5
	6
	7

Tab. 1: Example: ID tag with data block size of 4 bytes

In the example, addresses 2 to 5 are write-protected. As write protection affects all addresses in data blocks 0 and 1, addresses 0 to 7 are write-protected.

Data comparators

The device has 2 functions for data comparisons. Data comparators A and B can automatically read the data in the memory area of an ID tag and compare it with reference data.

The result of the data comparison is displayed in the status byte in the process data (bits **Match A** and **Match B**). It can then be output via the switching outputs.

As long as an ID tag is in the detection range of the device, the result of the data comparison is valid. If the ID tag leaves the detection range, the result bit (match bit) will be automatically reset.

Data comparators A and B work independently of each other. This allows different memory areas of an ID tag to be compared. The results of the data comparators can be logically linked (AND / OR) and control the switching outputs accordingly.



The data comparators increase the response time of the device.

- Only use the data comparator if the function is necessary for the application and the response time is secondary.

Dynamic operation

Dynamic operation is characterised by the fast response times of the device. The response time and thus the required dwell time of an ID tag within the detection range of the device is extended if one or more of the following functions are activated:

- [Activating the data comparator]

- [ID tag history] with the setting [Auto-Read]
- Operating mode [Auto-read data], [Auto-read data (fixed)] or [Auto-write data]
- Automatic detection of the data block size (to activate, set the ID tag type to [auto])

Use dynamic operation:

► Disable the listed functions for dynamic operation.



For the operating modes [Read data] and [Write data], the ID tag must be statically located in the detection range of the device.



In dynamic operation, data may be lost if the data connection to the ID tag is interrupted during a write process.

5.1.1 Supported ID tags

The device supports the following ID tags:

ISO 15693			
I-CODE SLIX-S	I-CODE SLIX-L	I-CODE SLIX	I-CODE SLIX2
I-CODE SLI	MB89R112	MB89R119B	MB89R118C
SRF55V02P	SRF55V10P	SRF55V02S	SRF55V10S
Tag-It HF-I Std	Tag-It HF-I Pro	Tag-It HF-I Plus 3rd Party	Tag-It HF-I Plus Inlay
EM4133	EM4233 (VIGO 2K)	EM4233SLIC (VIGO)	EM4237
EM4237SLIX	EM4237SLIC		

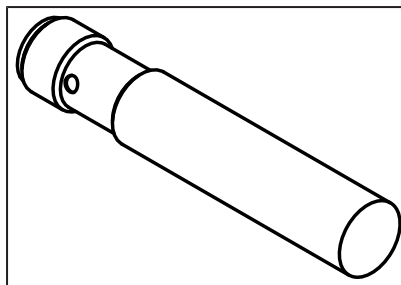
ISO 14443, type A			
Mifare Ultralight	Mifare Ultralight EV1	Mifare NTAG210	Mifare NTAG212
Mifare NTAG213	Mifare NTAG215	Mifare NTAG216	ST25TA512B
ST25TA16KB	M24SR16KB	ST25TA64KB	M24SR64KB
M24SR04	ST25TA02KB	M24SR02KB	



The device does not support every function of the respective ID tags.

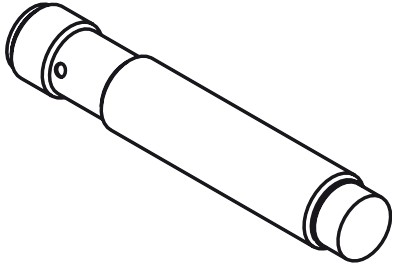
5.2 Device overview

DTI110

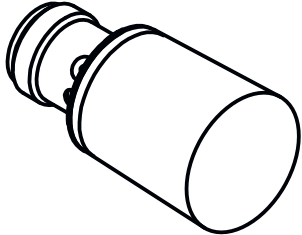


Article number:	DTI110
Function:	Read/write head
Type designation:	DTRHF FBRWIOUS03
Type:	M12, flush mountable

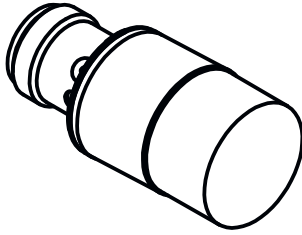
DTI111

	Article number:	DTI111
	Function:	Read/write head
	Type designation:	DTRHF FNRWIOUS03
	Type:	M12, non-flush mountable

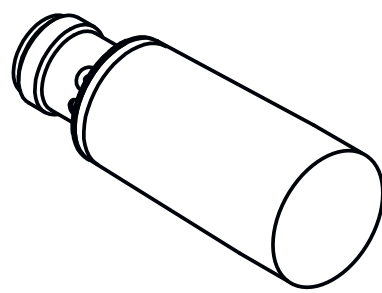
DTI120

	Article number:	DTI120
	Function:	Read/write head
	Type designation:	DTRHF GBRWIOUS03
	Type:	M18, flush mountable

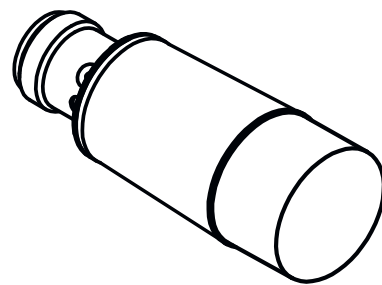
DTI121

	Article number:	DTI121
	Function:	Read/write head
	Type designation:	DTRHF GNRWIOUS03
	Type:	M18, non-flush mountable

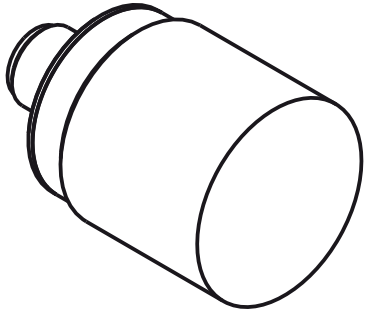
DTI124

	Article number:	DTI124
	Function:	Read/write head
	Type designation:	DTRHF GBRWIOUS03
	Type:	M18, flush mountable

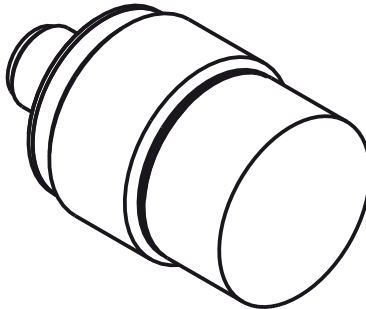
DTI125

	Article number:	DTI125
	Function:	Read/write head
	Type designation:	DTRHF GNRWIOUS03
	Type:	M18, non-flush mountable

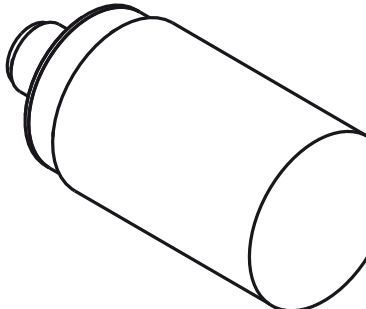
DTI130

	Article number:	DTI130
	Function:	Read/write head
	Type designation:	DTRHF IBRWIOUS03
	Type:	M30, flush mountable

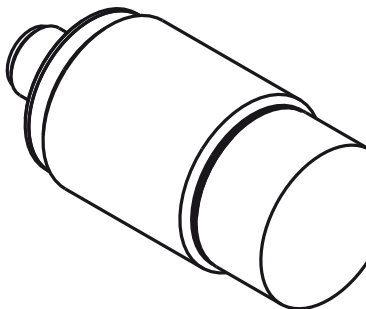
DTI131

	Article number:	DTI131
	Function:	Read/write head
	Type designation:	DTRHF INRWIOUS03
	Type:	M30, non-flush mountable

DTI134

	Article number:	DTI134
	Function:	Read/write head
	Type designation:	DTRHF IBRWIOUS03
	Type:	M30, flush mountable

DTI135

	Article number:	DTI135
	Function:	Read/write head
	Type designation:	DTRHF INRWIOUS03
	Type:	M30, non-flush mountable

5.3 IO-Link

IO-Link is a communication system for connecting intelligent sensors and actuators to automation systems. IO-Link is standardised in the IEC 61131-9 standard.



General information on IO-Link at [io-link.ifm](https://www.ifm.com/en/io-link)



Input Output Device Description (IODD) with all parameters, process data and detailed descriptions of the device at documentation.ifm.com

IO-Link offers the following advantages:

- Interference-free transmission of all data and process values
- Parameter setting in the running process or presetting outside the application
- Parameters for identifying the connected devices in the system
- Additional parameters and diagnostic functions
- Automatic backup and restore of parameter sets in case of device replacement (data storage)
- Logging of parameter sets, process values and events
- Device description file (IODD - Input Output Device Description) for easy project planning
- Standardised electrical connection
- Remote maintenance

6 Installation

6.1 Notes on the unit installation



When mounting several systems adhere to the minimum distances between the devices.



Flush mounting of non-flush devices in metal reduces the read/write distance.



Device performance can be affected if positioned in the immediate vicinity of powerful HF emission sources such as welding transformers or converters.

6.2 Avoiding interference

The device generates a modulated electrical field with a frequency of 13.56 MHz.

Avoid interference with data communication:

- ▶ Do not operate any devices in the vicinity that use the same frequency band.
- ▷ Such devices are for example frequency converters and switched-mode power supplies.

If there are other devices in the same frequency band in the vicinity:

- ▶ The mounting distances between the devices should be as large as possible.
- ▶ Use the devices in alternating operation.
- ▶ Switch the HF field of the device on/off.

6.3 Mechanical design

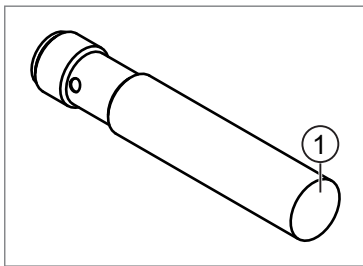


Fig. 1: Flush mountable

1: Sensing face

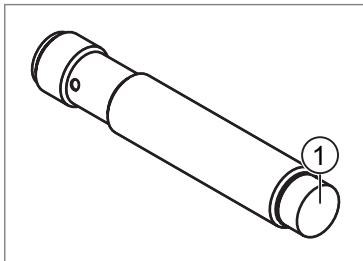


Fig. 2: Non-flush mountable

1: Sensing face

6.4 Install device

► Fix the device using the supplied nuts.

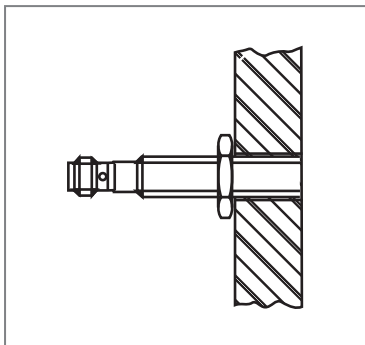


Fig. 3: Flush mounting

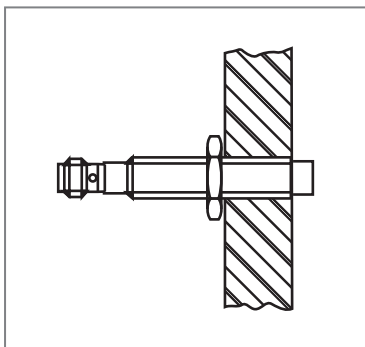


Fig. 4: Non-flush mounting

6.5 Mounting distances

6.5.1 Flush mounting

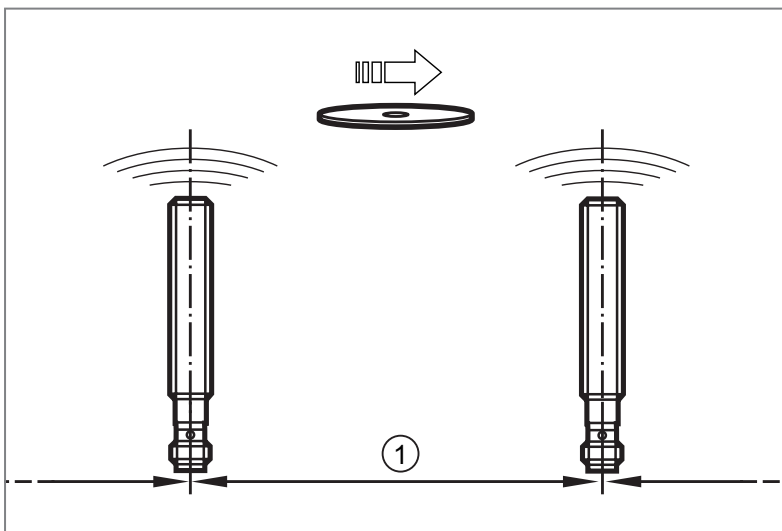


Fig. 5: Lateral distance of flush devices

1: Lateral distance

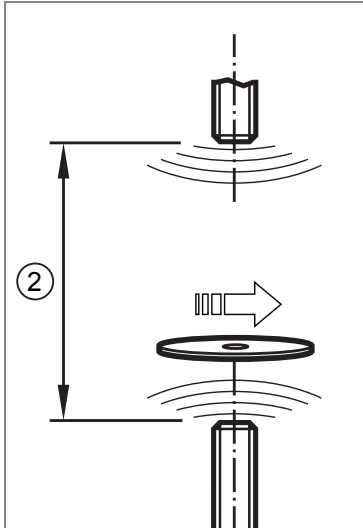


Fig. 6: Frontal distance of flush devices

1: Frontal distance

Device	Operating mode	Lateral distance (1)	Frontal distance (2)
DTI110	Reading and writing	≥ 20 mm	≥ 40 mm
DTI120	Reading and writing	≥ 60 mm	≥ 100 mm
DTI124	Reading and writing	≥ 60 mm	≥ 100 mm
DTI130	Reading and writing	≥ 50 mm	≥ 100 mm
DTI134	Reading and writing	≥ 50 mm	≥ 100 mm

6.5.2 Non-flush mounting

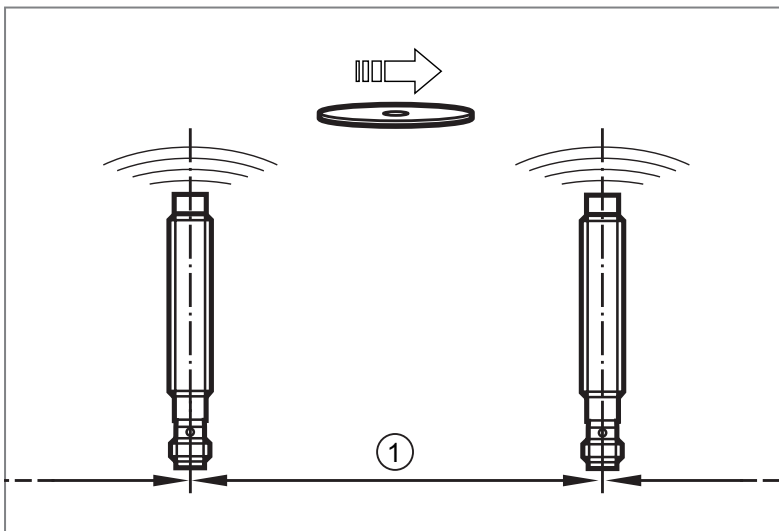


Fig. 7: Lateral distance of non-flush devices

1: Lateral distance

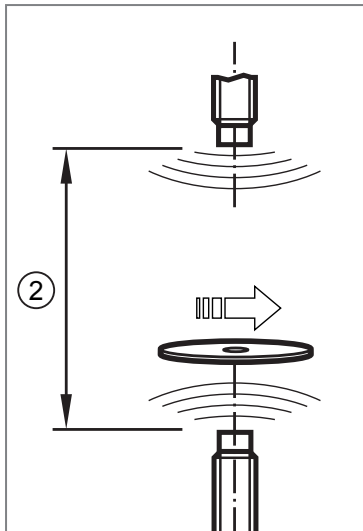


Fig. 8: Frontal distance of non-flush devices

2: Frontal distance

Device	Operating mode	Lateral distance (1)	Frontal distance (2)
DTI111	Reading and writing	≥ 25 mm	≥ 90 mm
DTI121	Reading and writing	≥ 90 mm	≥ 180 mm
DTI125	Reading and writing	≥ 90 mm	≥ 180 mm
DTI131	Reading and writing	≥ 120 mm	≥ 160 mm
DTI135	Reading and writing	≥ 120 mm	≥ 160 mm

6.6 Positioning of the ID tag



For installation in or on metal use the ID tags provided for this purpose.

- Align the ID tag centrally with the device's antenna.
 - ▷ The distance (1) is indicated in the data sheet.
 - ▷ All indications apply to static read/write operations.

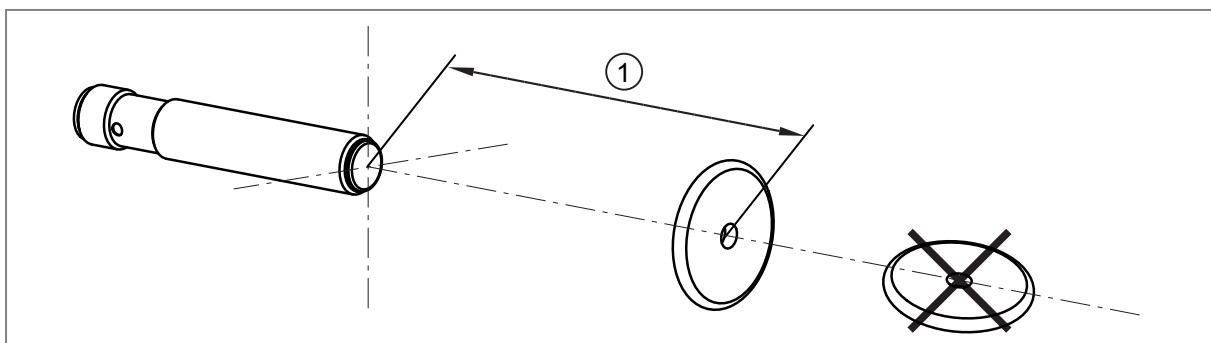


Fig. 9: Position the ID tag

1: Distance to the ID tag

7 Electrical connection

The device must be connected by a qualified electrician.

► Disconnect power before connecting the device.



Device of protection class III.

The electrical supply must meet the following requirements:

- Use of a power supply with limited output voltage (ES1 according to IEC 62368-1)
- Use of a power supply with limited output power (PS2 according to IEC 62368-1)
- Supply only via SELV/PELV circuits
- The permitted operating voltage of the device must not be exceeded (see data sheet).



WARNING

Unsuitable power supply

- ▷ Electric shock may cause serious injury or death.
- Use a SELV/PELV power supply within the specified voltage range.

Use energy-limited circuits for the electrical supply. The energy of the circuit can be limited at an operating voltage of 24 V by an overcurrent protection device. The overcurrent protection device must switch off a current of 8.3 A in maximum 120 s. Observe the specific tripping characteristic. Possible overcurrent protection devices:

- fuse or
 - non-adjustable and non-self-reclosing electromechanical device.
- Separate the circuit from other, non-energy-limited circuits by at least basic insulation.

ATTENTION

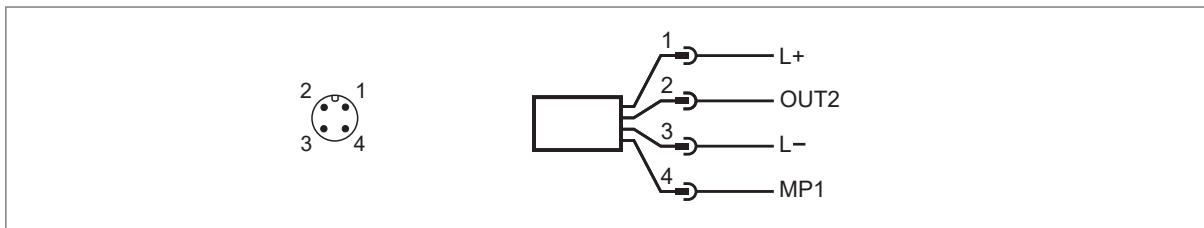
No suitable energy limitation of the circuit

- ▷ Fire hazard in case of a malfunction.
- Use energy-limited circuit.

7.1 Wiring

► Connect the device to an IO-Link master using the M12 connector.

▷ Voltage is supplied via the IO-Link master.

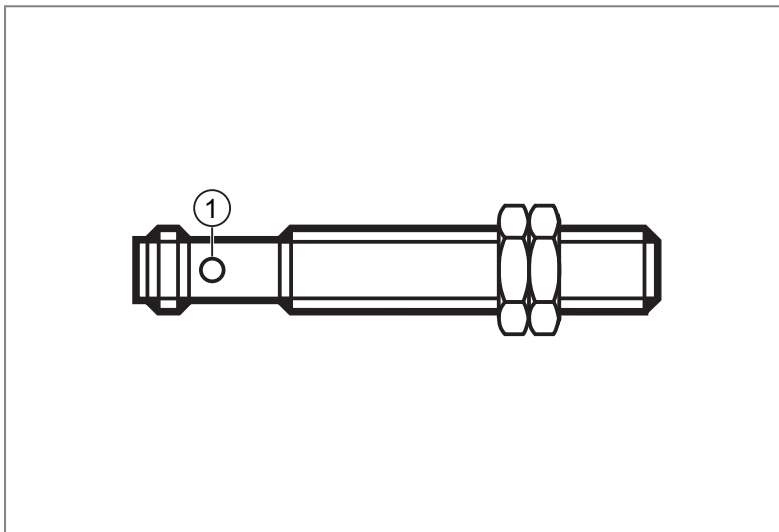


Pin	Assignment
1	L+
2 (OUT2)	Switching output
3	L-
4 (MP1)	switching output or IO-Link



Information on available sockets see: www.ifm.com.

8 Operating and display elements



1: LED

Fig. 10: Indicators

Colour	State	Description
Green	On	Operating voltage OK
	Off	Operating voltage missing
	Flashes at 1 Hz	Antenna deactivated
Red	Flashes at 1 Hz	Short circuit at the switching output
Yellow	On	ID tag detected
	Flashes twice	ID tag read or written successfully
	Flashes at 2 Hz	ID tag not successfully read or written
	Off	- No ID tag in the RF field - Faulty ID tag in the RF field - Invalid ID tag in the RF field

9 Parameter setting

Parameters can be set before installation or during operation.



If you change parameters during operation, this will influence the function of the plant.

- ▶ Ensure that there will be no malfunctions in your plant.

During parameter setting the unit remains in the operating mode. It continues to monitor with the existing parameter until the parameter setting has been completed.

The device parameters can be set via the IO-Link interface in the following ways, for example:

- Parameter setting via a suitable parameter setting software, e.g. ifm moneo|configure
- Parameter setting via a PLC
- Parameter setting via an IIoT application

Requirements for parameter setting via the IO-Link interface:

- ✓ The Input Output Device Description (IODD) for the device in case of parameter setting via a parameter setting software, see documentation.ifm.com
- ✓ The IO-Link interface description (PDF) for the device in case of parameter setting via a PLC or IIoT application, see documentation.ifm.com
- ✓ An IO-Link master
 - ▶ Connect the IO-Link master to the parameter setting software, the PLC or the IIoT application.
 - ▶ Connect the device to a suitable free port of the IO-Link master.
 - ▶ Set the port of the IO-Link master to the IO-Link operating mode.
- ▷ The device changes to the IO-Link mode.
 - ▶ Change the parameter settings in the software.
 - ▶ Write the parameter settings to the device.



Support for system integration and parameter setting via IO-Link:

- Manual of the parameter setting software (e.g. moneo)
- Explanations and startup packages at ifm.com/cnt/io-link-system-integration.

9.1 Adjustable parameters

9.1.1 Data block size

The memory area of an ISO 15693 ID tag is organised in data blocks. The [Data block size] parameter specifies the size of a data block. The set value must correspond with the value of the ID tag indicated in the data sheet. Alternatively, the value can be determined automatically by the device.

The following values in bytes are permitted and apply per data block:

- [0] (automatically determine data block size)
- [4]
- [8]
- [16]
- [32]

The data block size is only required for the internal data processing in the device. The user can access the process data images byte by byte on the memory area of the ID tag.

9.1.2 Data alignment

The [Data direction] sets the alignment of the data in a data block of an ID tag of ISO 15693.

Example

For an ID tag with block size 4 bytes the data can be ordered as in the tables:

Data block 0				Data block 1			
Byte 3	Byte 2	Byte 1	Byte 0	Byte 3	Byte 2	Byte 1	Byte 0

Tab. 2: [Normal order]

Data block 0				Data block 1			
Byte 0	Byte 1	Byte 2	Byte 3	Byte 0	Byte 1	Byte 2	Byte 3

Tab. 3: [Reversed order]



- Only change the parameter if the data on the ID tag was saved by another RFID system in a different data alignment.

9.1.3 Data hold time

The data hold time indicates the time during which the data of the process data input image can be held constant. Depending on the operating mode, this affects the following data:

- The **UID**
- The data in operating mode [Auto-read data], [Auto-read data (fixed)] or [Auto-write data]

The parameter [Data hold time] does not influence data transfer in the operating modes [Read data] and [Write data].

Example

If the data hold time is set to 500 ms, the UID is transmitted via IO-Link for at least 500 ms.

This also applies if the ID tag is no longer within the range of the device.

9.1.4 Address for automatic read/write

The parameter [Address for automatic read/write] sets the start address of the memory area that is accessed in the operating modes [Auto-read data], [Auto-read data (fixed)] and [Auto-write data].

The address is provided in bytes.

In the operating modes [Auto-read data], [Auto-read data (fixed)] and [Auto-write data], the device reads and writes a specific amount of data from the ID tag independently.

The addressed memory area must be within the available memory area of the ID tag:

```
[Adresse für automatisches Lesen/Schreiben]
+ [Datenlänge für automatisches Lesen/Schreiben]
≤ Anzahl der verfügbaren Bytes auf dem ID-Tag
```



- The number of available bytes is indicated in the data sheet of the ID tag.

9.1.5 Data length for automatic read/write

The parameter [Data length for automatic read/write] sets the length of the memory area that is read from and written to the ID tag.

Operating mode	Minimum length	Maximum length
[Auto-read data] [Auto-read data (fixed)]	1 byte	140 bytes
[Auto-write data]	1 byte	28 bytes

Tab. 4: Length of the memory area

In the operating modes [Auto-read data], [Auto-read data (fixed)] and [Auto-write data], the device reads and writes a specific amount of data from the ID tag independently.

The addressed memory area must be within the available memory area of the ID tag:

```
[Adresse für automatisches Lesen/Schreiben]
+ [Datenlänge für automatisches Lesen/Schreiben]
≤ Anzahl der verfügbaren Bytes auf dem ID-Tag
```



The number of available bytes is indicated in the data sheet of the ID tag.

9.1.6 ID tag password

The [ID tag password] parameter sets the password of the ID tag in the device. The password is a 32-bit value. If the password is correct, the device can read data from the ID tag and write it to the ID tag.



Some ID tags are not recognised by the device if an incorrect password has been saved with the IO-Link parameter [ID tag password] and

- the [Auto-read data]/[Auto-write data] operating mode is used or
- the [ID tag history] records the user data.

If an incorrect password is saved with the IO-Link parameter [ID tag password], some ID tags will no longer be recognised by the device. Specifically, the ID tag is only recognised for a short time when it enters the detection range of the device and is then no longer visible.

- Set the correct 32-bit password in the IO-Link parameter [ID tag password] .

Resetting the password

Setting the password 0x00 0x00 0x00 0x00 cancels the password protection of the ID tag. The memory area of the ID tag is then unprotected against read and write access.

The [Write ID tag password] operating mode changes or deletes the password stored on the ID tag.

9.1.7 RFID standard

The [RFID standard] parameter sets the RFID standard for the ID tags used:

- [Automatic recognition]
- [RFID standard ISO 15693]
- [RFID standard ISO 14443, type A]



The [Automatic detection] setting increases the time required to recognise ID tags.

9.1.8 HF output power

The [HF output power] parameter sets the high-frequency output power:

- [50 %]
- [75 %]
- [100 %]



If there is a large distance between the device and an ID tag:

- ▶ Set the [HF output power] to 100 %.



To reduce interference on neighbouring devices:

- ▶ Set the [HF output power] to 50 % or 75 %.

9.1.9 Activating the data comparison

The [Activate data comparison] parameter activates one of the data comparators. If the data comparator is deactivated, the settings for the comparison data are retained.



Activating the data comparator increases the time required to recognise ID tags.

9.1.10 Address for data comparison

The [Address for data comparison] parameter defines the start address of the data in the user memory of the ID tag. The data is read out during data comparison and compared with the reference data in the device.

9.1.11 Data length for data comparison

The value set in the parameter [Data length for the data comparison] determines the number of bytes that are read from the ID tag and compared with the reference data in the device during the data comparison. The maximum number is limited to 28 bytes per data comparator.



The less data is read from the ID tag, the faster the data comparison can be carried out.

9.1.12 Reference data for data comparison

The [Reference data for data comparison] parameter is used to store data in the device. This data is automatically compared with the data stored in the memory of the ID tag via the data comparator. If the data matches, the comparison is positive and the match bit is set and a switching signal is output if a switching output is configured accordingly via the [SELx] and [oux] parameters.



28 bytes are always saved in this parameter. The number of bytes used for the data comparison, however, is determined by the parameter [Data length] for data comparison.

9.1.13 SEL1 and SEL2

The parameters [SEL1] and [SEL2] are used to select the switching conditions for switching outputs 1 and 2. The following selection is available in each of the following cases:

- [Processdata controlled]: The switching status depends on the bits **OUT1** and **OUT2** in the process data output image.
- [Tag Present]: The presence of an ID tag in the device's RF field determines the switching state.
- [Compare A]: The result of the data comparator A determines the switching status.
- [Compare B]: The result of the data comparator B determines the switching status.
- [Compare A & Compare B]: The AND logic operation of data comparison A and B determines the switching state.
- [Compare A | Compare B]: The logical OR operation of data comparison A and B determines the switching state.

9.1.14 ou1 and ou2

The parameters [ou1] and [ou2] are used to configure the switching outputs 1 and 2. The following selection is available in each of the following cases:

- [OFF] = not enabled
- [[no]] = high active = normally open
- [[nc]] = low active = normally closed



If the device is connected to an IO-Link master, switching output 1 cannot be used regardless of the currently set configuration

9.1.15 dS1 and dS2

The parameters [dS1] and [dS2] are used to set a delay time in milliseconds with which switching output 1 or 2 switches.

9.1.16 dr1 and dr2

The parameters [dr1] and [dr2] are used to set a delay time in milliseconds with which switching output 1 or 2 switches back.

9.1.17 P-n

The output polarity is set via the parameter [P-n].

The setting affects both switching outputs.

- [PnP]: The switching output is positive switching.
- [nPn]: The switching output is negative switching.

9.1.18 Data for the ID tag history

The [Data for ID tag history] parameter is used to select the data to be recorded in the device for the [ID tag history].

- [UID]: recording of the **UID** of the ID tags
- [Auto-Read]: Recording of user data according to the setting of the following parameters:
 - [Address for automatic read/write]
 - [Data length for automatic read/write]

9.1.19 Defined operating mode

The parameter [Defined operating mode] sets the preset operating mode. The preset operating mode is retained after restarting the device. This makes it independent of the process data provided.

The parameter [Defined operating mode] is set by the following parameter values:

Parameter value	Name	Description
0x00	defined by Processdata	Operating modes are defined by the command value in the process output image
0x80	READ_UID_FIX	Corresponds to the operating mode [Read UID]
0x81	AUTO_READ_FIX	Corresponds to the operating mode [Auto-read data]

9.2 Diagnostic parameters

The following parameters are used to display diagnostic and status data. The parameters cannot be set

Parameter	Explanation (The data refers to the ID tag currently in the HF field)
[ID tag counter]	Output of the number of all ID tags detected in the HF field since the device was first set up. Reset counters: ► Execute the command: [Reset ID tag counter]. ▷ The [ID tag counter] is set to 0.
[ID-Tag UID]	Output of the UID
[ID-Tag DSFID]	Output of the DSFID
[ID-Tag AFI]	Output of the AFI
[Number of memory blocks]	Output of the number of memory blocks in the user memory
[Size of a memory block]	Output of the size of a memory block in the user memory in bytes
[Memory size of the ID tag]	Output of the size of the user memory in bytes
[IC manufacturer code]	Output of the manufacturer code
[IC reference]	Output of the reference number of the chip
[ATQA]	Response to a type A request (only for ISO14443A ID tags)
[SAK]	Response to a select request of type A (only for ISO14443A ID tags)
[Length of the UID]	Output of the length of the UID in bytes
[Detected ID tag type]	Output of the type designation

9.2.1 ID tag history

The device automatically saves the last 5 ID tags that were in front of the device. The [Data for the ID tag history] parameter determines whether the UID or the user data of the ID tag is recorded.

The history can be read from the device using the IO-LINK BLOB with the BLOB ID -5005.

Data format of the BLOB:

The [ID tag history] is output as ASCII-coded CSV data:

```
ID-Tag Number, ID-Tag UID
1,E0040150F7914BF00000
2,00000000000000000000
3,00000000000000000000
4,00000000000000000000
5,00000000000000000000
```



To read out the data via the BLOB, the functionality of the IO-Link master must be used. Additional function blocks may be necessary. For more information, please contact the manufacturer of the IO-Link master.



The history is saved in the volatile memory of the device and deleted when the device starts. The history can also be reset with the system command [Reset ID tag history].

9.3 Status bits

The status bits are located in byte 1 of the process input image.



The following status bits cannot be used in the [Read UID] operating mode:

- Cmd Start
- Cmd Start Acknowledge
- Cmd End

Process data input

Process data input								
Bit	7	6	5	4	3	2	1	0
Name	OUT2	OUT1	Match B	Match A	Antenna de-activated	Tag present	Cmd End	Cmd Start Acknowledge

Status bit	Value	Description
OUT2	0	Switching output 2 not active
	1	Switching output 2 active
OUT1	0	Switching output 1 not active
	1	Switching output 1 active
Match B	0	Data comparator B: ID tag data does not match reference data
	1	Data comparator B: ID tag data matches reference data
Match A	0	Data comparator A: ID tag data does not match reference data
	1	Data comparator A: ID tag data matches reference data
Antenna deactivated	0	Antenna activated, device ready to receive
	1	Antenna deactivated, device not ready to receive
Tag present	0	No ID tag in the range of the device
	1	ID tag detected
Cmd End	0	Read or write operation not yet started or active
	1	Read or write operation terminated
Cmd Start Acknowledge	0	Start of a read or write operation not acknowledged
	1	Start of a read or write operation acknowledged

Process data output

Process data output								
Bit	7	6	5	4	3	2	1	0
Name	OUT2	OUT1			Antenna de-activate			Cmd Start

Status bit	Value	Description
OUT2	0	Do not activate switching output 2 at [SEL2] = [Processdata controlled]
	1	Switch switching output 2 to active at [SEL2] = [Processdata controlled]
OUT1	0	Do not activate switching output 1 at [SEL1] = [Processdata controlled]
	1	Switch switching output 1 to active at [SEL1] = [Processdata controlled]
Antenna deactivate	0	Activate antenna
	1	Deactivate antenna
Cmd Start	0	Reset trigger for read or write operation
	1	Set trigger for read or write operation

10 Operation

The device supports several operating modes that are set via the command value in the process data:

Operating mode	Command value	Description
[Read UID]	0x00	Operating mode Read UID (→ 29)
[Auto-read data]	0x01	Operating mode Auto read data (→ 30)
[Auto-write data]	0x02	Operating mode Auto write data (→ 32)
[Read data]	0x03	Operating mode Read data (→ 33)
[Write data]	0x04	Operating mode Write data (→ 35)
[Read write protection status]	0x05	Operating mode Read write protection status (→ 38)
[Write write protection]	0x06	Operating mode Write write protection (→ 39)
[Write ID tag password]	0x07	Operating mode Write ID tag password (→ 40)
[Read UID (fixed)]	0x80	Operating mode Read UID (fixed) (→ Operating mode Read UID (fixed) 41)
[Auto-read data (fixed)]	0x81	Operating mode Auto read data (fixed) (→ Operating mode Auto read data (fixed) 42)

For all operating modes, the same status bits and error values in the process images apply.



The operating modes [Read UID (fixed)] and [Auto read data (fixed)] are set by the parameter [Defined operating mode]. [Defined operating mode \(→ 26\)](#)

If one of the two operating modes is set, the command value for the operating mode in the process output image cannot be changed.

10.1 Deactivate internal antenna

The internal antenna of the device can be deactivated at any time.

The following applies when the antenna is deactivated:

- The device can still be accessed via IO-Link.
- The device does not generate an RF field.
- The device does not detect ID tags.

Interference between devices mounted next to each other is reduced by deactivating the antenna.

Deactivate the internal antenna:

► Set the `Antenna deactivate` bit in the process data output.



The status of the internal antenna is queried via the `Antenna deactivate` bit in the process data input.

10.2 Operating mode Read UID

In the operating mode [Read UID] the **UID** of an ID tag is read. Then the UID is available in the process data input. If no ID tag is in the range of the device, the bytes of the UID contain the value `0x00`.

As soon as an ID tag is detected by the device, the UID is transferred. The transfer is continued for the min. length of the data hold time. If a new ID tag appears in the detection range during the data hold time, the UID of the new ID tag is transferred.



The preset operating mode after starting the device is [Read UID].

This only applies if the parameter [Defined operating mode] is set to the command value `0x00`.



The length of the currently valid UID is indicated by byte 29. The received signal strength (RSSI) is indicated by byte 30.

Byte	Process data output	Process data input
0	Command = 0x00	Command = 0x00
1	Status (→ Status bits 27)	Status (→ Status bits 27)
2	Ignored	UID 0
3	Ignored	UID 1
4	Ignored	UID 2
5	Ignored	UID 3
6	Ignored	UID 4
7	Ignored	UID 5
8	Ignored	UID 6
9	Ignored	UID 7
10	Ignored	UID 8
11	Ignored	UID 9
12	Ignored	0x00
13	Ignored	0x00
14	Ignored	0x00
15	Ignored	0x00
16	Ignored	0x00
17	Ignored	0x00
18	Ignored	0x00
19	Ignored	0x00
20	Ignored	0x00
21	Ignored	0x00
22	Ignored	0x00
23	Ignored	0x00
24	Ignored	0x00
25	Ignored	0x00
26	Ignored	0x00
27	Ignored	0x00
28	Ignored	0x00
29	Ignored	length
30	Ignored	RSSI
31	Ignored	0x00

10.3 Operating mode Auto read data

In the operating mode [Auto read data] the bytes 0 to 27 represent the data in the memory area of the ID tag.

The memory area is set by the parameters [Address for Auto Read/Write] and [Data Length for Auto-Read/Write].

For memory areas with a data length of < 28 bytes the data remaining in the process image is filled with the value 0x00.

For data lengths greater than 28 bytes (maximum 140 bytes), the next 28 bytes are transmitted and the block counter is increased after the data hold time has elapsed. The steps are repeated until all data has been transferred. The status bit **Cmd End** is set in the last data block. To reduce the data retention time, equalise the block counter in the data output image with the value of the block counter in the data input image.

If the ID tag enters the detection range of the device, the data in the process image is updated. The data in the process image is valid as soon as the status bit **Cmd End** is set.

If the ID tag leaves the detection zone of the device, the pending data is transmitted and the last data block is kept constant in the process image according to the data hold time. If the data hold time is exceeded and there is no ID tag in the detection range, the data is filled with the value **0x00**.

If the ID tag remains in the detection range, the data can be read with the status bit **Cmd Start**. If the reading was not successful, no error value is displayed in the process image.



The shorter the data length set for [Auto-Read/Write Data Length], the less time is needed for reading. The time that the ID tag remains in the device's detection range is correspondingly shorter.

Byte	Process data output	Process data input
0	Command = 0x01	Command = 0x01
1	Status (→ Status bits 27)	Status (→ Status bits 27)
2	Ignored	Data 0
3	Ignored	Data 1
4	Ignored	Data 2
5	Ignored	Data 3
6	Ignored	Data 4
7	Ignored	Data 5
8	Ignored	Data 6
9	Ignored	Data 7
10	Ignored	Data 8
11	Ignored	Data 9
12	Ignored	Data 10
13	Ignored	Data 11
14	Ignored	Data 12
15	Ignored	Data 13
16	Ignored	Data 14
17	Ignored	Data 15
18	Ignored	Data 16
19	Ignored	Data 17
20	Ignored	Data 18
21	Ignored	Data 19
22	Ignored	Data 20
23	Ignored	Data 21
24	Ignored	Data 22
25	Ignored	Data 23
26	Ignored	Data 24
27	Ignored	Data 25
28	Ignored	Data 26
29	Ignored	Data 27

Byte	Process data output	Process data input
30	Block counter	Block counter
31	Ignored	0x00

10.4 Operating mode Auto write data

In the operating mode "Auto-write data", the data to be written is defined by the process data output image.

The data is set with the parameters [Address for Auto Read/Write] and [Data Length for Auto Read/Write].

The data is written to an ID tag with the set address and data length as soon as the **ID tag** enters the detection range.

Max. 28 bytes become defined in the process data output image (bytes 0 to 27). For memory areas with a data length of < 28 bytes the remaining data is ignored and not written to the ID tag.

If the writing was successful, the written data is mirrored in the process data input image and the **Cmd End** status bit is set.

If the ID tag leaves the detection range, the data is held in the process image according to the data hold time. If the data hold time is exceeded and there is no ID tag in the detection range, the data is filled with the value 0x00.

If the ID tag remains in the detection range, the data can be rewritten with the **Cmd Start** status bit. If the writing was not successful, no error value is displayed in the process image.



The smaller the value set for [Auto-Read/Write Data Length], the less time is required for writing. The time that the ID tag remains in the device's detection range is correspondingly shorter.

Byte	Process data output	Process data input
0	Command = 0x02	Command = 0x02
1	Status (→ Status bits 0 27)	Status (→ Status bits 0 27)
2	Data 0	Data 0
3	Data 1	Data 1
4	Data 2	Data 2
5	Data 3	Data 3
6	Data 4	Data 4
7	Data 5	Data 5
8	Data 6	Data 6
9	Data 7	Data 7
10	Data 8	Data 8
11	Data 9	Data 9
12	Data 10	Data 10
13	Data 11	Data 11
14	Data 12	Data 12
15	Data 13	Data 13
16	Data 14	Data 14
17	Data 15	Data 15
18	Data 16	Data 16
19	Data 17	Data 17

Byte	Process data output	Process data input
20	Data 18	Data 18
21	Data 19	Data 19
22	Data 20	Data 20
23	Data 21	Data 21
24	Data 22	Data 22
25	Data 23	Data 23
26	Data 24	Data 24
27	Data 25	Data 25
28	Data 26	Data 26
29	Data 27	Data 27
30	0x00	0x00
31	Ignored	0x00

10.5 Operating mode Read data

In the [Read data] operating mode, large amounts of data can be read with a single read operation. The data is sequentially transferred from the device to the controller.

Transfer data from the device to the controller:

- ▶ Use the controller to set the following values in the process data output:
The command value `0x03`, the address (16 bits) and the data length (16 bits).
- ▶ Use the controller to start the read operation with the status bit `Cmd Start`.
- ▷ The device confirms the start of the read operation by setting the status bit `Cmd Start Acknowledge` in the process data input.
- ▷ The device transfers the data in the process data input (data 0 to 27) and increases the block counter by “1” as soon as the first data of the ID tag is available. The block counter is reset to 0 when the value exceeds 255.
- ▶ With the control, acknowledge the receipt of the data by increasing the block counter in the process data output by “1”.
- ▶ The last two steps are repeated until all data has been transferred.
- ▷ The device sets the status bit `Cmd End` with the last transfer.
- ▷ The read operation is terminated.



If reading was unsuccessful, the device sets the error value and the status bit `Cmd End` in the process image. The data transmission is interrupted.

Byte	Process data output	Process data input
0	Command = 0x03	Command = 0x03
1	Status (→ Status bits 27)	Status (→ Status bits 27)
2	Ignored	Data 0
3	Ignored	Data 1
4	Address (high byte)	Data 2
5	Address (low byte)	Data 3
6	Length (high byte)	Data 4
7	Length (low byte)	Data 5
8	Ignored	Data 6
9	Ignored	Data 7

Byte	Process data output	Process data input
10	Ignored	Data 8
11	Ignored	Data 9
12	Ignored	Data 10
13	Ignored	Data 11
14	Ignored	Data 12
15	Ignored	Data 13
16	Ignored	Data 14
17	Ignored	Data 15
18	Ignored	Data 16
19	Ignored	Data 17
20	Ignored	Data 18
21	Ignored	Data 19
22	Ignored	Data 20
23	Ignored	Data 21
24	Ignored	Data 22
25	Ignored	Data 23
26	Ignored	Data 24
27	Ignored	Data 25
28	Ignored	Data 26
29	Ignored	Data 27
30	Block counter	Block counter
31	Ignored	error value (→ Error values in the process data input 42)

10.5.1 Example successful reading of data

The example shows that reading of the data was successful.

	Process data	Command value	Address	length	Data 0 to 27	Block counter	error value	Status bit Cmd Start	Status bit Cmd End
Preset command	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x00			UID	0x00	0x00	0	0
Controller sets command (read 35 bytes from address 0x12)	OUT	0x03	0x0012	0x0023	0x00	0x00		1	
	IN	0x03			UID	0x00	0x00	0	0
Device acknowledges command	OUT	0x03	0x0012	0x0023	0x00	0x00		1	
	IN	0x03			0x00	0x00	0x00	1	0
Device sets first byte of the data	OUT	0x03	0x0012	0x0023	0x00	0x00		1	
	IN	0x03			Data	0x01	0x00	1	0
Controller acknowledges receipt of the data	OUT	0x03	0x0012	0x0023	0x00	0x01		1	
	IN	0x03			Data	0x01	0x00	1	0
Device sets more data and terminates reading	OUT	0x03	0x0012	0x0023	0x00	0x01		1	
	IN	0x03			Data	0x02	0x00	1	1
Controller acknowledges receipt of the data	OUT	0x03	0x0012	0x0023	0x00	0x02		1	
	IN	0x03			Data	0x02	0x00	1	1

	Process data	Command value	Address	length	Data 0 to 27	Block counter	error value	Status bit Cmd Start	Status bit Cmd End
Controller withdraws command value	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x03			Data	0x02	0x00	1	1
Device carries out preset command	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x00			UID	0x00	0x00	0	0

10.5.2 Example unsuccessful reading of data

Example shows that reading of the data was unsuccessful.

	Process data	Command value	Address	length	Data 0 to 27	Block counter	error value	Status bit Cmd Start	Status bit Cmd End
Preset command	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x00			UID	0x00	0x00	0	0
Controller sets command (read 35 bytes from address 0x12)	OUT	0x03	0x0012	0x0023	0x00	0x00		1	
	IN	0x03			UID	0x00	0x00	0	0
Device acknowledges command	OUT	0x03	0x0012	0x0023	0x00	0x00		1	
	IN	0x03			0x00	0x00	0x00	1	0
Device sets first byte of the data	OUT	0x03	0x0012	0x0023	0x00	0x00		1	
	IN	0x03			Data	0x00	0x00	1	0
Controller acknowledges receipt of the data	OUT	0x03	0x0012	0x0023	0x00	0x01		1	
	IN	0x03			Data	0x01	0x00	1	0
Device sets error value	OUT	0x03	0x0012	0x0023	0x00	0x01		1	
	IN	0x03			Data	0x01	0x11	1	1
(ID tag not available)	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x03			0x00	0x01	0x11	1	1
Controller withdraws command value	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x00			UID	0x00	0x00	0	0

10.6 Operating mode Write data

In the [Write data] operating mode, more than 28 bytes can be written with a single write operation. The data is sequentially transferred from the controller to the device.

Transferring data from the controller to the device:

- Use the controller to set the following values in the process data output: the command value 0x04, the address (16 bits) and the data length (16 bits).
- Use the controller to start the write operation with the status bit Cmd Start.
- ▷ The device acknowledges the start of the write operation by setting the status bit Cmd Start Acknowledge in the process data input.
- Use the controller to fill the data in the process data output (data 0 to 27) and increase the block counter by "1". The block counter is reset to 0 when the value exceeds 255.
- ▷ The device acknowledges receipt of the data by increasing the block counter in the process data output by "1".
- The last two steps are repeated until all data has been transferred.

- ▷ The device sets the status bit **Cmd End** with the last transmission to the ID tag.
- ▷ The write operation is terminated.



If writing was unsuccessful, the device sets the error value and the status bit **Cmd End** in the process image. The data transmission is interrupted.

Byte	Process data output when starting the write operation	Process data output during data transfer	Process data input
0	Command = 0x04	Command = 0x04	Command = 0x04
1	Status (→ Status bits □ 27)	Status (→ Status bits □ 27)	Status (→ Status bits □ 27)
2	Ignored	Data 0	0x00
3	Ignored	Data 1	0x00
4	Address (high byte)	Data 2	0x00
5	Address (low byte)	Data 3	0x00
6	Length (high byte)	Data 4	0x00
7	Length (low byte)	Data 5	0x00
8	Ignored	Data 6	0x00
9	Ignored	Data 7	0x00
10	Ignored	Data 8	0x00
11	Ignored	Data 9	0x00
12	Ignored	Data 10	0x00
13	Ignored	Data 11	0x00
14	Ignored	Data 12	0x00
15	Ignored	Data 13	0x00
16	Ignored	Data 14	0x00
17	Ignored	Data 15	0x00
18	Ignored	Data 16	0x00
19	Ignored	Data 17	0x00
20	Ignored	Data 18	0x00
21	Ignored	Data 19	0x00
22	Ignored	Data 20	0x00
23	Ignored	Data 21	0x00
24	Ignored	Data 22	0x00
25	Ignored	Data 23	0x00
26	Ignored	Data 24	0x00
27	Ignored	Data 25	0x00
28	Ignored	Data 26	0x00
29	Ignored	Data 27	0x00
30	0x00	Block counter	Block counter
31	Ignored	Ignored	error value (→ Error values in the process data input □ 42)

10.6.1 Example successful writing of data

The example shows successful writing of data.

	Process data	Command value	Address	length	Data 0 to 27	Block counter	error value	Status bit Cmd Start	Status bit Cmd End
Preset command	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x00			UID	0x00	0x00	0	0
Controller sets command (write 40 bytes to address 0x10)	OUT	0x04	0x0010	0x0028	0x00	0x00		1	
	IN	0x04			UID	0x00	0x00	0	0
Device acknowledges command	OUT	0x04	0x0010	0x0028	0x00	0x00		1	
	IN	0x04			0x00	0x00	0x00	1	0
Controller transfers the first data	OUT	0x04	Data for ID tag			0x01		1	
	IN	0x04			0x00	0x00	0x00	1	0
Device acknowledges data	OUT	0x04	Data for ID tag			0x01		1	
	IN	0x04			0x00	0x01	0x00	1	0
Controller transfers more data	OUT	0x04	Data for ID tag			0x02		1	
	IN	0x04			0x00	0x01	0x00	1	0
Device acknowledges data and terminates writing	OUT	0x04	Data for ID tag			0x02		1	
	IN	0x04			0x00	0x02	0x00	1	1
Controller withdraws command value	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x04			0x00	0x02	0x00	1	1
Device carries out preset command	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x00			UID	0x00	0x00	0	0

10.6.2 Example unsuccessful writing of data

Example shows that writing of the data was unsuccessful.

	Process data	Command value	Address	length	Data 0 to 27	Block counter	error value	Status bit Cmd Start	Status bit Cmd End
Preset command	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x00			UID	0x00	0x00	0	0
Controller sets command (write 40 bytes to address 0x10)	OUT	0x04	0x0010	0x0028	0x00	0x00		1	
	IN	0x04			UID	0x00	0x00	0	0
Device acknowledges command	OUT	0x04	0x0010	0x0028	0x00	0x00		1	
	IN	0x04			0x00	0x00	0x00	1	0
Controller transfers the first data	OUT	0x04	Data for ID tag			0x01		1	
	IN	0x04			0x00	0x00	0x00	1	0
Device acknowledges data	OUT	0x04	Data for ID tag			0x01		1	
	IN	0x04			0x00	0x01	0x00	1	0
Controller transfers more data	OUT	0x04	Data for ID tag			0x02		1	
	IN	0x04			0x00	0x01	0x00	1	0
Device sets error value (ID tag not available)	OUT	0x04	Data for ID tag			0x02		1	
Device acknowledges data and terminates writing	IN	0x04			0x00	0x01	0x11	1	1

	Process data	Command value	Address	length	Data 0 to 27	Block counter	error value	Status bit Cmd Start	Status bit Cmd End
Controller withdraws command value	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x04			0x00	0x01	0x11	1	1
Device carries out preset command	OUT	0x00	0x0000	0x0000	0x00	0x00		0	
	IN	0x00			UID	0x00	0x00	0	0

10.7 Operating mode Read write protection status

In the [Read write protection status] operating mode, the current status of the write protection of an address in the user memory of the ID tag can be read out.

Reading out the write protection status of an ID tag:

- Use the controller to set the following values in the process data output:
The command value 0x05 and the address (16 bits).
- Use the controller to start the read operation with the status bit Cmd Start .
- ▷ The device confirms the start of the read operation by setting the status bit Cmd Start Acknowledge in the process data input.
- ▷ The device reads out the write protection status of the selected address.
- ▷ The device sets the Cmd End status bit when the read operation is complete.
- Read out the status of the write protection in the byte [Read write protection status]:
 - [Read write protection status] = 0x00 : The address is not write-protected
 - [Read write protection status] = 0x01 : The address is write-protected.

Byte	Process data input	Process data output
0	Command = 0x05	Command = 0x05
1	Status (→ Status bits 27)	Status (→ Status bits 27)
2	Ignored	Read write protection status
3	Ignored	0x00
4	Address (high byte)	0x00
5	Address (low byte)	0x00
6	Ignored	0x00
7	Ignored	0x00
8	Ignored	0x00
9	Ignored	0x00
10	Ignored	0x00
11	Ignored	0x00
12	Ignored	0x00
13	Ignored	0x00
14	Ignored	0x00
15	Ignored	0x00
16	Ignored	0x00
17	Ignored	0x00
18	Ignored	0x00
19	Ignored	0x00

Byte	Process data input	Process data output
20	Ignored	0x00
21	Ignored	0x00
22	Ignored	0x00
23	Ignored	0x00
24	Ignored	0x00
25	Ignored	0x00
26	Ignored	0x00
27	Ignored	0x00
28	Ignored	0x00
29	Ignored	0x00
30	Ignored	0x00
31	Ignored	Error value (→ Error values in the process data input 42)

10.8 Operating mode Write write protection

In the [Write write protection] operating mode, an address in the user memory of the ID tag is write-protected.

ID tag with write protection:

- ▶ Use the controller to set the following values in the process data output:
The command value `0x06`, the address (16 bits) and the data length (16 bits).
- ▶ Use the controller to start the write operation with the status bit `Cmd Start`.
- ▷ The device acknowledges the start of the write operation by setting the status bit `Cmd Start Acknowledge` in the process data input.
- ▷ The device writes the write protection status to the selected address of the ID tag.
- ▷ The device sets the `Cmd End` status bit when the write operation is complete.



If writing was unsuccessful, the device sets the error value and the status bit `Cmd End` in the process image. The data transmission is interrupted.



It is also possible to read the data with write protection at any time



Write protection is permanently saved on the ID tag and cannot be undone.



Write protection on the ID tag is set per data block. Addresses and lengths that are not aligned with the data blocks cause a write protection that extends beyond the specified addresses. (→ [ID tags](#) 9)

Byte	Process data input	Process data output
0	Command = <code>0x06</code>	Command = <code>0x06</code>
1	Status (→ Status bits 27)	Status (→ Status bits 27)
2	Ignored	0x00
3	Ignored	0x00
4	Address (high byte)	0x00
5	Address (low byte)	0x00
6	Length (high byte)	0x00

Byte	Process data input	Process data output
7	Length (low byte)	0x00
8	Ignored	0x00
9	Ignored	0x00
10	Ignored	0x00
11	Ignored	0x00
12	Ignored	0x00
13	Ignored	0x00
14	Ignored	0x00
15	Ignored	0x00
16	Ignored	0x00
17	Ignored	0x00
18	Ignored	0x00
19	Ignored	0x00
20	Ignored	0x00
21	Ignored	0x00
22	Ignored	0x00
23	Ignored	0x00
24	Ignored	0x00
25	Ignored	0x00
26	Ignored	0x00
27	Ignored	0x00
28	Ignored	0x00
29	Ignored	0x00
30	Ignored	0x00
31	Ignored	error value (→ Error values in the process data input 42)

10.9 Operating mode Write ID tag password

In operating mode [Write ID tag password], a new password is assigned on the ID tag and stored in non-volatile memory on the ID tag.

Further access to the data will then only be possible if the access password of the device (parameter [ID tag password]; Index 1906, subindex 0) matches the newly written password.

When changing an existing password, the old password must first be specified in the parameter [ID tag password], in order to then set a new password using the process data command [Write ID tag password]. After that the new password must then be specified in the [ID tag password] parameter to have further access to the ID tag.

To delete a password on the ID tag, a password with value 0x00000000 is set on the ID tag.

A password always consists of 4 bytes and is used for both read and write access.

ID tag with password:

- Use the controller to set the following values in the process data output:
The command value 0x07 and the password (PWD0 to PWD3).
- Use the controller to start the write operation with the status bit Cmd Start .
- ▷ The device confirms the start of the write operation by setting the status bit Cmd Start Acknowledge in the process data input.
- ▷ The device writes the password to the ID tag.

▷ The device sets the **Cmd End.** status bit when the write operation is complete.



If the writing was not successful, the device sets the error value and the **Cmd End** status bit in the process image. The data transmission is interrupted.

Byte	Process input	Process output
0	Command = 0x07	Command = 0x07
1	Status (→ Status bits □ 27)	Status (→ Status bits □ 27)
2	Ignored	0x00
3	Ignored	0x00
4	PWD0	0x00
5	PWD1	0x00
6	PWD2	0x00
7	PWD3	0x00
8	Ignored	0x00
9	Ignored	0x00
10	Ignored	0x00
11	Ignored	0x00
12	Ignored	0x00
13	Ignored	0x00
14	Ignored	0x00
15	Ignored	0x00
16	Ignored	0x00
17	Ignored	0x00
18	Ignored	0x00
19	Ignored	0x00
20	Ignored	0x00
21	Ignored	0x00
22	Ignored	0x00
23	Ignored	0x00
24	Ignored	0x00
25	Ignored	0x00
26	Ignored	0x00
27	Ignored	0x00
28	Ignored	0x00
29	Ignored	0x00
30	Ignored	0x00
31	Ignored	error value (→ Error values in the process data input □ 42)

10.10 Operating mode Read UID (fixed)

The operating mode corresponds to the operating mode [Read UID]. [Operating mode Read UID](#) (→ □ 29)

The operating mode is set by the parameter [Defined operating mode] and is thus retained even after the device is restarted. [Defined operating mode](#) (→ □ 26)

10.11 Operating mode Auto read data (fixed)

The operating mode corresponds to the operating mode [Auto read data]. [Operating mode Auto read data](#) (→ [□ 30](#))

The operating mode is set by the parameter [Defined operating mode] and is thus retained even after the device is restarted. [Defined operating mode](#) (→ [□ 26](#))

10.12 Error values in the process data input

Value	Name	Description
0x01	RFID_ERROR_UNKNOWN_COMMAND	Unknown command
0x02	RFID_ERROR_COMMAND_TIMEOUT	Timeout when processing the command, e.g. if no data is sent for a [Write data] command
0x11	RFID_COMMAND_ERROR_NO_RESPONSE	• ID tag does not respond. • ID tag outside the range. • ID tag does not support the operation or wrong parameter (e.g. the data block is too big).
0x12	RFID_COMMAND_ERROR_RX_ERROR	Error during reception of the data of the ID tag.
0x13	RFID_COMMAND_ERROR_PASSWORD	Error while using the access password
0x14	RFID_COMMAND_ERROR_MEM_OUT_OF_RANGE	Addressed storage area cannot be reached
0x21	ISO15693_TAG_ERROR_COMMAND_NOT_SPECIFIED	Command is not supported by the ID tag.
0x22	ISO15693_TAG_ERROR_COMMAND_SYNTAX	Parameter of the command wrong.
0x23	ISO15693_TAG_ERROR_OPTION_NOT_SUPPORTED	ID tag does not support option of the command.
0x2F	ISO15693_TAG_ERROR_OTHER	ID tag indicates other error during execution of the command
0x30	ISO15693_TAG_ERROR_BLOCK_NOT_USABLE	The data block of the ID tag cannot be used (e.g. the data block does not exist).
0x31	ISO15693_TAG_ERROR_BLOCK_ALREADY_BLOCKED	The data block was already locked
0x32	ISO15693_TAG_ERROR_BLOCK_NOT_UPDATABLE	The data block is locked and cannot be overwritten
0x33	ISO15693_TAG_ERROR_BLOCK_WRITE_VERIFY	The data block was not correctly written (e.g. the storage area is defective)
0x34	ISO15693_TAG_ERROR_BLOCK_LOCK_VERIFY	The data block cannot be locked (e.g. the memory area is defective).
0x40	ISO14443A_TAG_ERROR_INVALID_ARGUMENT	Wrong argument while executing a commands on the ID tag
0x41	ISO14443A_TAG_ERROR_PAR_CRC_ERROR	CRC or parity error in communication to the ID tag
0x44	ISO14443A_TAG_ERROR_INVALID_AUTH	Too many authentication errors
0x45	ISO14443A_TAG_ERROR_EEPROM_WRITE_ERROR	Error while writing to the EEPROM

11 Maintenance, repair and disposal

The unit is maintenance-free.

- ▶ Contact ifm in case of malfunction.
- ▶ Do not open the housing as the unit does not contain any components which can be maintained by the user. The unit must only be repaired by the manufacturer.
- ▶ Clean the device using a dry cloth.
- ▶ Dispose of the unit in accordance with the national environmental regulations.

12 Approvals/standards

For approvals and standards, the following information is available:

- Test standards and regulations: documentation.ifm.com
- EU declaration of conformity and approvals: documentation.ifm.com
- Notes relevant for approval: Package insert of the device and documentation.ifm.com

Glossary

AFI

Scope of application of the ID tag

DSFID

Identification number for the assignment of the data structure on an ID tag

ID tag

An ID tag is used to identify objects. A read/write device is used to read the ID tag via a high-frequency radio signal. An ID tag consists of an antenna, an analogue circuit for receiving and transmitting (transceiver), a digital circuit and a non-volatile memory.

IO-Link

IO-Link is a standardised IO technology (IEC 61131-9) for communicating with sensors and actuators. Point-to-point communication is based on 3-wire sensor and actuator connection. IO-Link is not a fieldbus, but the further development of the previous connection technology.

UID

Unique Identification Number; unique identification number of a device.



Funkzulassung
Radio approval
Agrément radio
Aprobación de radio
無線電許可
라디오 주파 인증
Aprovação de rádio
Radyo onayı

ANTxxx

DTCxxx

DTExxx

DTIxxx

DTMxxx

RFID 13,56 MHz



Hinweis / Note / Remarque / Uyarı

Deutsch



Die aktuell gültigen Zulassungen der Geräte sind als Download verfügbar: documentation.ifm.com

English



The currently valid approvals of the units are available for download: documentation.ifm.com

Français



Les homologations actuellement en vigueur des appareils sont disponibles en téléchargement : documentation.ifm.com

Türkçe



Cihazların şu anda geçerli olan onayları indirilebilir: documentation.ifm.com

Europäische Union / European Union / L'Union Europe

Deutsch

Vor Inbetriebnahme die Bedienungsanleitung lesen und während der Einsatzdauer aufbewahren.

- Hiermit erklärt die ifm electronic GmbH, dass die Geräte in der folgenden Tabelle der Richtlinie 2014/53/EU entsprechen.
- Der vollständige Text der EU-Konformitätserklärung, Technische Daten, Anleitungen, Zulassungen, Kontakte und weitere Informationen unter documentation.ifm.com.

WARNUNG! Der Betrieb des Gerätes kann Funkstörungen in Wohngebieten verursachen.

- Das Gerät mit einem Mindestabstand von 20 cm zum Benutzer, in der Nähe befindlichen Personen oder Tieren installieren und betreiben.

Gerät	Frequenz	Max. H-Feldstärke
ANT410, ANT411, ANT420, ANT421, ANT424, ANT425, ANT430, ANT431, ANT434, ANT435, ANT513, ANT515, ANT516, DTC124, DTC125, DTC510, DTI213, DTI300, DTI410, DTI411, DTI420, DTI421, DTI424, DTI425, DTI430, DTI431, DTI434, DTI435, DTI513, DTI515, DTI516, DTM424, DTM425, DTM426, DTM427, DTM428, DTM434, DTM435, DTM436, DTM437	13,56 MHz	5 dB μ A/m @ 10 m
ANT600, DTC600, DTE601, DTE602, DTE604, DTE605, DTI600	13,56 MHz	30 dB μ A/m @ 10 m
DTI131, DTI135, DTI215, DTI216	13,56 MHz	-5 dB μ A/m @ 10 m
DTI111, DTI121, DTI125, DTI130	13,56 MHz	-15 dB μ A/m @ 10 m
DTI110, DTI120, DTI124, DTI134	13,56 MHz	-25 dB μ A/m @ 10 m

English

Read the operating instructions before set-up and keep them for the duration of use.

- ifm electronic gmbh hereby declares that the devices indicated in the following table are in compliance with Directive 2014/53/EU.
- The full text of the EU Declaration of Conformity, technical data, instructions, approvals, contacts and further information is available at documentation.ifm.com.

WARNING! The operation of this device can cause radio interference in residential areas.

- Install and operate the device at a minimum distance of 20 cm from the user, nearby persons or animals.

Device	Frequency	Max. H-field strength
ANT410, ANT411, ANT420, ANT421, ANT424, ANT425, ANT430, ANT431, ANT434, ANT435, ANT513, ANT515, ANT516, DTC124, DTC125, DTC510, DTI213, DTI300, DTI410, DTI411, DTI420, DTI421, DTI424, DTI425, DTI430, DTI431, DTI434, DTI435, DTI513, DTI515, DTI516, DTM424, DTM425, DTM426, DTM427, DTM428, DTM434, DTM435, DTM436, DTM437	13,56 MHz	5 dB μ A/m @ 10 m
ANT600, DTC600, DTE601, DTE602, DTE604, DTE605, DTI600	13,56 MHz	30 dB μ A/m @ 10 m
DTI131, DTI135, DTI215, DTI216	13,56 MHz	-5 dB μ A/m @ 10 m
DTI111, DTI121, DTI125, DTI130	13,56 MHz	-15 dB μ A/m @ 10 m
DTI110, DTI120, DTI124, DTI134	13,56 MHz	-25 dB μ A/m @ 10 m

Français

Lire la notice d'utilisation avant l'utilisation et conserver-la pendant toute la durée d'utilisation.

- ifm electronic gmbh déclare par la présente que les appareils indiqués dans le tableau ci-après sont conformes à la directive 2014/53/UE.
- Vous trouverez le texte intégral de la déclaration de conformité de l'UE, les données techniques, les instructions, les homologations, les contacts et d'autres informations sur le site documentation.ifm.com.

AVERTISSEMENT ! Le fonctionnement de cet appareil peut causer des interférences radio dans les zones résidentielles.

- Installez et utilisez l'appareil à une distance minimale de 20 cm de l'utilisateur, des personnes ou des animaux se trouvant à proximité.

Appareil	Fréquence	Intensité max. du champ H
ANT410, ANT411, ANT420, ANT421, ANT424, ANT425, ANT430, ANT431, ANT434, ANT435, ANT513, ANT515, ANT516, DTC124, DTC125, DTC510, DTI213, DTI300, DTI410, DTI411, DTI420, DTI421, DTI424, DTI425, DTI430, DTI431, DTI434, DTI435, DTI513, DTI515, DTI516, DTM424, DTM425, DTM426, DTM427, DTM428, DTM434, DTM435, DTM436, DTM437	13,56 MHz	5 dB μ A/m @ 10 m
ANT600, DTC600, DTE601, DTE602, DTE604, DTE605, DTI600	13,56 MHz	30 dB μ A/m @ 10 m
DTI131, DTI135, DTI215, DTI216	13,56 MHz	-5 dB μ A/m @ 10 m
DTI111, DTI121, DTI125, DTI130	13,56 MHz	-15 dB μ A/m @ 10 m
DTI110, DTI120, DTI124, DTI134	13,56 MHz	-25 dB μ A/m @ 10 m

Great Britain

English

Read the operating instructions before set-up and keep them for the duration of use.

- ifm electronic gmbh hereby declares that the devices indicated in the following table are in compliance with the relevant statutory requirements.
- The full text of the Declaration of Conformity, technical data, instructions, approvals, contacts and further information is available at documentation.ifm.com.

WARNING! The operation of this device can cause radio interference in residential areas.

- Install and operate the device at a minimum distance of 20 cm from the user, nearby persons or animals.

Device	Frequency	Max. H-field strength
ANT410, ANT411, ANT420, ANT421, ANT424, ANT425, ANT430, ANT431, ANT434, ANT435, ANT513, ANT515, ANT516, DTC124, DTC125, DTC510, DTI213, DTI300, DTI410, DTI411, DTI420, DTI421, DTI424, DTI425, DTI430, DTI431, DTI434, DTI435, DTI513, DTI515, DTI516, DTM424, DTM425, DTM426, DTM427, DTM428, DTM434, DTM435, DTM436, DTM437	13,56 MHz	5 dB μ A/m @ 10 m
ANT600, DTC600, DTE601, DTE602, DTE604, DTE605, DTI600	13,56 MHz	30 dB μ A/m @ 10 m
DTI131, DTI135, DTI215, DTI216	13,56 MHz	-5 dB μ A/m @ 10 m
DTI111, DTI121, DTI125, DTI130	13,56 MHz	-15 dB μ A/m @ 10 m
DTI110, DTI120, DTI124, DTI134	13,56 MHz	-25 dB μ A/m @ 10 m

Türkiye

Türkçe

Kurulumdan önce kullanma talimatlarını okuyunuz ve bunları ürünün tüm kullanım süresince saklayınız.

- ifm electronic gmbh, yukarıda belirtilen cihazların 2014/53/EU direktifine uygun olduğunu beyan eder.
- EU Uygunluk Beyanı'nın tam metni, teknik veriler, talimatlar, onaylar, iletişim bilgileri ve daha fazla bilgi burada bulunabilir: documentation.ifm.com.

UYARI! Bu cihazın çalışması, yerleşim alanlarında radyo parazitine neden olabilir.

- Cihazı kullanıcından, yakındaki insanlardan veya hayvanlardan en az 20 cm uzakta kurun ve çalıştırın.

Cihaz	Frekans	Maksimum H-alan gücü
ANT410, ANT411, ANT420, ANT421, ANT424, ANT425, ANT430, ANT431, ANT434, ANT435, ANT513, ANT515, ANT516, DTC124, DTC125, DTC510, DTI213, DTI300, DTI410, DTI411, DTI420, DTI421, DTI424, DTI425, DTI430, DTI431, DTI434, DTI435, DTI513, DTI515, DTI516, DTM424, DTM425, DTM426, DTM427, DTM428, DTM434, DTM435, DTM436, DTM437	13,56 MHz	5 dB μ A/m @ 10 m
ANT600, DTC600, DTE601, DTE602, DTE604, DTE605, DTI600	13,56 MHz	30 dB μ A/m @ 10 m
DTI131, DTI135, DTI215, DTI216	13,56 MHz	-5 dB μ A/m @ 10 m
DTI111, DTI121, DTI125, DTI130	13,56 MHz	-15 dB μ A/m @ 10 m
DTI110, DTI120, DTI124, DTI134	13,56 MHz	-25 dB μ A/m @ 10 m

USA

English

ANT410 / ANT411 / ANT420 / ANT421 / ANT424 / ANT425 / ANT430 / ANT431 / ANT434 / ANT435 / ANT513 / ANT515 / ANT516 / ANT600 / DTC124 / DTC125 / DTC510 / DTC600 / DTE601 / DTE602 / DTE604 / DTE605 / DTI213 / DTI215 / DTI216 / DTI300 / DTI410 / DTI411 / DTI420 / DTI421 / DTI424 / DTI425 / DTI430 / DTI431 / DTI434 / DTI435 / DTI513 / DTI515 / DTI516 / DTI600 / DTM424 / DTM425 / DTM426 / DTM427 / DTM428 / DTM434 / DTM435 / DTM436 / DTM437

Device	FCC ID
DTI110	UN6-DTI110

Device	FCC ID
DTI111	UN6-DTI110
DTI120	UN6-DTI120
DTI121	UN6-DTI120
DTI130	UN6-DTI130
DTI131	UN6-DTI130
DTI124	UN6-DTI124
DTI125	UN6-DTI124
DTI134	UN6-DTI134
DTI135	UN6-DTI134

FCC information

Supplier's Declaration of Conformity 47 CFR § 2.1077 Compliance Information

Manufacturer ifm electronic gmbh
Friedrichstrasse 1
45128 Essen
Germany

U.S. Responsible Party ifm efector, inc.
1100 Atwater Dr.
Malvern, PA 19355
USA
Phone: 800-441-8246
Email: cs.us@ifm.com

The devices comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device must not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications to this device that have not been expressly approved by ifm could void the user's authority to operate the equipment.

RF Exposure Info

Due to radio frequency exposure limits this device should be installed and operated with a minimum distance of 20 cm between the device and the body of the user or nearby persons.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada / Canada

English

ANT410 / ANT411 / ANT420 / ANT421 / ANT424 / ANT425 / ANT430 /
ANT431 / ANT434 / ANT435 / ANT513 / ANT515 / ANT516 / ANT600 /
DTC124 / DTC125 / DTC510 / DTC600 / DTE601 / DTE602 / DTE604 /
DTE605 / DTI213 / DTI215 / DTI216 / DTI300 / DTI410 / DTI411 / DTI420 /
DTI421 / DTI424 / DTI425 / DTI430 / DTI431 / DTI434 / DTI435 / DTI513 /
DTI515 / DTI516 / DTI600 / DTM424 / DTM425 / DTM426 / DTM427 /
DTM428 / DTM434 / DTM435 / DTM436 / DTM437

Device	IC ID
DTI110	6799A-DTI110
DTI111	6799A-DTI110

Device	IC ID
DTI120	6799A-DTI120
DTI121	6799A-DTI120
DTI130	6799A-DTI130
DTI131	6799A-DTI130
DTI124	6799A-DTI124
DTI125	6799A-DTI124
DTI134	6799A-DTI134
DTI135	6799A-DTI134

ISED note

The devices contain licence-exempt transmitters/receivers that comply with Innovation, Science and Economic Development Canada's licence-exempt RSSs.

Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

RF Exposure Info

Due to radio frequency exposure limits this device should be installed and operated with a minimum distance of 20 cm between the device and the body of the user or nearby persons.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Français

ANT410 / ANT411 / ANT420 / ANT421 / ANT424 / ANT425 / ANT430 /
 ANT431 / ANT434 / ANT435 / ANT513 / ANT515 / ANT516 / ANT600 /
 DTC124 / DTC125 / DTC510 / DTC600 / DTE601 / DTE602 / DTE604 /
 DTE605 / DTI213 / DTI215 / DTI216 / DTI300 / DTI410 / DTI411 / DTI420 /
 DTI421 / DTI424 / DTI425 / DTI430 / DTI431 / DTI434 / DTI435 / DTI513 /
 DTI515 / DTI516 / DTI600 / DTM424 / DTM425 / DTM426 / DTM427 /
 DTM428 / DTM434 / DTM435 / DTM436 / DTM437

Appareil	IC ID
DTI110	6799A-DTI110
DTI111	6799A-DTI110
DTI120	6799A-DTI120
DTI121	6799A-DTI120
DTI130	6799A-DTI130
DTI131	6799A-DTI130
DTI124	6799A-DTI124
DTI125	6799A-DTI124
DTI134	6799A-DTI134
DTI135	6799A-DTI134

Avis ISDE

L'émetteur/récepteur exempt de licence contenu dans les présent appareils est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Informations sur l'exposition RF

En raison des limites d'exposition aux radiofréquences, cet appareil doit être installé et utilisé à une distance minimale de 20 cm entre l'appareil et le corps de l'utilisateur ou des personnes à proximité.

Ce transmetteur ne doit pas être placé au même endroit ou utilisé simultanément avec un autre transmetteur ou antenne.

English

ANT410: (CC) CCAE13LP0740T6 / ANT411: (CC) CCAE13LP0750T9 /
ANT420: (CC) CCAM18LP1460T8 / ANT421: (CC) CCAM18LP1461T0 /
ANT424: (CC) CCAM20LP0660T8 / ANT425: (CC) CCAM20LP0661T0 /
ANT430: (CC) CCAE14LP1890T2 / ANT431: (CC) CCAE14LP1900T2 /
ANT434: (CC) CCAM20LP0662T2 / ANT435: (CC) CCAM20LP0663T1 /
DTI410: (CC) CCAM18LP1060T5 / DTI411: (CC) CCAM18LP1061T7 /
DTI420: (CC) CCAM18LP1090T1 / DTI421: (CC) CCAM18LP1091T3 /
DTI424: (CC) CCAN22LP0130T5 / DTI425: (CC) CCAN22LP0131T7 /
DTI430: (CC) CCAM18LP1070T8 / DTI431: (CC) CCAM18LP1071T0 /
DTI434: (CC) CCAN22LP0132T9 / DTI435: (CC) CCAN22LP0133T1 /
DTM424: (CC) CCAE15LP2930T1 / DTM425: (CC) CCAE15LP0970T0 /
DTM426: (CC) CCAE15LP293AT0 / DTM427: (CC) CCAE15LP293BT2 /
DTM428: (CC) CCAE17LP0170T0 / DTM434: (CC) CCAE15LP2940T1 /
DTM435: (CC) CCAE15LP294AT3 / DTM436: (CC) CCAE15LP294BT5 /
DTM437: (CC) CCAE15LP294CT7

Without permission granted by the NCC, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristic as well as performance to approved low power radio-frequency devices.

The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved. The said legal communications mean radio communications is operated in compliance with the Telecommunication Management Act.

The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices.

繁體中文

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Mexiko

Español

Los certificados de homologación de equipos de radio para los equipos homologados están disponibles en: documentation.ifm.com.

La operación de este equipo está sujeta a las siguientes dos condiciones:

1. Es posible que este equipo o dispositivo no cause interferencia perjudicial.
2. Este equipo o dispositivo debe aceptar cualquier interferencia. Incluyendo la que pueda causar su operación no deseada.

Korea / 한국어

English

Sellers and users shall be noticed that this equipment is a business (Class A) electromagnetic wave device, and it is intended to be used outside residential areas.

한국어

이 기기는 업무용(A급)으로 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.



상호 : ifm electronic gmbh

기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역)

모델명 : ANT600

제조사 및 제조국가 : ifm electronic gmbh/독일

R-R-ifm- ANT600

	상호 : ifm electronic gmbh 기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역) 모델명 : DTE601 제조사 및 제조국가 : ifm electronic gmbh/독일
R-R-ifm-DTE605	

	상호 : ifm electronic gmbh 기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역) 모델명 : DTE602 제조사 및 제조국가 : ifm electronic gmbh/독일
R-R-ifm-DTE605	

	상호 : ifm electronic gmbh 기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역) 모델명 : DTE604 제조사 및 제조국가 : ifm electronic gmbh/독일
R-R-ifm-DTE605	

	상호 : ifm electronic gmbh 기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역) 모델명 : DTE605 제조사 및 제조국가 : ifm electronic gmbh/독일
R-R-ifm-DTE605	

	상호 : ifm electronic gmbh 기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역) 모델명 : DTI411 제조사 및 제조국가 : ifm electronic gmbh/독일
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R-R-ifm-DTI411



상호 : ifm electronic gmbh
기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역)
모델명 : DTI420
제조사 및 제조국가 : ifm electronic gmbh/독일

R-R-ifm-DTI420



상호 : ifm electronic gmbh
기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역)
모델명 : DTI421
제조사 및 제조국가 : ifm electronic gmbh/독일

R-R-ifm-DTI421



상호 : ifm electronic gmbh
기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역)
모델명 : DTI431
제조사 및 제조국가 : ifm electronic gmbh/독일

R-R-ifm-DTI431



상호 : ifm electronic gmbh
기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역)
모델명 : DTI513
제조사 및 제조국가 : ifm electronic gmbh/독일

R-R-ifm-DTI513

	상호 : ifm electronic gmbh 기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역) 모델명 : DTI515 제조사 및 제조국가 : ifm electronic gmbh/독일
	R-R-ifm-DTI516

	상호 : ifm electronic gmbh 기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역) 모델명 : DTI516 제조사 및 제조국가 : ifm electronic gmbh/독일
	R-R-ifm-DTI516

	상호 : ifm electronic gmbh 기자재명칭 : RFID용 무선기기 (13.56 MHz 주파수 대역) 모델명 : DTI600 제조사 및 제조국가 : ifm electronic gmbh/독일
	R-R-ifm-DTI600

Australia

English

Use in Australia: 

Supplier's Declarations of Conformity for devices approved for Australia are available at: documentation.ifm.com

The devices comply with the requirements of the relevant ACMA Standards made under the Radiocommunications ACT 1992.

Radiofrequency radiation exposure information

This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

Singapore

English

Complies with
IMDA standards
DB 103032

The “Equipment Registration” is available on our website at:
documentation.ifm.com

South Africa

English

The Radio Equipment Type Approval Certificates for approved devices are available at: documentation.ifm.com.



Brasil

Português



Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

ANT515, ANT516, DTI515, DTI516:	15688-22-12825
ANT513, DTI513:	16593-22-12825
ANT430:	14003-22-12825
ANT600:	14006-22-12825
DTI600:	13992-22-12825
DTI420:	14090-22-12825

DTI421:	13939-22-12825
DTM424, DTM425:	13693-22-12825
DTM434, DTM435, DTM436, DTM437:	13694-22-12825

New Zealand

English

R-NZ

Supplier's Declarations of Conformity for devices approved for New Zealand are available at: documentation.ifm.com.

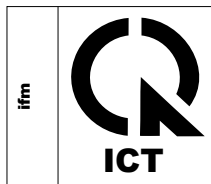
These devices comply with the relevant Standards made under the New Zealand Radio Communications Act 1989.

Radiofrequency radiation exposure information

This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

Vietnam

English



Documentation for devices approved for Vietnam is available at: documentation.ifm.com.



HIDF19000151

The Radio Equipment Type Approval Certificates for approved devices are available at: documentation.ifm.com.