



HFS Reader E-Sign Rev 1.10
SECS

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1. Introduction

These operating instructions correspond with the "Directive 1999/5/EC of the European Parliament and the Council on radio equipment and telecommunications transmission equipment and the mutual recognition of the conformity"



These operating instructions are intended for the operator who must pass these on to the personnel responsible for installation, connection, use, and repairs of the machine.

The operator must ensure that the information contained in these operating instructions and in the accompanying documents has been read and understood.

The operating instructions must be kept at a known place that is easy to reach, and they must be consulted if there is the slightest doubt.

The manufacturer assumes no responsibility for damage to persons, animals, or objects or to the unit itself arising from the improper use or the disregard or insufficient consideration to the safety criteria contained in these operating instructions or based on modifications of the unit or the use of unsuitable replacement parts.

The copyright for the operating instructions lies solely with



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As of: January - 2017

1.1 Using the device

The device is exclusively used to read and write passive HF transponders.

Any other use of the machine or any use beyond its intended purpose is considered non-intended and thus improper.

In this case, the device safety and the device protection provided may be compromised. HERMOS AG is not liable for damages resulting from such use.

The device was developed for the use in an industrial environment as a built-in device in other systems. It was not developed as a stand-alone or mobile device in a non-industrial environment, such as domestic, vehicle or open air use.

Intended use also includes the following:

- Following all the operating instructions
- Following all the safety instructions

Improper use, which can endanger the unit, the user and third parties, include:

- The use of the device contrary to its intended use
- Changes to the device as well as attachments and conversions
- Operating the unit when there are obvious problems

Danger of injury due to unauthorised modifications

WARNING



There are risks from unauthorised modifications on the device.

Only original spare parts from the manufacturer must be used. No modification, attachment or conversion may be performed on the device without the permission of HERMOS AG.

Danger of injury and interruption of operation due to improper use

WARNING



There are risks through the improper use of the device.

The device must only be used according to its intended use.

2. Version history

Version	Date	Author	Amendments
1.0	08/04/2019	HERMOS AG MZe	Initial version of customer documentation
1.1	10.04.2019	HERMOS AG MZe	Presentation LEDs Features SECS Parameter list

3. Used abbreviations and designations

RFID	Radio Frequency Identification
HF	High Frequency 13,56MHz ISO15693
SEMI	Semiconductor Equipment and Materials
SECS	SEMI Equipment Communication Standard
AFI	Application Family Identifier
RFU	Reserved for future use

4. General instructions

All previous versions of this document lose their validity with the issue of this version.

We compiled the information in this document according to the best of our ability. HERMOS AG does not guarantee the accuracy and completeness of the information provided in this document and is also not liable for consequential damages based on faulty or incomplete information.

4.1 Objective of the product manual

The product manual serves as support and contains all the necessary information that must be followed for general safety, transport, installation and operation.

The product manual with all safety instructions (as well as all additional documents) must be:

- Followed, read and understood by all persons working with the unit (especially knowledge of the safety instructions)
- Easily available at all times to all persons
- Consulted if even the slightest doubt arises (safety)

Objectives:

- Prevent accidents
- Increase the service life and reliability of the unit
- Reduce the costs of production downtime

4.2 Warranty and liability

The "General Terms and Conditions of Sale and Delivery" of HERMOS AG shall apply.

The warranty period is 24 months beginning with the delivery of the device, which is verified by invoice or other documents.

The warranty includes repairs of all damages to the unit that occur during the warranty period, and were clearly caused by material or manufacturing defects.

Warranty and liability claims in the event of personal injury or property damage are excluded if they arise from one or more of the following causes:

- Improper use of the unit
- Disregarding the information in the operating instructions
- Unauthorised structural modifications of the unit
- Insufficient maintenance and repairs
- Disaster events due to impact with foreign objects or force majeure

5. Safety instructions and warnings

5.1 Scope and symbols

Follow the general safety instructions as well as special safety instructions included in the chapters.

The unit was built according to state-of-the-art technology and recognised safety regulations. In order to prevent danger to life and limb of the user, third parties, or the unit, only use the unit for its intended purpose and in perfect condition with regard to safety.

Bodily injuries and/or property damages resulting from non-compliance with the instructions provided in the operating instructions are the responsibility of the company operating the unit or the assigned personnel.

Faults that may compromise safety must be eliminated immediately.

DANGER



Risk of death, injury and property damage.

There is a risk of danger due to disregard of the product manual and the safety information contained therein.

Read the product manual carefully before putting the unit into operation for the first time. Fulfil all required safety conditions.

5.2 Safety symbols - according to DIN 4844-2

The following special safety symbols in accordance with DIN 4844-2 are used at the corresponding passages in the text of this product manual and require special attention depending on the combination of the signal word and symbol.

WARNING








Risk of injury due to disregarding the safety symbols.







Risks exist when disregarding warnings in the operating instructions.

Follow all warnings.

5.2.1 Mandatory signs

	Observe additional information		Use safety goggles
	Wear ear protection		Wear safety shoes
	Important note		

5.2.2 Warning signs

	Warning of a hazardous area		Warning of hazardous electrical voltage
	Warning of electromagnetic radiation		Warning of flammable substances
	Warning of explosive substances		Warning of electrostatically sensitive components

5.2.3 Prohibition signs

	Unauthorised access is prohibited		Fire, open flame and smoking prohibited
	Switching prohibited		Prohibited

5.2.4 Other signs

	Dispose of packaging material according to rules and regulations		Recycling
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5.3 Obligations

5.3.1 Operator's obligations

A safe condition and use of the unit is a requirement for a safe operation of the unit. For that reason, the operator has the obligation to ensure that the following points are adhered to:

- ➔ The unit may only be operated by trained and authorised personnel.
- ➔ Prohibit unsafe or dangerous working methods! If necessary, check the conduct and actions of its personnel!
- ➔ Have personnel who must be trained, instructed or within the scope of general training work only on the unit under the supervision of an experienced person!
- ➔ Have the personnel confirm by their signature that the operating instructions have been understood!
- ➔ Precisely establish responsibilities according to the various task areas (operation, installation)!
- ➔ Operating personnel must be required to immediately report any occurring and identifiable safety deficiencies to their superior!

5.3.2 Responsibilities of operating personnel

The operating personnel are obligated to contribute to the prevention of work accidents and their consequences by their personal conduct.

Risk of injury due to insufficient personnel qualifications

WARNING



There are dangers to personnel and the proper operation due to inadequately qualified personnel.
Only trained personnel may operate the unit.
New operating personnel must be instructed by the existing operating personnel. The operator must precisely regulate the personnel's areas of responsibility, competence, and monitoring precisely.
The personnel for the areas of responsibility mentioned above must have the corresponding qualification for this work (training, instruction).
If necessary, this can be done by the manufacturer on behalf of the operator.
In case of disregard, all warranty claims are void.

5.3.3 ESD Instructions




CAUTION



Static electricity can damage electronic components in the unit. All persons who install or maintain the unit must be trained in ESD protection.



ESD protective measures must be applied when opening the unit.

-  Disconnect the power supply prior to removing or adding components!
-  Observe the basic principles of ESD protection
-  Take the appropriate ESD precautionary measures

5.4 Residual risks

Despite all precautionary measures taken, there may still be residual risks that are not apparent.

Adhering to the safety instructions, the intended use, and the product manual as a whole can reduce residual risks.

DANGER



Danger caused by electrical current

Electrical residual energy remains in lines, equipment and devices after shutting down the device.



Only qualified electricians may perform work on the electrical supply system.

ATTENTION



Disconnect the unit from the power supply system if active parts of the unit can be accessed using tools. Access is only permitted by authorised personnel.



Regularly check the electrical equipment of the unit. Regularly check all moving cables for damage within the scope of maintenance and repair work.

DANGER



Dangers of fire and explosion

There is a risk of fire and explosions in the vicinity of the device.



Smoking, exposed flames and fire are strictly prohibited in the vicinity of the unit. Do not store any flammable liquids within the hazardous area of the device.



A fire extinguisher must be kept in the vicinity of the device.

WARNING



Warning of electromagnetic radiation

Electromagnetic radiation develops when transmitting and receiving data.

Arrange the antenna in such a position that it is not in the vicinity or make contact with the human body while transmitting.

The device satisfies the standard EN50364:2010 (Human Exposure).

5.5 Supplemental instructions

- ➔ Read and understand all safety and operating instructions prior to installing and operating the device.
- ➔ This documentation was written for specifically trained personnel. The installation, operation and error handling may only be carried out by specifically trained personnel.
- ➔ Keep these instructions. Keep this documentation in a location that is accessible to all personnel involved with the installation, use, and error handling of the device.
- ➔ Follow all warnings. Follow all warnings on and in the device and in the documentation.
- ➔ Install the unit only in accordance with the manufacturer's instructions.
- ➔ Use only the accessories and cables from the manufacturer.
- ➔ Troubleshooting that is not described in the chapter ➔ service and troubleshooting may only be performed by the manufacturer.
- ➔ When connecting cable connections, only pull on the plug and not on the cable.
- ➔ Only use spare parts specified by the manufacturer.

The provisions of the accident-prevention regulations of the government safety organisations always apply to all work on the unit.

- ➔ Applicable, legally binding accident prevention regulations.
- ➔ Applicable binding regulations at the place of use
- ➔ Technical standards for safety and professional work
- ➔ Existing environmental protection regulations
- ➔ Other applicable regulations

5.5.1 Regulations and certifications

The electrical design and documentation satisfy the DIN / VDE, EN / IEC regulations.

6. Functional description

6.1 General information

HF reading devices are high frequency identification systems that use radio transmission to read or write data of HF transponders (13.56 MHz), which operate as tamper-proof electronic tags. The HF reading devices communicate with common transponders according to ISO15693 that are available on the market.

The data is transmitted via the existing interface with the preset transmission parameters. If several interfaces are available and connected to the host, the transmission is always carried out on the most recently used interface. The data is embedded in a defined communication protocol and exchanged between the reader and host.

6.2 Basic functions - operating modes

During normal operation, the HF reading device supports various basic functions:

- Heartbeat function, software version query
- Scanning of transponders in the antenna area (UID)
- Reading data
- Writing data
- Setting and reading out parameters
- Setting and querying inputs and outputs

The HF devices can be set in 3 other operating modes by setting the parameters: Polling operation, sensor-triggered automatic reading and test mode.

6.2.1 Normal operation

During normal operation, the HF reading device is immediately ready for operation after a reset. It does not perform any automatic actions in this mode (standby). During normal operation, actions are triggered by protocol commands from the host.

A scanning procedure or reading in the data area is initiated by a command of the host system using the communication protocol.

In addition to the actions triggered by the host, a corresponding message can be automatically sent to the host and an automatic reading operation can be started by activating or releasing a sensor. (Parameter 26ff (0x1A))

When the reading operation is successful, the read data is immediately transmitted to the host. If several antenna ports are occupied simultaneously, the reading operations are processed sequentially.

Writing actions (data saved to a transponder) are generally only possible via commands from the host.

6.2.2 Polling mode

HF reading devices can be set into a continuous reading state, which is referred to as polling mode.

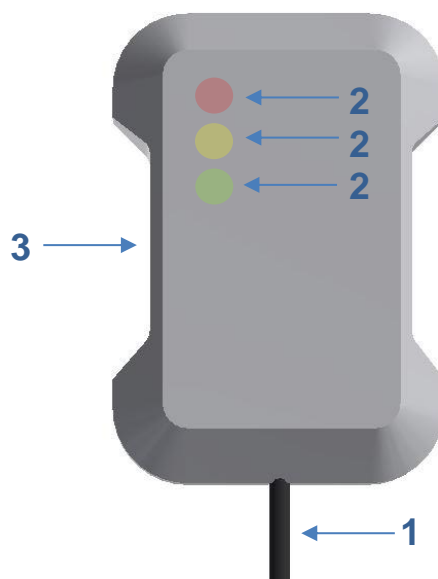
The device then performs reading operations at regular intervals and outputs the corresponding data of the read HF transponder. (Parameter 48ff)

The reading device also continues carrying out protocol messages in polling mode. This may, however, result in delays in the poll rhythm.

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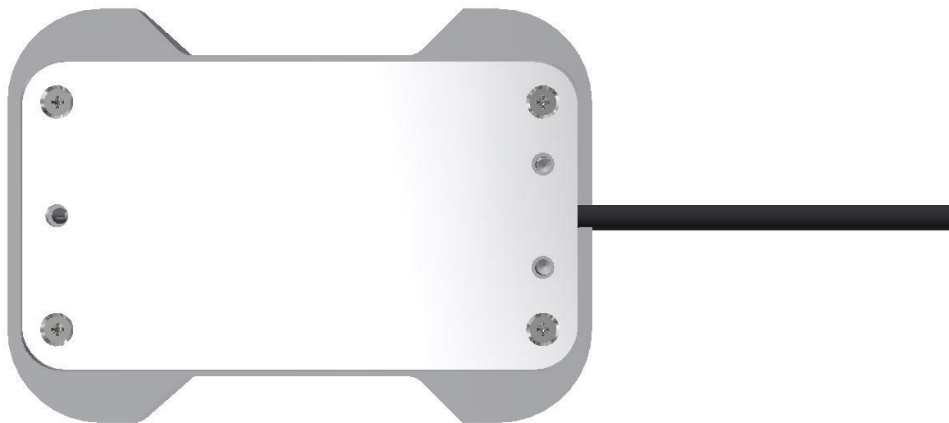
6.3 Illustration

6.3.1 Top view



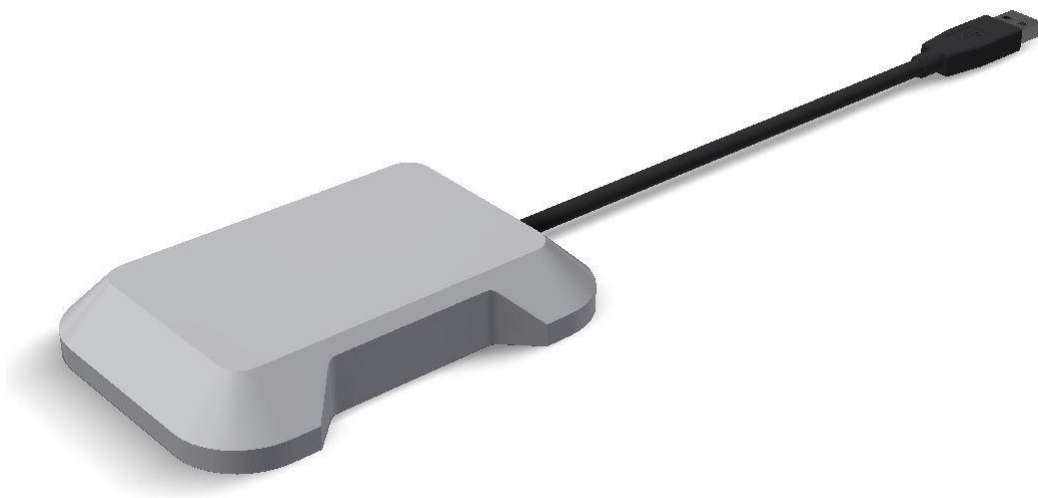
Number	Component	Description
1	Connection cable	USB or serial connection cable. Includes the power supply 5VDC and the data lines
2	Display LEDs	Customer LEDs can be set individually via protocol. LED1 = green, LED2 = red, LED3 = yellow
3	Multicolour LED	Red / yellow / green: is taken over by display LEDs Blue: Indicates successful reading

6.3.2 Bottom view



6.3.3 Rear view

The picture shows the USB version. The variant with RS232 connection has a D-SUB 9 plug. The cable length is variable and customizable.



6.4 Technical data

Technical data	
Voltage (protected against reverse polarity)	+5V DC
Power consumption (passive, reading, pulse-by-pulse)	150mA, max.250mA
Fuse type Nano2	375 mA
Operating temperature	-0 to 50°C
Storage temperature	-25°C to 70°C
Permissible humidity at 50°C	25 – 80%
Transmission frequency	13.56MHz , ISO 15693
Transmission power	220 mW
Output resistance	50 Ω
Protocol	SECS
Housing material	POM, white Base plate aluminium, anodised
Reader dimensions	113 x 80 x 18 mm
Weight	approx. 115 g (without cable and plug)

The device label with the CE label, article and serial number are located on the side of the reading unit.

6.4.1 Device labels

The device label is located on the reading unit housing.
It contains a CE mark, article, serial and order number.












1. Designation
2. Article number (variants)
3. Serial number (example)
4. Order number
5. Manufacturer

HFS Reader E-Sign RS232	CE
P/N: HRF.R.HFS.0l.xx.xx.xxx	
S/N: 1701HAG00123	
PO: HKxxxxxx	
HERMOS AG	



7. Installation

Follow the basic safety instructions in the chapter Safety instructions.

7.1 Safety instructions


	The unit is exclusively designed for indoor use in an industrial environment. The unit may only be installed indoors with a temperature and humidity level within the range of the specified technical module parameters.
	Never use the unit near or in water. Never pour liquids of any type over the unit. However, if the unit should still come in contact with liquid, disconnect it and have it checked by a technician.
	Do not install the device near heat sources such as radiators, heat registers, stoves or other devices (including amplifiers) that generate heat. Do not install the unit in a flammable environment.
	Never expose the device to extreme temperature fluctuations, since condensation otherwise develops inside the unit and causes damages.
	Do not install the device in the vicinity of voltage lines or other power lines with which they could collide (for example, drilling), which could result in serious injuries or even death.
	The device (especially the antenna) should not be installed in the immediate vicinity of electrical equipment such as medical devices, monitors, telephones, TV sets and magnetic disks, and metal objects. This could result in reduced read and write ranges.
	Never use the unit in explosive areas (such as paint warehouses).
	Do not use the device in areas where it is exposed to vibrations or shocks.
	The installation location must be adequately illuminated during the installation.
	Never install the unit during a lightning storm.
	Make sure that the installation meets the requirements of the FCC (country specific) for human exposure to radio frequencies.

7.2 Qualified installation personnel

	The unit must only be installed by specially trained personnel. If you have any doubts about the qualifications, please contact the manufacturer.
	If the unit is operated by untrained personnel, the reading device and or connected devices may be damaged.

7.3 Unpacking

The HF reading device and the accessories can be packed customer-dependent in clean room conditions. In order to maintain this condition, the devices must be unpacked in clean room conditions.

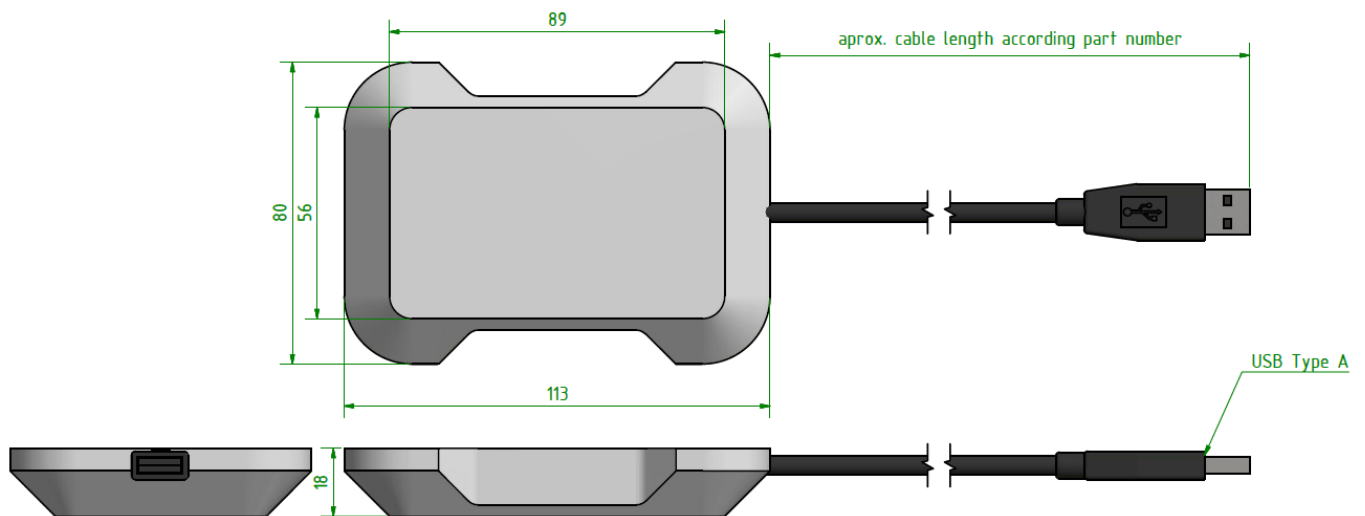
	The packaging material consists of cardboard and foil. Dispose of these materials separately under the respective regulations of your country.
---	---

7.4 Mounting the device



The mounting surface must be stable, non-flammable, dry and clean.
If necessary, clean it before you install the device.
Only use components, cable and mounting materials provided by HERMOS.
Only mount the components at the designated locations and make sure that the operating and ambient conditions specified in the technical data are always maintained.


Installation dimensions in mm:



HFS E-Sign Reader

7.5 Power Supply

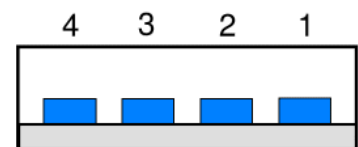
The device can be connected to the system's internal power supply or an external power supply.

	<p>There are risks if the device is supplied with the incorrect voltage. Only use cables, plugs and adapters from the manufacturer. Observe power ratings provided in the technical data.</p>
---	---

If the device is connected to the power supply, all LED lights up shortly.

7.5.1 USB-Connector

USB-PIN	Signal	Wire color
1	5 V DC	Red
2	RxD	White
3	TxD	Green
4	GND	Black



Standard A

7.5.2 RS232 Connector

The serial interface is realized as a Sub-D socket (9-pole). A standard serial connection cable (1: 1 circuit) can be used.

PIN	Signal
1	NC
2	TxD
3	RxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	5 V DC



8. Commissioning

8.1 Operating conditions

The following requirements must be fulfilled for smooth device operation.

1. The operating temperature must be within the scope of the values specified in the technical data.
2. The device must be connected to the power supply (provide PoE is not used).
3. An antenna must be properly connected to the reading device.
4. A transponder must be within the reading and writing ranges of the connected antenna.
5. For normal operation, deactivate test mode after installation.
(All DIP switches off).

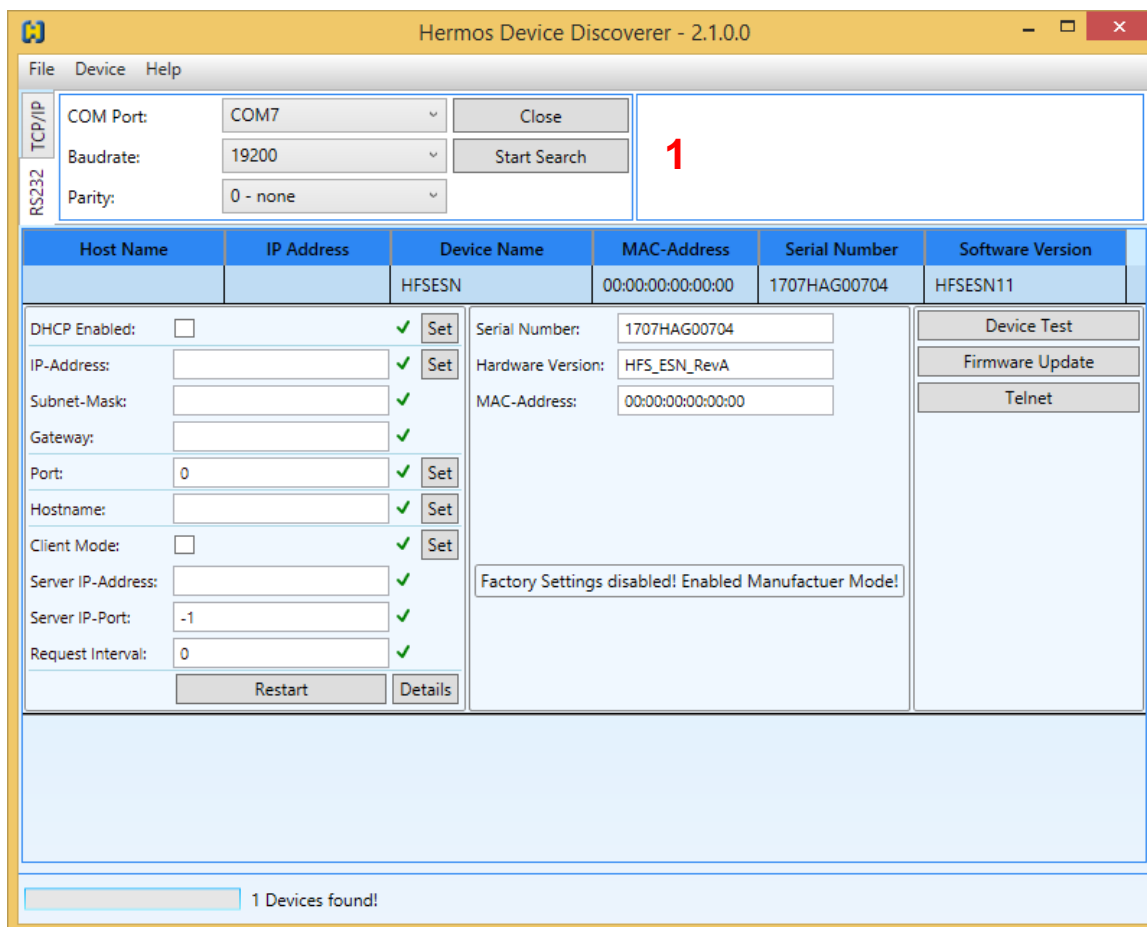
8.2 The serial interface parameters

The following settings of the serial interfaces are set on delivery. The baud rate can be changed with parameter 0x01.

	Value
Baud rate	19200
Data bits	8
Stop bits	1
Parity	None

8.3 Firmware update

Firmware updates can be performed using the HERMOS "Device Discoverer".
Start the tool with administrator rights and scan all available RS232 ports for HERMOS devices.



Hermos Device Discoverer - 2.1.0.0

File Device Help

TCP/IP
COM Port: COM7
Baudrate: 19200
Parity: 0 - none

Close
Start Search

1

Host Name	IP Address	Device Name	MAC-Address	Serial Number	Software Version
		HFSesn	00:00:00:00:00:00	1707HAG00704	HFSesn11

DHCP Enabled: ☐ ☒ Set
IP-Address: ☒ Set
Subnet-Mask: ☒
Gateway: ☒
Port: 0 ☒ Set
Hostname: ☒ Set
Client Mode: ☐ ☒ Set
Server IP-Address: ☒
Server IP-Port: -1 ☒
Request Interval: 0 ☒
Restart Details

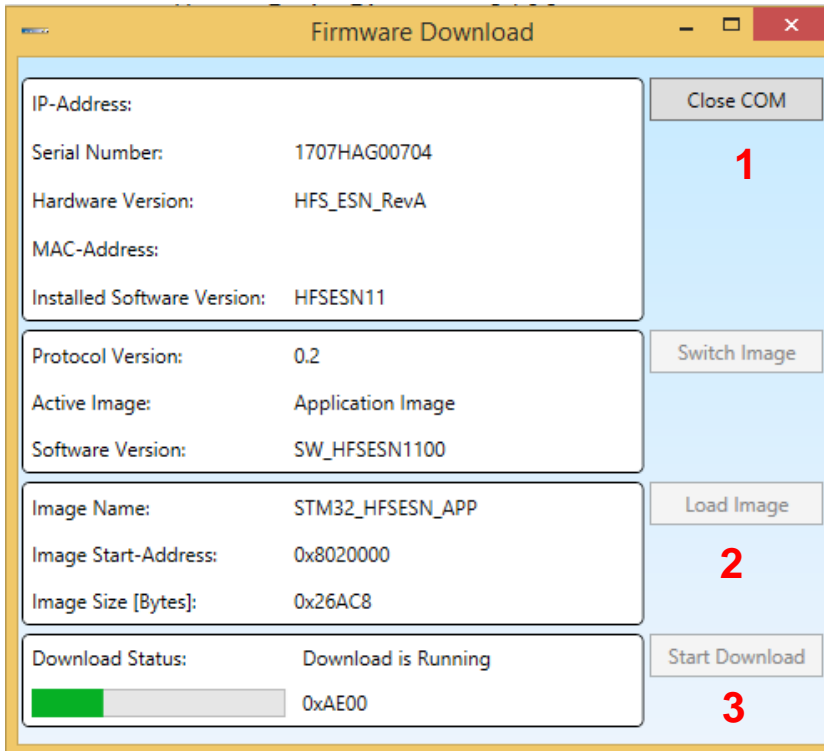
Serial Number: 1707HAG00704
Hardware Version: HFS_ESN_RevA
MAC-Address: 00:00:00:00:00:00

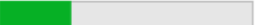
Device Test
Firmware Update
Telnet

Factory Settings disabled! Enabled Manufacturer Mode!

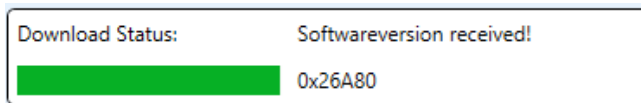
1 Devices found!


To start the Firmware update, select the device and press the "Firmware Update" button.



Firmware Download	
IP-Address:	
Serial Number:	1707HAG00704
Hardware Version:	HFS_ESN_RevA
MAC-Address:	
Installed Software Version:	HFSESN11
Close COM	
Protocol Version:	0.2
Active Image:	Application Image
Software Version:	SW_HFSESN1100
Switch Image	
Image Name:	STM32_HFSESN_APP
Image Start-Address:	0x8020000
Image Size [Bytes]:	0x26AC8
Load Image	
Download Status:	Download is Running
	0xAE00
Start Download	

1. If not automatic selected, open the download connection by pressing the connect button.
2. Select the new firmware file using the load image button.
3. Start the download process.
Wait until the "Softwareversion received!" message appears.



Download Status:	Softwareversion received!
	0x26A80

CAUTION



During the download process, do not disconnect the power supply or interrupt the network connection.
In case of any error, please restart the procedure.

9. Operation

9.1 Operating personnel



The device should only be operated by specially trained personnel. If you have any doubts about the required qualifications, please contact the manufacturer.
The operation of the device without special expertise can result in damages to the device or on connected devices.

9.2 Communications protocol

The SECS I standard defines a communication interface that is suitable for exchanging messages between the semiconductor processing systems and a host. A host is a computer or computer network that exchanges the information with the systems to carry out the production.

The standard does not define the data contained in the message. The meaning of the messages must be defined by a standard that defines the message content – e.g. by the SEMI Equipment Communications Standard E5 (SECS-II).

This message record describes the communication between a reading device with SECS-I and a host. The host and the RFID reading device can communicate via a RS232 interface (SECS-I) or an Ethernet interface (10/100BaseT) with HSMS protocol. The meaning of the messages is provided in the →message details section in which the message content is defined.

Serial communication (SECS-I):

The data is transmitted or received as a serial bit stream with 10 bits per character in a supported data rate. A standard character has a start bit, 8 data bits and a stop bit. No parity bits or other controls are used for transmitting the individual bytes.

Default setting: 19200 / 8N1

Details about the data definition and the data transmission are provide in the SEMI Standard E4. (SEMI Equipment Communication Standard 1 Message Transfer SECS-I)

9.3 Structure of a message

The communication structure and process is defined by the SEMI Equipment Communications Standards E4, E5 and E37 (SECS-I, SECS-II, HSMS).

SECS message blocks always have a specified structure that consists of 1-4 length bytes, 10 bytes of message headers and message data.

	Byte	MSB	Description
Length	0		Length without checksum
Header	1	R	Upper Device ID (reader ID)
	2		Lower Device ID (gateway ID)
	3	W	Upper Message ID (stream)
	4		Lower Message ID (function)
	5	E	Upper block number
	6		Lower block number
	7		System byte 1
	8		System byte 2
	9		System byte 3
	10		System byte 4
Data	11-254		Message data
Checksum	255, 256		16-bit checksum

The **length** contains all the bytes transmitted after the length byte with the exception of the two checksum bytes. The maximum block length allowed by the SECS-I is 254 bytes and the minimum is 10 bytes.

The **reverse bit** (R bit) indicates the direction of the message. The R bit (MSB) is set to "0" for messages to the reading device and "1" for messages to the host.

The **device ID** is a unique number to establish the connection with the reading device. It consists of a gateway ID (bit 0-7) that is 8 bytes long and a reader ID that is 5 bytes long. (Bit 8-14)

On delivery, the **device ID** is set to **00 00**. The ID can of course be changed within the validity range.

Upper Device ID (Reader ID)	R-Bit 0 0 0 0 0 0 0
Lower Device ID (Gateway ID)	0 0 0 0 0 0 0

Direction reading device to host 0x8000

Direction host to system (reading device) 0x0000

The **W** bit indicates whether the transmitter of the primary message wait for a reply. If the W bit contains the value 1, it means that a reply is expected.

The **message ID** determines the format and the content of the transmitted message. It consists of a stream and a function. The stream defines the message group and the function, the exact meaning and the syntax of the message. A primary message (request) is defined as an uneven message. A secondary message is defined as an even message (reply).

The **end bit** indicates whether a block is the last block of the message. A value of 1 means that the block is the last block. Since all messages can be transmitted in a block, the block number always has the value 1.

The **system bytes** in the header of each message are used to distinguish primary messages. The system bytes of the reply message must correspond to the system bytes of the corresponding primary message. The system bytes are incremented for each primary message.

The **checksum** is calculated as the numerical sum of the unsigned binary values of all bytes – after the length byte and before the checksum as well as in an individual block.

For more detailed information about the structure and transmission procedure, see SEMI E4 , E5 , E37 , E99.

(SEMI Equipment Communication Standard Message Transfer SECS)

HFS E-Sign Reader

9.4 Range of the host interface functions

The message record describes the communication data between a reading device with and a host. The following functions can be used via commands by the host in the reading device or automatically transmitted from the reading device to the host:

Stream 1: (System state)

- | | | |
|-------------------------|-------|-----------------|
| • Are you there request | S1F1 | (Host → Reader) |
| • Request offline | S1F15 | (Host → Reader) |
| • Request online | S1F17 | (Host → Reader) |

Stream 2: (System control)

- | | | |
|-------------------|-------|-----------------|
| • Read parameter | S2F13 | (Host → Reader) |
| • Write parameter | S2F15 | (Host → Reader) |
| • Transmit reset | S2F19 | (Host → Reader) |

Stream 9: (System error)

- | | | |
|------------------------------|------|-----------------|
| • Unrecognised device ID | S9F1 | (Reader → Host) |
| • Unrecognised stream type | S9F3 | (Reader → Host) |
| • Unrecognised function type | S9F5 | (Reader → Host) |
| • Invalid data | S9F7 | (Reader → Host) |
| • Transmission timeout | S9F9 | (Reader → Host) |

Stream 18: (System state)

- | | | |
|--------------------------------|--------|-----------------|
| • Read parameter | S18F1 | (Host → Reader) |
| • Write parameter | S18F3 | (Host → Reader) |
| • Read data | S18F5 | (Host → Reader) |
| • Write data | S18F7 | (Host → Reader) |
| • Read MID | S18F9 | (Host → Reader) |
| • Write MID | S18F11 | (Host → Reader) |
| • Subsystem command | S18F13 | (Host → Reader) |
| • Scan UID | S18F65 | (Host → Reader) |
| • Read data with UID transfer | S18F67 | (Host → Reader) |
| • Write data with UID transfer | S18F69 | (Host → Reader) |
| • Read MID with UID transfer | S18F73 | (Host → Reader) |
| • Write MID with UID transfer | S18F75 | (Host → Reader) |
| • Set output state | S18F77 | (Host → Reader) |
| • Query output state | S18F79 | (Host → Reader) |
| • Scan UID and read MID | S18F85 | (Host → Reader) |

9.5 Message details

9.5.1 Stream 1 (system state)

S1F0: ABORT TRANSACTION (reading device <-> host)

This message is used instead of an expected reply to cancel an action. The function 0 is defined in each stream and has the same meaning in each stream.

S1F0 (header only, no additional elements)

S1F1: ARE YOU THERE REQUEST (reading device <-> host, reply)

Determines whether the reading device or the host is online.

S1F1 W (header only, no additional elements)

S1F2: ON-LINE DATA (host -> reading device)

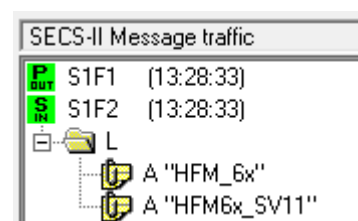
The host indicates that it is online.

```
S1F2
<L[2]
  <A[6] MDLN >
  <A[6] SOFTREV >
>
```

S1F2: ON-LINE (reading device -> host)

The reading device indicates that it is online.

```
S1F2
<L[2]
  <A[6] MDLN >
  <A[6] SOFTREV >
>
```



S1F15: REQUEST OFF_LINE (host -> reading device, reply)

The reading device contains a request to change the communication state to "offline".

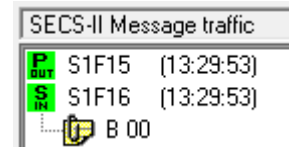
The reading device can only be set to "online" again using the message S1F17 (or reset S2F19); all other messages are cancelled by message SxF0.

S1F15 W (header only, no additional elements)

S1F16: OFFLINE ACKNOWLEDGE (reading device -> host)

Acknowledgement

S1F16
<B[1] OFLACK>.



S1F17: REQUEST ON_LINE (host -> reading device, reply)

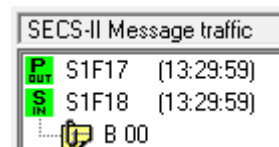
The reading device contains a request to change the communication state to "online".

S1F17 W (header only, no additional elements)

S1F18: ONLINE ACKNOWLEDGE (reading device -> host)

Acknowledgement

S1F18
<B[1] ONLACK>.



9.5.2 Stream 2 (system control)

S2F0: ABORT TRANSACTION (reading device <-> host)

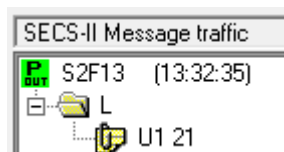
This message is used instead of an expected reply to cancel an action.

S2F0 (header only, no additional elements)

S2F13: EQUIPMENT CONSTANT REQUEST (host -> reading device, reply)

The host requests an attribute (parameter) from the reading device.

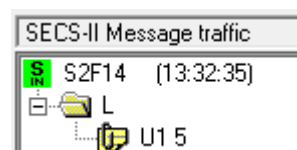
S2F13 W
<L[1]
<U1[1] ECID>
>



S2F14: EQUIPMENT CONSTANT DATA (reading device -> host)

The reading device transmits the requested attribute (parameter) to the host.

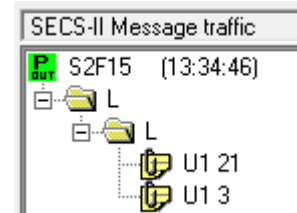
S2F14
<L[1]
<U1[1] ECV>
>



S2F15: NEW EQUIPMENT CONSTANT SENT (host -> reading device, reply)

The host changes a reading device attribute (parameter).

```
S2F15 W
  <L[1]
  <L[2]
    <U1[1] ECID>
    <U1[1] ECV>
  >
>
```

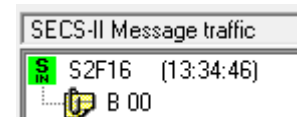


S2F16: NEW EQUIPMENT CONSTANT ACKNOWLEDGE (reading device -> host)

The reading device acknowledges the reading device parameter

setting.

```
S2F16
  <B[1] EAC>
```



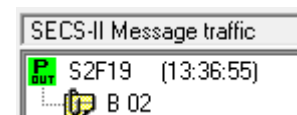
S2F19: RESET SENT (host -> reading device, reply)

The host transmits a request to the reading device to reset the hardware and software.

If a heartbeat time (parameter 9) is set, the reading device transmits a S1F1 message once the reset operation is complete.

A power-up reset takes a few seconds.

```
S2F19 W
  <B[1] RIC>
```

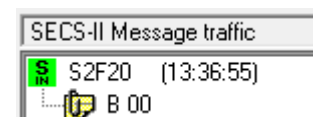


S2F20: RESET ACKNOWLEDGE (reading device -> host)

The reading device acknowledges the reset.

This message is only displayed if a software reset (RIC=2) has been triggered.

```
S2F20
  <B[1] RAC>
```






9.5.3 Stream 9 (system error)

S9F1: UNRECOGNISED DEVICE ID (reading device -> host)

The device ID in the header of the message block does not correspond to the expected device ID.




S9F1
<B[10] MHEAD >

SECS-II Message traffic		
	S1F1	(13:39:33)
	S9F1	(13:39:33)
	B [00 01 81 01 80 01 00 00 00 47]	

S9F3: UNRECOGNISED STREAM TYPE (reading device -> host)

The reading device does not recognise the stream type in the header of the message block.




S9F3
< B[10] MHEAD >

SECS-II Message traffic		
	S7F1	(13:43:20)
	S9F3	(13:43:20)
	B [00 00 87 01 80 01 00 00 00 49]	

S9F5: UNRECOGNISED FUNCTION TYPE (reading device -> host)

The reading device does not recognise the function number in the header of the message block.





S9F5
< B[10] MHEAD >

SECS-II Message traffic		
	S1F35	(13:53:39)
	S9F5	(13:53:39)
	B [00 00 81 23 80 01 00 00 00 51]	

S9F7: ILLEGAL DATA (reading device -> host)

The reading device does not recognise the data in the message.

S9F7
< B[10] MHEAD >

SECS-II Message traffic		
	S9F1	(14:16:17)
	B 00	
	S9F5	(14:16:17)
	B [00 00 09 01 80 01 00 00 00 5F]	

S9F9: TRANSACTION TIMER TIMEOUT (reading device -> host)

This message indicates a timeout of a transmission timer and the cancellation of the corresponding transaction. Only the most recently transmitted message (that must be acknowledged by the host) is saved and its acknowledgement is monitored by time.

S9F9
< B[10] SHEAD >

9.5.4 Stream 18 (control and data transfer)

S18F0: ABORT TRANSACTION (reading device <-> host)

This message is used instead of an expected reply to cancel an action.

S18F0 (header only, no additional elements)

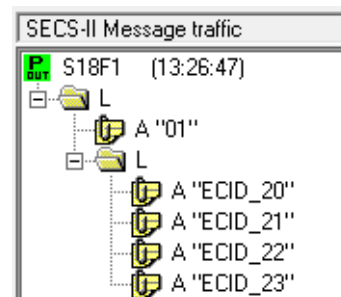
S18F1: READ ATTRIBUTE REQUEST (RAR) (host -> reading device, reply)

This message requests the current values of the parameters or states.

The value of the TARGETID is irrelevant with this message (01 to 32).

Up to 10 attributes can be queried with a message.

```
S18F1 W
<L,2
  <TARGETID>
  <Ln
    <ATTRID1>
    ...
    <ATTRIDn>
  >
>
```

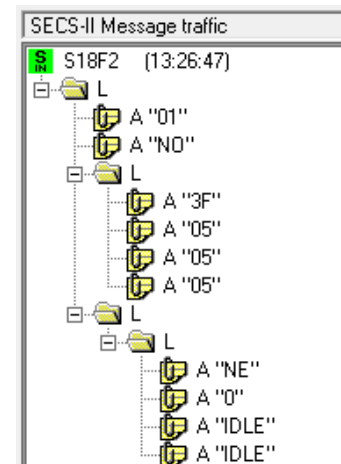


S18F2: READ ATTRIBUTE DATA (RAD) (reading device -> host)

This message requests the current values of the requested parameters or states.

The value of the TARGETID is irrelevant with this message (01 to 32).

```
S18F2
<L,4
  <TARGETID>
  <SSACK>
  <L,n
    <ATTRVAL1>
    ...
    <ATTRVALn>
  >
  <L,1
    <STATUSLIST>
  >
>
```



If the ATTRID of the S18F1 message is not known, the corresponding element ATTRVAL receives the value <nothing>.

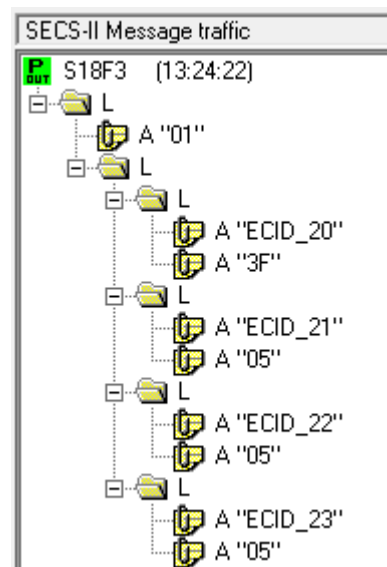
S18F3: WRITE ATTRIBUTE REQUEST (WAR) (host -> reading device, reply)

The message transmits a request to the reading device to set (overwrite) the value of the transferred parameters.

The value of the TARGETID is irrelevant with this message (01 to 32).

Up to 10 attributes can be set with a message.

```
S18F3 ,W
<L,2
  <TARGETID>
  <L,n
    <L,2
      1 <ATTRID1>
      2 <ATTRVAL1>
    >
  <L,2
    1 <ATTRIDn>
    2 <ATTRVALn>
  >
>
```

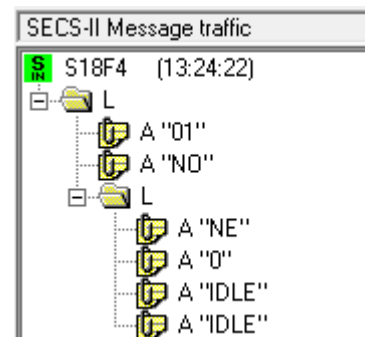


S18F4: WRITE ATTRIBUTE ACKNOWLEDGE (WAA) (reading device -> host)

This message acknowledges that the request for writing the parameter values successfully or reports an error.

The value of the TARGETID is irrelevant with this message (01 to 32).

```
S18F4
<L,3
  <TARGETID>
  <SSACK>
  <STATUSLIST>
>
```

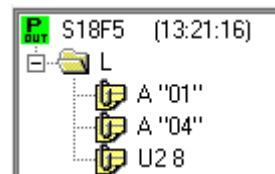


If the ATTRID of the S18F3 message is not known, a communication error (CE) occurs.

S18F5: READ REQUEST (RR) (host -> reading device, reply)

This message is used for requesting the antenna head specified in the TARGETID for reading data (from the data area). DATASEG defines the start address of the data to be read. DATALENGTH defines the data volume of the data to be read.

```
S18F5 W
<L,3
  <TARGETID>
  <DATASEG>
  <DATALENGTH>
>
```



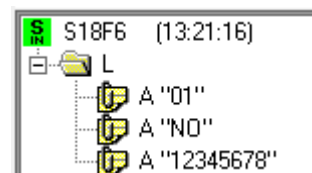
If both the DATASEG as well as the DATALENGTH are missing (elements with zero length), all pages of the data area are queried. If only the DATALENGTH is missing, all data on the specified start address is queried.

If the TARGETID is not known, a communication error (CE) occurs.

S18F6: READ DATA (RD) (reading device -> host)

This message is used to return the requested information of the antenna head specified in the TARGETID or acknowledge the result of the request.

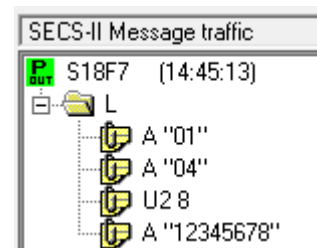
```
S18F6
<L,3
  <TARGETID>
  <SSACK>
  <DATA>
>
```



S18F7: WRITE DATA REQUEST (WAR) (host -> reading device, reply)

This message is used for requesting the antenna head specified in the TARGETID to write data. DATASEG defines the start address of the data to be written. DATALENGTH defines the data volume of the data to be written.

```
S18F7 W
<L,4
    <TARGETID>
    <DATASEG>
    <DATALENGTH>
    <DATA>
>
```



If both the DATASEG as well as the DATALENGTH are missing (elements with zero length), all pages of the data area are overwritten. If only DATALENGTH is missing or if DATALENGTH has the value zero, all data within the specified section must be written.

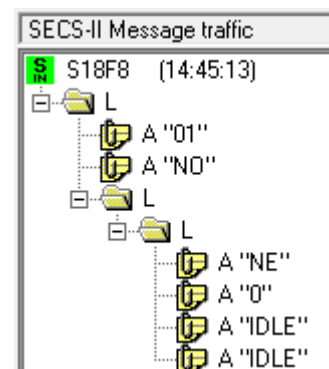
If the TARGETID is not known, a communication error (CE) occurs.

If DATASEG is missing (elements with zero length), the DATALENGTH value determines the length of the data to be written. If the length of the data to be written is greater than the value of the DATALENGTH, a communication error (CE) occurs.

S18F8: WRITE DATA ACKNOWLEDGE (WDA) (reading device -> host)

This message indicates whether the process for writing data on the antenna port specified in the TARGETID was successful or failed.

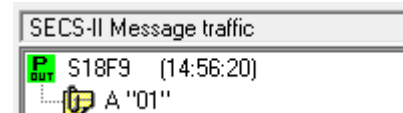
```
S18F8
<L,3
    <TARGETID>
    <SSACK>
    <L,1
        <STATUSLIST>
    >
>
```



S18F9: READ ID REQUEST (RIR) (host -> reading device, reply)

This message is used for requesting the antenna head specified in the TARGETID for reading the MID.

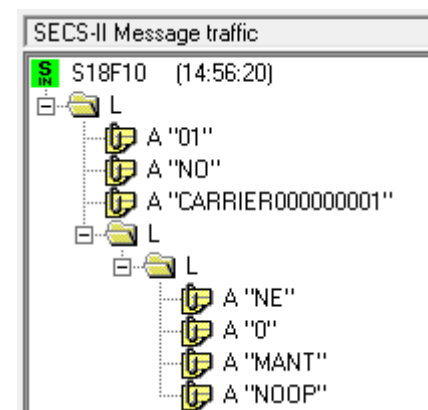
```
S18F9,W
<TARGETID>
```



S18F10: READ ID DATA (RID) (reading device -> host)

This message returns a requested MID from the antenna head specified in the TARGETID.

```
S18F10
<L,4
  <TARGETID>
  <SSACK>
  <MID>
  < L,1
    <STATUSLIST>
  >
>
```



The reading device can be in maintenance mode (MT) or operating mode (OP) to read the MID with the message S18F9.

S18F11: WRITE ID REQUEST (WIR) (host -> reading device, reply)

This message is used for writing the MID on the antenna head specified in the TARGETID.

```
S18F11,W
    <TARGETID>
    <MID>
```

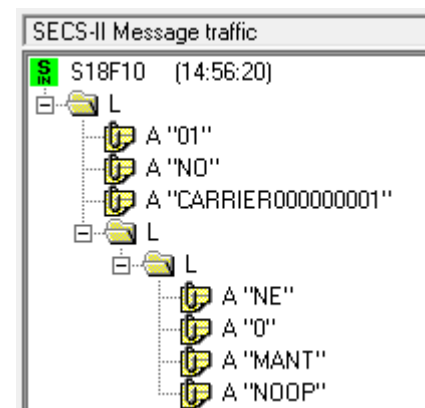


The reading device must be in maintenance mode to write the MID with the Message S18F11. If the reading device is not in maintenance mode, the execution is cancelled and acknowledged with SSACK = "EE" equipment error.

S18F12: WRITE ID ACKNOWLEDGE (WIA) (reading device -> host)

This message indicates whether the process for writing the MID on the subsystem specified in the TARGETID was successful or failed.

```
S18F10
  <L,4
    <TARGETID>
    <SSACK>
    < L,1
      <STATUSLIST>
    >
  >
```

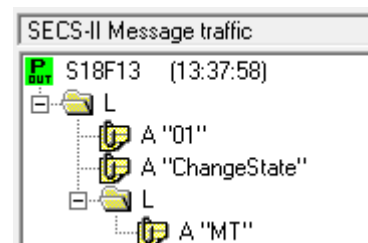


The reading device can be in maintenance mode (MT) to write the MID with the message S18F11.

S18F13: SUBSYSTEM COMMAND REQUEST (SCR) (host -> reading device, reply)

This message is used for requesting the subsystem specified in the TARGETID for executing a specific procedure.

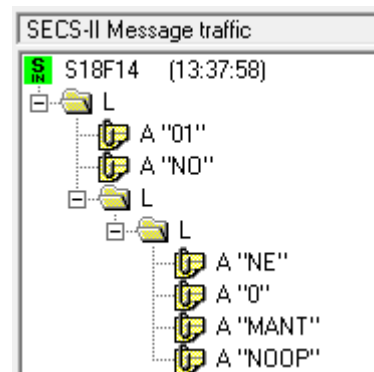
```
S18F13 ,W
<L,3
  <TARGETID>
  <SSCMD>
  <L,n
    1. <CPVAL>
    ...
    n. <CPVALn>
  >
>
```



S18F14: SUBSYSTEM COMMAND ACKNOWLEDGE (SCA) (Reading device -> host)

This message reports the result of the requested procedure. (SSCMD)

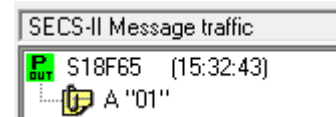
```
S18F14 ,W
<L,3
  <TARGETID>
  <SSACK>
  < L,1
    <STATUSLIST>
  >
>
```



S18F65: SCAN TRANSPONDER REQUEST (STR) (Host -> reading device, answer)

This message is used for requesting the antenna head specified in the TARGETID for executing a scan process.

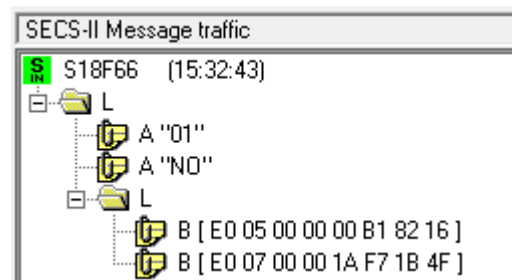
```
S18F65 W
<TARGETID>
```



S18F66: SCAN TRANSPONDER ACKNOWLEDGE (STA) (Reading device -> host)

This message reports the scan result of the antenna head specified in the TARGETID.

```
S18F66
  <L,3
    <TARGETID>
    <SSACK>
    <L,n
      <UID1>
      ...
      <UIDn>
    >
  >
```



The process returns a UID list with all ISO transponders found in the reading ranges.

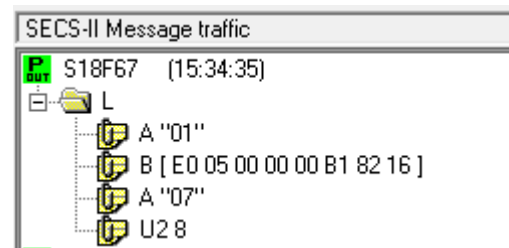
If no transponder was detected, the reading device transmits an empty list with <SSACK> NO (normal operation).

If the TARGETID is not known, a communication error (CE) occurs.

S18F67: READ REQUEST UID (RRU) (host -> reading device, reply)

This message is used for requesting the antenna head specified in the TARGETID for precisely reading data (from the data area) from the transponder and its UID is transferred into the <UID> segment. DATASEG defines the start address of the data to be read. DATALENGTH defines the data volume of the data to be read.

```
S18F67 W
  <L,4
    <TARGETID>
    <UID>
    <DATASEG>
    <DATALENGTH>
  >
```



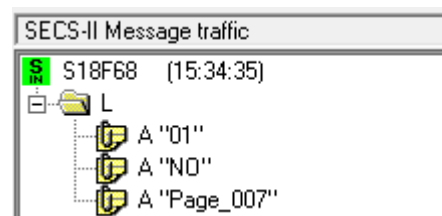
If both DATASEG and DATALENGTH are missing (elements with zero length), up to 200 bytes of the data area are queried.

If only the DATALENGTH is missing, all data within the specified section is queried.

S18F68: READ DATA UID (RDU) (reading device -> host)

This message is used to return the requested information of the antenna head specified in the TARGETID or acknowledge the result of the request.

```
S18F68
  <L,3
    <TARGETID>
    <SSACK>
    <DATA>
  >
```



If the TARGETID is not known, a communication error (CE) occurs.

S18F69: WRITE DATA REQUEST UID (WARU) (Host -> reading device, answer)

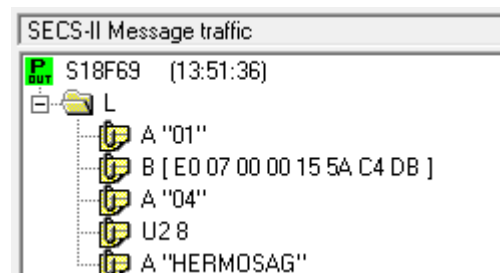
This message is used for requesting the antenna head specified in the TARGETID to write data to the transponder specified in the UID.

DATASEG defines the start address of the data to be written.

DATALLENGTH defines the data volume of the data to be written.

S18F69 W

```
<L,5  
  <TARGETID>  
  <UID>  
  <DATASEG>  
  <DATALLENGTH>  
  <DATA>  
>
```



If both DATASEG and DATALLENGTH are missing (elements with zero length), up to 200 bytes of the data area are overwritten. If only DATALLENGTH is missing or if DATALLENGTH has the value zero, all data within the specified section must be written.

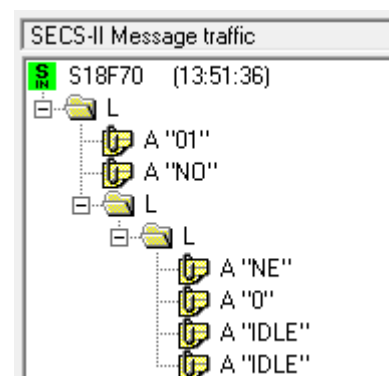
If the length of the data to be written is greater than the value of the DATALLENGTH, a communication error (CE) occurs.

If the TARGETID is not known, a communication error (CE) occurs.

S18F70: WRITE DATA ACKNOWLEDGE (WDA) (reading device -> host)

This message indicates whether the process for writing data on the antenna port specified in the TARGETID was successful or failed.

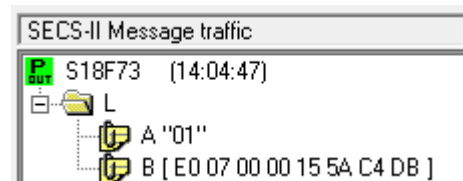
```
S18F70  
  <L,3  
    <TARGETID>  
    <SSACK>  
    <L,1  
      <STATUSLIST>  
    >  
  >
```



S18F73: READ ID REQUEST UID (RIRU) (host -> reading device)

This message is used for requesting the antenna head specified in the TARGETID for precisely reading the MID from the transponder and its UID is transferred into the <UID> segment.

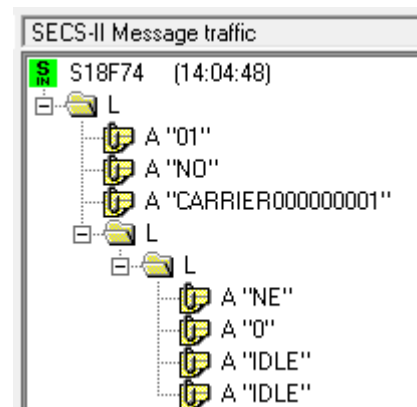
```
S18F73,W
  <L,2
    <TARGETID>
    <UID>
  >
```



S18F74: READ ID DATA (RID) (reading device -> host)

This message returns the requested MID of the transponder.

```
S18F74
  <L,4
    <TARGETID>
    <SSACK>
    <MID>
    < L,1
      <STATUSLIST>
    >
  >
```

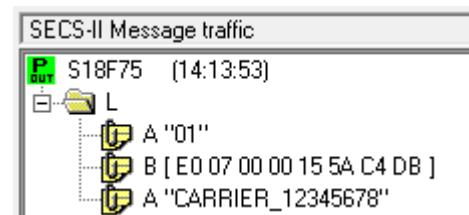


The reading device can be in maintenance mode or operating mode to read the MID with the message S18F73.

S18F75: WRITE ID REQUEST (WIRU) (host -> reading device, reply)

This message is used for writing the MID, the transponder specified in the UID and on the antenna head specified in the TARGETID.

```
S18F75,W
    <TARGETID>
    <UID>
    <MID>
```

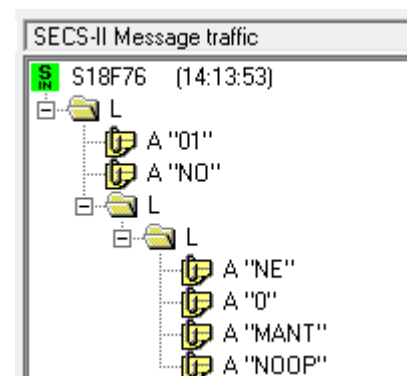


The reading device must be in maintenance mode to write the MID with the message S18F75.
If the reading device is not in maintenance mode, the execution is cancelled and acknowledged with SSACK = "EE" equipment error.

S18F76: WRITE ID ACKNOWLEDGE (WIA) (reading device -> host)

This message indicates whether the process for writing the MID on the subsystem specified in the TARGETID was successful or failed.

```
S18F76
  <L,4
    <TARGETID>
    <SSACK>
    < L,1
      <STATUSLIST>
    >
  >
```

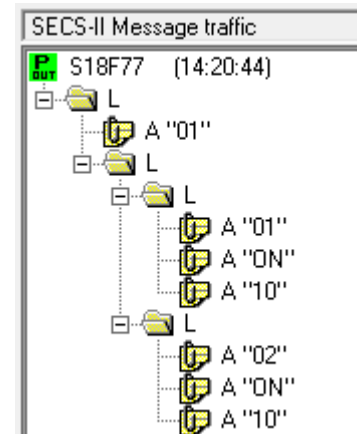


The reading device can be in maintenance mode (MT) to write the MID with the message S18F75.

S18F77: SET OUTPUT STATUS (SOS) (host -> reading device)

This message determines the status of the output of the antenna head specified in the TARGETID.

```
S18F77
  <L,2
    <TARGETID>
    <L,1(2)*
      <L,3
        <OUTPUT>
        <STATUS>
        <TIMEOUT>**
      >
    <L,3
      <OUTPUT>
      <STATUS>
      <TIMEOUT>**
    >
  >
>
```



* Number of outputs:

One or more outputs can be set in a message.

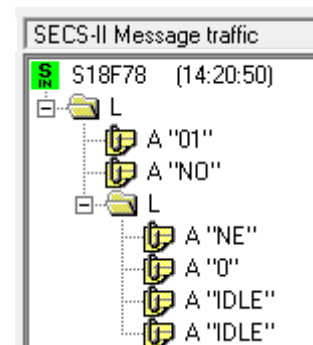
**Timeout optional:

If no timeout (no data element) or the value 00 is set, the LED remains continuously switched on.

S18F78: SET OUTPUT STATUS ACKNOWLEDGE (SOSA) (reading device -> host)

This message acknowledges the process for setting the status of the output of the antenna head specified in the TARGETID.

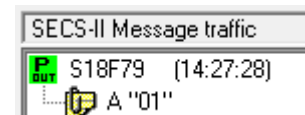
```
S18F78
  <L,3
    <TARGETID>
    <SSACK>
    <STATUSLIST>
  >
>
```



S18F79: GET OUTPUT STATUS (GOS) (reading device -> host)

This message queries the status of the outputs of the antenna head specified in the TARGETID.

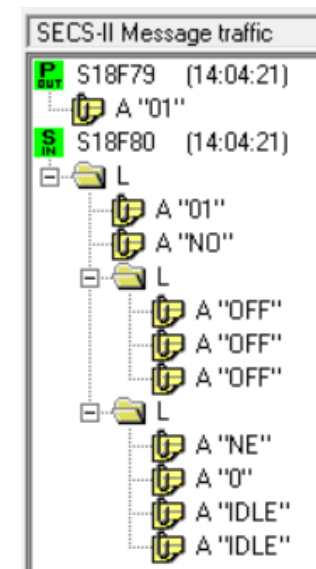
```
S18F79
<TARGETID>
```



S18F80: OUTPUT STATUS (GOSA) (reading device -> host)

This message delivers the status of the output (LED) of the antenna head specified in the TARGETID. All inputs can be queried simultaneously with the TARGETID "00".

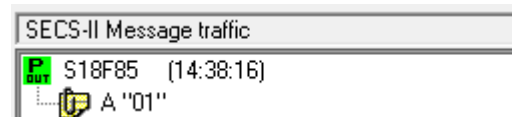
```
S18F80
<L,4
  <TARGETID>
  <SSACK>
  <L,1
    < STATUS Output 1>
    < STATUS Output 2>
    < STATUS Output 3>
  >
  <STATUSLIST>
>
```



S18F85: SCAN UID AND READ ID REQUEST (STR) (host -> reading device, answer)

This message is used for requesting the antenna head specified in the TARGETID to execute a scan procedure for reading the respective corresponding MID.

```
S18F85 W
<TARGETID>
```

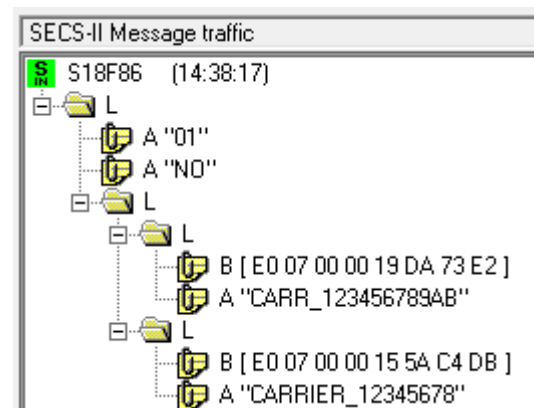


S18F86: SCAN UID AND READ ID ACKNOWLEDGE (STA) (reading device -> host)

This message reports the result of the antenna head specified in the TARGETID to the previous read request.

This procedure transmits a UID and MID list of all ISO transponders that were found in the reading range. If the MID cannot be read, it is transferred as an empty field with the UID. The list is limited to 4 transponders. If more transponders are within the antenna field, only the first 4 transponders are displayed.

```
S18F86
<L,3
  <TARGETID>
  <SSACK>
  <L,n (max. 4)
    <L,2
      <UID1>
      <MID1>
    >
    <L,2
      <UIDs>
      <MIDs>
    >
  >
>
```

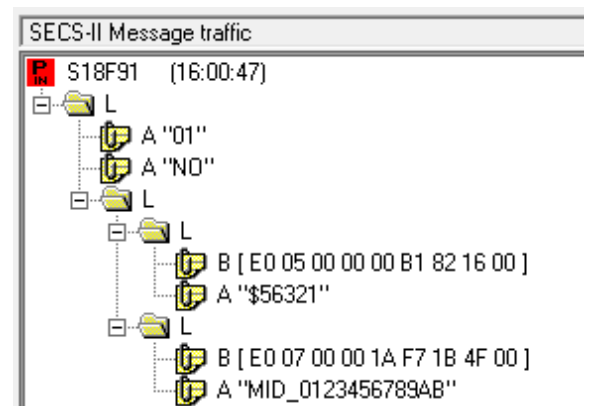


S18F91: AUTO READ SEND (ARS) (reading device -> host)

This message reports the result of the reading operation of the antenna head specified in the TARGETID triggered by the sensor.

This procedure transmits a UID and MID list of all ISO transponders that were found in the reading range. If the MID cannot be read, it is transferred as an empty field with the UID. The list is limited to 4 transponders. If more transponders are within the antenna field, only the first 4 transponders are displayed.

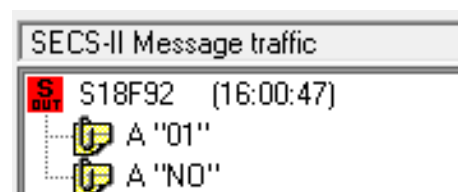
```
S18F91
  <L,3
    <TARGETID>
    <SSACK>
    <L,n (. 4)
      <L,2
        <UID1>
        <MID1>
      >
    <L,2
      <UIDs>
      <MIDs>
    >
  >
```



S18F92 AUTO READ SEND ACKNOWLEDGE (ARSA) (host -> reading device)

The host acknowledges all incoming S18F91 messages.

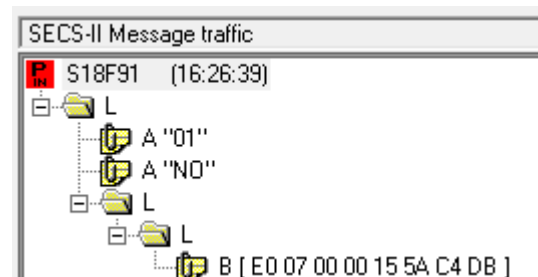
```
S18F92
  <L,2
    <TARGETID>
    <SSACK>
  >
```



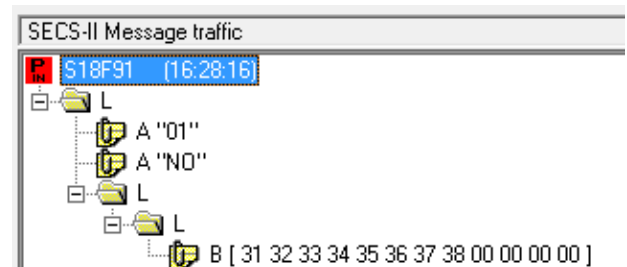
S18F91: POLLING READ SEND (PRS) (reading device->host)

This message reports a result of the antenna head specified in the TARGETID triggered by the polling function. Depending on the setting in the polling port (50) and poll mode (88) parameter, the message receives a UID or data of the recognised transponder.

```
S18F91
  <L,3
    <TARGETID>
    <SSACK>
    <L,1
      <L,1
        <UID1>
      >
    >
  >
```



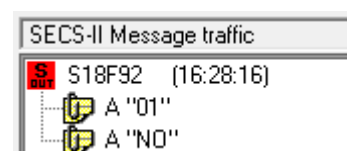
```
S18F91
  <L,3
    <TARGETID>
    <SSACK>
    <L,1
      <L,1
        <DATA>
      >
    >
  >
```



S18F92 POLLING READ SEND ACKNOWLEDGE (PRSA) (host -> reading device)

The host acknowledges all incoming S18F91 messages.

```
S18F92
  <L,2
    <TARGETID>
    <SSACK>
  >
```



HFS E-Sign Reader

9.5.5 Data element directory

The data elements that are used by default in SECS II messages, which are described in the message details section, are defined in this section.

ALARM STATE

Format: A[1]

The value of the alarm state refers to the last reading procedure. The alarm state is activated for a reading or writing error. A successful reading or writing operation deactivates the alarm state. The alarm state is also deactivated when exiting the maintenance mode.

0	...	No alarm
1	...	Alarm

Where used STATUS

ATTRID

Format: A[max25]

Designation for an attribute for a special object type.

CIDRW attribute definitions:

"SoftwareRevisionLevel"	→ Change (version) of the software - maximum 8 bytes
"CarrierIDOffset"	→ Offset of the CID in the CID field (MID area)
"CarrierIDLength"	→ Length of the CID in the CID field (MID area)

"ECID_00"	→ Parameter 0	→ Gateway ID
"ECID_01"	→ Parameter 1	→ Baud rate
"ECID_02"	→ Parameter 2	→ Inter-character timeout T1
"ECID_03"	→ Parameter 3	→ Block protocol timeout T2
"ECID_04"	→ Parameter 4	→ Reply timeout T3
"ECID_05"	→ Parameter 5	→ Inter-block timeout T4
"ECID_06"	→ Parameter 6	→ Retry limit RTY
"ECID_07"	→ Parameter 7	→ TARGETID high byte
"ECID_08"	→ Parameter 8	→ TARGETID low byte
"ECID_09"	→ Parameter 9	→ Heartbeat time
"ECID_11"	→ Parameter 11	→ ReaderID
"ECID_12"	→ Parameter 12	→ Acknowledgement error message
"ECID_31"	→ Parameter 31	→ r/w max repeat
"ECID_32"	→ Parameter 32	→ Transponder type
"ECID_33"	→ Parameter 33	→ Manufacturer type
"ECID_35"	→ Parameter 35	→ AFI Application Family Identifier
"ECID_36"	→ Parameter 36	→ Advanced UID
"ECID_37"	→ Parameter 37	→ MID area
"ECID_42"	→ Parameter 42	→ CarrierIDOffset
"ECID_43"	→ Parameter 43	→ CarrierIDLength
"ECID_44"	→ Parameter 44	→ FixedMID

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"ECID_51" → Parameter 51 - → ReadMode
"ECID_52" → Parameter 52 - → WriteMode
"ECID_53" → Parameter 53 - → InventoryMode
"ECID_54" → Parameter 54 - → ScanMode
"ECID_55" → Parameter 55 - → QuiteMode
"ECID_56" → Parameter 56 - → Transmitter delay
"ECID_57" → Parameter 57 - → Modulation
"ECID_62" → Parameter 62 - → ISO 15693 Flags
"ECID_63" → Parameter 63 - → Transmitter off delay
"ECID_64" → Parameter 64 - → ISO 15693 Option
"ECID_65" → Parameter 65 - → Autoread page
"ECID_66" → Parameter 66 - → Autoread data length
"ECID_67" → Parameter 67 - → Polling frequency
"ECID_68" → Parameter 68 - → Polling Port
"ECID_69" → Parameter 69 - → Polling Fallout
"ECID_70" → Parameter 70 - → Polling Page
"ECID_71" → Parameter 71 - → Polling DataLength
"ECID_72" → Parameter 72 - → Polling Mode
"ECID_98" → Parameter 98 - → Protocol
"ECID_99" → Parameter 99 - → Customer mode
"ECID100" → Parameter 100 - → Customer Parameter Set
"ECID123" → Parameter 123 - → Fine version (read only)
"ECID132" → Parameter 132 - → Software revision (read only)
"ECID140" → Parameter 140 - → Serial number (read only)
"ECID141" → Parameter 141 - → Hardware version (read only)

ATTRVAL

Format: A[max4]

Value of the specified attribute.

CIDRW attribute definitions:

"Configuration"	Number of the antenna ports "01" – "06"
"AlarmStatus"	Current CIDRW substate of the ALARM STATE "0" ...NO "1" ...ALARMS
"OperationalStatus"	Current CIDRW substate of IN OPERATION "IDLE" ... Device in IDLE mode "BUSY" ... Reading is busy "MANT" ... Maintenance mode

"SoftwareRevisionLevel" Revision (version) of the software - maximum 8 bytes

Head attribute definitions:

"HeadStatus" Current state
 "IDLE" ... Device in IDLE mode
 "BUSY" ... Reading device is busy
 "NOOP" ... Not operating

"HeadID" Antenna port number 01 (2 digits)
 "01" ... Antenna 1

CPVAL Format: A[max2]

State query value
"OP" ... Operating state
"MT" ... Maintenance state

DATA Format: A[max200]

A vector or string consisting of unformatted data.
Depends on the length of the MID area.

DATALENGTH Format: U2

Total number of bytes to be sent.
The DATALENGTH corresponds to the number of bytes to be read or written.

DATASEG Format: A[2]

Is used for identifying the requested data.
The DATASEG corresponds to the page number (PAGEID) of the ISO 15693 transponder.
"00" first page of each transponder or first page of the data area.

EAC Format: B[1]

Acknowledgement code for a new reading device attribute
0 ... Parameter successfully set
1 ... Parameter was not set

ECID Format: U1

Parameter number of the reading device (see ECV data element)

ECV Format: U1

Definition of the reading device parameters.
The values are displayed as decimal values, see → Parameters.

MDLN

Format: A[6]

System model number (hardware version)

MHEAD

Format: B[10]

Header of the SECS message block associated with the faulty message block.

MID

Format: A

Material ID, predefined area on the transponder where the unique code of the cassette / box is saved.
Depending on the transponder type, the length of the MID can be changed.
The MID length can set from "0" (no MID) up to "10" (MID occupies the first ten pages).

OFLACK

Format: B[1]

Acknowledgement code for an OFFLINE request.
0 OFFLINE acknowledgement (reading device is offline)

ONLACK

Format: B[1]

Acknowledgement code for an ONLINE request.
0 ONLINE assumed (reading device is online)

OUTPUT

Format: A[2]

Number of the output (LED) at the antenna head, always 01 in this hardware version (02 not available here).
"01" ... Output 1 → integrated LED

PM information

Format: A[2]

Information about the operating mode
"NE" ... Normal execution
"MR" ... "Maintenance mode" required
Where used STATUS

RAC

Format: B[1]

Acknowledgement code reset
0 ... Reset was performed
1 ... Reset was not performed

RIC

Format: B[1]

1 ... Power-up reset
2 ... Software reset (without resetting the Ethernet components)

SHEAD

Format: B[10]

Header of the saved SECS message block. Only the last message is saved. It must be acknowledged by the host.

SOFTREV

Format: A[max 6]

Software version

SSACK

Format: A[2]

Description: Result information about the state of the request with regard to the service request.

- "NO" Normal operation
 Indicates the success of the queried procedure.
- "EE" Execution error
 Transponder data could not be read. MID sequence cannot be read, since non-exclusively valid ASCII characters were found in the defined MID area. The state of the systems, however, is normal.
- "CE" Communication error
 Syntax error in the message, message format or value.
- "HE" Hardware error
 Error in the header of the ID reading device/writer, header of the ID reading device/writer is deactivated.
- "TE" Transponder error, reading / writing operation not successful (*tag error*)
- "NT" No transponder recognised in the antenna area. (*No tag*)

SSCMD

Format: A[max 18]

Description: Indicates a procedure to be executed by the subsystem.

Is used to distinguish between the different subsystem commands displayed.

- "ChangeStatus" ... Change status
- "GetStatus" ... Query status
- "Reset" ... Reset CIDRW
- "PerformDiagnostics" ... Diagnostics are performed.
- "SetLED" ... Diagnostics are performed.

SSTATUS

Format: A[max 3]

Provides information about the sensor state of a specific head.

- "ON" ... Sensor is covered
- "OFF" ... Sensor is not covered

STATUS

Format: A[max 32]

Provides information about the state of the external output of a specific head.

- "ON" ... Output is on
- "OFF" ... Output is off
- "FLASH" ... Output flashes
- "KEEP" ... Output does not changes its status
- "FAST" ... Output flashes quickly

"PULSE" ... Output pulses

STATUS_INPUTx	Format: A[max 32]
----------------------	--------------------------

Provides information about the state of the external input of a specific (no. "x").

"ON"	... Input is on
"OFF"	... Input is off
" "	... Input is not activated

Status list	Format: A[2]
--------------------	---------------------

The status list provides information about the system state.
Consists of "PM Information" and the current values of the CIDRW attribute "AlarmStatus", "Operating Status" and "HeadStatus".

Status list
L,4

<PMInformation>
<AlarmStatus>
<OperatingStatus>
<HeadStatus>

TARGETID	Format: A[2]
-----------------	---------------------

The TargetID is defined with 2 ASCII characters in decimals and corresponds to the antenna connections 1 (01) – 32 (32).

TIMEOUT	Format: A[2]
----------------	---------------------

TIMEOUT is defined with 2 ASCII characters in hexadecimal and corresponds to the waiting time in seconds.

01-FF (1-256s), value 00 or an empty means infinite (always on).

UID	Format: B[8-12]
------------	------------------------

Represent the unique code of the transponder (unique ID assigned by the manufacturer).

With ISO 15693 transponders, the UID has a length of 8 bytes.

9.5.6 Parameters

The list of parameters and a description of the individual values are provided below.

No. (DEC)	No. (HEX)	Parameter name	Description
0	0x00	Gateway ID	The gateway ID is a part of the device ID. The reading unit simultaneously functions as a gateway and reading device (CIDRW with integrated reading head). It corresponds to the "Lower Device ID" in the message header. 00 .. 255 Default: 0x00
1	0x01	Baud rate	Data transfer rate of the RS232 interface Default: 192 19200 Baud
2	0x02	Inter-character timeout T1	1 ... 100 1/10 s Default: (5) 0,5 s
3	0x03	Block protocol Timeout T2	1 ... 250 1/10 s Default: (30) 3 s
4	0x04	Reply Timeout T3	1 ... 120 1 s Default: (45) 45 s
5	0x05	Inter-block Timeout T4	1 ... 120 1 s Default: (45) 45 s
6	0x06	Retry limit RTY	Number or retry attempts for a query or message. Default: 3
7	0x07	TARGETID high byte	High byte of the defined TARGETID
8	0x08	TARGETID low byte	Low byte of the defined TARGETID
9	0x09	Heartbeat time	The reading device transmits a S1F1 message to the host at defined intervals. 0 ... No heartbeat 1 ... 255 1 s (1-255s) Default: 0 ... No heartbeat
11	0x0B	ReaderID	The reader ID is a part of the device ID. The reader ID corresponds to the 7 LSB (lowest bits) of the "Upper Device ID" in the message header. 00 ... 127 (0x00 – 0x7F) Default: 0x00
31	0x1F	r/w max repeat	The parameter defines the maximum number of read and write attempts when a read/write error occur. range 0 ... 5 Default: 5
32	0x20	Transponder type	The parameter defines the transponder type. The set type is used for reading and writing messages without a UID transfer. The transponder type (manufacturer) corresponds to the 2nd byte of the transponder

			<p>UID. (0x04 ... NXP, 0x07 ... TI) Default: 5 ... Infineon</p>
33	0x21	Manufacturer type	<p>This parameter defines the exact manufacturer type. The set type is used for reading and writing messages without a UID transfer. The manufacturer type corresponds to the 3rd byte of the transponder UID. Default: 0</p>
35	0x23	AFI - Application Family Identifier	<p>The application family identifier is used for scanning with AFI. (The function is not yet implemented) Default: 0 ... No AFI defines</p>
36	0x24	Advanced UID	<p>The Advanced UID parameter defines whether the UID is transmitted with or without DSFID bytes for scan messages. Default: 0 ... 8-byte UID without DSFID byte</p>
37	0x25	MID area	<p>The parameter defines the MID area. 0 ... 10 pages Default: 4 pages = 16-byte MID area</p>
42	0x2A	CarrierIDOffset	<p>Defines the offset of the CID (=MID) within the MID area. The valid value range depends on the MID area values and the CarrierIDLength. Default: 0</p>
43	0x2B	CarrierIDLength	<p>Defines the length of the CID (=MID) within the MID area. The valid value range depends on the MID area value and the CarrierIDLength. Default: 16</p>
44	0x2C	FixedMID	<p>Defines the reading and writing behaviour of the CID length defined in SEMI E99-03. 0 ... Dynamic CID length The length of the MID is variable. Valid Lengths are 1-CID length bytes. 1 ... Defined CID length The length of the MID is defined at CID length. A deviation of this length results in an error message. Default: 0</p>
51	0x33	Read mode	<p>The ReadMode parameter defines options during a reading operation. Bit 0-3 ... not used Bit 4-7 ... Number of read retries Default: 0x10</p>
52	0x34	Write mode	<p>The WriteMode parameter defines options during a writing operation. Bit 0-3 ... not used Bit 4-5 ... Number of write retries (0-3) Bit 6 = 1 ... Rotation of the data bytes</p>

			Bit 7 = 0 ... Single block CMD (1 = multiple block) Default: 0x10
53	0x35	Inventory mode	
54	0x36	Scan mode	The ScanMode parameter defines options during a scan operation. Bit 0 = 1 ... Full scan, (0= inventory) Bit 1 = 1 ... Set quiet for next scan Bit 2 = 0 ... Scan mask for a new tag Bit 3 = 0 ... Scan mask for recognised tag Bit 4-7 ... Number of scan retries Default: 0x1F
55	0x37	Quite mode	
56	0x38	Transmitter Delay	The transmitter delay defines the time period between the activation of the transmitter and start of the reading or writing operation. 0 ... 255 ms Default: 3
57	0x39	Modulation	The parameter defines the modulation depth of the HF transmission. We recommend using the default values. 0 ... Modulation 30% 1 ... Modulation 100% Default: 1
62	0x3E	ISO 15693 Flags	The ISO 15693 flags define some options for the HF transmission. We do not recommend using the default values. Bit 0 = 0 ... ASK (1 = FSK) Bit 1 = 0 ... Low data rate (1 = High rate) Bit 2 = 0 ... Single subcarrier (1 =double subc.) Bit 3 ... 0 ... Modulation 30% (1 =Mod.=100%) Default: 0x08 (depends on the transponder type)
63	0x3F	Transmitter OffDelay	The parameter specifies the time to turn off after sending a message. range: 0...255 ms Standard: 0
64	0x40	ISO 15693 OptionFlag	0 ... Option Flag = 0 1 ... Option Flag = 1
65	0x41	Autoread Page	Defines the start page of the automatic read function. 00 ... 255 (depends on the type of transponder) Default : 0x04 (page 4)
66	0x42	Autoread Datalength	Defines the data length of the automatic read function. 00 ... 255 (depends on the type of transponder)

			Default : 0x0C (12 Byte)
67	0x43	Polling Frequenz	<p>The device performs a scanning process at regular intervals when a polling frequency is defined. (see par. 47) If the parameter is set to 0x00, no polling takes place. 0x00 - 0xFF (5 ms steps)</p> <p>Default: 0x00</p>
68	0x44	Polling Port	<p>The parameter defines the antenna port to be used for polling.</p> <p><i>Bit 0:</i> internal antenna <i>Bit 1-5:</i> not used <i>Bit 6:</i> 1: New recognized transponder are submitted to the host. 0: All recognized transponder are submitted to the host. <i>Bit 7:</i> 1: Leaving the antenna area is submitted to the host. 0: not send leaving the antenna</p> <p>Default : 0x61</p>
69	0x45	Polling fallout	<p>This parameter determines how often (scan cycles) an already recognized transponder can be outside the read range without being retransmitted.</p> <p>Default : 3</p>
70	0x46	Polling page	<p>This parameter defines the start page of the automatic polling function when polling mode read is selected</p> <p>Default : 1</p>
71	0x47	Polling DataLength	<p>This parameter defines the data length of the automatic polling function when polling mode read is selected.</p> <p>Default : 8</p>
72	0x48	Polling mode	<p>Bit 4 (0x10): scan Bit 5 (0x20): read (for future development)</p> <p>Default : 16 (0x10 = Scannen)</p>
98	0x62	Protocol	<p>Query of the current protocol 1 ... SECS/HSMS</p> <p>Default: 1 (only HSMS protocol is supported)</p>
99	0x63	Customer mode	<p>The parameter defines different customer-specific behavioural patterns that influence the different reading device parameters. 0x00 ... Establish default values. Attention: the network settings are reset. 0x05 ... Infineon default values</p>

			Default: 5 Infineon
100	0x64	Customer Parameter Set	This parameter is set specifically to customer requirements at the factory.
123	0x7B	Fine version (Read only)	Query of the firmware - fine version.
132	0x84	Software revision (Read only, S18F1)	Query of the firmware version.
140	0x8C	Serial number (Read only, S18F1)	Query of the serial number.
141	0x8D	Hardware version (Read only, S18F1)	Query of the hardware version.

9.6 ASCII table

DEC	HEX	CTRL	Code
0	0	^@	NUL
1	1	^A	SOH
2	2	^B	STX
3	3	^C	ETX
4	4	^D	EOT
5	5	^E	ENQ
6	6	^F	ACK
7	7	^G	BEL
8	8	^H	BS
9	9	^I	HT
10	A	^J	LF
11	B	^K	VT
12	C	^L	EF
13	D	^M	CR
14	E	^N	SOH
15	F	^O	SI
16	10	^P	DLE
17	11	^Q	DC1
18	12	^R	DC2
19	13	^S	DC3
20	14	^T	DC4

DEC	HEX	CTRL	Code
21	15	^U	NAK
22	16	^V	SYN
23	17	^W	ETB
24	18	^X	CAN
25	19	^Y	EM
26	1A	^Z	SUB
27	1B	^[ESC
28	1C	^\ _	FS
29	1D	^] _	HP
30	1E	^^	RS
31	1F	^_ _	US

HFS E-Sign Reader

DEC	HEX	CTRL
32	20	BLANK
33	21	!
34	22	"
35	23	#
36	24	\$
37	25	%
38	26	&
39	27	'
40	28	(
41	29)
42	2A	*
43	2B	+
44	2C	,
45	2D	-
46	2E	.
47	2F	/
48	30	0
49	31	1
50	32	2
51	33	3
52	34	4
53	35	5
54	36	6
55	37	7

DEC	HEX	CTRL
56	38	8
57	39	9
58	3A	:
59	3B	;
60	3C	<
61	3D	=
62	3E	>
63	3F	?
64	40	@
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G
72	48	H
73	49	I
74	4A	J
75	4B	K
76	4C	L
77	4D	M
78	4E	N
79	4F	O

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DEC	HEX	CTRL
80	50	P
81	51	Q
82	52	R
83	53	S
84	54	T
85	55	U
86	56	V
87	57	W
88	58	X
89	59	Y
90	5A	Z
91	5B	[
92	5C	\
93	5D]
94	5E	^
95	5F	_
96	60	'
97	61	a
98	62	b
99	63	c
100	64	d
101	65	e
102	66	f
103	67	g

DEC	HEX	CTRL
104	68	h
105	69	i
106	6A	j
107	6B	k
108	6C	l
109	6D	m
110	6E	n
111	6F	o
112	70	p
113	71	q
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y
122	7A	z
123	7B	{
124	7C	
125	7D	}
126	7E	~
127	7F	□

10. Service and Troubleshooting

10.1 General information



Follow the basic safety instructions in the chapter Safety instructions.

- ➔ The maintenance of the reading device and its components may only be performed by the manufacturer
- ➔ Observe the instructions in this section when errors occur. Do not perform any further troubleshooting measures in addition to the described measures.
- ➔ In case of doubt concerning errors and handling them, contact the manufacturer.

10.2 Troubleshooting personnel



Troubleshooting must only be performed by specially trained personnel. In case of doubts concerning the necessary qualifications, contact the manufacturer.



The handling of device errors by untrained personnel as well as the incorrect handling of the device can result in personal injuries as well as damages to the reading device and/or connected devices.

10.3 Safety instructions



All components of the antenna oscillating circuit carry high voltage.



Only use spare parts specified by the manufacturer.
Unauthorised substitution of parts can result in fire, electric shock or other hazards



Electrostatic charges damage electronic components within the device.
ESD protective measures must be applied prior to opening the unit.



Carefully remove the housing covers to prevent damage. Do not operate the device when the housing is open.



Never short circuit the fuse! This may result in fire or damages on the device.
Only use fuses specified by the manufacturer.

10.4 Software releases

Release date	Version	Description
03.11.2017	HFSESN1004	Initial release
08.04.2019	HFSESN1100	S18F75 Write MID UID


10.5 Customer service

HERMOS AG
Track & Trace RFID Division
Gartenstraße 19
D-95490 Mistelgau
Germany

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Fax +49 (0) 9279 – 991 - 100
E-mail rfid.support@hermos.com
URL: <http://www.hermos.com/de/produkte/rfid/>

11. Disassembly and storage

11.1 Disassembly

	<ul style="list-style-type: none">➔ Remove the power supply➔ Remove all cables➔ Loosen and remove the mounting screws➔ Remove the reading device from the installation area
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11.2 Storage

Store the reading device and its components in a clean and dry environment.
Make sure that the power supply has been removed.
Observe the required storage conditions specified in the technical data.



12. Transport and disposal

12.1 Transport

Use a solid cardboard box for the transport.
Use enough cushioning material to protect the device on all sides.

12.2 Disposal

The device and its components are made of various materials.
Disconnect the electronic components from the housing and dispose of them separately.

 	<ul style="list-style-type: none">➔ Do not dispose of the unit in normal household waste.➔ Dispose of the materials separately and according to the legal regulations of your country.➔ Housing and attachments as plastic waste➔ Electronic components, antennas and cables as electronic waste
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