

R-EA-WR-ET-DES-SMP
13.56 MHz OEM RFID Reader
for automatic data acquisition
from DESFire tags
Ethernet Version

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1 Functional Description

The RFID device automatically reads a number of bytes from a tag of type Mifare DESFire.

The hexadecimal number value is converted to a decimal number.

The RFID device sends the decimal number to one network host that connected itself to the device via Ethernet.

Example

The hexadecimal number 0x00008CFC was read. It will be converted to the decimal number 36092. The following telegram will be sent:

<STX>, „3“, „6“, „0“, „9“, „2“<ETX> hexadecimal: 0x02, 0x33, 0x36, 0x30, 0x39, 0x32, 0x03

1.1 Housing

Ethernet reader wallmount housing.

1.2 Power Supply

Power supply via PoE (Power over Ethernet) by RJ45 network port.

Optional power supply via screw terminal with 24 Vdc (industry standard).

The selection between both power supplies is done via jumper.

1.3 Interface

Ethernet IP address, network mask, network gateway and listening port can be set via web interface.

1.4 Tags

Type: Mifare DESFire

Form: Keyfob

1.5 Antenna, Tag Distance

Reading range is up to 3 cm. The device can be mounted on any metal surface.

1.6 Functional Description RFID

Automatic reading of data from a Mifare DESFire tags.

Application: 7080F4

File: 0x00

Start address: 0x0009

Length: 0x0004

These 4 bytes of data will be converted to a decimal number.

1.7 Ethernet Communication

A host system (software) on customer side actively establishes a TCP connection to the RFID device.

This connection will be used by the RFID device to send captured data automatically to the host system.

1.7.1 Telegram Format

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
STX (0x02)	Most significant byte	byte	byte	byte	Least significant byte	ETX (0x03)

1.7.2 Alive Telegram

A host system (software) on customer side can send this telegram to the RFID device to keep connection alive and check presence of the communication partner (recommended interval: 30 s):

<STX>, „A“, „L“, „I“, „V“, „E“<ETX> hexadecimal: 0x02, 0x41, 0x4C, 0x49, 0x56, 0x45, 0x03

The RFID device will return exactly the same telegram: <STX>“ALIVE“<ETX>

1.8 Feedback to the Operator

Standard:	LED blue on
DESFire read successfully:	LED green + Buzzer
RFID tag but no data:	LED red

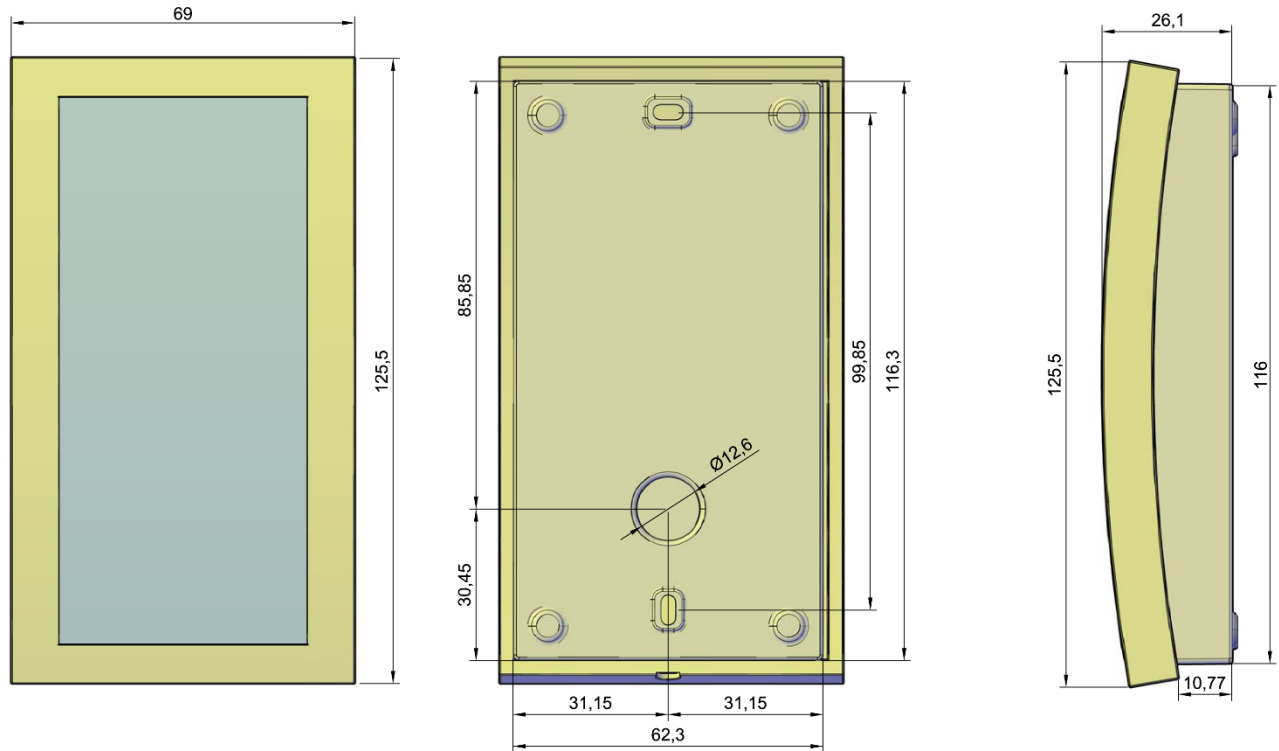
1.9 Reference Documentation

There are no reference documents, this device operates a customer-specific Firmware (SMP).

2 Housing

2.1 Dimensional Drawing

Table housing, drawing with dimensions and mounting holes.



2.2 Open the Housing

Access the pin from below:



Remove it completely:



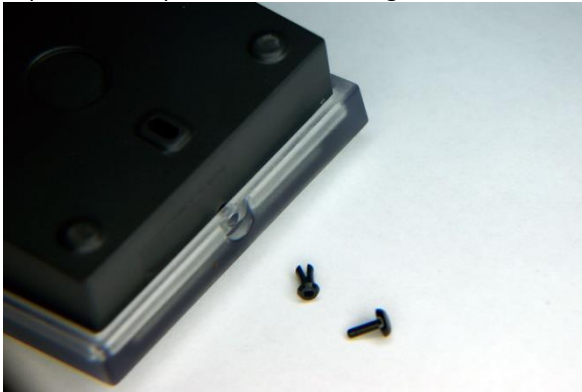
Pull out the pinhead with your finger:



Now you can lift off the cover.

2.3 Close the Housing

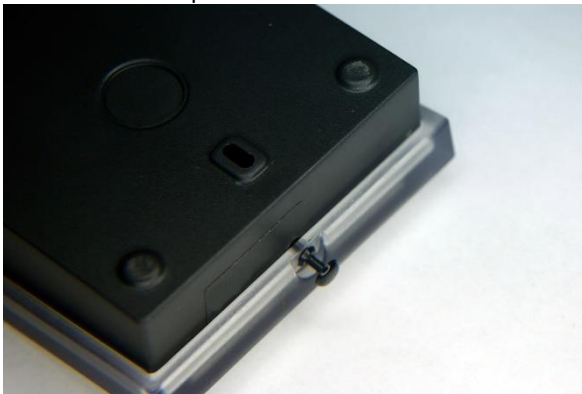
Separate both parts before re-fitting:



Re-fit the expansion peg first:



Put in the center pin:

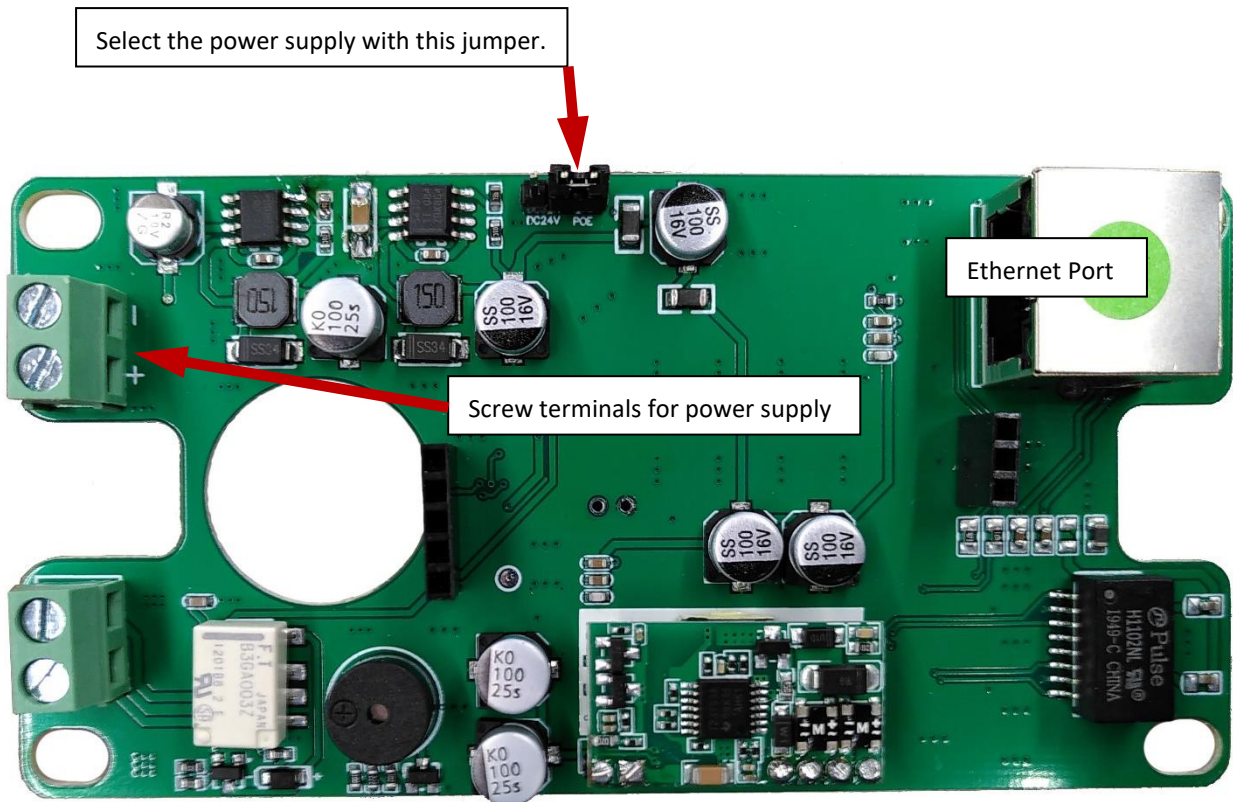


Press down the center pin completely:



3 Electrical Connection

Remove the antenna PCB to gain access to the Ethernet port.



4 Configuring the Device

4.1 Using "S2E ConfigTool_V1.4"

Tab "Basic Settings"

S2E ConfigTool (V1.4)

192.168.10.99 **1** Search **2** Apply Settings Upload Firmware Reset Exit

Serial to Ethernet

IP: 192.168.10.61 Name: FS100S **3**

Basic Settings Port1

Product Information

Device Type: FS100S

Serial Number: 20200721-EC9F0D400B58

Firmware Version: V1.3

Firmware Status: Normal

Network Settings

4 ☐ Use the Follow IP Address

☒ Get IP Address from DHCP Server

IP Address: 192.168.10.61

Subnet Mask: 255.255.255.0

Gateway: 192.168.10.10

DNS Server: 217.151.144.10

Other Settings

5 MAC Address: EC:9F:0D:40:0B:58

Device Name: FS100S

User Name: admin

Password: *****

HTTP Port: 80

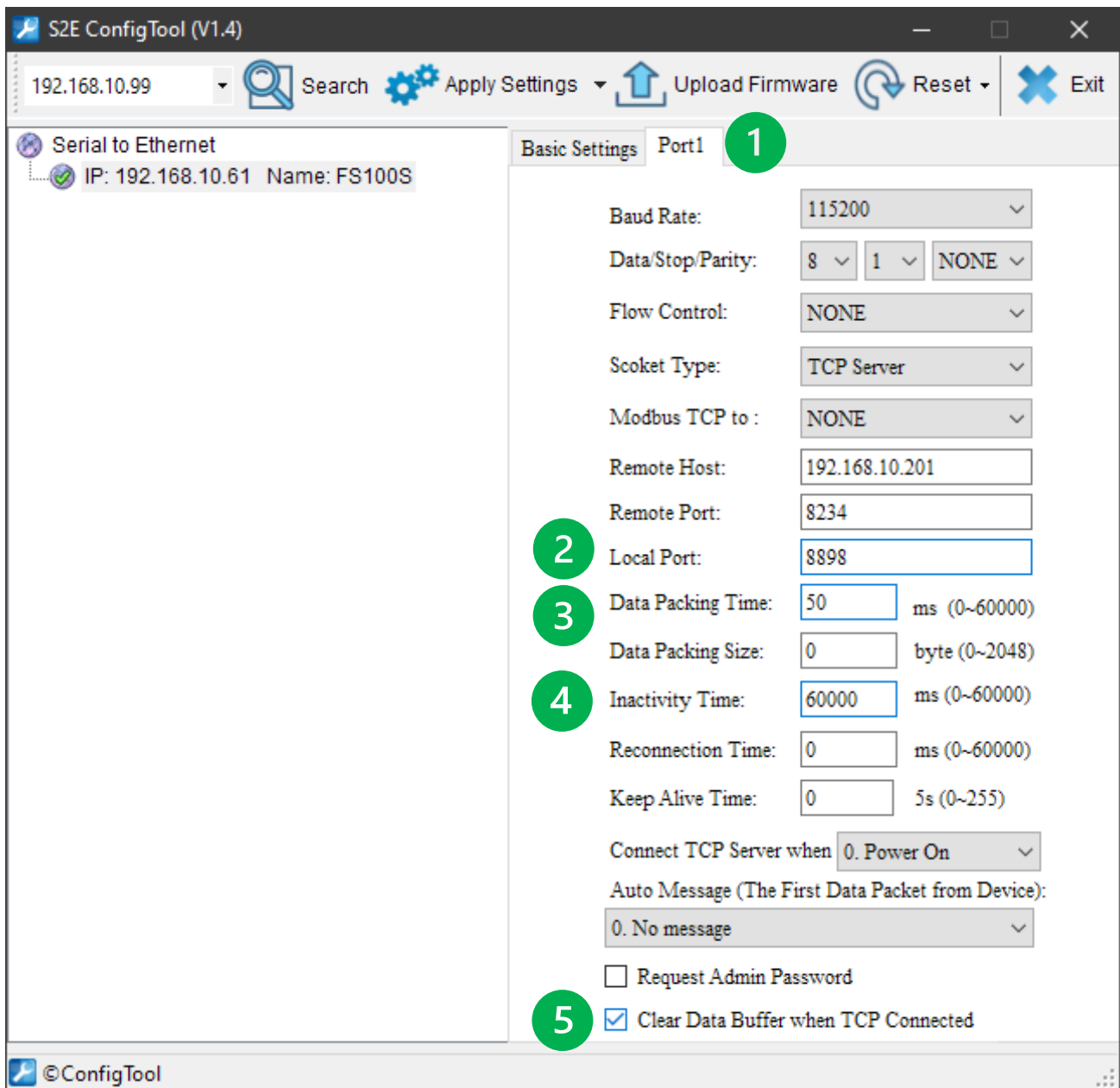
☐ Echo In AT Mode

☐ Show Debug Messages

© ConfigTool

- 1: Select the desired network interface of your PC from the drop-down menu.
- 2: Click on [Search], now the device you want to set should be listed.
- 3: Select the desired device to set.
- 4: Leave the device set to DHCP or set the desired Ethernet parameters of the device.
- 5: Device Name: Here you can give the device a name that is helpful to you.
User Name/Password: this is the user name and password for access via the web interface. You can use this to block access. In addition, you can disguise access to the web interface with an HTTP port that differs from the standard.
- 6: Please do not forget to save changed settings with [Apply Settings].

Tab "Port 1"



The screenshot shows factory settings. Normally you should not need to change anything here.

In case you need to change settings, please do not forget to save changed settings with [Apply Settings].

Important Note!

Please do not change the values "Baud Rate", "Data/Stop/Parity", "Flow Control", "Socket Type", "Modbus TCP to".

4.2 Using the Web Interface

Die Weboberfläche ist unter der gleichen IP-Adresse erreichbar, wie sie im „S2E ConfigTool_V1.4“ sichtbar ist.

4.2.1 LogIn Information

By factory default user and password is: admin

4.2.2 Menu “Device View”

This gives an overview of the current settings. The settings cannot be changed here.

Firmwar Version: 1.4		
Device View	Product Information	Help
Basic Settings	Device Name: DES-R845-SMP-V2	<ul style="list-style-type: none"> • Run time: run time means the minutes since latest reboot. • TX/RX Count: TX/RX count give us a calculation of the total byte we have been.
Advanced Options	Device Type: FS100S	
Management	Serial Number: 20210125-EC9F0D4018B1	
	Run Time: 180 seconds	
	Serial Rx: 0	
	Serial Tx: 0	
	Network Information	
	DHCP: ON	
	IP Address: 192.168.10.102	
	Subnet Mask: 255.255.255.0	
	Gateway: 192.168.10.10	
	DNS Server: 217.151.144.10	
	Socket Information	
	Mode: TCP Server	
	Local Port: 8898	
	Remote Host: 192.168.1.201	
	Remote Port: 8234	
	UART Information	
	Baud Rate: 115200	
	Date Bit: 8	
	Parity: NONE	
	Stop Bit: 1	
	Flow Control: NONE	

4.2.3 Menu “Basic Settings”

Firmwar Version: 1.4		
Device View	Network Setting	Help <ul style="list-style-type: none"> • RIP type: StaticIP or DHCP. • IP Address: Module's IP. • Subnet Mask: Usually 255.255.255.0 • Gateway: Usually router's ip address • Load Port: 1~65535. when TCP Client, set this to 0 means use random local port. • Remote Port: 1~65535
Basic Settings	MAC Address: EC:9F:0D:40:18:B1 1 Use DHCP: <input checked="" type="checkbox"/> IP Address: 192.168.10.102 Subnet Mask: 255.255.255.0 Gateway: 192.168.10.10 DNS Server: 217.151.144.10	
Advanced Options	Socket Setting	
Management	Socket Type: TCP Server Remote Host: 192.168.1.201 Remote Port: 8234 2 Local Port: 8898 Modbus TCP to: NONE	
	UART Setting	
	Baud Rate: 115200 Date Bit: 8 Parity: NONE Stop Bit: 1 Flow Control: NONE	
	3 Save Settings Reset	

Note

The factory settings are framed in green. Normally you should not need to change anything here.

- 1: Keep DHCP or set the desired IP address for the device.
- 2: Set „Local Port“ to the desired listening port number.
- 3: Make sure to press [Save Settings] to save the settings permanently.

Important hint!

Do not change the settings „Socket Type“, „Modbus TCP to“ in scction „Socket Setting“.
Do not change the settings in section „UART Setting“.

4.2.4 Menu “Advanced Options”

Firmwar Version: 1.4		
Device View	Parameter Setting	Help
Basic Settings	<div>1</div> Device Name: <input type="text" value="DES-R845-SMP-V2"/>	<ul style="list-style-type: none"> • Device Name: max length is 15 char.
Advanced Options	User Name: <input type="text" value="admin"/> <div>2</div> HTTP Port: <input type="text" value="80"/>	<ul style="list-style-type: none"> • User Name: max length is 5 char. • HTTP Port: Default 80.
Management	Data Packing Size(byte): <input type="text" value="0"/> Data Packing Time(ms): <input type="text" value="50"/> Reconnection Time(ms): <input type="text" value="0"/> Inactivity Time(ms): <input type="text" value="60000"/> Keep Alive Time(5s): <input type="text" value="0"/> Verify the Connection: <input type="text" value="No"/> <input type="button" value="v"/> Send Hello Message: <input type="text" value="None"/> <input type="button" value="v"/> Connection Condition: <input type="text" value="Connect Socket after Power On"/> <input type="button" value="v"/> Clear Buffer if Connect: <input checked="" type="checkbox"/> Debug Message Enable: <input type="checkbox"/> AT Echo Enable: <input type="checkbox"/>	<ul style="list-style-type: none"> • Reset: Click to make your config take effect. • Data packing size Default 0(0~2048). • Data packing time Default 0(0~60000). • Reconnection time: Default 0 (0~60000). • Inactivity time: Default 0 (0~60000).
	<div>3</div> <input type="button" value="Save Settings"/> <input type="button" value="Reset"/>	

Note

The factory settings are framed in green. Normally you should not need to change anything here.

- 1: When useful put a „Device Name“ for your own interest.
- 2: „User Name“ is the user name for the web interface.
The password settings are done in the site „Management“.
You can change the web server port to any other port.
- 3: Make sure to press [Save Settings] to save the settings permanently.

Important hint!

Do not change any other settings here.

4.2.5 Menu "Management"

Firmwar Version: 1.4		
Device View	Password Setting	Help <ul style="list-style-type: none"> • Password: Max length is 5 char. • Logout: Click to make quit the web page. • Reset: Click to make restart the module. • Default: Click to make module restore factory setting.
Basic Settings	Old Password: <input type="text"/>	
Advanced Options	New Password: <input type="text"/>	
Management	Confirm Password: <input type="text"/> <input type="button" value="Set"/>	
	Management	
	Logout: <input type="button" value="Logout"/>	
	Reset Device: <input type="button" value="Reset"/>	
	Factory Default: <input type="button" value="Default"/>	

- 1: You can change the current password to a new password. The factory default password is „admin“. To change the password type in your current password in „Old Password“ and type in the new password in „New Password“. Confirm the new password in the field „Confirm Password“. Make sure to press [Save Settings] to save the new password permanently.
- 2: For security reasons you should logout after changing the password by pressing [Logout].

5 Revisions

Version	Date	Notes
1.0	2021-02-24	First issue of user manual
1.1	2021-05-27	Updated with screenshots of webinterface FW 1.4, small typos corrected, parameter “Data Packing Time” now set to 50 ms (avoids several IP packets per character).
1.2	2022-01-06	Display errors fixed.

6 Technical data

Electrical data	
Power supply	PoE or 12...24 Vdc, selected by Jumper
Power consumption	< 1 Watt
Frequency	13.56 MHz
Antenna	Intern
Reader IC	CV 520
Interface	Ethernet

Mechanical data	
Dimensions	125,5 × 60 × 26,1 mm
Weight	135 g
Material	ABS

Applicable Standards	
EMC	EN 301489-1:2012-04 (v1.9.21)
	EN 301489-3:2013-12 (V1.6.1)
Radio Regulation	EN 300330-1:2015-08 (V1.8.1)
	EN 300330-2:2015-08 (V1.6.1)
Safety	EN 50581:2012 (valid until 2024-07-07)
	EN 63000:2018
RoHS 2	EU Directive 2011/65/EU
	EU Directive 2015/863/EU
REACH	EU Directive 1907/2006, updated by 2018/2005/EU