→ What is RFID TMS?

The RFID TMS is an independent RFID system which is designed for a simple and fast integration into existing operating environments. It does not require special connections, like e.g. USB or RS232 and the outputs can be accessed directly. The system consists of a reading/writing unit, an evaluation electronics, transponders and a management software. The transponders, the evaluation electronics and the software are protected through a customised serial number. That means that the evaluation electronics can only communicate with the appropriate transponders and those transponders can only be programmed with the appropriate management software.

On the RFID TMS the validation of transponders is done via the evaluation electronics, they have not to be programmed via an external control. If the reading/writing unit detects a transponder with a valid serial number, the data of the transponder is processed by the evaluation electronics and the corresponding outputs are activated. For RFID TMS there are two variants, TMS_TRA and TMS_TCA. Both systems need the SKS_TMS_xxxxxx for the installation and the management.
In case customer wants to use the system without software Schlegel can also programme the transponders on request.

→ What is SKS TMS?

The SKS TMS consists of a management software and a programming station. The software is absolutely necessary for programming the transponders, as the software is created with a customer-specific serial number, which is saved when the transponders are programmed. This means that the transponders can only be processed by the evaluation electronics that have the same serial number. This ensures that no functions can be activated by external transponders. In addition to the serial number there are two other sectors on the transponder on which the customer can save data with the software. On the one hand, this is a special password-protected sector where the customer can store an own number for his own customers so that the systems remain unique across the customers. On the other hand, the software can be used to manage the transponder. This includes defining the outputs that are to be activated by the evaluation electronics for the transponder and the optional possibility of user-specific data, e.g. to file the name of the user. The management software can be installed on a standard PC with the latest Windows operating system and USB connection. All required programmes, files and instructions are available on the USB stick being supplied with the SKS TMS.

The programming station belonging to the management software consists of a desktop housing and a reading/writing unit with USB connection. Together with the management software the transponders can be programmed simple and easy.

→ What is TMS TRA?

The TMS TRA is an evaluation electronics with 3 potential-free relay outputs and a special housing for quick mounting on a standard top-hat rail. Terminal devices can be connected directly via the 3 relay outputs, so no external control such as e.g. a PLC or an industrial PC is necessary when using the TMS TRA. The evaluation electronics enables the relay outputs depending on the transponder information received (TRA = transponder relay assignment). The authorisation levels are mapped in binary code to the outputs of the evaluation electronics (see table 1).
TMS TRA supports the operating mode of cyclic reading. Cyclic reading means that the presence of the transponder is permanently being checked at regular intervals. As long as the transponder is registered, the function activated with the transponder remains active. With TMS TRA any number of user keys can be managed and up to 7 different authorisation levels can be assigned to individual persons or groups.

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SCHLEGEL ® ELEKTROKONTAKT

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➜ **What is TMS TCA?**

The evaluation electronics of the TMS TCA is designed as an embedded plug-in module and has 8 open collector outputs which can be connected directly to the inputs of a PLC or any other control system with open collector inputs. These inputs can thus be addressed directly via the TMS TCA. In combination with the modular operating concept of Schlegel** the TMS TCA can also be used with fieldbus systems. For this purpose, the status of the open collector outputs is transmitted to the corresponding fieldbus system via the modular operating concept and can be evaluated there. The evaluation electronics enables the open collector outputs depending on the transponder information received (TCA = transponder collector assignment). The authorisation levels are mapped in binary code to the outputs of the evaluation electronics (see table 2).

TMS TCA supports the operating mode of cyclic reading. Cyclic reading means that the presence of the transponder is permanently being checked at regular intervals. As long as the transponder is registered, the function activated with the transponder remains active.

With TMS TCA any number of user keys can be managed and up to 255 different authorisation levels can be assigned to individual persons or groups.

** The modular operating concept of Schlegel allows an easy integration of operating units into the following fieldbus systems: Profibus, Profinet, CANopen, Ethernet IP, EtherCAT, Powerlink, IO-Link and AS-Interface. The modular operating concept communicates externally via the corresponding bus node, internally the communication is done via a proprietary protocol from Schlegel.

➜ **How to set up RFID TMS**

The complete setup and administration of the RFID TMS is done via the TMS management software. The operating instructions for the management software are supplied with the SKS TMS software bundle.

➜ **How is the RFID TMS used?**

With the RFID TMS the data is read cyclically. This means that the data content of the transponder is recorded by the reading/writing unit at regular intervals and transmitted to the evaluation electronics. As long as the data collected by the transponder is valid, the evaluation electronics releases the outputs that match the user key and thus the associated function.

With the RFID TMS it is e.g. possible to assign authorisations to persons, to identify persons, to control processes or to record and evaluate data.

➜ **Product features**

Bundle **TMS TRA**	Bundle **TMS TCA**
• plug & work: no programming required, no external control necessary - terminal devices can be connected directly • easy mounting on top-hat rail • 3 potential-free relay outputs • any number of transponders • up to 7 authorisation levels • single or group authorisations • cyclic reading operating mode • LED status indication • high-quality and appealing design	• plug & work: no programming required, outputs go directly to the external control • embedded pluggable module • integration in fieldbus systems via Schlegel's modular operating concept • 8 open collector outputs: • any number of transponders • up to 255 authorisation levels • single or group authorisations • cyclic reading operating mode • LED status indication • high-quality and appealing design

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→ **Technical features**

Bundle **TMS TRA**		Bundle **TMS TCA**	
TMS reading/writing unit			

- 22.3 mm panel cut-out (30.5 mm with LED ring)
- degree of protection IP65/IP69K
- 13.56 MHz frequency (license free worldwide)
- baud rate from 9.600 to115.200 baud
- operating temperature from -20°C to +70°C
- mean operation of 200.000 h
- supports transponders of the standards: ISO 14443A, ISO 14443B, ISO 15693

TMS TRA evaluation electronics	TMS TCA evaluation electronics
• system voltage 24 V DC ±10% • relay outputs: AC15 230V / 3A, DC13 24V / 1A • degree of protection IP20 • operating temperature from -20°C to +70°C • mean operation of 200.000 h • mounting on DIN rail N35	• system voltage 24 V DC ±10% • open collector outputs: 50 mA low active • degree of protection IP00 • operating temperature from -20°C to +70°C • mean operation of 200.000 h • mounting via pin connectors, 2.54 mm grid

→ **Authorisation levels TMS TRA**

Level	Relay 1	Relay 2	Relay 3
1	•		
2		•	
3	•	•	
4			•
5	•		•
6		•	•
7	•	•	•

Table 1: Binary-coded assignment of the transponder to the relay outputs.

→ **Authorisation levels TMS TCA**

Level	OC 1	OC 2	OC 3	OC 4	OC 5	OC6	OC7	OC8
1	•							
2		•						
3	•	•						
4			•					
5	•		•					
6		•	•					
7	•	•	•					
8				•				
9	•			•				
10		•		•				
11	•	•		•				
12			•	•				
…								
250		•		•	•	•	•	•
251	•	•		•	•	•	•	•
252			•	•	•	•	•	•
253	•		•	•	•	•	•	•
254		•	•	•	•	•	•	•
255	•	•	•	•	•	•	•	•

Table 2: Binary-coded assignment of a transponder to the open collector outputs. Authorisations levels TMS TCA.

Left sidebar navigation:

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RFID

Illustration	Dimensions	Description	Type

TMS bundle TRA

TMS bundle comprising:
- 1 x RFID reader RRJ(XX)_RFID_RS2
- 1 x evaluation electronics RFID_TMS_TRA
- 5 x user key ESRT1_S

Data reader:
- panel cut-out Ø 22.3 mm
- frequency range 13.56 MHz
- baud rate 9600 up to 115200 bit/s
- read and write function
- LED status indication
- cable length: 80 cm
- IP65/IP69K

Data evaluation electronics:
- 3 potential-free relay outputs
- max. 7 authorisation levels
- any number of transponders
- supply voltage 24V / DC
- contacts designed for AC15 230V / 3A
- design with housing
- mounting on standard DIN rail for switching cabinets
- IP20

For the programming of the transponders the transponder management software RFID_TMS_Sxxxxxx is required

| colour | silver-coloured | | TMS_RRJ_TRA |
| | black | | TMS_RRJSW_TRA |

TMS bundle TCA

TMS bundle comprising:
- 1 x RFID reader RRJ(XX)_RFID_RS2
- 1 x evaluation electronics RFID_TMS_TCA
- 5 x user key ESRT1_S

Data reader:
- panel cut-out Ø 22.3 mm
- frequency range 13.56 MHz
- baud rate 9600 up to 115200 bit/s
- read and write function
- LED status indication
- cable length: 80 cm
- IP65/IP69K

Data evaluation electronics:
- 8 OC outputs
- max. 255 authorisation levels
- any number of transponders
- supply voltage 24V / DC
- pluggable module version
- suitable for the integration in bus systems via Schlegel's modular
  operating concept

For the programming of the transponders the transponder management software RFID_TMS_Sxxxxxx is required

| colour | silver-coloured | | TMS_RRJ_TCA |
| | black | | TMS_RRJSW_TCA |

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RFID

Illustration	Dimensions	Description	Type

RFID programming bundle

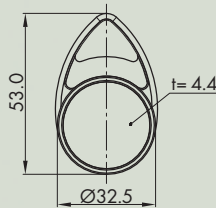For the RFID_SKS_TMS / RFID_TMS_TCA for writing the RFID transponders via a PC with USB connection

Consisting of:
- RFID programming station
- RFID programming software

Requirement:
Microsoft Windows® XP / 7 / 8 / 10 32-Bit / 64-Bit

SKS_TMS_XXXXXX

Zubehör

RFID tag drop-shaped 1 KB

NXP Mifare Classic EV1
inscription on request

53.0   t= 4.4   Ø32.5

colour			Type
	blue		ESRT1_B
	yellow		ESRT1_Y
	green		ESRT1_G
	red		ESRT1_R
	black		ESRT1_S

RFID chip card 1 KB

NXP Mifare Classic EV1
- length: 85 mm, width: 54 mm, height: 0.9 mm

ESRC1

LED light ring for status indication

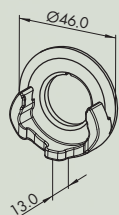LED light ring for an optical amplification of the status indication
- system connection to the RFID reader
- colouring via the RFID reader (SKS, TMS) or an external control
  (RFID Standard)
- panel cut-out Ø 30.5 mm
delivery without RFID reader

colour	blue/green		LR22K5DUO_GB_619

RFID tag holder

Ø46.0

for fixing the transponder from the top or from the front,
e.g. combined with a bunch of key
- panel cut-out Ø 30.5 mm

Only suitable for the use of Schlegel RFID tags!
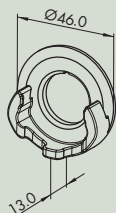
13.0

colour	white		RRJ_RFID_HR_WS
	black		RRJ_RFID_HR_SW

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RFID

Illustration	Dimensions	Description		Type

RFID tag holder with LED status indication
for fixing the transponder from the top or from the front,
e.g. combined with a bunch of key,
with LED illuminated ring for an optical amplification of the status indication
- system connection to the RFID reader
- colouring via the RFID reader (SKS, TMS) or an external control (RFID Standard)
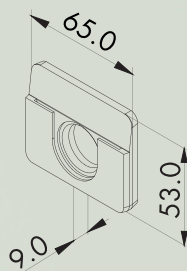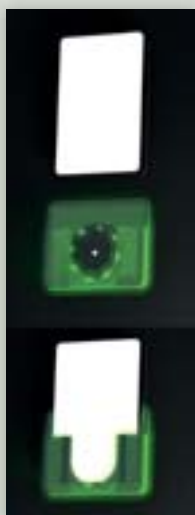- panel cut-out Ø 30.5 mm

Only suitable for the use of Schlegel RFID tags!
Delivery without RFID reader.

colour	blue/green		RRJ_RFID_HR_LBG

Ø46.0 · 13.0

RFID card holder with LED status indication
for fixing the chip card,
with LED illuminated ring for an optical amplification of the status indication
- system connection to the RFID reader
- colouring via the RFID reader (SKS, TMS) or an external control (RFID Standard)
- panel cut-out Ø 30.5 mm

Only suitable for the use of Schlegel RFID chip cards!
Delivery without RFID reader.

colour	blue/green		RRJ_RFID_KH_LBG

65.0 · 53.0 · 9.0

Interference filter
external filter for disturbances from 2000 V for extreme EMC requirements
- mounting on top-hat rail (N35)

colour	silver-coloured		EE_ESF_1