What is RFID SKS?

The RFID SKS 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 reader, evaluation electronics, a master key (admin transponder) and the user keys (user transponder). Reader, evaluation electronics and master key are components that are assigned to each other. This means that the reader can only communicate with the appropriate evaluation electronics and that the system can only be set up with the appropriate master key.
On the SKS RFID the validation of transponders is done via the reader, they have not to be programmed via an external control. If a transponder has been detected by the reader, the read UID of the transponder is validated via an internal table. If the UID is valid, the reader transmits the internal transponder number to the evaluation electronics. This information will then be processed by the RFID SKS variants SKS TRA and SKS TCA differently.

What is SKS TRA?

The SKS 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, that is why no external control such as e.g. a PLC or an industrial PC is necessary. The evaluation electronics has an internal assignment table which is used to determine which relay outputs are switched to the respective transponder and which functions are thus enabled (TRA = transponder relay assignment). The assignment table contains several programmes with different combinations of transponder number and relay outputs to be enabled (see table 1). The programme can be set by a selector switch on the evaluation electronics.
The SKS TRA supports two operating modes: cyclic and single 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 switched with the transponder is active. Single reading means that each new registration of a transponder is being evaluated and that the assigned action is being activated.

Up to 25 user keys can be managed with the SKS TRA. Depending on the selected programme up to 7 authorisation levels for different user groups are possible.

What is SKS TCA?

The evaluation electronics of the SKS TCA is designed as an embedded plug-in module and has 5 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 SKS TCA. In combination with the modular operating concept of Schlegel** the SKS 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 transponder number validated by the reader is switching the outputs. This number is mapped as a binary value to the open collector outputs of the evaluation electronics (TCA = transponder collector assignment) and therefore is defined for each transponder (see table 2). As each transponder has a unique combination of outputs, this means that no user groups can be formed on the SKS TCA. SKS 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 switched with the transponder is active.
The SKS TCA can manage up to 25 user keys. Each user key has its own authorisation level.

** 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 the RFID SKS

The programming of the user keys (transponders) on the RFID SKS is always done via the master key. The master key is specially set for the reader, so that only the RFID SKS that matches the master key can be set up. The set-up mode of the systems is activated on the reader with the master key. Then the user keys can be read one by one by simply placing them on the reader. The reader saves the UID of the user key in its internal table. Once all the required user keys have been registered the set-up mode is completed by placing the master key on the reader once again. The system is then completely set up and can be used immediately. For each user key, the respective outputs on the evaluation electronics can now be activated via the reader.

Georg Schlegel GmbH & Co. KG - 88525 Dürmentingen - ✆ +49 (0) 73 71 / 502-0 - Fax: +49 (0) 73 71 / 502 49 - info@schlegel.biz - www.schlegel.biz

RFID SKS

➔ How is the RFID SKS used?

Depending on the operating mode and the RFID SKS variant the transponder is either permanently fixed to the tag holder of the reader (cyclic reading) or is held on the reader for a moment (single reading). The data content of the transponder is transmitted contactlessly to the reading device and from the reading device to the evaluation electronics. The evaluation electronics then releases the outputs that match the user key and thus the associated function. With the RFID SKS, 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 **SKS TRA**	Bundle **SKS 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 • up to 25 transponders • up to 7 authorisation levels • single or group authorisations • 2 operating modes (cyclic, single reading) • 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 • 5 open collector outputs • up to 25 transponders • up to 25 authorisation levels • no group authorisations • cyclic reading operating mode • LED status indication • high-quality and appealing design

➔ Technical features

Bundle **SKS TRA**	Bundle **SKS TCA**
SKS reader	
• 22.3 mm panel cut-out (30.5 mm with LED ring) • degree of protection IP65/IP69K • frequency 13.56 MHz (license free worldwide) • baud rate from 9.600 to 115.200 • baud operating temperature from -20°C to +70°C • mean operation of 200.000 h	
SKS TRA evaluation electronics	SKS 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

Allocation table SKS TRA

Pos	Relay 1	Relay 2	Relay 3	Relay 1,2	Relay 1,3	Relay 2,3	Relay 1,2,3
0	Pairing						
Cyclic reading							
	Assignment of the transponders to the individual relay						
1	1, 7, 13, 19	2, 8, 14, 20	3, 9, 15, 21	4, 10, 16, 22		5, 11, 17, 23	6, 12, 18, 24
2	1, 4, 7, 10, 13, 16, 19, 22			2, 5, 8, 11, 14, 17, 20, 23			3, 6, 9, 12, 15, 18, 21, 24
3	1, 4, 7, 10, 13	2, 5, 8, 11, 14		3, 6, 9, 12, 15			
4	1, 8, 15, 22	2, 9, 16, 23	3, 10, 17, 24	4, 11, 18	5, 12, 19	6, 13, 20	7, 14, 21, 25
5	1, 5, 9, 13, 17	2, 6, 10, 14, 18	3, 7, 11, 15, 19				4, 8, 12, 16, 20
6	1, 2, 3, 4, 5	6, 7, 8, 9, 10	11, 12, 13, 14, 15	16, 17, 18	19, 20, 21	22, 23, 24	25
Single reading							
	Assignment of the transponders to the individual relay						
7	1, 7, 13, 19	2, 8, 14, 20	3, 9, 15, 21	4, 10, 16, 22		5, 11, 17, 23	6, 12, 18, 24
8	1, 4, 7, 10, 13, 16, 19, 22			2, 5, 8, 11, 14, 17, 20, 23			3, 6, 9, 12, 15, 18, 21, 24
9	1, 4, 7, 10, 13	2, 5, 8, 11, 14		3, 6, 9, 12, 15			
A	1, 8, 15, 22	2, 9, 16, 23	3, 10, 17, 24	4, 11, 18	5, 12, 19	6, 13, 20	7, 14, 21, 25
B	1, 5, 9, 13, 17	2, 6, 10, 14, 18	3, 7, 11, 15, 19				4, 8, 12, 16, 20
C	1, 2, 3, 4, 5	6, 7, 8, 9, 10	11, 12, 13, 14, 15	16, 17, 18	19, 20, 21	22, 23, 24	25
D..F	reserved						

table 1: Allocation of the transponders to the relay outputs. Customised table possible on request.

Allocation table SKS TCA

Transponder	OC 1	OC 2	OC 3	OC 4	OC 5
1	•				
2		•			
3	•	•			
4			•		
5	•		•		
6		•	•		
7	•	•	•		
8				•	
...					
24				•	•
25	•			•	•

table 2: Binary-coded assignment of the transponders to the open collector outputs.

Georg Schlegel GmbH & Co. KG - 88525 Dürmentingen - ☎ +49 (0) 73 71 / 502-0 - Fax: +49 (0) 73 71 / 502 49 - info@schlegel.biz - www.schlegel.biz

RFID SKS

Ø 22.3 mm

RFID

Illustration	Dimensions	Description	Type

SKS bundle TRA

SKS bundle comprising:
- 1 x RFID reader RRJ(XX)_RFID_SKS01 (incl. 1 x master key ESRTM)
- 1 x evaluation electronics RFID_SKS_TRA
- 5 x user key ESRTU_S

Data reader:
- panel cut-out Ø 22.3 mm
- frequency range 13.56 MHz
- only reading function
- LED status indication
- cable length: 80 cm (other lengths on request)
- IP65/IP69K
- incl. 1 master key (ESRTM)

Data evaluation electronics:
- 3 potential-free relay outputs
- max. 7 authorisation levels
- max. 25 transponders
- supply voltage 24V / DC
- contacts designed for AC15 230V / 3A, DC13 24V / 1A
- design with housing
- mounting on standard DIN rail for switching cabinets
- IP20

colour	silver-coloured		**SKS_RRJ_TRA**
	black		**SKS_RRJSW_TRA**

SKS bundle TCA

SKS bundle comprising:
- 1 x RFID reader RRJ(XX)_RFID_SKS01 (incl. 1 x master key ESRTM)
- 1 x evaluation electronics RFID_SKS_TCA
- 5 x user key ESRTU_S

Data reader:
- panel cut-out Ø 22.3 mm
- frequency range 13.56 MHz
- only reading function
- LED status indication
- cable length: 80 cm (other lengths on request)
- IP65/IP69K
- incl. 1 master key (ESRTM)

Data evaluation electronics:
- 5 OC outputs
- max. 1 authorisation level
- max. 25 transponders
- supply voltage 24V / DC
- pluggable module version
- suitable for the integration in bus systems via Schlegel's modular operating concept

colour	silver-coloured		**SKS_RRJ_TCA**
	black		**SKS_RRJSW_TCA**

RFID SKS

Ø 22.3 mm

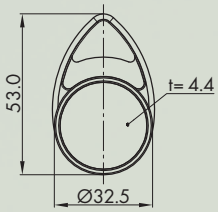
MADE IN GERMANY

SCHLEGEL ELEKTROKONTAKT

RFID

Illustration	Dimensions	Description	Type

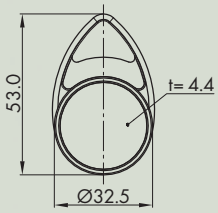
Zubehör



RFID master key SKS

red RFID tag, drop-shaped, for the administrative access to the Schlegel Control System,
the master key can only be used with the SKS evaluation electronics belonging to the master key
inscription on request

colour red — **ESRTM**



RFID user key for Schlegel Control System (SKS)

black RFID tag, drop-shaped, for the user access to the Schlegel Control System
further colours (blue, green, yellow) and inscription on request

colour black — **ESRTU_S**

RFID user card SKS — **ESRCU**

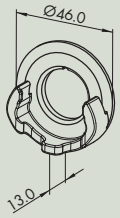
RFID chip card for the user access to the Schlegel Control System
- length: 85 mm, width: 54 mm, height: 0.9 mm

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

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!

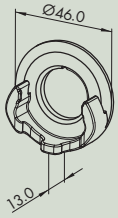
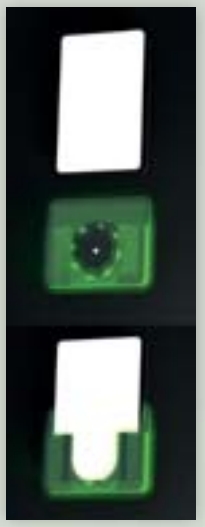
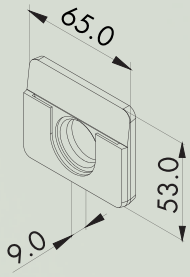
colour white — **RRJ_RFID_HR_WS**
black — **RRJ_RFID_HR_SW**

Georg Schlegel GmbH & Co. KG - 88525 Dürmentingen - ✆ +49 (0) 73 71 / 502-0 - Fax: +49 (0) 73 71 / 502 49 - info@schlegel.biz - www.schlegel.biz

RFID SKS

Ø 22.3 mm

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**
		**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**
		**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**