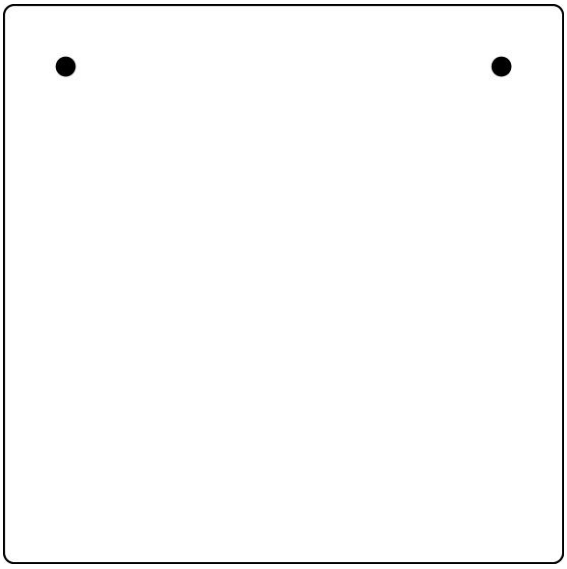
Product information

Series AMI

Transponder reader module AMI12300



Note on the validity of this product information

This product information states specific information on the module.
It is only valid in combination with the enclosed product information *Module of the series AMI in front-door stations*.

Table of contents

Scope of delivery

1 x transponder reader module AMI12300
1 x infrared remote control
3 x distance foil (0.5 mm)
4 x securing nut M4
1 x screw driver with round handle
product information transponder reader module AMI12300
product information *Modules of the series AMI in front-door stations*
key list access control

Intended use

- The transponder reader module AMI12300 is a device for front-door stations of the series AMI in individualised assembly.
- The module is available for the installation into front panels of the flush-mount kits ZAU200x and communication posts K3xxxx and is suitable for indoors and outdoors.
- The AMI12300 is a device for contact-free reading of MKeys / MCards (Mifare® Classic Transponder according to ISO 14443 A, carrier 13.56 MHz).
- stand-alone operation can be realised with a 24 V DC power supply (function via relay contact).

Short description

- administration of up to 2000 keys (MKeys/MCards) within the memory of the device
- configuration with the software configo™
- configuration via infrared remote control (enclosed in the delivery)
- password protection against unauthorised configuration
- button acknowledgement tone when pressing the IR remote control
- setup of a master transponder via IR remote control
- programming transponder which are compatible to Mifare® Classic
  – max. 10 per master transponder
  – max. 50 per IR remote control
  – up to 250 (TCS:BUS®) per configuration software configo™
- optical and acoustic acknowledgement when reading the key
- optical and acoustic error indication
- can be switched between 2-/3-wire operation
- RS485 interface (for a central PC e.g. for the software program PCitACC for central administration of access rights)
- max. loop resistance: 20 or 60 Ohm / can be activated
- door release function with potential-free relay contact (two-way contact: 24 V DC / 2 A)
- door release time can be adjusted, factory setting: 3 seconds
- can be updated via the ISP interface

! The device is based on different technology as the transponder reader tLeser-GH and tPAKL-EN. Transponder of the types tKey01 and tCard01 cannot be used.

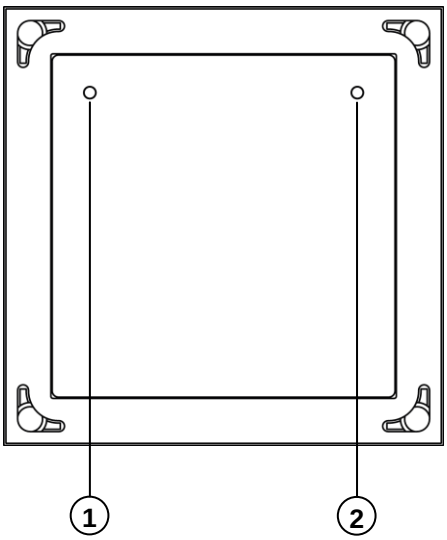
Technical data

supply voltage	+24 V ± 8 % (power supply and control unit) 18 to 28 V (for stand-alone operation)
housing	acrylic glass, matt black
dimensions H x W x D	105 x 105 x 26 mm
weight	200 g
acceptable ambient temperature	−25 °C ... +55 °C
input current	I(a) = 0.1 mA, I(P) = 11 mA
max. input current	I(Pmax) = 25 mA
RFID-technology	Mifare® , carrier frequency 13,56 MHz
relay contact	two-way contact, 24 V AC/DC / 2 A

Infrared remote control

carrier frequency	37.9 KHz ± 125 Hz
range	at least 1 m free field (15 ° directional deviation when 3 m distance)
acceptable ambient temperature	−10 °C to +50 °C
storage temperature	−20 °C to +60 °C
batteries	button cell batteries CR2025 (DC 3.0 V)

Overview



1 IR-receiver

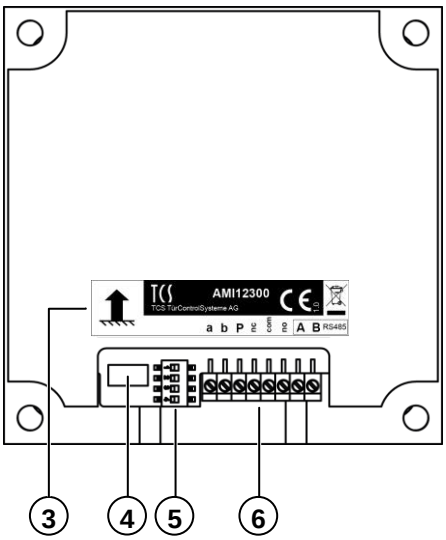
2 LED indication (green/red/orange)

3 top (orientation arrow installation position)

4 ISP-connection

5 DIP-switch

6 connection terminal



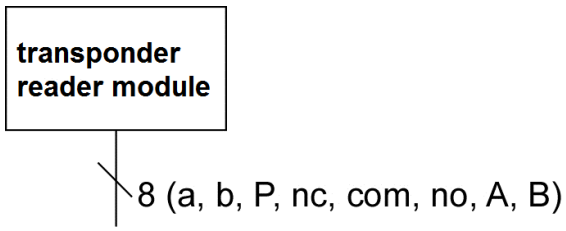
Connecting the lines

1. Strip the cable ends.
2. Connect the wires according to the connecting diagram depending on the type of the system.

connection terminal: connection diameter 0.3 - 1.4 mm

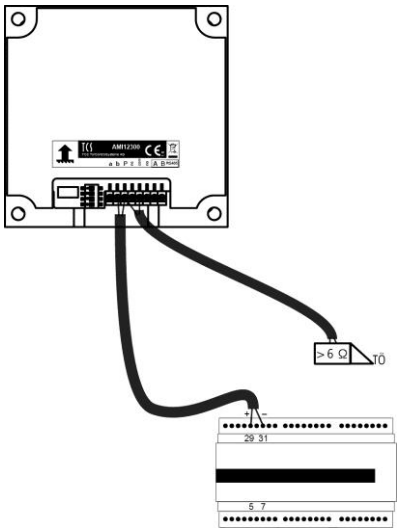
!	The inner resistance of the door opener must not fall below 6 Ohm!

Connection diagram



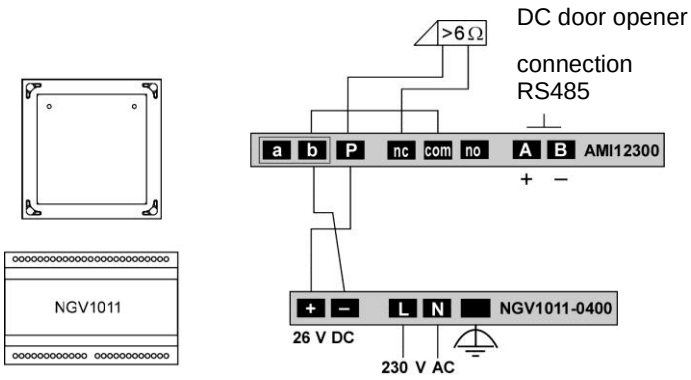
Connecting the module to the DC power supply unit

AMI12300 as stand-alone device

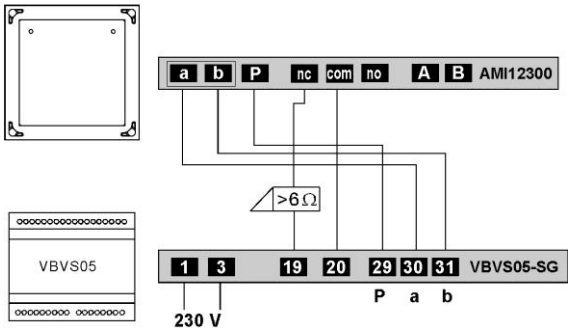


DC power supply unit NGV1011-0400,
(not enclosed in the delivery)

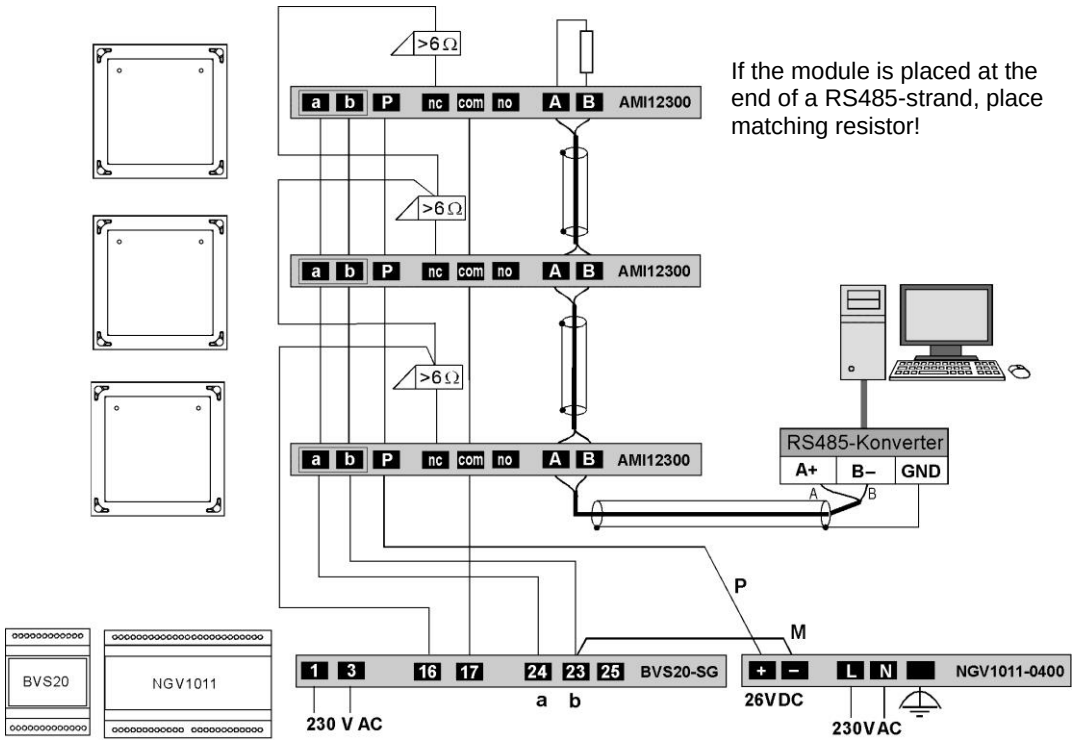
Wiring diagram module in stand-alone operation



Wiring example module at TCS:BUS®



Wiring example system with several modules (and PC)



Door opener in mixed systems

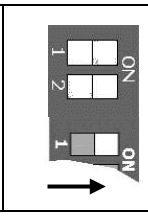
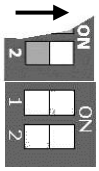
If both, front-door stations with access control as well as audio or video front-door stations are combined within a system, the door opener has to be connected to the R-terminal which belongs to the front-door station with access control.

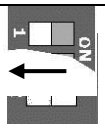
Customising the device

The transponder reader module is fitted ex works for systems with a loop resistance ≤ 20 Ohm and operation at TCS.BUS®. The module is secured with a small plastic plate.

!	Only remove the self-adhesive plastic plate from the DIP-switch if you have to make adjustments.

- Remove the plastic plate.
- Adjust the DIP-switch as follows.

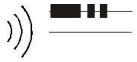
Adjust systems without P-wire (2-wire operation)		***Adjust lenght of lines in systems (long lines)***	
preset ex works: **OFF** (= 3-wire operation)		preset ex works: **OFF** (for standard line length: ≤ 20 Ohm)	
Should be **used** if only two lines are available within one system.		Should be **used**, to benefit from a loop resistance of up to 60 Ohm.	
Requirement: Only one reader can be connected per power supply and control unit. For new installations, a P-wire must be provided.		**Requirement**: Front-door stations and power supply and control units connected to the system, must be suitable for systems with a loop resistance of up to 60 Ohm.	
DIP-switch **lower position**: **switch 1 ON**		DIP-switch **upper position**: **switch 2 ON**	

RS485-interface		
preset ex works: DIP-switch in upper position, switch 1 **ON** (for installation at the end of the strand).		
Should be used:	For operation via RS485-interface	
Requirement:	power supply with 24 V DC-unit or TCS:BUS®	
If the device is **not installed** at the end of a RS485-strand, DIP-switch upper position: **switch 1 OFF**		

Commissioning

Error detection and indication

Errors are signalled acoustically and optically: one error tone and constant flashing of the operation indication.
The optical error indication stays active until the error is fixed.

error cause	indication error mode	error tone	solution
a- and P-wire inter-changed or short-circuited	 LED flashes orange		change a- and P-wire or remove short-circuit, device goes into stand-by mode again
a-wire: not connected or not supplied			connect a-wire or check power supply, device goes into stand-by mode again

Configuration

Factory settings

The device is equipped with an EEPROM. Within the EEPROM, the following device settings are stored ex works:

AS-address for door release function	0
switching time for relay contact	around 3 s
programming lock	OFF (= 0)
switch contact when receiving a door release protocol	ON (= 1)
programming mode can only be adjusted at power supply and control unit	ON (= 1)
acoustic signalling	ON (= 1)
free protocols 1 to 4	00000000 (16 bit)
mastercode	serial number of the device
master transponder code	00000000 (no master transponder)
RS485 active	ON (= 1)
TCS:BUS® connected	yes

Possible configuartions

fuction	infrared remote control	mastertransponder	configo™
train transponder	**x** (limited to 50)	**x** (limited to 10)	**x** (limited to 250)
delete transponder	**x** (delete individually) *number memory address must be known*	**-**	**x**
	x (delete simultaneously)	**x** (delete simultaneously)	**x**
set AS-address	**x**	**-**	**x**
set relay switching time	**x**	**-**	**x**
load factory setting	**x**	**-**	**x**
train mastertransponders	**x**	**-**	**x**
change master code	**x**	**-**	**x**
set programming lock	**-**	**-**	**x**
stand-alone operation	**-**	**-**	**x**
free protocols 1 to 4	**-**	**-**	**x**

! Via Service Device TCSK-01 a programming is **not possible**!

Programming

Initial commissioning

For the initial commissioning, the infrared remote control is needed (enclosed in the delivery).

- For authorising enter < **6-digit serial number of the transponder reader** > (factory setting).
- Set a transponder as master transponder.
  Note: We recommend to mark the master transponder reader afterwards.
- Train the other transponder via master transponder.
  Note: If there are more than 10 transponder to train, use infrared remote control.

! For safety reasons, the master code set ex works should be changed!

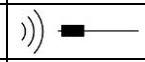
With the infrared remote control, the programming and training of transponders at every device with the factory setting *master code* can be realised.

- End programming.

Legend LED indication

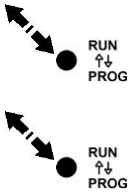
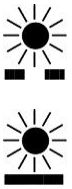
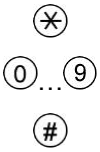
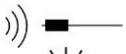
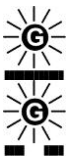
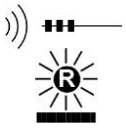
LED	status	symbol	meaning
Green	is ON (for 3 s)		Transponder card recognised, access granted.
	flashes		Ready for programming in programming mode via infrared remote control or master transponder.
Red	is ON (for 3 s)		Transponder card not recognised.
	is ON (for 2 min)		lock wait after • triple entry of an incorrect master code via infrared remote control, • triple use of an incorrect master transponder, • triple use of an incorrect transponder.
	flashes		Delete readiness in programing mode via master transponder.
Orange	is ON		Manual programming mode via master transponder, all memory addresses are occupied.
	flashes		Manual programming mode via master transponder, only one free memory.
	blinks		Error indication when commissioning.
Run/Prog button	is ON		Programming mode of the system is switched OFF.
	flashes		Programming mode of the system is switched ON.

Legend acknowledgement tones

Tone	Symbol	Meaning
short acknowledgement tone		Infrared remote control confirms pressing the button with a short button acknowledgement tone.
positive acknowledgement tone		Correct entry or correct operation.
negative acknowledgement tone		Wrong entry or wrong operation.

Programming with infrared remote control

Initiate programming

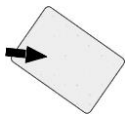
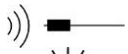
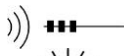
Power supply and control unit: put transponder reader in programming mode			
Switch ON and OFF the programming mode of the system		• shortly press RUN/PROG button, LED blinks. • shortly press RUN/PROG button, LED is ON. **Within the next 5 minutes, the programming is possible.**	
Authorise via infrared remote control		*Pressing a button is confirmed by the device with a short button acknowledgement tone.*	
Enter mastercode		*** master code #** (WE* = <6-digit serial number of the transponder reader>)	
Correct entry: ready for programming		• a positive acknowledgement tone sounds, LED lights green for 3 s LED blinks green.	
Wrong entry, unknown master code		*A negative acknowledgement tone sounds when pressing the #-key.* • LED lights red for 3 s , then blinks green again. The code entry is **blocked** for 2 min after the code has been entered wrong 3 times. • *LED lights red for 2 min, then blinks green again. Then start again.*	 
No entry		*If no command has been entered for 2 min, the device automatically ends the programming mode, the LED goes out.*	

*WE = factory setting

Train transponder

Initiate programming		If not yet done	

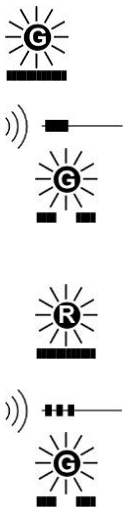
enter	✳ 0 # …	*** 0 # SpNr #**
		SpNr = memory location **0 to 49**	

present transponder		• Hold the transponder before the name-plate glass.	
		• LED lights green for 3 s,	
transponder is trained		a positive acknowledgement tone sounds,	
train further transponder		LED blinks green again.	
		repeat	
Only 1 memory address is free.		• LED blinks orange.	
All 50 memory addresses are occupied		• LED is ON orange.	
Transponder is rejected: *memory is occupied or transponder has already been trained on another memory address*		*A negative acknowledgement tone sounds when presenting the transponder.* • *the LED lights red for 3 s,* • *LED blinks green again.* *Delete the occupied memory address!* *Or delete the transponder which has been trained on the wrong memory address!*	 

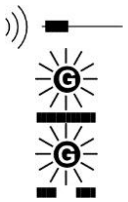
Note:
Number of transponder which can be trained: max 50.

Delete a transponder

Initiate programming		if not yet done	

enter
 	
delete occupied memory
 	
Occupied memory has been deleted.
 	
memory is not occupied
	✳ 3 #…	*** 3 # SpNr #**
		SpNr = memory location **0 to 49**
		• LED lights green for 3 s,
		A positive acknowledgement tone sounds,
		LED blinks green again.
		• *LED lights red for 3 s,*
		A negative acknowledgement tone *sounds,*
		LED blinks green again.
			

Delete all transponder

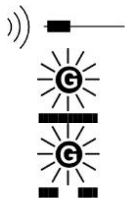
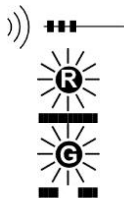
Initiate programming		if not yet done	
enter all transponder deleted	✳ 9 4 #…	*** 94 # master code # master code #** master code = 6-digit number • A positive acknowledgement tone sounds, LED lights green for 3 s, LED blinks green again.	

Note:
Number of transponder which can be deleted: max 50.

Set switching time for R-terminal

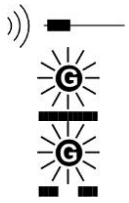
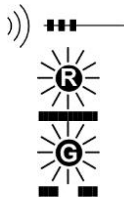
Initiate programming		If not yet done	

enter	✳ 8 # …	*** 8 # value #**
		value = switching time adjustable in 1 s-steps, **0 to 255 s**
		0 = deactivated, no response
		(WE* = 3 s)	

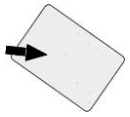
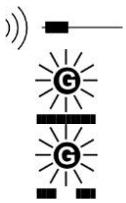
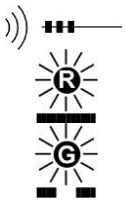
		• A positive acknowledgement tone sounds, LED lights green for 3 s, LED blinks green again.	
switching time is set			
incorrect value has been entered		• *A negative acknowledgement tone sounds,* *LED lights red for 3 s,* *then blinks green again.*	

*WE = factory setting

Set AS-address

Initiate programming		If not yet done	
enter	✳ 4 # …	*** 4 # value #** AS-address = **0 to 63** (WE* = 0)	
		• A positive acknowledgement tone sounds, LED lights green for 3 s, LED blinks green again.	
AS-address is set			
incorrect value has been entered		• *A negative acknowledgement tone sounds,* *LED lights red for 3 s,* *then blinks green again.*	

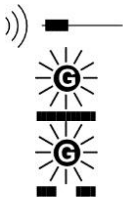
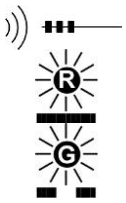
Define a transponder as master transponder

Initiate programming		If not yet done	
enter	⊛ 9 7 #	*** 97 #**	
8 seconds		It must not pass more than 8 s until presenting the t*ransponder!*	
present transponder		• Shortly hold any transponder in front of the nameplate glass.	
master transponder is saved		A positive acknowledgement tone sounds, LED lights green for 3 s, LED blinks green again.	
time is exceeded: transponder is rejected		• *A negative* acknowledgement tone *sounds when presenting the transponder.* *The LED lights red for 3 s,* *then blinks green again*.	

! When training another transponder as master transponder, the previously trained one will be overwritten.

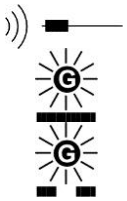
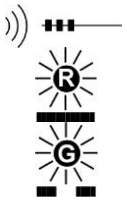
Reset to factory setting

! The master code is reset to factory setting!
Master transponder is deleted, trained transponder stay active!

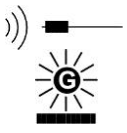
Initiate programming		If not yet done	
enter	⊛ 9 9 # …	*** 99 # master code # master code #** master code = 6-digit number	
reset to factory setting		• A positive acknowledgement tone sounds, LED lights green for 3 s, LED blinks green again. .	
wrong entry, unknown master code		• *A negative acknowledgement tone sounds,* *LED lights red for 3 s,* *then blinks green again.*	

Change master code

! For safety reasons, the master code set ex works should be changed when commissioning!

Initiate programming		If not yet done	
enter	⊛ 9 8 # …	*** 98 # old master code # new master code # new master code #** maste rcode = 6-digit number	
Master code is changed		• A positive acknowledgement tone sounds, LED lights green for 3 s, LED blinks green again.	
Wrong entry, unknown master code		• *A negative acknowledgement tone sounds,* *LED lights red for 3 s,* then blinks green again	

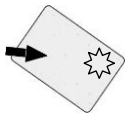
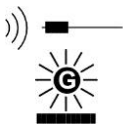
End programming

Initiate programming		If not yet done	
Enter *or* **wait**	⊛ 9 #	*** 9 #** • LED OFF. or • … no programming for 2 min:	●
end		• A positive acknowledgement tone sounds, LED lights green 3 s, LED is OFF again. The front-door station is still ready for programming for the next 5 min. The programming must not be initiated again.	 ●

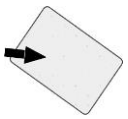
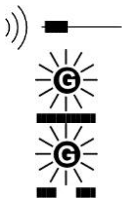
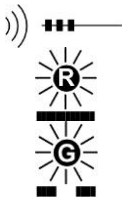
Programming with master transponder

- The transponder (cards or keys) must be positioned max. 30 mm from the nameplate glass in front of the transponder reader.
- If the instruction sequence is interrupted for 8 seconds, the whole instruction sequence is dismissed and a negative acknowledgement tone sounds.

Initiate Programming

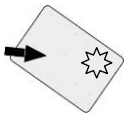
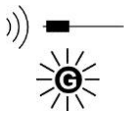
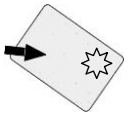
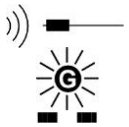
authorisation via master transponder			
present master transponder		• Hold the master transponder in front of the nameplate glass.	
master transponder confirmed: ready for programming		• A positive acknowledgement tone sounds, LED lights green for 3 s,	
wrong, unknown master transponder		• *A negative acknowledgement tone sounds when presenting the transponder.* *The LED lights red for 3 s.* *LED goes OFF.* The code entry is blocked for 2 min after the wrong master transponder has been presented 3 times. *The LED lights red for 2 min,* *start again.*	

Train transponder

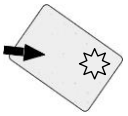
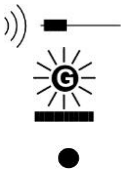
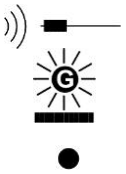
initiate programming		If not yet done	
all memory address empty **present transponder** transponder is trained Train further transponder	 	The transponder number is written in the next available memory address. **SpNr** = memory address **00 to 09** Shortly hold the transponder in front of the nameplate glass. • A positive acknowledgement tone sounds, LED lights green for 3 s, LED blinks green again. repeat	
only 1 memory address available.		• LED blinks orange.	
all 10 memory addresses occupied		• LED lights orange.	
transponder is rejected: Memory address is already occupied or transponder is already trained on another memory address		• *A negative acknowledgement tone sounds when presenting the transponder.* *LED lights red for 3 s,* *Then blinks green again.* *First delete memory address.*	

Note:
Number of transponder which can be trained: max 10.

Delete all transponder

Initiate programming		If not yet done	
shortly present master transponder 3 x times		• Hold the master transponder in front of the nameplate glass 3 times in a row. Every time, a positive acknowledgement tone sounds and the LED shortly blinks green. *Placing the transponder in front of the reader each time, must take max 3 s, else the device ends the programming mode.*	
ready for deleting		• LED blinks red for 8 s.	
present master transponder again		• As long as the LED blinks red, shortly place the master transponder in front of the nameplate glass again.	
all transponder deleted		A positive acknowledgement tone sounds, LED blinks green.	
time for deleting exceeded. (8 s)		*The device goes to programming mode.*	

End programming

present master transponder programming mode is ended		• Shortly hold the master transponder in front of the name plate glass. A positive acknowledgement tone sounds, LED lights green for 3 s, LED goes OFF.	
or: **wait** programming mode is ended		or: • If no programming is realised for 2 min. A positive acknowledgement tone sounds, LED lights green for 3 s, LED goes OFF.	

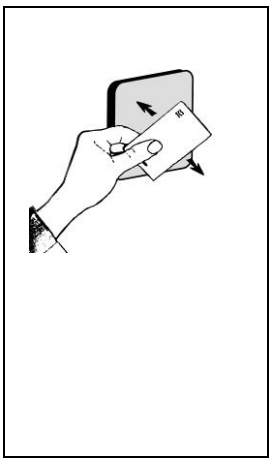
Notes

- A transponder contains a unique number which can be allocated to one or several transponder reader. This number is stored in the transponder reader. A transponder (or master transponder) can be trained to several devices.
- If a correct entry is made, a positive acknowledgement tone ( ) sounds.
  If the instruction sequence ⊛ 0 … 9 # is interrupted for 8 seconds, the whole instruction sequence is dismissed and a negative acknowledgement tone ( ) sounds.
- If the instruction sequence does not match the given syntax or if too many parameters have been entered, also the whole instruction sequence is dismissed, a negative acknowledgement tone sounds.
- To operate the system, always point the infrared remote control with the head towards the front-door station. The range of the infrared remote control is max. 1 m direct distance.
- Pushing a button on the infrared remote control is acknowledged with a short acknowlegdement tone ( ) by the transponder reader.

Operation

Hold the electronic key in front of the device with a distance of max 30 mm.

- The LED lights green.
- A simple, positive acknowledgement tone sounds when the key is recognised (in factory setting).
- The door release contact is triggered (in factory setting).



If a beep tone sounds 3 times (negative acknowledgement tone), no access is granted (no access right, key is not recognised).

After 3 unsuccessful tries, the reader is blocked for 2 minutes for further access.

Infrared remote control

Commissioning

1. Remove battery cover on the back of the infrared remote control.
2. Remove the foil strip.
3. Replace battery cover.

Change batteries

For the infrared remote control, 1 button cell CR2025 (DC 3.0 V) is necessary.
1. Remove battery cover on the back of the infrared remote control.
2. Observe the polarity of the battery and the marking “+/-” in the battery compartment.
3. Insert the batteries.
4. Replace battery cover.

Accessory

Short text	Article number
Transponder card Transponder key	MCARD01 MKEY01
Infrared remote control	E23253

Notes

Service

For questions please contact

TCS HOTLINE: hotline@tcsag.de

Headquarters
TCS TürControlSysteme AG, Geschwister-Scholl-Str. 7, D-39307 Genthin
Fon: 0 39 33 / 87 99 10, Fax: 0 39 33 / 87 99 11, E-Mail: info@tcsag.de, Internet: www.tcsag.de