TCS

Product information

Front door station series AVD/AVE
with integrated code lock

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Scope of delivery

1 x AVD/AVE with code lock (AVD54013, AVE54043, AVE54063, AVE54083, AVE54103, AVE54123)
1 x allen key DIN 911
1 x screw driver with round handle
name plates, with light symbol
product information, programming table

introduction

Notes on this product information

This product information refers exclusively to qualified electricians.

The product information of the **video front door station series AVD/AVE** contains important notes on intended use, installation and commissioning. Please, keep the product information at a suitable place, where it is easily accessible for maintenance and repair reasons.
All product information are available for download at www.tcsag.de.

Used symbols and warning notices

Symbol	signal word	Explanation
	DANGER!	The signal word describes an endangering with a high level of risk. Failure to observe this warning will result in death or very serious injury.
	WARNING!	The signal word describes an endangering with a medium level of risk. Failure to observe this warning could result in death or very serious injury.
	CAUTION!	The signal word describes an endangering with a low level of risk. Failure to observe this warning could result in a minor or moderate injury.
!	CAUTION!	The signal word indicates, that damages on equipment, environment and property can occur.

Further used symbols

	important note or important information
►	Step
	cross reference For further information on this topic, see source
•	list, list entry 1 level
–	list, list entry 2 level
a)	Explanation

Safety instructions

General safety regulations

Assembly, installation, commissioning and repair of electronic devices have to be carried out only by a qualified electrician.
Observe the latest regulations and standards for system installations.

WARNING! Danger to life due to electric shock

Observe the safety regulations according to DIN VDE 0100, when working on main power connections of 230 V.

When installing TCS:BUS systems the general safety regulations for telecommunication systems according to VDE 0800 must be observed. Inter alia:

- separated cable routing of high and low voltage lines
- minimum distance of 10 cm in case of a common cable routing
- use of separators between high and low voltage lines within shared cable ducts
- use of standard telecommunication lines, e.g. J-Y (St) Y with 0.8 mm diameter,
- already existing lines (modernisation) with deviating cross-sections can be used in compliance with the loop resistance.

requirements to protect against lightning

CAUTION! Device damage due to over-voltage
By suitable lightning protection measures it has to be ensured that the electric voltage of 32 V DC at each connection is not to be exceeded.

Terms

Basic mode	The system is in normal operation. Activate the programming mode of the front door station to configure the system.
programming mode	State in which you can enter access and master codes and change further basic settings (directly at the front door station).
master code	The integrated code lock is equipped with a security code (master code) with a maximum of 8 digits. Activate the programming mode of the code lock with this master code. Delivery state: 12345678.
access code	Security code with a maximum of 8 digits to confirm the code lock (e.g. direct triggering of the door opener).

Product description

Intended use

The video front door station series AVD/AVE with integrated code lock is suitable for surface-mount in the outdoor area.

	Modifications and repair of the device are only permitted, as far as described in this product information and executed by qualified electrician. Otherwise any claims under warranty and liability expire.

	Always observe the current legislation and labelling requirements during assembly and operation of video components.

Short description

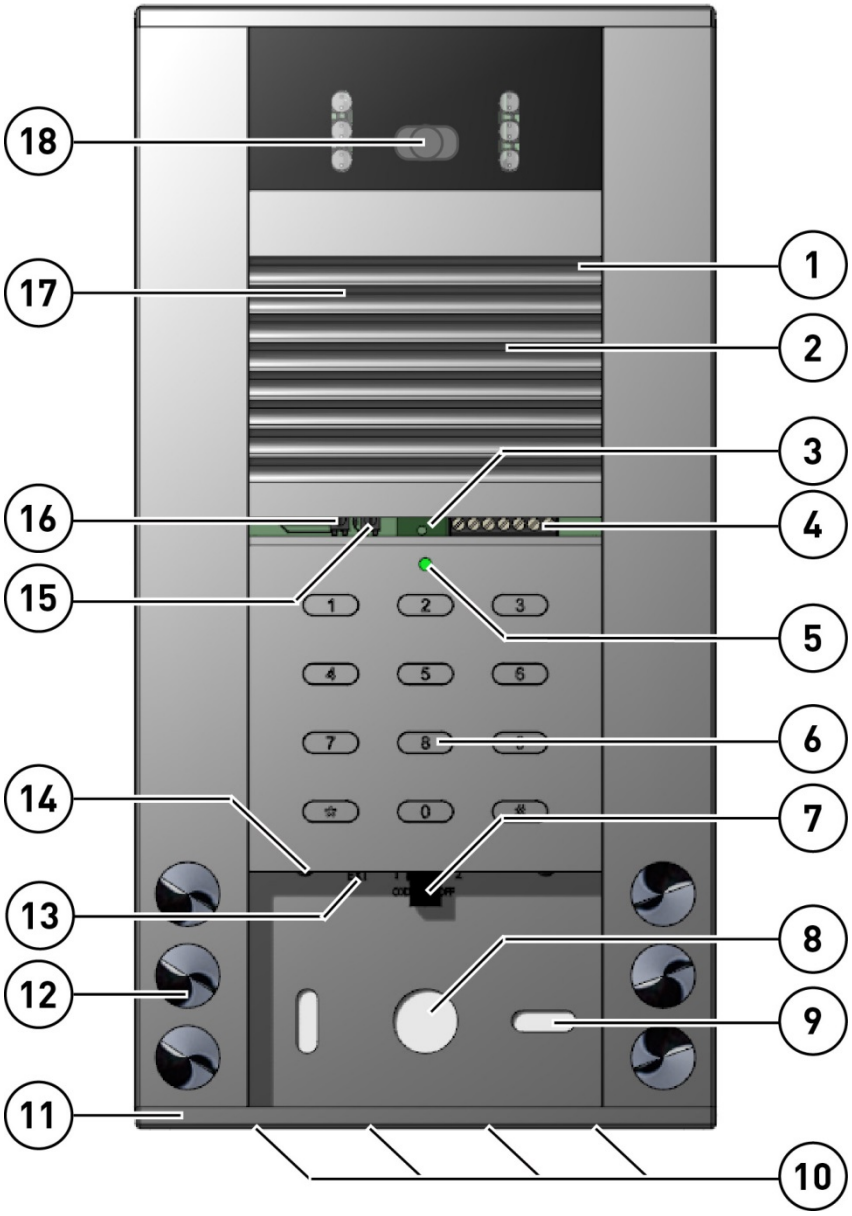
Video front-door station

- Video front door stations with code lock for surface-mount with 1, 4, 6, 8, 10 or 12 bell buttons.
- Size of the nameplate: H 34 mm to 72 mm x W 74 mm (AVD), H 15 mm x W 39 mm (AVE)
- Colour: anodised natural (EN)
- colour camera CMOS sensor 380 TVL
- focal length f = 2.0 mm (F 2.5)
- light sensitivity 0 lux (IR on), 1 lux (IR off)
- diagonal detection angle 130°
- IR illumination for close-range illumination at night
- camera can be operated continuously
- metal housing made of robust aluminium profile
- bell button made of metal with maintenance-free contacts
- per bell button 2 indoor stations can be allocated
- durable and energy-saving LED name plate illumination
- shatter-proof name plate glass
- acknowledgement tone when pressing the bell button
- any bell bell button can be used to switch the light, light symbol enclosed
- conversation time ex works: 56 seconds / can be adjusted with Service Device and configo™
- volume and microphone sensitivity can be adjusted manually
- pluggable memory to exchange front door stations that are identical in construction
- R-terminal to connect a functional extension: Door release
- door release time at R-terminal ex works: 3 seconds / can be adjusted with Service Device and configo™
- Door call standby time ex works: 56 seconds / can be adjusted with Service Device and configo™
- voice connection in door call standby time / can be adjusted with Service Device

Code lock

- switching the light by pressing the #-button without code entry, can be deactivated
- 0 codes, with a maximum of 8 digits for operation
- 1 master code for maintenance and configuration, leading zeros are accepted
- code stop function to activate/lock a single code (only for memory loaction 1): Connecting a time switch (or motion detector, brightness sensor, door contact of a lock etc.) to a bipolar pluggable screw terminal is possible
- acoustic signalling when pressing the bell buttons, can be deactivated
- acoustic and optical signalling when the code is recognised
- acoustic and optical signalling when receiving a short door release protocol (if configured)
- button 5 with marking

Device overview



1 microphone
2 front panel
3 EEPROM
4 connection terminal
5 two-coloured LED
6 Code lock keypad
7 bipolar pluggable screw terminal
8 cable gland
9 attachment hole
10 drain for condensed water
11 lower aperture
12 bell button
13 connection for Service Device / bell button extension
14 nameplate illumination
15 volume control microphone
16 volume control loudspeaker
17 loudspeaker
18 camera field with camera and IR illumination

Indication and operating elements

	Term	Function
	LED is OFF	device is in basic mode, no error is detected
	LED green	ON (lights up for 3 s) • positive input confirmation • code number accepted (can be deactivated, adjustable lighting duration) BLINKS: device is in programming mode
	LED red	ON (lights up for 3 s): • wrong entry ON (lights up for 2 min): • locked (after the code was entered 3 x incorrectly) ON (lights up permanently) • entry master code
	LED orange	FLASHES: total error indication
	bell button	trigger a door call
	code lock keypad	operation, programming of code lock functions • numeric buttons from 1 to 0 • #-button: light switching in basic mode, input confirmation in programming mode • *-button: entry of command sequences and abort of incomplete command sequences in programming mode

Technical data

supply voltage	+24 V ± 8 % (power supply and control unit)	
material of the housing	aluminium	
colour of the housing	anodised natural	
nameplate glass	acrylic glass, printed, 5 mm thick	
dimensions (in mm)	housing	H 242 to 318 x W 135 x D 20
	camera field	H 38 x W 82
camera	colour camera	CMOS sensor, 380 TVL
	light sensitivity	0 lux (IR on), 1 lux (IR off); automatic daytime / nighttime operation
	focal length f	2.0 mm (F = 2.5)
	diagonal detection angle	130°
	video output	1 Vpp, symmetric, 1 Vss FBAS
acceptable ambient temperature	-20 ...+ 50 °C	
input current in resting position (6-wire operation)	I(a) = 0.6 mA	I(P) = 80 mA
maximum input current	I(Pmax) = 100 mA	

Installation

Observe when installing further devices, that you can pull out the name plate glass downwards. Do not mount another device below a device.

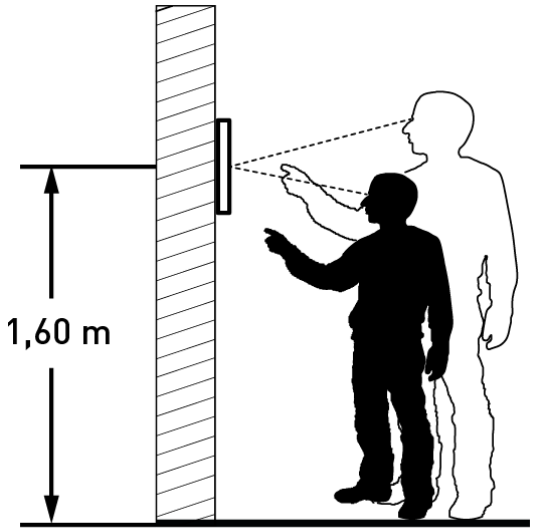
Installation site

To achieve an optimal video image quality do not point out the camera to

- solar radiation
- strong sources of light
- bright or strongly reflecting walls

Mounting height

Observe the detection angle of the camera when selecting the mounting height of the video front door station (see PIC on the right side). Persons with an average body height are detected optimal at a mounting height of 1.6 m above the ground.



CAUTION! **Device damage.**

The front door station must never be sealed using silicon! Condensed water must be able to escape and evaporate.

Opening and closing the housing

The lower aperture is connected to the aluminium profile with 2 hexagon socket screws.

► Loose both screws with an allen key.
► Now you can face away or remove the lower aperture.
► Pull out the name plate glass downwards.
► Guide the cable through the cable gland.
► Mount the device to the wall using the attachment holes and suitable screws.

Ensure that the wires are not getting clamped below the spacers at the rear side of the front door station.

► Slide the name plate glass upwards below the front panel.
► Fix the lower aperture again.

Ensure that the rubber seals within the guidance slot are not damaged when sliding in the name plate glass.

Connecting the lines

acceptable cross section (diameter) 0.08 ... 0.82 mm2 (Ø 0.32 ... 1.0 mm)
maximum number of wires per terminal contact 2 x 0.8 mm, 3 x 0.6 mm

Connect further wires by using auxiliary terminals.
Use only connecting lines made of the same material and with the same diameter within one terminal contact.

Detailed information on wire routing in TCS systems as well as on the loop resistance you'll find in the system manual. Available under: http://www.tcsag.de/download/kataloge-prospekte-flyer

CAUTION! **Device damage.**

Use the small slot screwdriver (enclosed in the delivery) to connect lines. Avoid damaging the device.

CAUTION! **Device damage.**

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

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

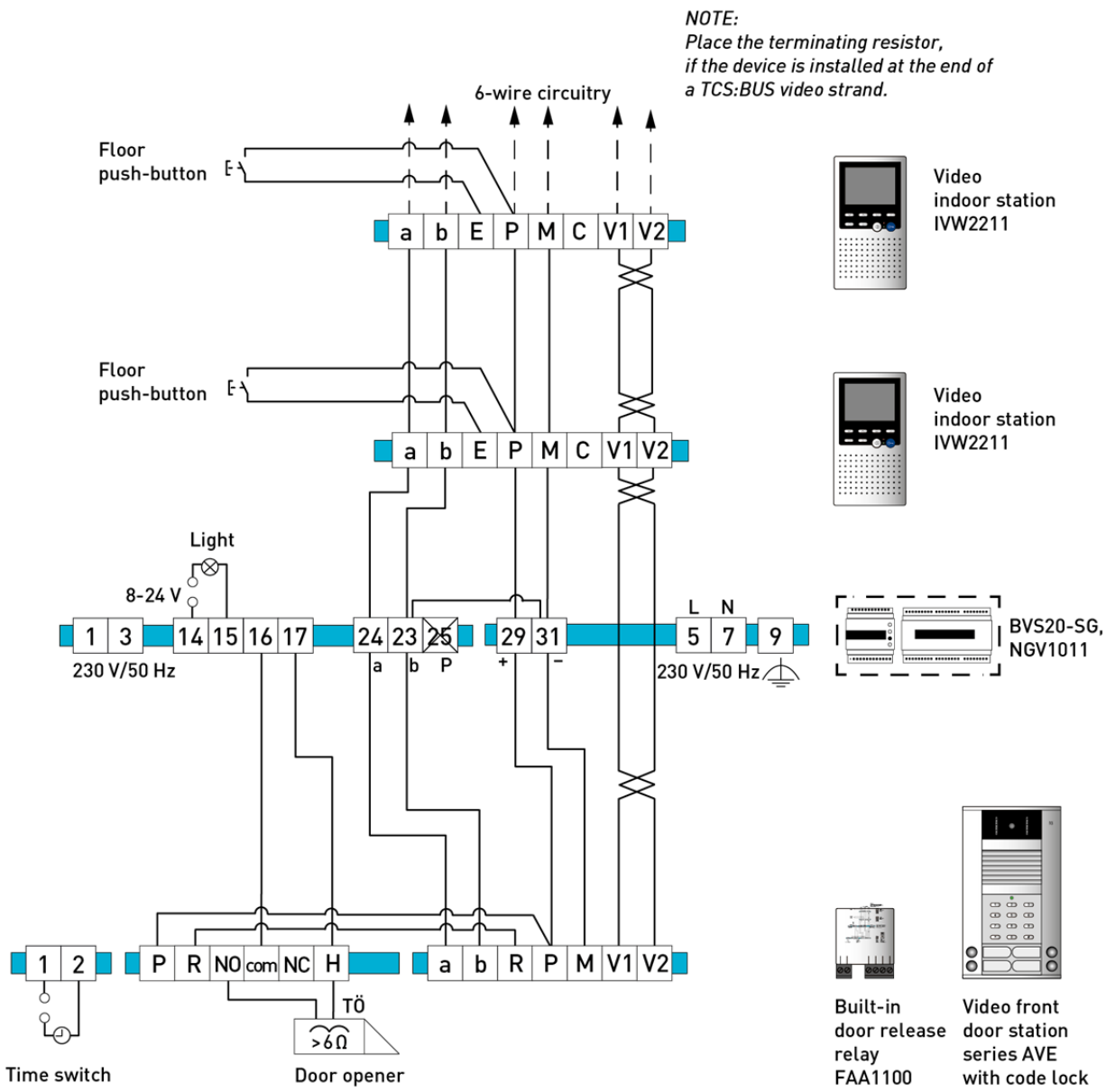
Do not place the wires in front of the LEDs. Otherwise this might affect the name plate illumination negatively. Ensure that the wires are not getting clamped below the spacers at the rear side of the front door station.

Connect the floor push-button

- ► Connect the floor push-button to the terminals E and P.

Alternatively you can connect the floor push-button to the terminals a and E.
Ensure that the a-wire of the power supply and control unit is connected to the a-terminal of the indoor station.

Example circuit



Commissioning video

WARNING! Danger to life due to electric shock

First install all the devices of the system completely. Then switch on the mains voltage.

- ► Install the devices of the system completely.
- ► Do not connect V1 and V2 with the P-, a- or b-wire. Observe the polarity when connecting the video wires V1 (+) and V2 (–).
- ► Proof the a-, b- and P-wire against each other on short-circuit.
- ► Switch on the mains voltage.

Extended code lock function

You can only use the extended code lock function for the first code (memory location). The function can be set with the configuration software configo™.

You can connect a time switch (alternatively: motion detector, brightness sensor, door contact of a lock etc.) to the bipolar pluggable screw terminal (contacts 1 and 2, see *Device overview*). The switching input at the terminals 1 and 2 can be configured (opening/closing contact) and influences the effectiveness of the code on the first memory location.
The additional device effects the code entry.
Example: In combination with a time switch access is only granted / not granted in the determined period of time, depending on the configuration.

The programmed action is executed, if the code is entered correctly and the contact, according to the configuration of the switching input, is effective.

Initial operation

WARNING! Danger to life due to electric shock

Observe the safety regulations according to DIN VDE 0100, when working on main power connections of 230 V.

- ► Install the devices of the system voltage-free and completely.
- ► Do not connect the video wires V1 and V2 with the P-, a- or b-wire. Observe the polarity when connecting the video wires V1 (+) and V2 (–).
- ► Proof the a-, b- and P-wire against each other on short-circuit.
- ► Switch on the mains voltage.

Connect the floor push-button

- ► Connect the floor push-button to the terminals E and P.

Alternatively you can connect the floor push-button to the terminals a and E.
Ensure that the a-wire of the power supply and control unit is connected to the a-terminal of the indoor station.

Setting the volume of microphone and loudspeaker

CAUTION! Device damage.

Use the enclosed small screw driver to adjust the volume!

The volumes are set on an average value ex works. A change is not always required. Observe that the amplification cannot be set independently from each other when adjusting the volume of loudspeaker and microphone. In case of a high volume, the feedback effect (audible whistling) occurs.

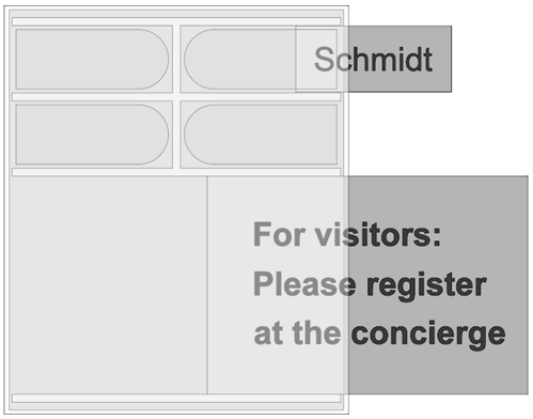
Volume control

microphone	loudspeaker
Setting the volume at the indoor station	Setting the volume at the front door station

Labelling the name plates

The labelling templates for the series AVD/AVE are available for download under
www.tcsag.de/download/beschriftungsvorlagen/
at our website.
Enter the required names into the labelling template.
Print the name plates on the special foil.
Cut the name plates to the right size.
Push the name plate into the gab in the name plate glass from aside (ill. 11).

Print the name plates on the special foil. You can order the foil directly at TCS: Writeable polyester film for name plates DIN A4.



Configuration

The front door station is to be configured as two separate devices: Front door station PES and code lock.

Factory settings

The front door station is equipped with an EEPROM. In there the following settings are stored ex works:

AS-address for door release function	0
programming lock	OFF = 0
The programming mode can only be set at the control unit	ON = 1
acoustic acknowledgement of the bell button confirmation	active = 1
send light switch protocol when pressing the # button	active = 1
access codes 2 to 10 (on memory location number 2 to 10)	not assigned
master code	12345678
extended code lock function (with additional condition)	OFF = 0

Pre-set times

relay switch time	around 3 sec
lighting duration of the LED	relay switch time is adopted, around 3 sec (=255)
duration of the acoustic acknowledgement	3 sec (= 255)

Configuration options

Function	manually	TCSK	configo™ as of version 1.9.x.x
AVD/AVE			
Programming the bell buttons	x	x	x
Delete a bell button	x	x	x
Determine the AS address		x	x
lock/unlock AS address		x	x
programming lock on/off		x	x
Send control function		x	x
light switch function on/off		x	x
door opener only during active door standby on/off		x	x
Speaking only during active door standby on/off		x	x
door opener only during an established voice connection on/off			x
setting the door call standby time			x
setting the limit for the conversation time		x	x
setting the call time			x
setting the door release time			x
selecting an acknowledgement tone (in case of a door call)		x	x
Code lock			
determine/change access codes	x		x
determine the protocol that is sent when entering the code	x		x
delete data set (each a memory location)	x		x
Determine the AS address	x		x
determine options	x		x
programming lock	x		x
extended code lock function (switching input terminals 1 and 2 effectiveness opening/closing contact)	x		x
change master code	x		x
reload factory settings	x		x
light switch protocol after pressing the # button			x
key tone			x
initiate the programming mode via the control unit			x
free protocol 1 to 4			x

Bell button programming

Basic principle

All devices at the TCS:BUS have an unique serial number.
The serial number of the indoor station is allocated to the bell button of the front-door station. The allocation is stored in the EEPROM of the front-door station.

Requirements for the programming:
- ► Ensure that the access to the indoor station in the flat is granted.
- ► Check if the indoor station is connected to the TCS:BUS.
- ► Switch on the mains voltage. The operating LED at the power supply and control unit is on.
- ► Check if no programming lock is set.

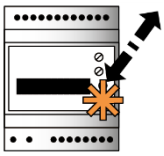
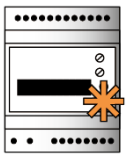
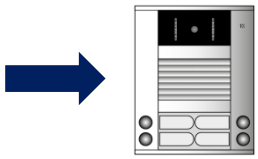
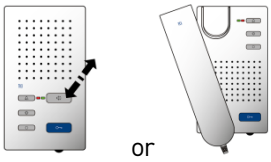
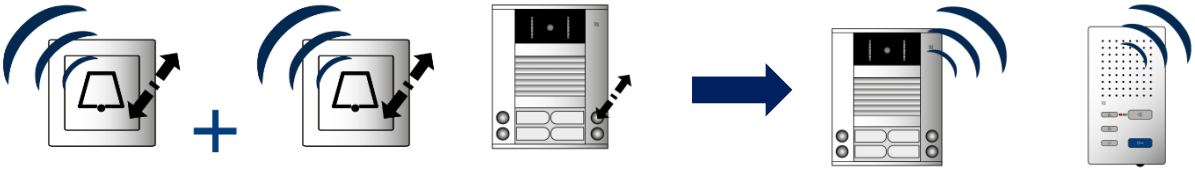
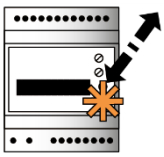
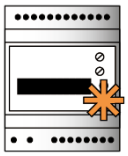
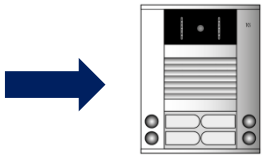
Before you can reprogram an already programmed bell button, you have to delete the programming.

Legend

press button shortly		busy tone	
Press the button until...		a negative acknowledgement tone sounds (bell button is already programmed)	
release the button		SNapp-tone	
go on		NoProg-tone (negative acknowledgement tone)	
ring tone		deletion tone sequence	1 2 6 s
Progsperr-tone		Prog2-tone (programming of the 2nd serial number starts)	

Audio files of the call and acknowledgement tones are available online at: www.tcsag.de/download/ruf-und-quittungstoene

Programming a bell button

1 Switching on the programming mode		
power supply and control unit		
		
Shortly press the RUN/PROG button.	The LED blinks.	The programming mode of the system is switched ON.
2a Programming via voice communication		
		
Establish a voice communication to the front-door station.	Shortly press the bell button at the front door station.	A ring tone sounds at the front door and indoor station.
2b alternatively: **Programming via floor push-button**		
		
Shortly press the floor push-button twice in quick succession. Each a ring tone sounds.	Shortly press the bell button at the front door station.	A ring tone sounds at the front door and indoor station.[1]
Repeat the steps until you have programmed all bell buttons.		
4 End programming mode		
		
Shortly press the RUN/PROG button.	The LED is on.	The programming mode of the system is switched OFF.

1) *If there sounds a Progsperr tone instead, at the front-door station a programming lock is set. You can deactivate the programming lock only with the Service Device TCSK or the configuration software configo™.*

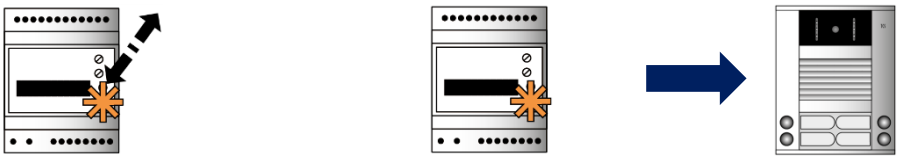
Programming a second indoor station at the same bell button (parallel call)

If a parallel call is configured, 2 indoor stations are called with 1 bell button at the front door station. The floor push-button only calls the firmly wired indoor station. If bell button and floor push button should have the same functionality, the function parallel allocation is to be used. On this occasion several indoor stations respond to the same bell button as well as to the same floor push button. The parallel allocation is to be configured with the Service Device TCSK or the configuration software configo™ .

Repeat the programming of an already programmed bell button, always change only the second serial number. If you want to change the serial number that was programmed first, you have to delete both serial numbers and then reprogram both serial numbers.

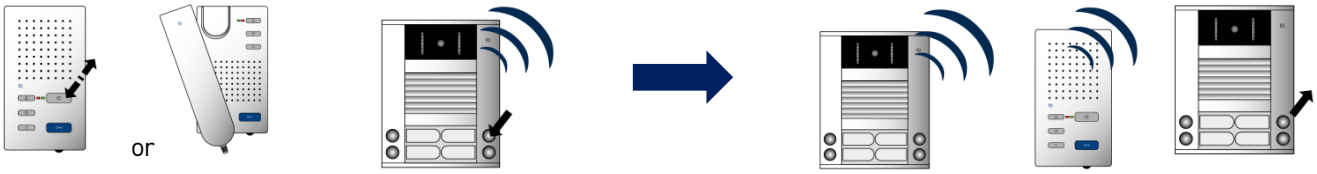
1 Switching on the programming mode

power supply and control unit



Shortly press the RUN/PROG button.	The LED blinks.	The programming mode of the system is switched ON.

2a Programming via voice communication



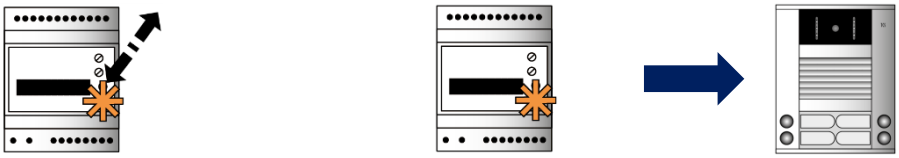
Establish a voice communication to the front-door station.	Press the bell button until after 6 s a Prog2 sounds, keep the button pressed and after another 6 s a NoProg-tone sounds and ...	...a ring tone sounds at the front door and indoor station.[1]	Release the bell button.

2b alternatively: **Programming via floor push button** (if the indoor station is inaccessible)

Shortly press the floor push-button twice in quick succession. Each a ring tone sounds.	Press the bell button until after 6 s a Prog2 sounds, keep the button pressed and after another 6 s a NoProg-tone sounds and ...	...a ring tone sounds at the front door and indoor station.[1]	Release the bell button.

Repeat the steps until you have programmed all bell buttons.

4 End programming mode

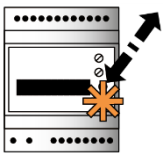
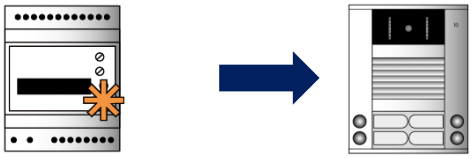
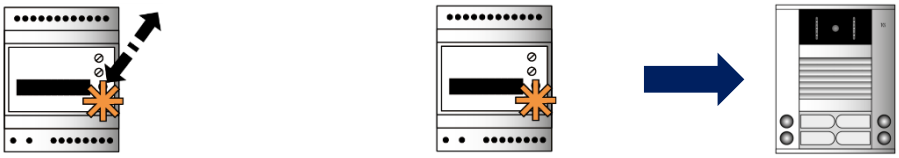


Shortly press the RUN/PROG button.	The LED is on.	The programming mode of the system is switched OFF.

1) *If there sounds a Progsperr tone instead, at the front-door station a programming lock is set. You can deactivate the programming lock only with the Service Device TCSK or the configuration software configo™.*

Delete the programming

Before an already programmed bell button can be programmed newly, the programming must be deleted.

1 Switching on the programming mode		
power supply and control unit		
		
Shortly press the RUN/PROG button.	The LED blinks.	The programming mode of the system is switched ON.
2 Delete a bell button		
		
Press the bell button until the deletion tone sequence sounds.		Release the bell button.
4 End programming mode		
		
Shortly press the RUN/PROG button.	The LED is on.	The programming mode of the system is switched OFF.

Programming the code lock

Notes on the programming

- confirm with the # button
- abort with the * button
- Entries without confirmation have a timeout of 10 sec, an acknowledgement tone signals the countdown of the timeout
- factory settings of the 10 code memory locations are shown in brackets (e.g. WE = 0)
- SpNo = number of the memory location

Initiate programming

0	**Switching on and off the programming mode of the system**	at the control unit: • Shortly press the RUN/PROG button, the LED blinks. • Shortly press the RUN/PROG button, the LED lights up. At the Axx5xxx0: the two-coloured LED flashes green for 2 min
1	**Activate the programming mode of the device**	
	enter the master code (start with the programming within the next 2 min)	Input: * master code # (WE = 12345678)
	Correct input	A positive acknowledgement tone (1 x beep) sounds for 1 sec. The LED blinks green for 2 min. The device is ready for the programming.
	Wrong input, unknown master code	A negative acknowledgement tone (3 x beep) sounds when pressing the #-key. You can only enter a code 3 times incorrectly. Afterwards the code input is locked for 2 min. Then start again.
	No input	If no command is entered within the next 2 minutes, the device automatically quits the programming mode. The LED expires.

Programming

2a	**Determine/change access codes**	
	first access code second access code etc.	Input: * 0 # SpNo1 # access code # access code # Input: * 0 # SpNo2 # access code # access code # SpNo = 1 to 10 access code = number with a maximum of 8 digits When changing the code, the old code is overwritten wirh the new one.
2b	**Send protocol when entering the code**	Input: * 2 # SpNo # P # P – protocol selection SpNo = 1 to 10 (WE = 0 for SpNo 1 to 10) P = 0 (door release protocol with unique AS address) 1 (control function1 with unique serial number) 6 (control function SpNo with unique serial number)
2c	**Delete data set** for a specific memory location	Input: * 3 # SpNo # SpNo = 1 to 10 (data set inactive)
2d	**Enter the AS address**	Input: * 4 # AS-address # AS address = 0 to 63 (WE = 0)

2e	Determine options	Input: * 5 # option # value # option / value 0 send light switch protocol — 0 = no, 1 = yes (WE = 1) 3 acoustic acknowledgement buttons — 0 = off, 1 = on (WE = 1) 4 programming mode can only be activated after the programming mode of the control unit was activated — 0 = no, 1 = yes (WE = 0) The factory setting is valid for stand alone operation. To improve the safety, activate the option 4 (putting the value to 1) during the BUS operation. Thus, the access to the control unit is an additional condition.
2f	Block manual programming	Input: * 10 # master code # master code = number with a maximum of 8 digits The programming lock cannot be deactivated manually, but only with configo™.
	Determine the extended code lock function	Input: * 12 # function type # Function type: 0 = external contact has no influence 1 = contact must be opened so that the code input can be effective 2 = contact must be opened so that the code input can be effective
2g	Change master code	Input: * 98 # old master code # new master code # new master code # new master code = number with a maximum of 8 digits Change the pre-set master code when commissioning the device.
2h	Reload factory settings	Input: * 99 # master code # master code # master code = number with a maximum of 8 digits All saved numeric codes are deleted. The master code is reset to the factory setting.

Switch off the programming mode

2i	Quit the programming mode	Input: * 9 #

Operating the code lock

Door release in basic mode

1	Enter the access code	enter the access code
	Correct input	After entering the last number a positive acknowledgement tone sounds. The LED lights up green. The door opener is triggered. *Note: If a code digit sequence is determined as a subset of another valid code digit sequence both sequences are acknowledged positively.*
	Incorrect input	A negative acknowledgement tone (3 x beep) sounds. The LED lights up red when: • the entered digit sequence is too short and there was no further action for 5 sec after the input or • 8 digits were entered which are belonging to no known access code and there was no further action for 5 sec after the input. You can enter an incorrect sequence with a maximum length of 16 digits. Afterwards the code input is locked for 2 min. Then start again.

Switching the light in basic mode

1	# button to confirm	# button to confirm without entering a code before * *As precondition the function must have been activated* (programming, determine options or configo).

Repair

Exchanging the EEPROM storage

All programmed data such as serial numbers and parameters is stored in the EEPROM. If you have to replace the front door station you can remove the EEPROM board from the programmed front door station and insert it into the new front door station that is identical in construction.

► Open the housing of the front door station.
► Remove the EEPROM (small circuit board) from the main board (see device overview).
► Plug the EEPROM on the pins of the new, not programmed front door station.

i	Ensure that all 4 poles of the plug are put into the socket of the EEPROM and that the component side can be seen.

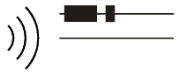
After the replacement all programmings are available again.

FAQ

Error pattern / problem / interference	Possible causes	Solution
The lens of the camera fogs up. The video image is milky/blurred.	The camera is not operated permanently.	Keep the camera running permanently, because the device heat is sufficient to avoid fogging of the lens.

Error indication/detection

Errors are signalled optical via permanent flashing of the red LED and acoustically via an one-time tone sequence. The optical error indication stays active until the error is corrected.

error causes	Indication Error mode	error tone	Solution
a- and P-wire are interchanged or short-circuited	LED flashes orange		Exchange a- and P-wire or correct short-circuit, LED expires.
a-wire is not connected or not supplied			Connect the a-wire or establish power supply, LED expires.
The button clamps (press longer than 15 sec)			release the button, device is in standby mode again

Cleaning

CAUTION! Device damage or malfunction caused by short-circuit and corrosion

Water and cleaning detergents that enter the device can cause short-circuits and corrosion on electronic components.
Avoid water and detergents from entering the device!

CAUTION! Damages on the surface of the device

Do not use any aggressive cleaning detergents for cleaning the surface of the device.

► Clean the device with a dry or slightly wet cloth.
► Remove stronger stains with a pH neutral household cleaner.

Conformity

Declarations of conformity are available for download under *www.tcsag.de*.

Information on disposal

Dispose the device separately from domestic waste via a collection point for electronic scrap. Ask your county administration for the responsible collection point.

Dispose the parts of the packaging in collecting tanks for cardboard and paper resp. plastics.

Warranty

We offer **a simplified processing** in case of warranty for qualified electricians.

- Please contact the **TCS HOTLINE** under **hotline@tcsag.de**.
- Our **standard terms and conditions of sale** you'll find under *www.tcsag.de*.

Service

Please send your questions and inquiries to

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