Product information
Video indoor station for hands-free talking
Carus Adapto

CAI2200, CAI2210

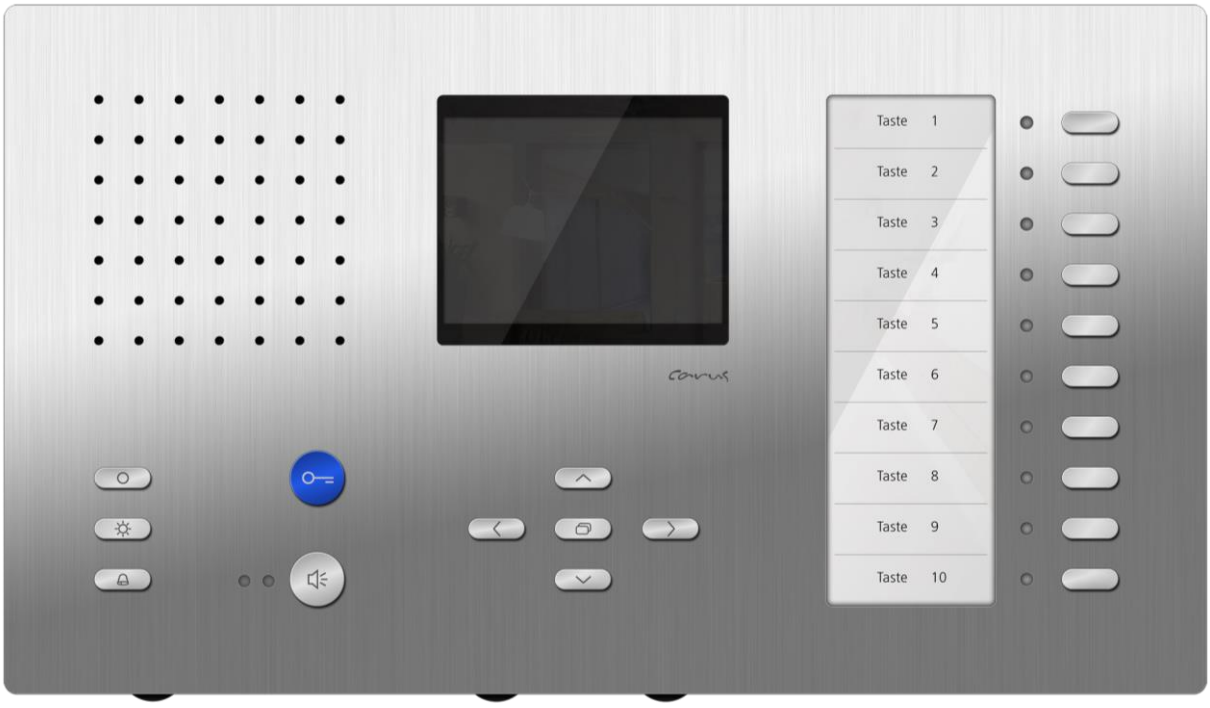


Table ofcontents

Scope of delivery

1 x CAI22x0 (top shell, wall adapter plate or tabletop device)
2 x release bracket
4 x Phillips head screw
4 x dowel
assembly instruction
product information
instruction manual
programming table

Safety instructions

General safety regulations

!	Assembly, installation, commissioning and repair of electronic devices must be carried out by qualified electricians and in compliance with current standards.

When working on main power connections of 230V AC, the general and regional installation and safety regulations must be met. i.e. DIN VDE 0100

TCS:BUS system installations must be in compliance with the general safety regulations for telecommunication systems according to VDE 0800. Including:

- 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.

Installation – protective measures

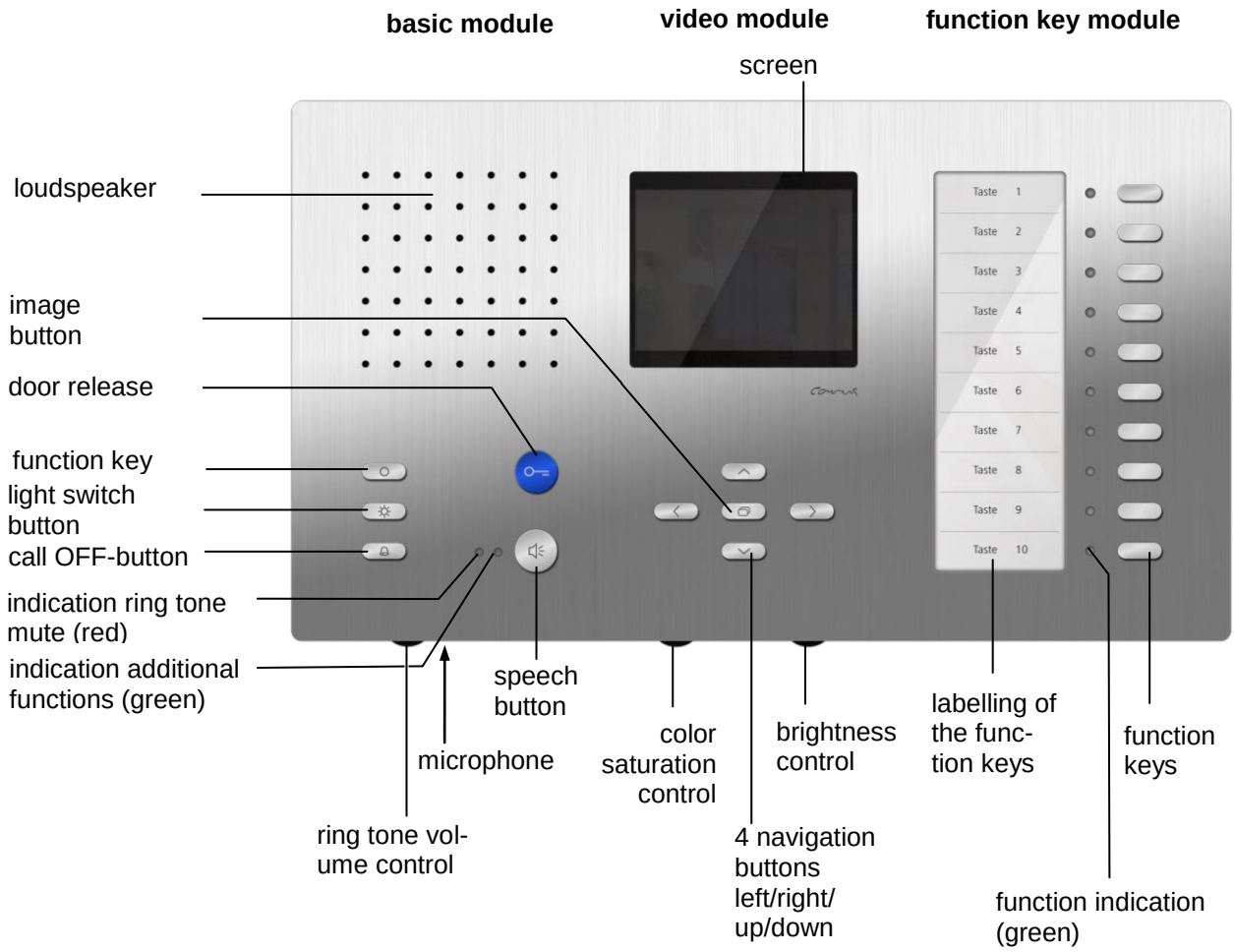
!	Through suitable measures to protect against lightning, it has to be ensured that a voltage of 32 V DC is not exceeded at each connection.

Technical data

supply voltage:	+24 V ± 8 % (power supply and control unit)
housing:	aluminium anodised (colors as listed in price list)
dimensions CAI2200	H 163 mm x W 284 mm x D 16 mm
dimensions CAI2200:	H 156 mm x W 284 mm x D150 mm
weight:	1370 g (CAI2200), 2102 g (CAI2210)
acceptable ambient temperature:	0 °C to 40 °C
input current:	I(a) = 0.5 mA, I(P) = 7.4 mA
max. input current:	I(Pmax) = 167 mA

3-wire installation necessary!

Device overview



Indication and operating elements

	Term	Function
	speech button	• call acceptance, activate speaking, simplex communication • end communication • ring tone selection (door call front-door station 2 AS > AS-border*)
	door release button	• door release (factory setting) • end communication • ring tone selection (door call front-door station 1 AS > AS-border) • trigger light switch function**
	function key of the basic module	• control function 8 (factory setting) • internal calling (to indoor station) • door release automatic • call diversion • ring tone selection internal call (call from indoor station)
	light switch button	• switching lights • ring tone selection floor call (call from the flat door)
	call OFF-button	• ring tone stopper • end communication • initiate the programming
	indication call OFF (red)	• call OFF is activated (LED is ON) or • indication for busy speech channel (LED blinks)
	indication additional functions (green)	• door call, incoming internal call, speaking activated • door release automatic or call diversion, when activated • alternatively door status indication
	ring tone volume control	ring tone volume can be adjusted continuously
	function key module	10 buttons. Each button can be programmed with 6 independent functions: • specific connection to one front-door, • specific internal call, • indication of sensor information, • call diversion of door calls, • send control function, • send 2 control functions alternating
	function indications	10 buttons. Each function key has its own function indication. LED is ON when • a door call comes in • an internal call comes in • a control function from sensor comes in • call diversion is activated • two control functions with unique serial number are send alternating

* *factory setting: AS-border = 0, limit value of the AS-address areas can be configured with configuration software configo™ or can be configured in the factory on request.*
** *when light switch function is activated in the front-door station*

	image button in the video module	• to switch in the image resp. • for switching between different cameras
	4 navigation buttons in the video module	to swivel and incline a PTZ camera (left, right, up, down)
	brightness control	can be adjusted continuously
	contrast / color intensity control	can be adjusted continuously

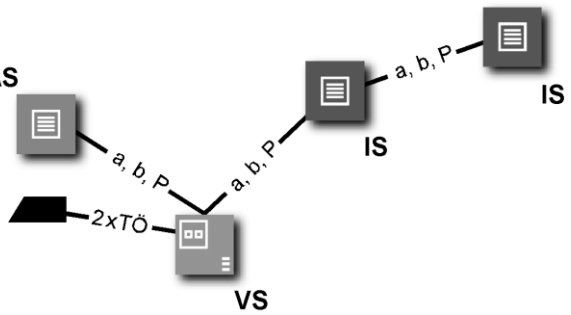
Intended use

- The CAI22x0 are video indoor stations with color screen for hands-free talking. Manually controled simplex communication can be activated.
- The CAI22x0 are equipped with extended functions and can be used for internal communication as well as for triggering control and switching functions in the home environment. Further, they can be used as communication and control centrals which are easy to operate.
- The CAI22x0 are suitable for surface-mount and can be used as tabletop device.
- They can be used for the operation within TCS audio systems and combined audio / video systems.
-

Max. number CAI22x0 in 6-wire operation

Small and medium-sized systems	**max. number CAI22x0**
VBVS05	10

Larger systems	**max. number CAI22x0**
BVS20 + NGV1011	35



AS front-door station
VS power supply and control unit
IS indoor station
Note: The max. number of front-door stations which can be connected is limited. Details are described in the product information!

Short description

Basic module

- blue door release button with floor door release function (can be activated)
- speech button: for call acceptance and changeover key speaking / listening
- function key (ex works allocated with control function) with alternative allocation (can be activated) internal call, door release automatic, call diversion
- light switch button
- ring tones can be adjusted by the resident, 13 ring tones can be selected
- acoustic call distinction between 2 front-doors, flat door and internal call
- ring tone volume can be adjusted manually
- ring tone mute with optical indication
- optical indication of door calls
- optical display of a busy line in case of an established voice connection
- automatic hands-free talking after internal call can be activated
- parallel call can be activated
- sending sender serial number in case of internal calls can be de-/activated, source indication at CAI11x0 or CAI2xx0 possible (with configuration software configo^{TM})
- unlimited communication time can be de-/activated (with configuration software configo^{TM})
  (limited by other indoor or front-door stations, to which a voice connection is established)
- audio privacy function and automatic call cut-off

Video module

- video surveillance: image button to activate the image resp. to switch between different cameras
- AS-dependent video image activation
- 4 navigation buttons (right, left, up, down)
- brightness, color saturation / can be manually adjusted
- integrated two-wire video receiver for direct connection to TCS video systems

Function key module

Each function key can be configured with any of the six functions.

- specific connection to one front-door: Establishing a voice connection can be initiated from the front-door or from the indoor station.
  Door release by pressing the programmed button.
  Key function: Establishing a voice connection to the calling front-door station, door release.
  Indication: incoming door calls. (The AS-address is programmed and blocked in the front-door station.)
- Toggle: When several front-door stations are programmed, it is possible to toggle between them. The existing connection is terminated and afterwards a new connection is established.
- Specific internal calling: Key function. Sending an internal call to an indoor station. At the called indoor station the incoming internal call can be indicated.
- Sensor functions: Status indication of incoming control functions of sensors via LED.

- Call diversion. Key function: De-/Activate the function.
  Indication: Function de-/activated (does not work in case of internal calls).
- Send control function with unique serial number.
- Send two control functions with unique serial number alternately.
  Key function (example for button 1): first keystroke – control function 11 is sent, second keystroke – control function 41 is sent (see programming)
  Indication: LED is on – control function 11 was sent, LED off – control function 41 was sent.

Installation

Installation CAI2200 (wall mounting)

Attention!
The video indoor stations have to be (de-)installed only voltage-free!

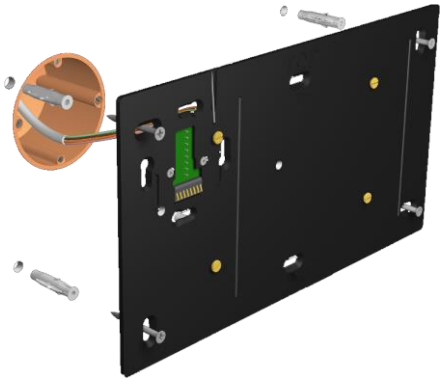
Ensure not to over tighten the screws when installing the wall adapter plate on uneven surfaces. Otherwise the plate might be deformed. Further, the devices may not be locked into position correctly on the adapter plate.

Install the adapter plate

For an optimal operation, a mounting height of 1.6 m is recommended.

In order to connect the cables without any problems, the device must be installed on a flush-mounted socket.

- Position the flush-mounted socket behind the adapter plate by using all drill holes. Ensure that the connection terminal does not contact the flush-mounted socket.
- Do not use the adapter plate as drilling template!
- Only use the adapter plate as aid for marking the holes.
- Install the adapter plate with the four enclosed screws to the wall.

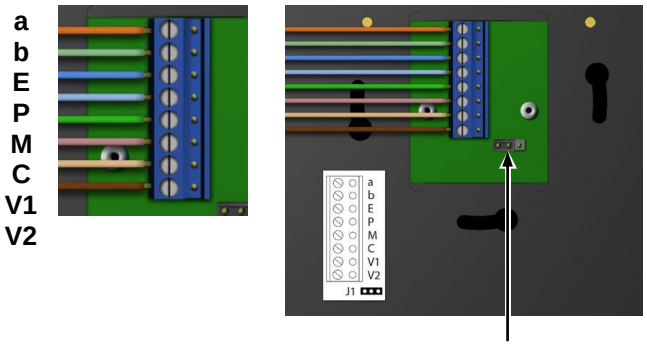


Connect the lines

acceptable cross-section (diameter)	0.08 … 0.82 mm^2 (Ø 0.32 … 1.0 mm)
max. number of wires per terminal contact	each 2 x 0.8 mm, 3 x 0.6 mm

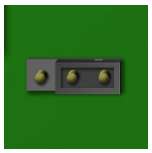
- Further wires have to be connected via auxiliar terminals!
- Use only connecting lines with the same diameter within one terminal contact.

- Connect the lines according to the labelling.

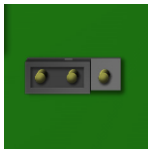


Terminating resistor CAI2200

In delivery state the terminating resistor is inactive:
- Plug the terminating resistor on the contacts on the right side.



If the device should be installed at the end of a cable chain, the terminating resistor must be activated.
- Plug the terminating resistor on the contacts on the left side.



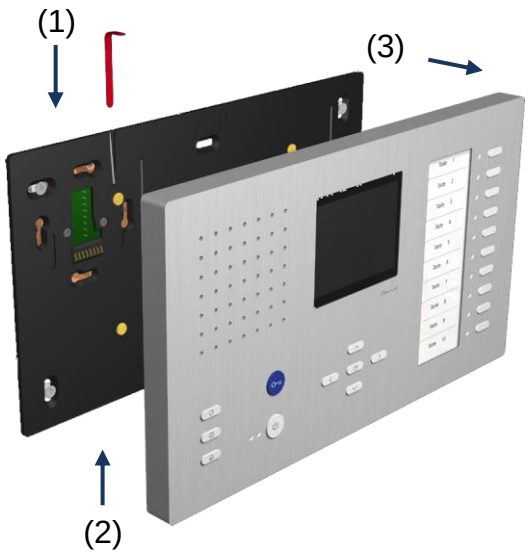
Install the device

- Take the device into both hands and position it on the adapter plate.
- Position the device centrally on the adapter plate and leave out a little space of 10 mm to the bottom edge of the adapter plate.
- Press the device flush to the adapter plate (1). Slide it carefully and vertically downwards (2) until the lock pins of the adapter plate lock into the holes in the rear panel of the device.
- Slide it downwards until stop.
- To make sure that the device is locked correctly, slightly try to push it upwards. That should not be possible.

- Take the device into both hands and position it on the adapter plate.
- Position the device centrally on the adapter plate and leave out a little space of 10 mm to the bottom edge of the adapter plate.
- Press the device flush to the adapter plate (1). Slide it carefully and vertically downwards (2) until the lock pins of the adapter plate lock into the holes in the rear panel of the device.
- Slide it downwards until stop.
- To make sure that the device is locked correctly, slightly try to push it upwards. That should not be possible.

Deinstall the device

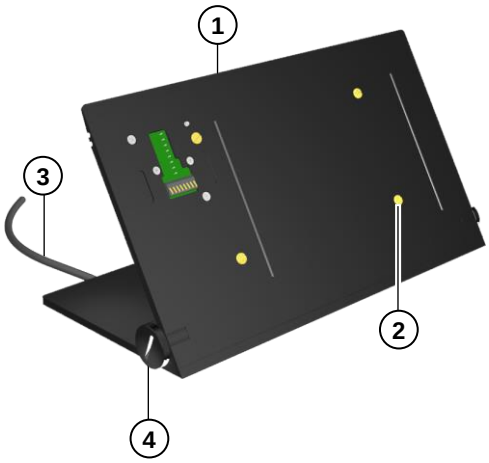
- For deinstalling the device, the enclosed release bracket is necessary.
- Insert the release bracket into the opening of the adapter plate behind the device (1).
- Push the device upwards (2) and pull it out towards you (3).



Installation CAI2210 (tabletop device)

Attention!
The video indoor stations have to be (de-)installed only voltage-free!

The table rack is pre-configured and has to be connected to a RJ45 socket. Therefore please note the connection diagram under *cable assignment*.



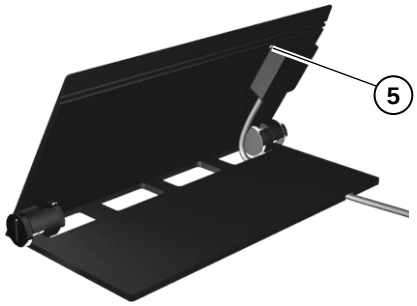
1 adapter plate

2 lock pins
(4 x)

3 connecting cable
(2.5 m)

4 knurled screws

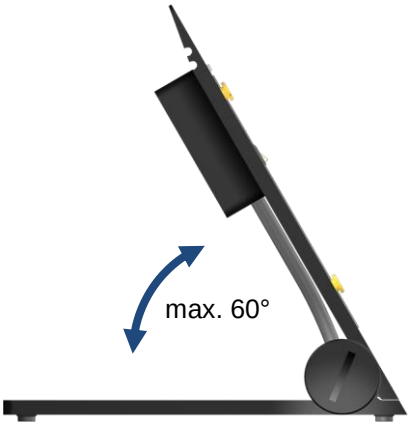
5 grub screw
(hexagonal socket)



Put up the table rack

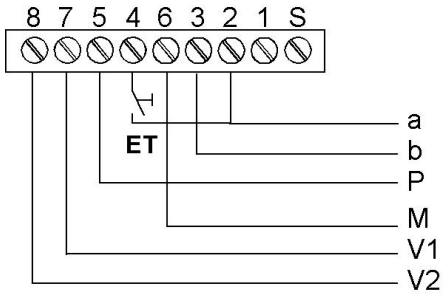
- Turn the table rack into desired position and fix the position by tightening the knurled screws by hand.

- The cable is already pre-installed.



Cable assignment

Wires Plug PIN no.		Connect to connection terminal:
2	orange-green	a
3	green-white	b
4	blue	E
5	blue-white	P
6	green	M
7	brown-white	V1
8	brown	V2

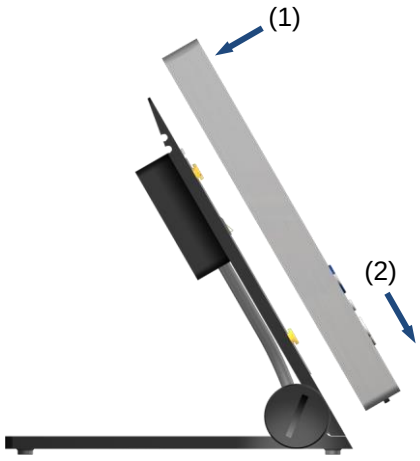


Terminating resistor CAI2210

Observe when installing video tabletop devices:
The installation of the lines to the connection sockets must be realised star-shaped and must NOT be looped through.
Noncompliance leads to a video image with limited quality.

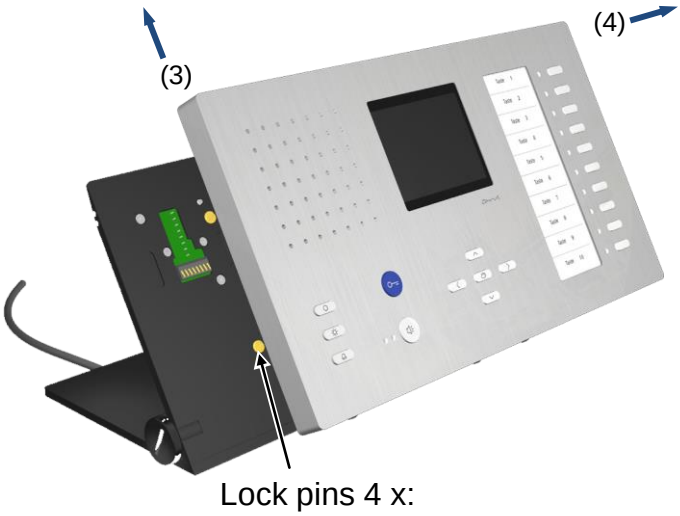
Install the device

- Take the device into both hands and position it on the adapter plate.
- Position the device centrally on the adapter plate and leave out a little space of 10 mm to the bottom edge of the adapter plate.
- Press the device flush to the adapter plate (1). Slide it carefully and vertically downwards (2) until the lock pins of the adapter plate lock into the holes in the rear panel of the device.
- Slide it downwards until stop.
- **Tighten the grub screw with a suitable screwdriver only by hand!**
- To control, if the device is locked correctly, slightly try to push it upwards. That should not be possible.



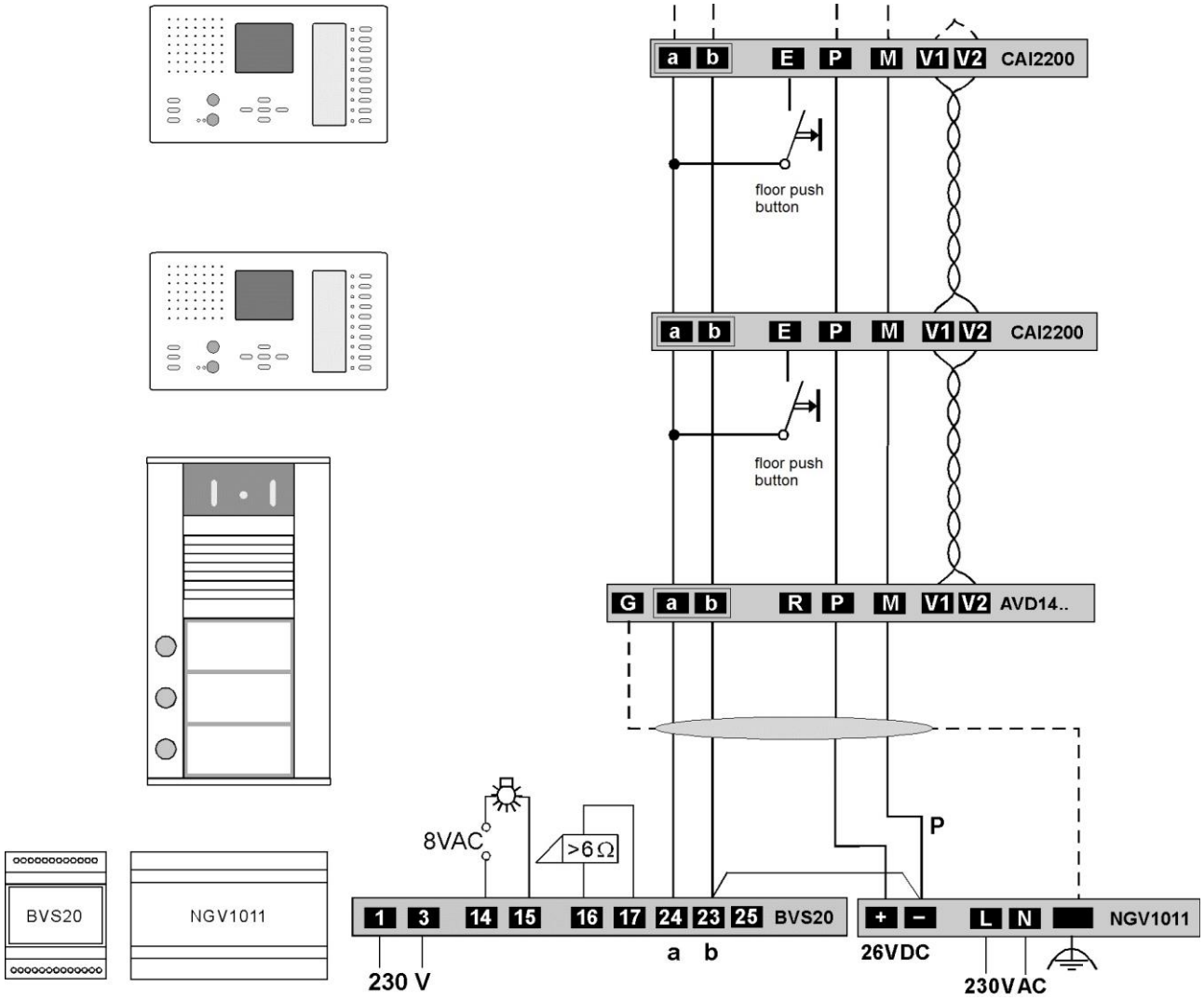
Deinstall the device

- Loosen the grub screw for deinstalling the device. Take the device into both hands.
- Push the device upwards (3) and pull it out towards you (4).

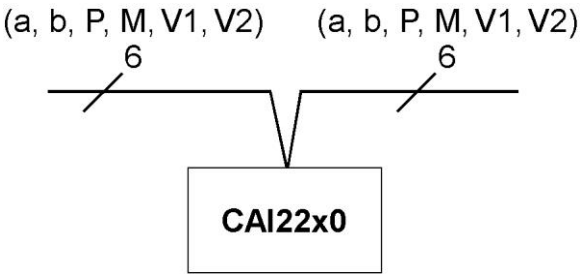


Wiring diagram

Attention! Observe max. number!
(see *Intended use,* page 8)



Connection diagram



Commissioning

! **First install the system completely, than connect it to the mains voltage!**

- Install the devices of the system completely.
- V1 and V2 must not be connected with the P-, a- or b-wire.
  When connecting the video wires V1 (+) and V2 (−) the polarity must be observed.
- Proof the a-, b- and P-wire against each other on short-circuit.
- Switch on the main voltage.

Settings

Ring tone selection

For 4 different incoming calls (calls from 2 front-door stations, floor call, internal call) the ring tones can be selected.

1	End voice communication: Press call OFF-button and keep it pressed for around 8 s. A positive acknowledgement tone sounds. The ring tone selection is activated.	
	By pressing the following buttons a ring tone can be selected. You can choose between 13 tones. 7 alpha tones, 6 gong tones.	
2a	select door ring tone of the front-door station*	Press the *door release button* until the required ring tone sounds. The ring tone selected last, will be stored.
2b	select door ring tone of the second front-door station (if available)	Press the *speech button* until the required ring tone sounds. The ring tone selected last, will be stored.
2c	select door ring tone of the floor door	Press the *light switch button* until the required ring tone sounds. The ring tone selected last, will be stored.
2d	select internal call tone	Press the *function key* as often as the required ring tone sounds. The ring tone selected last, will be stored.
3	Press call OFF button short. In case that no button is pressed for around. 8 sec, the device ends the ring tone selection automatically. An acknowledgement tone sounds, the ring tone selection is deactivated.	

* *The first configuration of this door ring tone is adopted for the second front-door station. Only after having select the ring tone for the second front-door station separately (2b), it always has to be selected independently.*

Factory settings

Ex works the following settings are stored in the device:

serial number for parallel call	1000000
function key	control function 8

Pre-adjusted times

communication time	2 min
flashing period of the green LED, if the voice channel is busy after the voice communication is established	3 sec 3 x flashing
internal standby time, if the device is calling or is called	around 30 s
floor door release time	around 30 s

AS-address dependent image activation

If there are also front-door stations without cameras in a system with CAI22x0 and video front-door stations, the image is not activated when the CAI22x0 is called by an audio front-door station.
To guarantee this function, the possible AS addresses are separated into two sections:

AS address 0 – 31*	reserved for video front-door stations	the image is activated in case of a door call (from max. 16 video front-door stations)
AS address as of 32*	free, for front-door stations without camera	the image is not activated in case of a door call

**) The video AS-border can be configured with the configurator configo™.*

Note:
The AS-addresses of the front-door stations have to be assigned via Service Device.
*For detailed information see point Service information **in the TCS Installer 5 / 4** (Version 1) or **TCS Installer 7 / 4** (Version 2).*

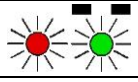
Configuration options

Function	manually	TCSK-01	configo™ *as of version 1.7.x*
fixed simplex communication	–	–	**x**
simplex communication to the front-door station	–	–	**x**
ring tone volume	**x**	–	**–**
ring tones for 2 front-door calls, internal calls and floor calls	**x**	–	**x**
call diversion	**x**	**x**	**x**
door release automatic	**x**	**x**	**x**
internal call via function key	**x**	**x**	**x**
control function 8 via function key	**x**	**x**	**x**
parallel allocation	–	**x**	**x**
floor door release function on / off	**x**	**–**	**x**
automatic hands-free talking after internal call on / off	**x**	–	**x**
determine door call AS-border	–	–	**x**
block ring tone output	**x**	–	**–**
block ring tone selection	**x**	–	**x**
block programming	**x**	–	**x**
programming function key module	**x**	–	**–**
Reload factory settings	**x**	–	x
determine video AS-border	–	–	**x**

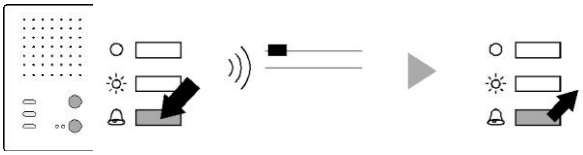
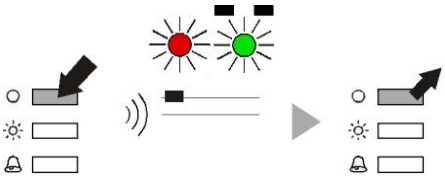
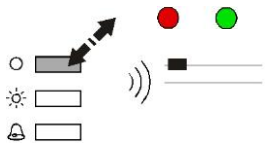
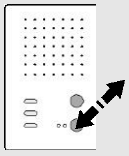
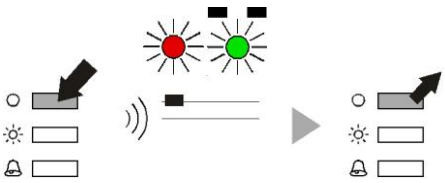
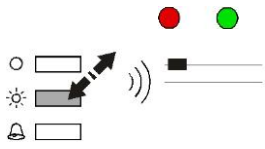
Programming the basic module

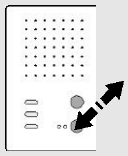
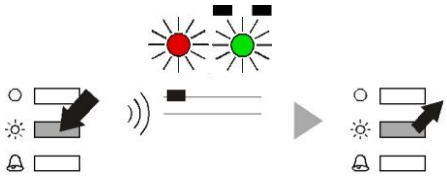
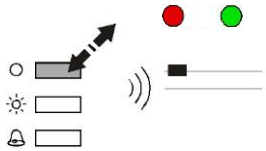
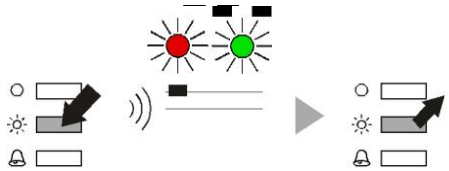
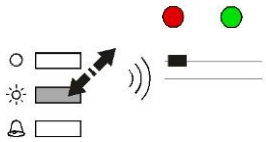
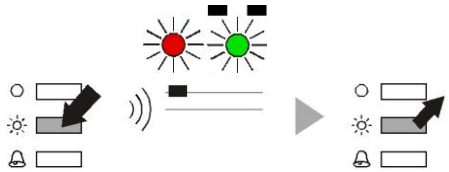
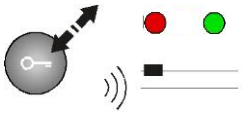
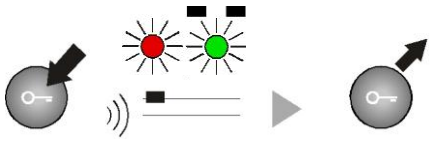
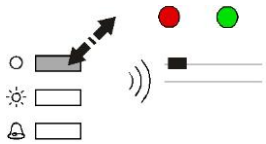
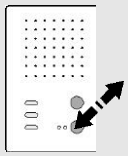
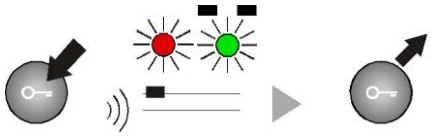
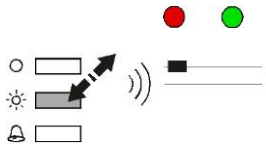
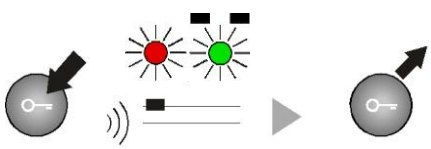
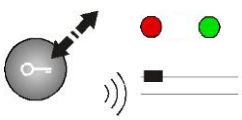
Manual programming

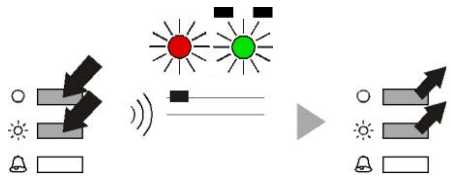
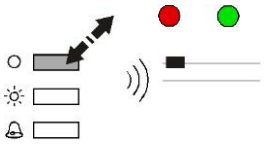
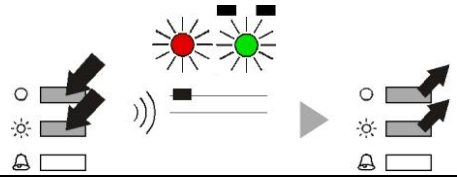
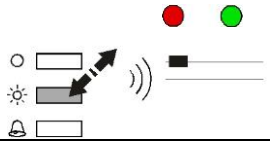
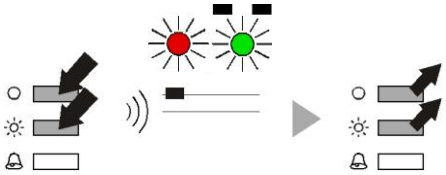
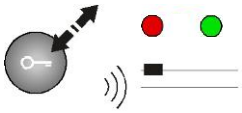
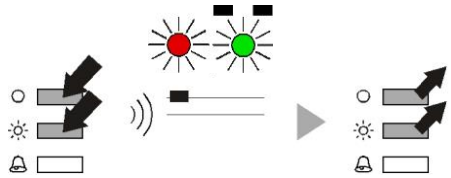
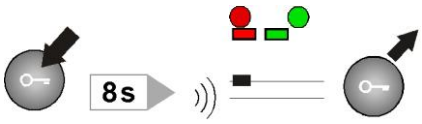
Legend for programming

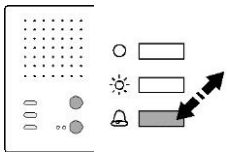
press button shortly		negative acknowledgement (NoProg tone)	
press the button until...		repeat	
release the button		further	
LEDs off		LEDs blinking	

	The programming is realised in four steps:
1	**Initiate the programming**
2	**Pre-selection**
3	**End-selection**
4	**End the programming**

1	Initiate the programming	
	 Press the call OFF-button (8 sec), release until an acknowledgement tone sounds shortly	
	2 **Pre-selection**	3 **End-selection**
Programming function	Press the button (8 sec) until an acknowledgement tone sounds shortly and the green LED blinks, release the button	shortly press the button, an acknowledgement tone sounds shortly and the green LED expires
door release automatic		
call diversion Note: Before programming the call diversion, the AS-address of the front-door station is to be fixed and blocked.	**Execute at the required indoor station:** press speech button  	

Programming function	2 Pre-selection	3 End-selection
internal call (at function key)	**Execute at the required indoor station:** press speech button 	
		
control function 8 (on function key)		
automatic hands-free talking after internal call switch on (when switched off) or switch off (when switched on)		
switch on floor door release function (if switched off) or switch off (if switched on)		
parallel allocation	**Execute at the required indoor station:** press speech button 	
		
delete parallel allocation		

Programming function	2 Pre-selection	3 End-selection
block ring tone selection		
block extended programming		
deactivate programming lock **Attention!** • Switch on the programming mode of the system at the BVS first. • Execute the steps 1 to 4. • Switch off the programming mode of the system.		
Reload the factory settings		 press the door release button for 8 sec

4 End the programming
 By shortly pressing the call OFF-button or automatically, if no button is pressed for 8 seconds.

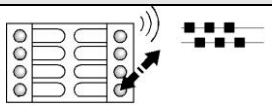
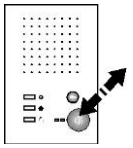
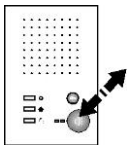
Programming the function key of the basic module with Service Device TCSK-01

door release automatic	✳ 91 # Ser.-No. #
call diversion	✳ 90 # Ser.-No. # TarSNo. #
internal call 1	✳ 92 # Ser.-No. # IntSNo. #
control function 8	✳ 93 # Ser.-No. #
parallel allocation **activate** **parallel call** **switch off** NOTE**:** To deactivate parallel allocation means parallel allocation to serial number 0.	✳ 99 # Ser.-No. # ParSNo. # ✳ 99 # Ser.-No. # 0 #

Ser.-No. = *the serial number of the indoor station that is to be configured new*
TarSerNo. = *the serial number of the indoor station, to which the call should be diverted*
IntSerNo. = *the serial number of the indoor station, which should be called internally*
ParSNo. = *the serial number of the indoor station, to which the new configured indoor station is allocated*

Programming the function key module

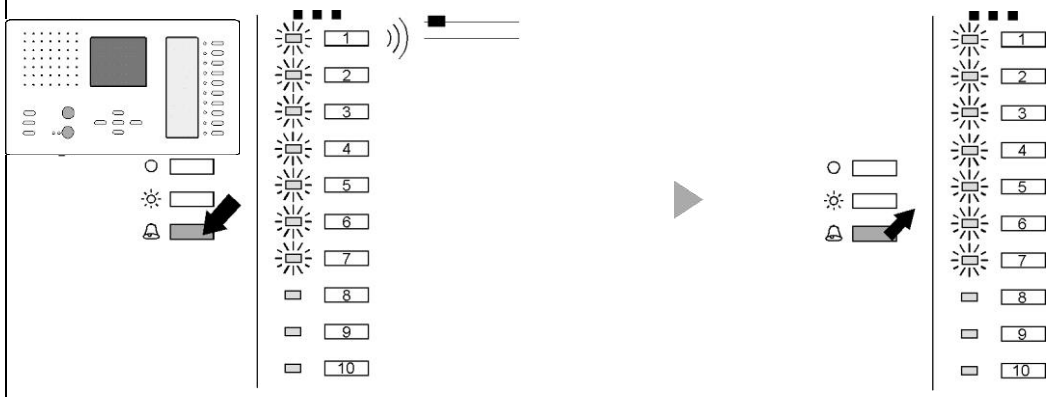
Manual programming

	1 **Initiate programming**	**2** **Execute BUS action** (must be executed within 40 s after step **1**)	**3** **Select the function, press the button ...**	**4** **Select the function key that should be programmed.**	**5** **End programming**
Specific door call and door release	(Description see Ill. 1, page 24)	 shortly press the programmed bell button at the front-door station which is to be called	**Button 1**	Press the required function key.	Programming the device is completed after the required function key was selected. The realised programming remains configured, when • the programming is finished manually (Description see Ill. 2, page 24) or • the programming ends automatically, when no button is pressed for 40 s.
Specific internal calling	(Description see Ill. 1, page 24)	 press the speech button of the indoor station, which is to receive internal calls	**Button 2**	Press the required function key.	
Sensor function, indication with LED and send control function	(Description see Ill. 1, page 24)	close sensor contact	**Button 3**	Press the required function key.	
Call diversion* *The AS-address of the front-door station must be fixed and blocked with the Service Device before!*	(Description see Ill. 1, page 24)	 press the speech button of the indoor station, to which the call is to be diverted to	**Button 4**	Press the required function key.	
Send control function with unique serial number	(Description see Ill. 1, page 24)	–	**Button 5**	Press the required function key.	
Send two control functions with unique serial number alternately	(Description see Ill. 1, page 24)	–	**Button 6**	Press the required function key.	
Delete button	(Description see Ill. 1, page 24)	–	**Button 7**	Press the required function key.	

Programming further buttons

- Repeat the steps from step 2 on.

Ill. 1: Initiate programming



Press the call OFF-button on the basic module until
NoProg tone sounds and the upper 7 LED start blinking (after around 8 s) release

Ill. 2: End the programming mode at the device (or automatically after 40 s)

call OFF-button on the basic module:
shortly press

NoProg tone sounds,
delete LEDs (after around 40 s)

Note:
Document the programming of the buttons in the enclosed programming table.

Programming the function key module via Service Device TCSK-01

Step **2 Execute BUS action** can be realised with the Service Device (instead of doing it directly at the required station). The entry must be realised within 30 s after step **1**.

specific door call and door release	to TCSK-01 • enter the AS-address of the front-door station • shortly press the function key 2 times (speaking – end speaking)	**AS** … …
specific internal speaking	*Ser. No. =* *Serial number of the target device*	✳ 30 # Ser.-No. # 0 #
sensor function		✳ 30 # Ser.-No. # 0 #
call diversion		✳ 30 # Ser.-No. # 0 #
program and block the AS-address of the front-door station	NOTE: The lock for programming and AS-address as well as speaking within active door standby can be configured independently from each other, but can be deleted only together.	✳ 76 # Ser.-No. # AS #

Labelling the function keys

The nameplate carrier (1) can be pulled out of the housing. There is an embedded black cover with a little slot at the underside of the device.

- Insert the enclosed release bracket (2) into the slot and softly press the bracket upwards to loosen the nameplate cover from the housing.
- Pull the nameplate cover downwards from the housing together with the nameplate carrier.
- The labelling stripe can be easily removed to enter the programmed button functions.
- Insert the complete nameplate carrier back into the guidance rail until the cover is locked into place by the magnetic holder.

Please find suitable labelling templates on our website: www.carus-concepts.com

General information on the conduit in TCS video systems

6-wire operation

6-wire operation is the standard operation mode. Video operation, where two separated masses (b and M) are used.
The conduit is determined by structural conditions and is only limited by its length.

- Please observe when selecting the length of the lines: the loop resistance a-b and M-P must not exceed 8 Ω (table 1).
- Loop resistance > 8 Ω: plan multiple wiring of the strands (double twisted lines).
- Optional strand or star formed wiring
- Do not use more than 20 indoor stations per strand. For systems with more video indoor stations plan to use video distributors (FVY1200, FVY1400).
- Up to 64 front-door stations (16 of them video front-door stations) and almost an unlimited number of indoor stations can be connected within one system polarity-free (a/b; polarity-free only in 6-wire operation). Thus, a suitable power supply and control unit is to be used.

Table 1: loop resistances

Length of the line a-b/ M-P in m	**cable diameter**	
	0.6 mm	**0.8 mm**
	loop resistance in Ω	
10	1.28	0.71
20	2.55	1.43
30	3.83	2.14
40	5.10	2.86
50	6.38	3.57
60	7.65	4.29
70		5.00
80		5.71
90		6.43
100		7.14

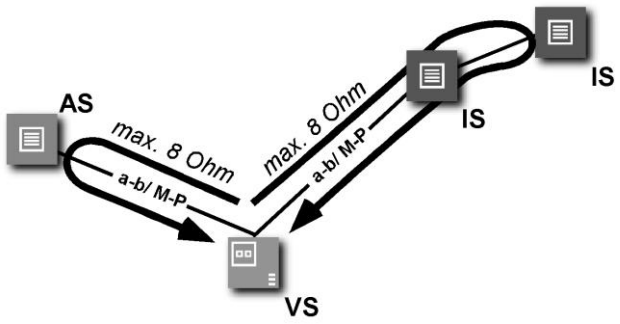
Principle loop resistance

None of the devices (AS, IS or FE) should ever be located more than **8 Ohm** away from the power supply and control unit (VS).

Measurement loop resistance

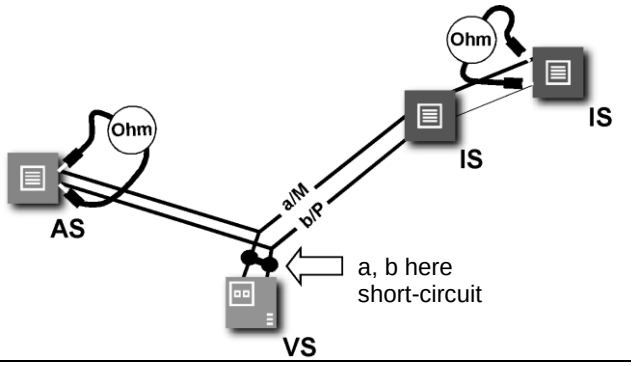
Rule:

- Switch off the 230 V / 50 Hz of the VS.
- Install the a-b short-circuit at VS.
- Other devices do not disturb the measurement, they can stay connected.
- Measure the resistance at a/b of the last IS or AS.



8 Ohm:

max. 65 m distance AS-VS by 0.6 mm diameter
max. 115 m distance AS-VS by 0.8 mm diameter



AS	*front-door station*
VS	*power supply and control unit*
IS	*indoor station*
FE	*extended function*

FAQ

Error pattern	Possible cause	Our suggested solution
The video image is black and white.	The color saturation control of the indoor station is set to a minimum.	Adjust the contrast or color saturation control.
	The transmission level of the video BUS is too low.	At many components of the video BUS (e.g. FVY) the transmission level can be adjusted. Please see the product information of the active transmission components.
	The light intensity does not reach the minimum value of 10 lux. Thus, the camera switch over to black and white.	The camera module of the front-door station is very insensitive to light. Ensure that there is sufficient illumination or use an external camera.
The colours of the video image are too bright or the image in general is too bright. 	The color intensity control is turned on too much.	Reduce the color intensity.
	The brightness control is turned on too much.	Reduce the brightness.
	The level of the video signal is too high.	Turn down the level of the video bus (e.g. rotary control on the board of the camera). This only works, when the terminating resistor is placed correctly at the station or active extended functions (e.g. FVY).
	The terminating resistor at the end of the strand is not plugged.	Plug the terminating resistor.
The colours of the video image are without contrast. 	The level of the video signal is not high enough.	The connection line of a camera was extended, although this is not permitted.
		The connection line between two active video components was exceeded impermissible.
		Loss of levels can be compensated to a certain part by rotary controls at active video components (see product information of the components).
		Check if the number of allowable video indoor stations per strand was not exceeded.
	The terminating resistor at video distributors or video switches with looped-through signal are not plugged correctly.	Remove the terminating resistors at relevant components. Only the last video component in a strand needs a terminating resistor.

In one building block with multiple indoor stations, only one indoor station shows black lines on the video image. 	Image interferences due to transition resistance.	The P-wire is not connected correctly.
		The connection contacts are not completely fixed.
	Image interferences due to near disturbing sources such as external power supplies or other electric appliances, which are not shielded.	Relocate the video distributor or any other passive assembly package.
	Distortion due to compensation currents caused by potential differences.	Please check the line installation and try to install active components on one potential.
		Integrate a coupling element into the video BUS to galvanically isolate it. This accessories you can order from TCS technical distribution.
Distorted image 	No accurate video signal due to interchanged video wires.	The video BUS is not protected against polarity reversal. Please interchange the wires V1 and V2.
The image "rolls". 	The video signal cannot be synchronized.	Please check, if all wires of the video BUS are connected. Eventually you have to readjust the level.
Multiple contours occur 	Image reflections occur, so called "ghost images", due to open lines.	The video strand is not connected. Please place the terminating resistor in the last device of the strand.

Contours of a second image are visible. 	Two video sources interfere.	Please remove the second video source from the strand. Connect the second video source, if necessary, via a video switch to the existing TCS:BUS.
No image. When pressing the image button there is no respond.	No signal present.	Connect the monitor before the video switch and check if there is a signal.
		Measure the voltage between P and b. The voltage value is around 24 V. If this is not the case, check the BUS voltage supply.
	Not both wires of the video BUS are connected.	Check the correct connection of the video plug to the IMM video module.
The video image turns white after a while. Switching the supply voltage off and on again, the signal will be normal again. The video image turns white after a while again.	Thermal defect of the outdoor camera.	The V1-wire of the video BUS short-circuits the P- or the b-wire. This causes an impermissible increased current. Please check the wiring for short-circuits.
		The camera is defect.

Repair

!	Repairs have to be carried out only by qualified electricians.

Cleaning

!	Avoid water from entering the device! Do not use any abrasive detergents!

Clean the indoor station with a dry or slightly wet cloth. Remove stronger stains with a pH-neutral cleaner.

Conformity

CE Declarations of conformity for download under www.tcsag.de > Downloads > Commercial information.

Information on disposal

The adjoining symbol shows that the device has to be disposed separately from domestic waste. The materials used are recyclable. Please do help protecting our environment and dispose the device via a collection point for electronic scrap.

Dispaper  pose the parts of the packaging in collecting tanks for cardboard and resp. plastics.

Warranty

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

- Please observe our **standard terms and conditions of sale**, available under www.tcsag.de > Downloads > Commercial information and enclosed in our latest catalogue.
- Please contact us: **hotline@tcsag.de**.

Service

Please send your questions and inquiries to
hotline@tcsag.de

Headquarters

TCS TürControlSysteme AG
Geschwister-Scholl-Str. 7, 39307 Genthin GERMANY
FON: +49 3933 8799-10, FAX: +49 3933 -8799-11
E-Mail: info@ tcsag.de, www.tcsag.de
www.carus-concepts.com

Subject to technical changes.
TCS Hotline Germany
FON: +49 4194 9881-188, FAX: +49 4194 9881-29
E-Mail: hotline@tcsag.de
PI_CAI22x0.doc 1 A 02/2014