



Product information

Object video indoor station

IVH3222



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Scope of delivery

1 x indoor station IVH3222: upper cover, lower cover, handset with handset cord
product information
instruction manual

Safety instructions

General safety regulations



Attention! Mounting, installation, commissioning and repair of electronic devices have to be carried out only by qualified electricians. Thus, the current standards for the installation of door communication systems must be observed.

For working on systems with main connection of 230 V alternating voltage, the safety regulations according to DIN VDE 0100 must be observed.

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

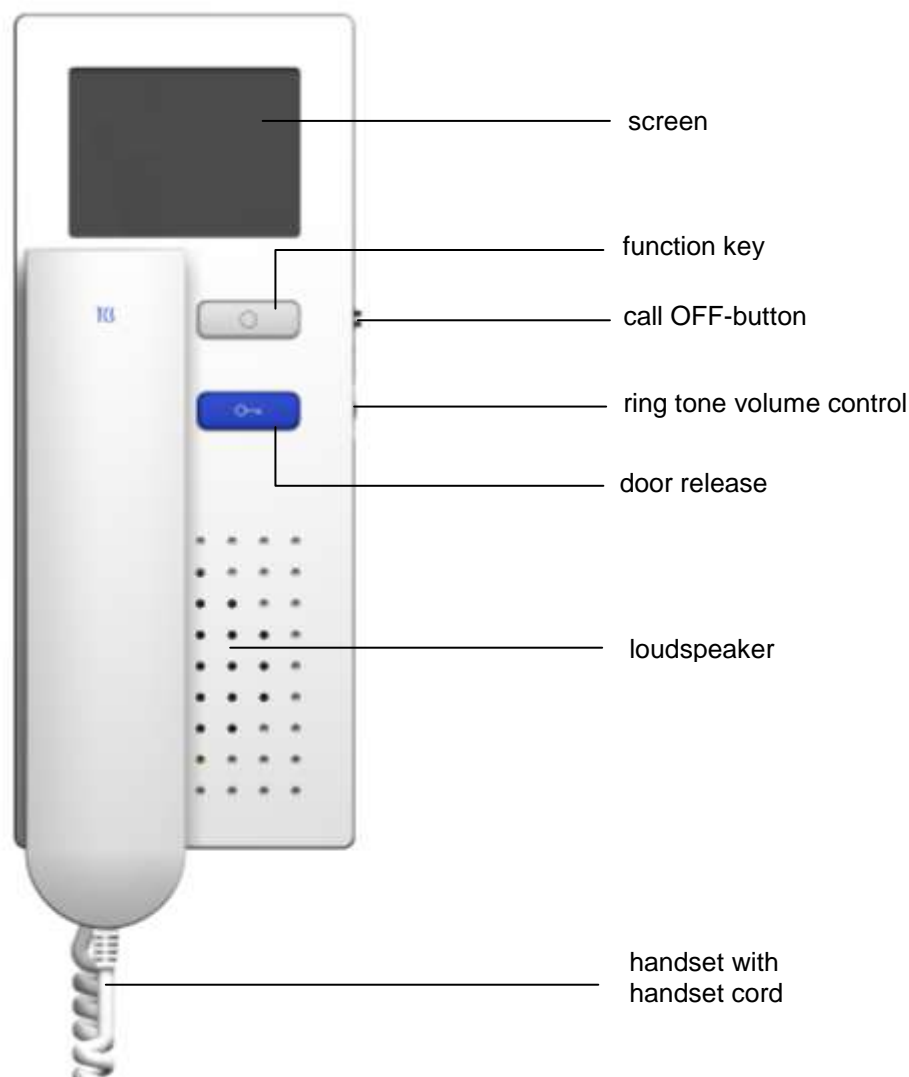
- separated guidance of heavy and low current lines,
- minimum distance of 10 cm in case of a common conduit,
- use of separators between heavy and low current lines within shared cable ducts,
- use of standard telecommunication lines, e.g. J-Y (St) Y with 0.8 mm diameter,
- already existing lines (modernisation)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

Installation – protective measures



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

Device overview



Indication and operation elements

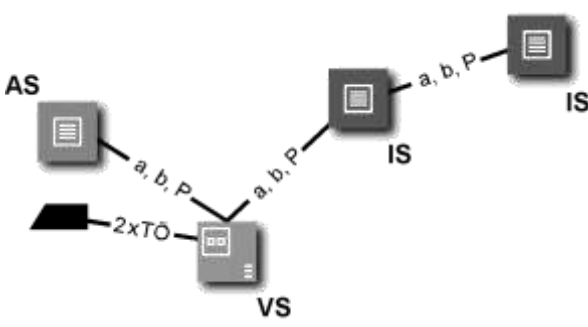
	handset	<ul style="list-style-type: none"> • speaking to the door • end communication
○	function key	<ul style="list-style-type: none"> • trigger light switch function • call the central (send control function 8) • image activation (and switch-over)
🔑	door release button	<ul style="list-style-type: none"> • open the door • trigger the light switch function when the handset is hung up*

* if light switch function is activated in the front.door station

Intended use

- The IVH3222 is a video indoor station for duplex communication with handset for the TCS:BUS.
- It can be used for the operation within TCS video systems and combined audio / video systems in the commercial sector.
- It is suitable for surface-mount above a flush-mount socket.

Max. number IVH3222 in 6-wire operation

When using power supply and control unit	Max. number of IVH3222	
VBVS05, 1 line	20	
BVS20 + NGV1011, 1 strand	80	<p>AS front-door station VS power supply and control unit IS indoor station</p> <p>Note: The max. number of front-door stations which can be connected is limited. Details are described in the product information of the device!</p>

Short description

- blue door release button
- function key for switching lights, control function, image activation (can be configured with the configuration software configo™)
- ring tone volume can be adjusted continuously (via rotary control)
- acoustic ring tone distinction: door calls from 2 front-door stations, flat door call (floor bell) and internal call
- 7 ring tones can be selected (selection via configo™)
- ring tone mute (via slide switch)
- brightness/contrast can be adjusted manually in 8 steps und continuously with configo™
- one parallel call can be activated via Service Device TCSK-01 or configo™
- calling a central can be realised with the control function 8 (with configured function key)
- audio privacy function
- pluggable handset cord
- lower cover with plugged screw terminal can be pre-installed
- configuration software configo™ can be used for an easy system configuration at PC with automatic detection of device type and serial number
- tested according to EN 50486
- housing made of antistatic and recyclable plastics

Technical data

supply voltage:	+24 V \pm 8 % (power supply and control unit)
housing:	plastics, white
dimensions (in mm):	H 250 x W 100 x D 50/28 (with/without handset)
weight	410 g
acceptable ambient temperature:	0 °C ... +40 °C
degree of protection:	IP30
input current:	I(a) = 0.2 mA, I(P) = 4 mA
max. input current:	I(Pmax) = 90 mA
video module	TFT color module
screen diagonal:	8.9 cm (3.5 inch)
resolution:	320 x 240 pixel, RGB
video signal input:	symmetric 1 Vss FBAS,

Video 6-wire technique necessary!

Installation



Attention!

Video indoor stations have to be (de-)installed only voltage-free!



Please ensure not to overtighten the screws when installing the lower cover on uneven surfaces. Over tighten the screws might be deforming the lower cover. As a result the upper cover cannot be snapped-on to the lower cover or the save contact between lower and upper cover might be affected.

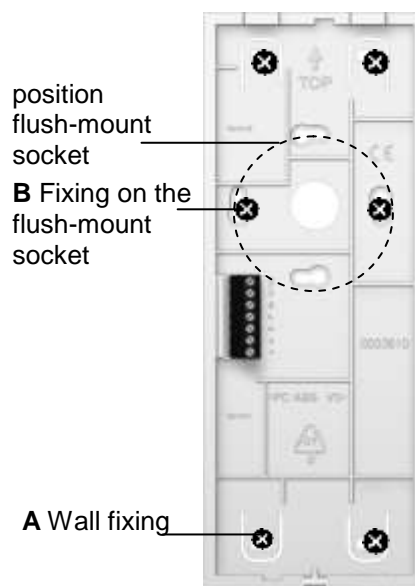
mounting height

For an optimum viewing angle we recommend a mounting height of 1.6 meters (upper edge of the device over the ground).

Install the lower cover

For placing the connection cables without any problems, a flush-mounted socket must be installed behind the device.

- Position the flush-mounted socket below the cable conduit.
- Install the lower cover with at least three suitable screws to the wall: Attachment holes accordingly to the illustration to the wall (A) or on the flush-mount socket (B).

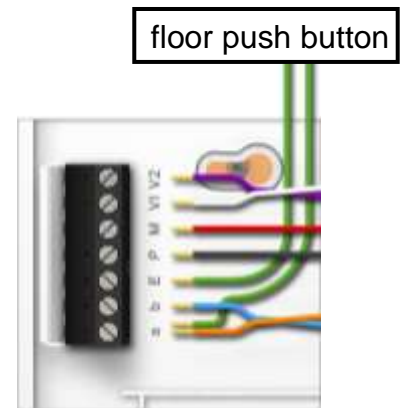


Screws are not enclosed in the delivery.

Connect the lines

- Minimize the length of the lines above the lower cover to place the lines without any problems and do not clamp the lines when snapping-on the upper cover.
- Connect the lines according to the labeling (in the lower cover): a b E P M V1 V2 (from the bottom to the top), floor push button to a and E.

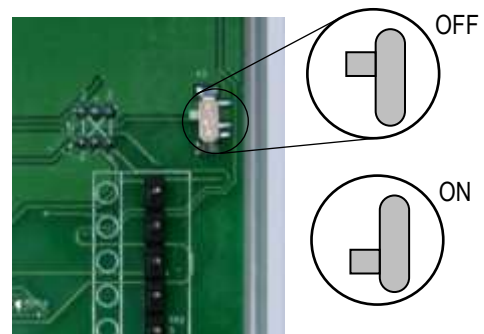
See wiring diagram on page 9



Place matching resistor

The video indoor station IVH3222 is not suitable for the operation at the end of a strand ex works. Switch in position OFF.

- For the operation with further up streamed video indoor stations slide the switch in position ON.



Close the device

- Set on the upper cover at both adjustment increments of the lower cover (1).
- Snap-on the upper cover below with slight pressure (2)



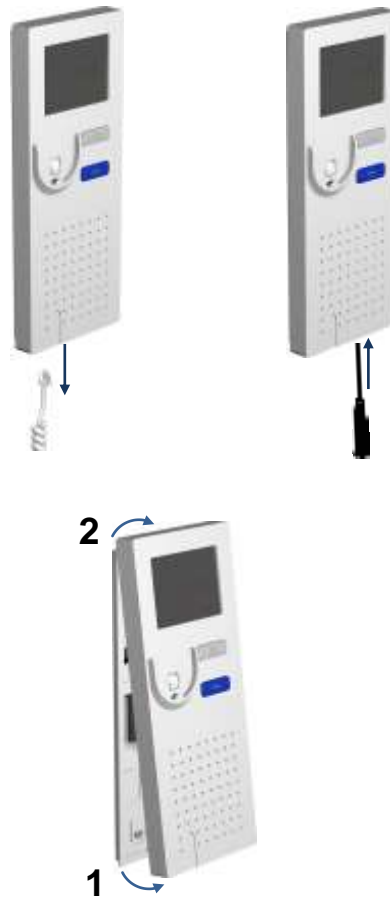
Connect the handset

- Plug the Western socket of the handset cord into the socket at the underside of the telephone.

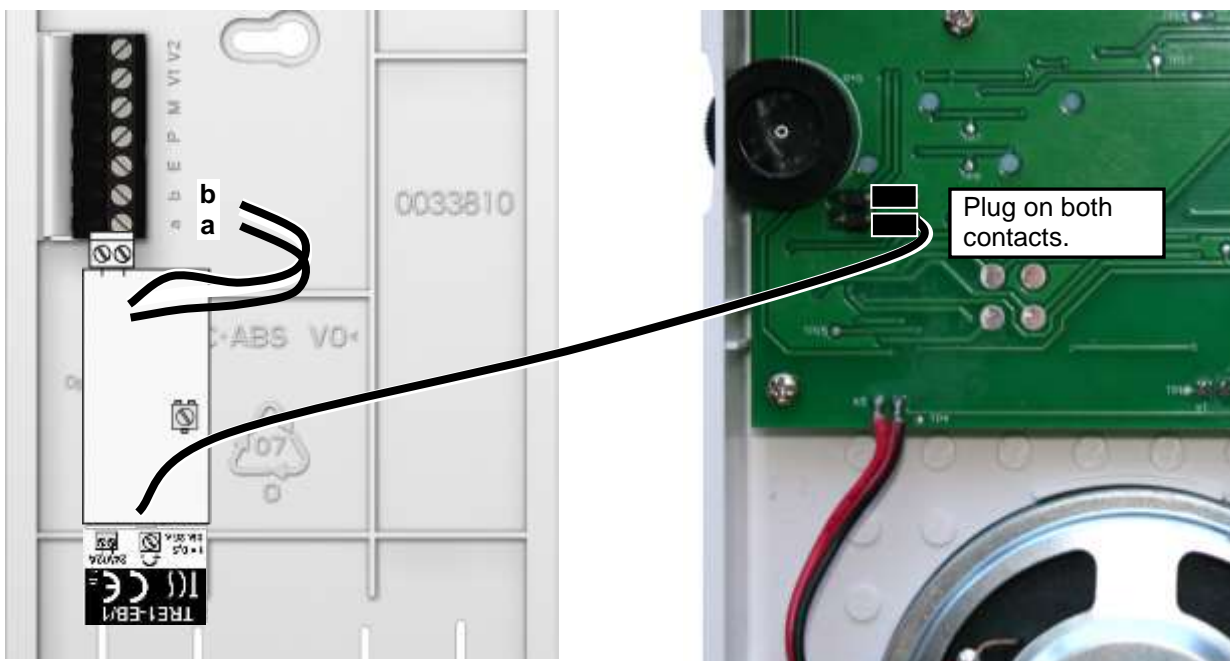


Open the device

- Remove the handset cord.
- There is a rectangular release opening at the underside of the device. Insert a small screwdriver straight and with slight pressure into this opening.
- The upper cover can be removed at the underside (1).
- Lift the upper cover out of the two upper adjustment increments (2).



Install a built-in call relay TRE1-EB/1



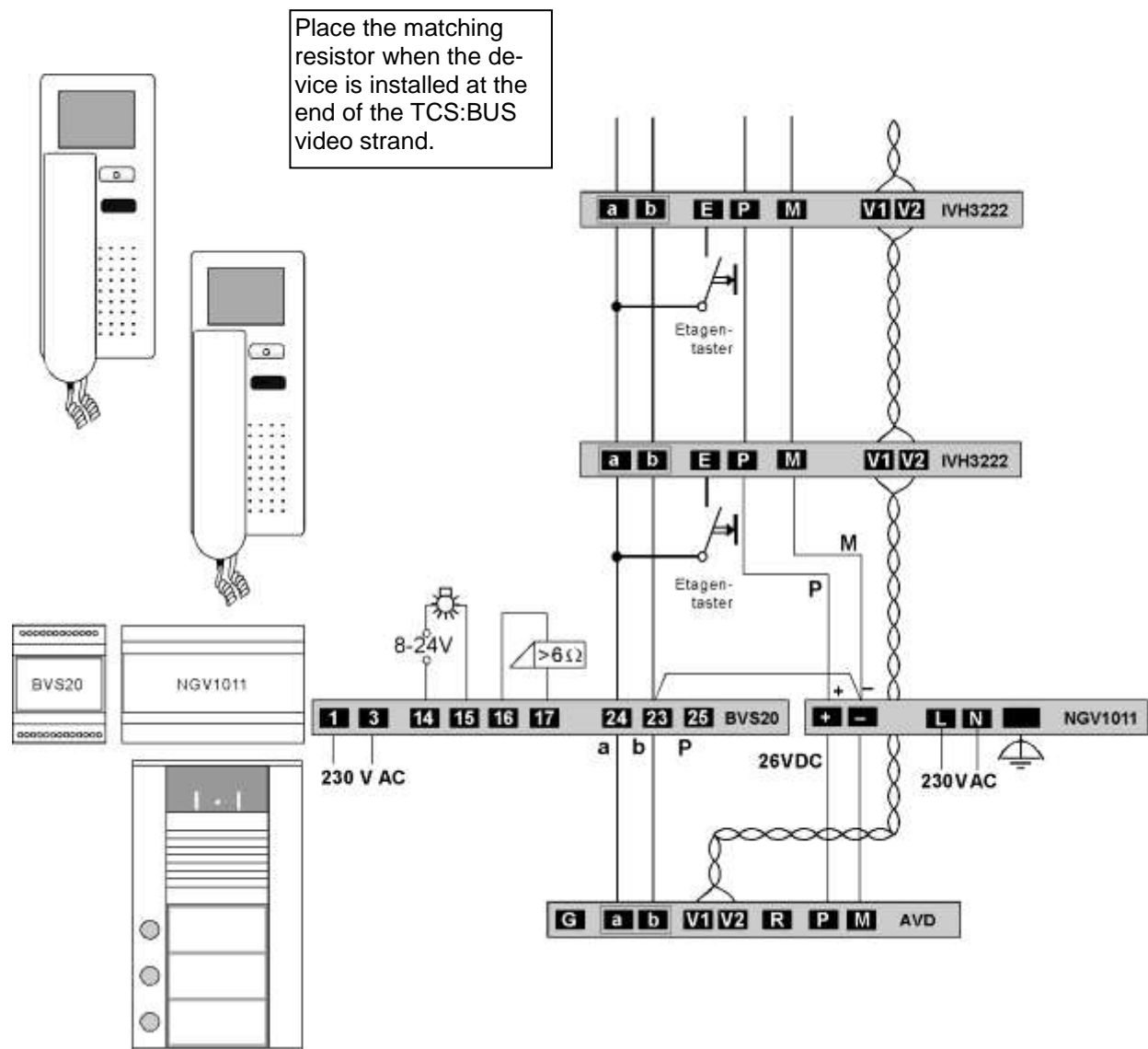
Connect the lines

Connecting lines

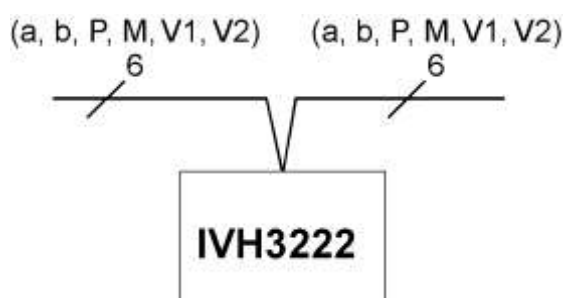
acceptable cross-section (diameter)	0.08 ... 0.82 mm ² (Ø 0.32 ... 1.0 mm)
max. number of wires per terminal contact	each 2 x 0.8 mm, 3 x 0.6 mm

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

Wiring diagram



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.
- Check the a-, b- and P-wire against each other for short-circuits.
- Switch on the main voltage.

Configuration

AS-address dependent image activation

If there are also front-door stations without cameras in a system with IVH3222 and video front-door stations, the image is not activated when the IVH3222 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 cannot be changed.

Factory settings

The device is equipped with an EEPROM which stores the following basic settings ex works:

serial number for parallel call	1000000
function key	image button

Pre-adjusted times

communication time	max. 2 min
image switch time	80 sec
internal standby time	around 30 s
timeout call OFF (with TCSK-01)	4 min

Configuration options

Function	manually	TCSK-01	configo™ as of version 1.8.x.x
function key image button	–	x	x
function key control function 8	–	x	x
function key switching lights	–	x	x
ring tone volume	x	–	–
select ring tones for 2 door calls, internal calls and floor calls	–	–	x
parallel allocation	–	x	x
image parameter (color shade, brightness, contrast)	–	–	x
image parameter (brightness, contrast)	x	–	x
image parameter (color shade)	–	–	x
change audio AS border*	–	–	–
Reload factory settings	–	–	x

* The audio AS border is fixed on 15 (door call 1: 0 to 15 door call 2 16 to 63).

Programming with the Service Device TCSK-01

- The indoor station is acting as a telephone.
- Use the command “8” for configuring (see *product information Service Device TCSK-01*).

search telephones	* 51 #
activate parallel call	* 89 # Ser.-Nr. # ParSNr #
deactivate parallel call	* 89 # Ser.-Nr. # 0 #
control function 8	* 83 # Ser.-Nr. #
configure the function key as image button	* 81 # Ser.-Nr. #
configure the function key as light switch button	* 82 # Ser.-Nr. # 0 #

ser. no. = the serial number of the indoor station that is to be configured anew

ParSNo. = the serial number of the indoor station, to which the new configured indoor station is allocated

Settings

Switch ON/OFF the ring tone mute with the call OFF-button

- switch ring tone mute ON: slide the call OFF-button (right side of the device) upwards
- switch OFF ring tone mute: slide the call OFF-button downwards (symbol *call OFF*)

on ▲

ring tone output

off ▼

loud ▲

ring tone output

quite ▼



call OFF-button

volume control

Set the ring tone volume

The ring tone volume can be adjusted continuously.

Set brightness/contrast

In standby mode you can manually adjust brightness and contrast of the indoor station in 8 steps.

- Simultaneously press the function key and the door release button for at least 8 s until the video image is displayed.
- Press the function key to adjust the contrast. The setting is implemented in 8 successive steps.
- Press the door release button to adjust the brightness. The setting is implemented in 8 successive steps.

If no button is pressed for more than 8 s, the indoor station is in standby mode again (video off). The values adjusted last will be stored automatically.

General information on the conduit in TCS video systems

6-wire operation

6-wire operation is the standard operation mode; two separated masses (b and M) are used.

The conduit is determined by structural conditions and is only limited by its length.

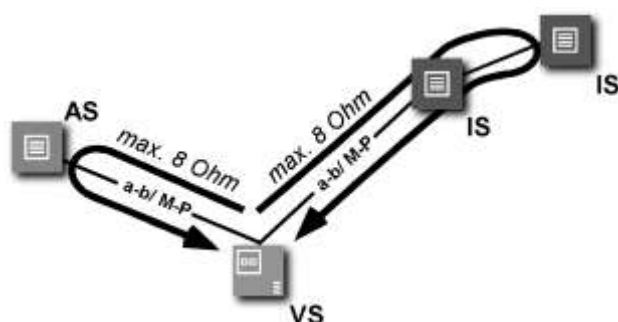
- Please observe when selecting the length of the lines: the loop resistance a-b and M-P must not exceed 8 Ω (table 1).
- Loop resistance > 8 Ω : plan multiple wiring of the strands (double twisted lines).
- Optional strand or star shaped wiring.
- Do not use more than 20 indoor stations per strand. 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).



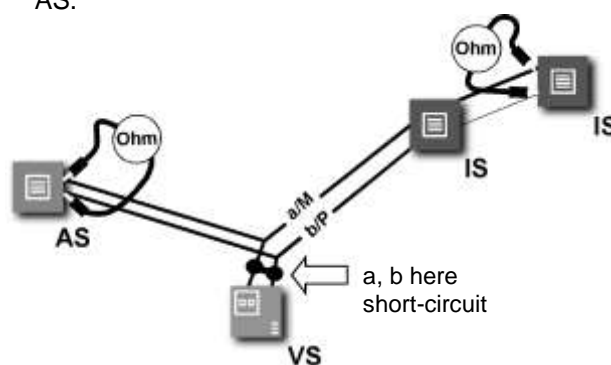
8 Ohm:

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

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 be connected.
- Measure the resistance at a/b of the last IS or AS.


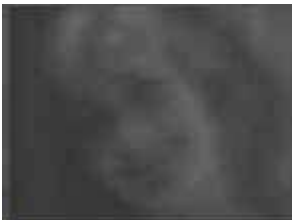







AS front-door station
VS power supply and control unit
IS indoor station
FE extended function

Repair

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

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 switches over to black and white.	The camera module of the front-door station is very insensitive to light. Please arrange for a sufficient illumination or use external cameras.
The colours of the video image are too bright or the image in general is too bright. 	The color intensity control is turned too high.	Reduce the color intensity.
	The brightness control is turned too high.	Reduce the brightness.
	The level of the video signal is too high.	Reduce the level of the video BUS (This only works, if the matching resistor is placed correctly at the video indoor station).
	The matching resistor at the end of the strand is not plugged.	Please observe: <i>Place matching resistor</i> , page 7.
The colours of the video image are without contrast. 	The level of the video signal is not high enough.	The connection line between two active video components was exceeded impermissible. Please check if the number of allowable video indoor stations per strand was not exceeded.
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 accessory you can order from TCS technical distribution.

<p>Distorted image</p> 	No accurate video signal due to interchanged video wires.	The video BUS is not reverse polarity protected. Please interchange the wires V1 and V2.
<p>The image "rolls".</p> 	The video signal cannot be synchronized.	Please check, if all wires of the video BUS are connected.
<p>Multiple contours occur</p> 	Image reflections occur, so called "ghost images", due to open lines.	The video strand is not connected. Please place the matching resistor in the last device of the strand.
<p>Contours of a second image are visible.</p> 	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.
<p>No image. When pressing the image button there is no respond.</p>	No signal present.	Measure the voltage between P and b. The value of the voltage is around 26 V. If this is not the case; please check the BUS voltage supply.
	Not both wires of the video BUS are connected.	Please check the correct connection at the connection terminals.
<p>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.</p>	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.

Cleaning

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

Clean the device with a dry or slightly wet cloth.
Remove stronger stains with a standard plastic cleaner.

Conformity

CE Declarations of conformity for download under:
<http://www.tcsag.de/en/download/declarations-of-conformity/>

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.



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 electricians.

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

Spare parts

Short text	Article number
10 x lower cover IVH3222	E35350

Service

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

Headquarters

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