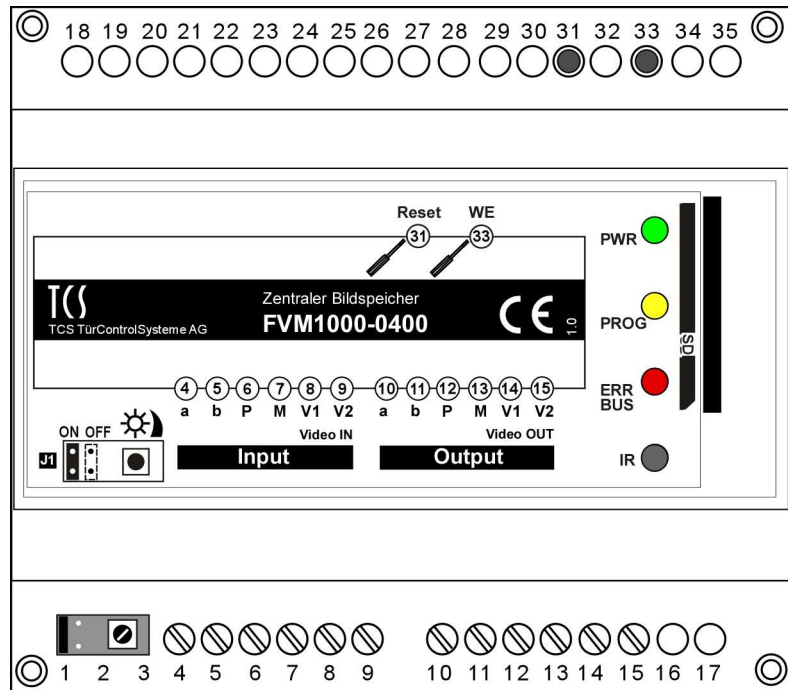




# Product information

## Central image buffer FVM1000



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## Scope of delivery

- 1 x FVM1000-0400 (with SD card 2 GB)
- 1 x product information
- 1 x IR remote control E23253
- 1 x self-adhesive bracket for infrared remote control to paste it in the door of the control cabinet
- product information
- instruction manual FVM1000 in the one-family home or basic mode

## Safety instructions

**!** Mounting, installation, repair and commissioning have to be carried out only by qualified electricians!

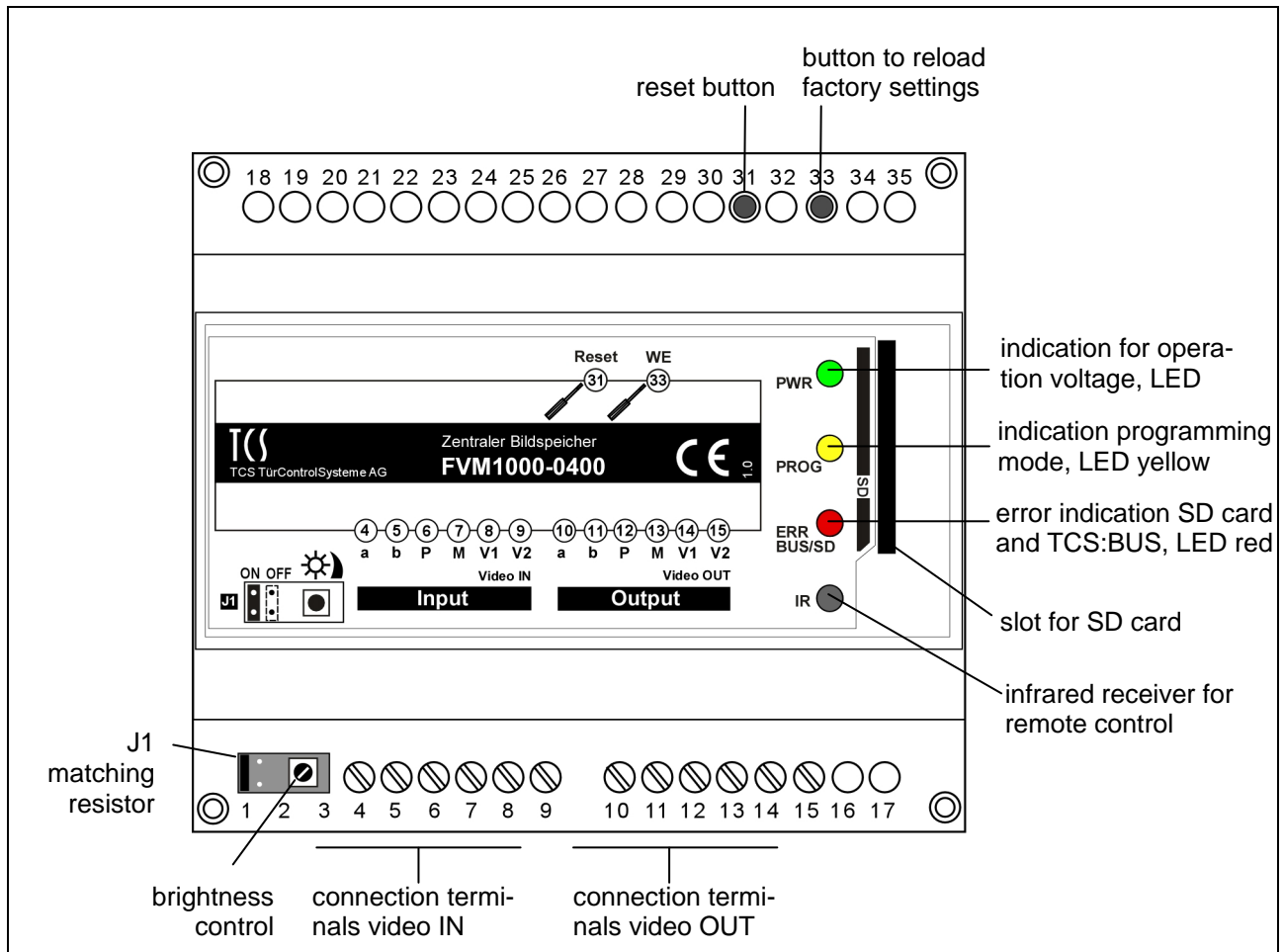
For working on systems with a main connection of 230 V alternating voltage, the safety regulations according to DIN VDE 0100 must be observed.

When installing TCS:BUS systems, the general safety regulations for telecommunication systems according to VDE 0800 (and EN60950 International Safety Standard for Information Technology Equipment) must be observed:






- separated conduit 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 communication lines, e.g. J-Y (St) Y with 0.8 mm diameter,
- existing lines (modernisation) with deviating cross-sections can be used in compliance with the loop resistance.

**!** With suitable measures to protect against lightning, it has to be ensured that a voltage of a each 32 V DC at the TCS:BUS wires a and b must not be exceeded.

## Device overview



### Indication and operating elements

Labelling	Function
 LED, green: indicates operational readiness	<ul style="list-style-type: none"> <li>• <b>OFF</b>: device is out of operation</li> <li>• <b>ON</b>: operating voltage is on</li> <li>• <b>blinks</b>: reload to factory settings</li> </ul>
 LED, yellow: indicates programming mode	<ul style="list-style-type: none"> <li>• <b>OFF</b>: not in programming mode, waiting for PIN input</li> <li>• <b>blinks</b>: device is in programming mode, waiting for command input</li> <li>• <b>blinks fast</b> (for 3 s): incorrect input</li> <li>• <b>ON</b> (for 3 s): positive input acknowledgement</li> </ul>
 LED, red: error indication	<ul style="list-style-type: none"> <li>• <b>OFF</b>: device is in stand-by mode, no error detected</li> <li>• <b>flashes</b>: total error indication</li> </ul>
 Reset button button to reload the factory settings <i>WE</i>	<ul style="list-style-type: none"> <li>• to reset the FVM1000</li> <li>• to reload the factory settings of the FVM1000</li> </ul>
 brightness control	<ul style="list-style-type: none"> <li>• adjustable from -11 dB to +5 dB from 0.28 V<sub>ss</sub> to 1.82 V<sub>ss</sub> (factory setting =1 V<sub>ss</sub>)</li> </ul>

### Technical data

supply voltage:	+24 V $\pm$ 8 % (power supply and control unit)
housing:	DIN rail housing for 6 SU for DIN rail mounting DIN EN 50022
weight	180 g
acceptable ambient temperature:	0 °C to 40 °C
input current:	I(a) = 0.2 mA, I(P) = 70 mA
max. input current:	I(Pmax) = 130 mA
input, output impedance:	100 Ohm balanced
output level 2-wire video signal:	-11 dB to +5 dB, adjustable from 0.28 V <sub>ss</sub> to 1.82 V <sub>ss</sub> (factory setting = 1 V <sub>ss</sub> )
6-wire technique necessary!	

### Infrared remote control

carrier frequency:	37.9 KHz $\pm$ 125 Hz
range:	at least 1 m free field, (15 °directional deviation with 3 m distance)
operating temperature:	-10 to +50 °C,
storage temperature:	-20 to +60 °C
batteries for the remote control:	1x button cell battery CR2025 (DC3.0 V)

## Intended use

The FVM1000 is a separate memory for images, image series with 4 images.

- It is suitable for the installation in a distribution box (DIN rail mounting).
- In one-family-mode and basic mode, the FVM1000 can be used for all video indoor stations, which are equipped with an image button and a function key to send a control function 8 (VMx30, IMM13x0, IMM23x0, IVW22x0 and others)
- In comfort mode, the FVM1000 can be used for all video indoor stations, which support this mode (new developments)

## Short description

- image storage on SD card (enclosed)
- resolution color: 720 x 576 pixel
- 3 operation modes can be set (one-family-mode, basic mode or comfort mode),
- one-family-home mode: max. 512 images, basic and comfort mode: 2048 images  
basic mode and comfort mode: for up to 32 flats (64 serial numbers), max. 64 images / flat
- configuration with the configuration software configo™(as of version 1.6.xx)
- configuration via infrared remote control (enclosed)
- password protected against unauthorised configuration
- button acknowledgement tone when pressing the IR remote control
- optical and acoustic error indication

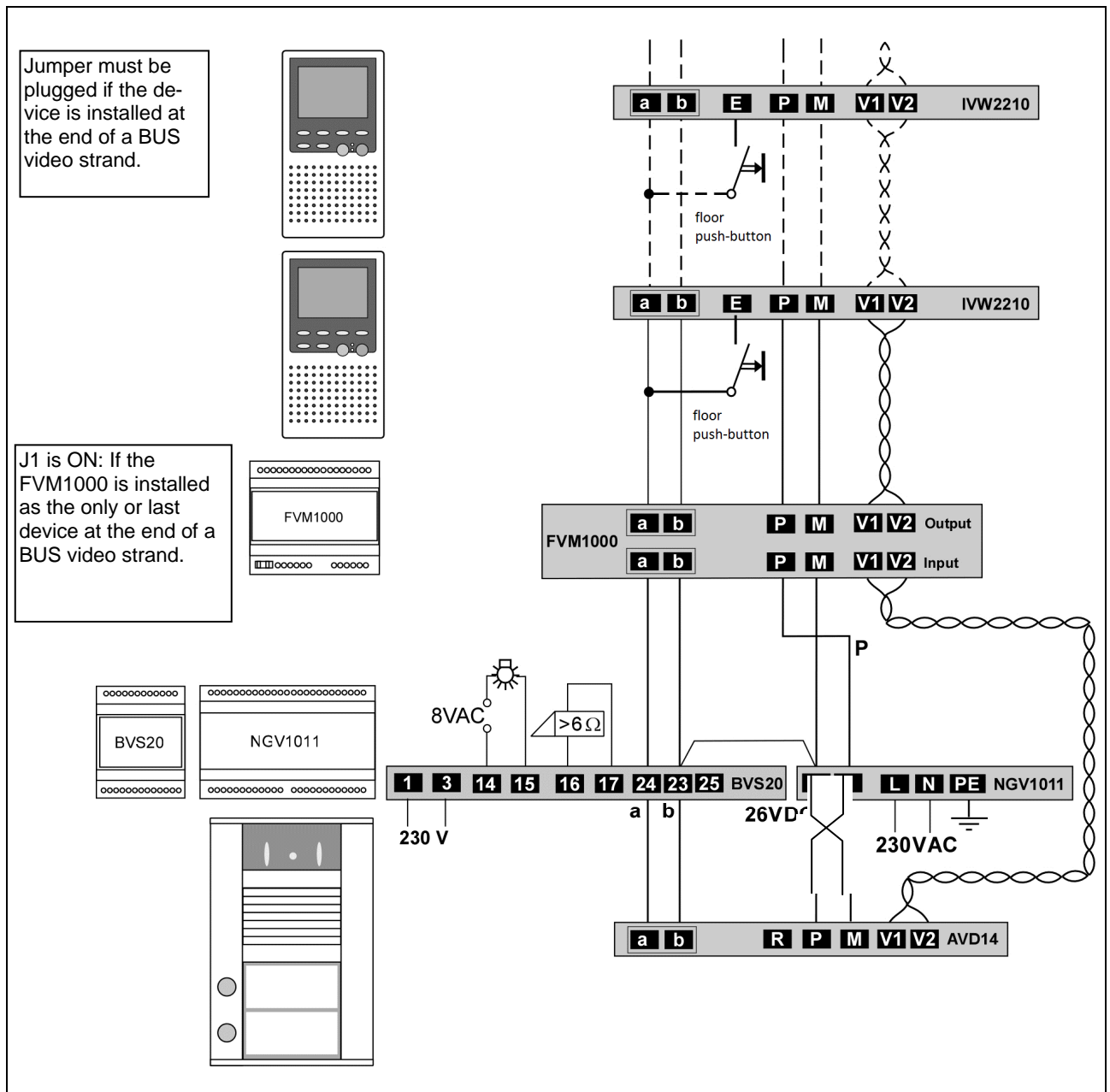
## Connect the lines

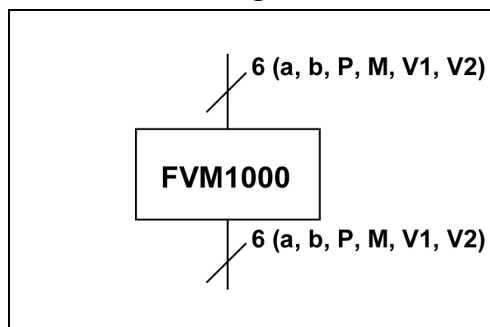
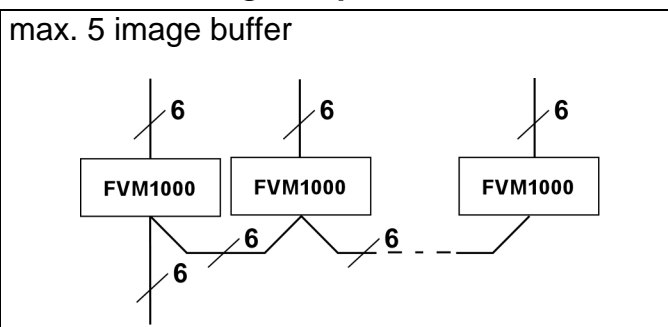
**!** Use the enclosed small screwdriver to connect the lines and to avoid damaging the device.

### Connection lines to the TCS system

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

### Wiring diagram



**Connection diagram****Connection diagram: parallel connection****Commissioning**

First install the system completely, then connect it to the main voltage!

- 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. If the image is distorted after the commissioning, switch off the device and exchange the wires for the video signal.

If the FVM1000 is installed as the only or as the last device at the end of a TCS:BUS video strand, the terminating resistor J1 must stay **plugged** (position ON, see type label)!

Otherwise the terminating resistor J1 has to be removed.

- Ensure that the SD card is plugged into the SD slot according to the marking on the type label. The SD card is needed for the storage of all configuration data and images. It must always stay in the device.

For safe operation, only the enclosed SD card is to be used with the device.


As spare part, the SD card can be ordered directly from TCS (see *Spare parts, accessory*).

- Switch on the mains voltage. The device is ready for operation.

**Error detection and indication**

Errors are signaled optically by permanent flashing of the red LED and acoustical by a unique tone sequence. The optical error indication stays active until the error is eliminated.



error cause	indication error mode	error tone	solution
SD card is missing, defect or full	 LED, red flashes	))) ■■■■	plug-in or change the SD card
a- and P-wire are interchanged or short circuited		))) ■■■	exchange a- and P-wire or eliminate short-circuit, LED expires
a-wire is not connected or not supplied		))) ■■	connect a- resp. M-wire or establish power supply, LED expires
button WE is stuck (press longer than 15 s)		))) ■	loosen button, device is in stand-by mode again

**Only in one-family-home and basic mode: set the function key of the indoor station**

! The function key of the indoor station must be assigned with the control function 8. The control function 8 is not allowed to be used anywhere else in the TCS system.

## Configuration

### Configuration options

function	manually	infrared remote control	configo™ (as of version 1.6.xx)
set the operation mode	-	<b>x</b>	<b>x</b>
set delay time for automatic recording	-	<b>x</b>	<b>x</b>
set the number of images for the automatic images series after a door call	-	<b>x</b>	<b>x</b>
determine the video-AS-address for the automatic recording	-	<b>x</b>	<b>x</b>
encoding for image buffering on / off	-	<b>x</b>	<b>x</b>
reload to factory settings	<b>x</b>	<b>x</b>	<b>x</b>
set time, date	-	<b>x</b>	<b>x</b>
change the master code	-	<b>x</b>	<b>x</b>

The configuration of the FVM1000 is realised via the integrated IR-receiver and an IR remote control (enclosed) or with the configuration software configo™.

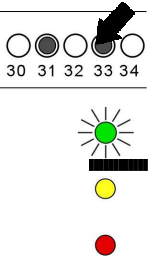
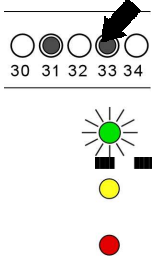
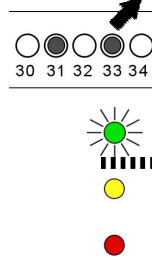
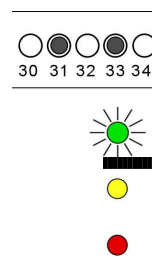
## Factory settings

The device is equipped with a SD card, on which the following settings are stored ex works:

operation mode	0= one-family-home mode
delay time for automatic recording	1 s
number of images for the automatic image series after a door call	1
Video-AS-border for automatic recording <i>Images from front-door stations with a video-AS-border smaller than 31 are recorded.</i>	31
encoding for image buffering	1 (activated)
date format	0 (DD.MM.YYYY)
master code	serial number FVM1000
brightness control	0 dB (fully counterclockwise position)

## Reload factory settings via push-button

**!** Attention! When reloading the factory settings all images are deleted, the master code and all settings that had been made are set back.

			
LED, green lights up	LED, green blinks	LED, green blinks fast	LED, green lights up fast
press the button <i>Reload factory settings and hold it ...</i>		..., until the LED blinks fast, than release it	factory settings are loaded

### Note:

Reloading the factory settings may take a few minutes because of deleting so many images.

During the delete process, the yellow LED is on.

If all images are deleted and the factory settings are reloaded, a positive acknowledgement tone sounds. The yellow LED expires.

## Operation modes

operation mode	description
one-family-home mode	<ul style="list-style-type: none"> <li>All door calls trigger image recording.</li> <li>The images can be watched and deleted from all indoor stations. Thus, the serial number of the indoor station has no meaning.</li> <li>Watching images is realised via the image button and function key, if no voice connection is established.</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>!</b> For reasons of data protection the one-family-home mode is not permitted in a multi-family home!</p> </div>
basic mode	<ul style="list-style-type: none"> <li>Only door calls from such serial numbers, which were previously programmed, trigger the image recording.</li> <li>The images can only be seen and deleted from the specifically allocated indoor station.</li> <li>Watching images is realised via function key and image button, if no voice connection is established.</li> </ul>
comfort mode	<ul style="list-style-type: none"> <li>Only door calls from known serial numbers trigger the image recording.</li> <li>The images can be seen only on the indoor station, which is specifically allocated.</li> <li>The recall is realised via special protocols.</li> </ul> <p>For detailed information on operation see instruction manual or product information of the video indoor station.</p>

## Programming with the infrared remote control

- Initiate the programming via the infrared remote control.  
For authorization, enter the digit sequence <serial number with 6 digits of the FVM1000> (=factory setting).
- Change the master code via infrared remote control

**!** ATTENTION! Anyone, who can control the enclosed infrared remote control, can program the device with the master code ex works. For safety reasons the master code which is set ex works, should be changed when the device is commissioned!







- End the programming

## Important Notes


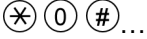
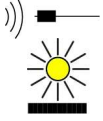

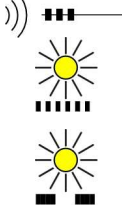
- A correct entry causes a positive acknowledgement tone ())) ■—).
- If the entry of an instruction sequence ( ⊗ 0...9 ⊗ ) is interrupted for 8 seconds, the whole instruction sequence is cancelled, a negative acknowledgement tone ())) ■—) sounds.  
If the instruction sequence does not correspond to the dictated syntax or too many parameter were entered, the whole instruction sequence is also cancelled, a negative acknowledgement tone sounds.
- When operating with the infrared remote control, the end edge should always face the image buffer. The range of the infrared remote control is limited to a maximum of 1 m direct distance.

- Every keystroke with the infrared remote control is confirmed by the image buffer with a short button acknowledgement tone ( ))) ■—— ).


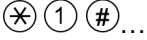
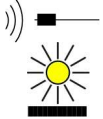


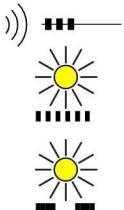
### Initiate the programming

<i>Authorise via infrared remote control</i>		<i>The keystroke is confirmed by the device with a short button acknowledgement tone.</i>	))) ■——
<b>Enter the mastercode</b>	⊗ ①...⑨ #	LED, yellow is OFF. <b>* Master code #</b> (WE = <serial number of the FVM1000 with 6 digits>)	
Device is ready for programming		<ul style="list-style-type: none"> <li>• A positive acknowledgement tone sounds, LED, yellow lights up for 3 s.</li> <li>• LED, yellow blinks then.</li> </ul>	))) ■——  
<i>Incorrect input, unknown master code</i>		<i>A negative acknowledgement tone sounds when pressing the #-key.</i>  <i>The LED, yellow blinks fast for 3 s, then expires again.</i>	))) ■■■——  
<i>No inputs</i>		<i>The code can be entered incorrectly only 3 times, then the code input is blocked for 2 min., an input is impossible: The LED, yellow lights up for 2 min, then expires again. Start from the beginning again.</i>  <i>If no instruction was entered for 2 min, the device ends automatically its programming mode, the yellow LED expires.</i>	

### Set the operation mode








 Initiate the programming		if not already realised	
<b>Enter</b>  Set the operation mode		<p><b>* 0 # operation mode #</b>            operation mode (WE = 0)            = 0 one-family-home mode            = 1 basic mode or            = 2 comfort mode</p> <ul style="list-style-type: none"> <li>• A positive acknowledgement tone sounds, yellow LED lights up for 3 s.</li> <li>• then the yellow LED blinks.</li> </ul>	 
<i>Invalid value</i>		<p><i>A negative acknowledgement tone sounds when pressing the #-button.</i></p> <p><i>The yellow LED blinks fast for 3 s, then blinks again.</i></p>	

### Train serial numbers of indoor stations








 Initiate the programming		if not already realised	
<b>Enter</b>  Serial number trained		<p><b>* 1 # SNo 1 # SNo 2 #</b></p> <ul style="list-style-type: none"> <li>• max. 32 serial number pairs can be trained<sup>1)</sup></li> <li>• always enter SNo 2 = 0, if only SNo 1 should be trained</li> </ul> <ul style="list-style-type: none"> <li>• A positive acknowledgement tone sounds, the yellow LED is ON for 3 s</li> <li>• then the yellow LED blinks</li> </ul>	<p>(SNo = serial number)</p>  
Train further serial numbers  <ul style="list-style-type: none"> <li>• <i>invalid value</i></li> <li>• <i>already 32 serial number pairs are stored</i></li> <li>• <i>SNo 1 is already trained</i></li> </ul>		<p>An index is created on the SD card and the entry is stored.</p> <p>Repeat</p> <p><i>A negative acknowledgement tone sounds when pressing the #-button.</i></p> <p><i>The yellow LED blinks fast for 3 s, then blinks again.</i></p>	

1) For the programming of the image buffer it is irrelevant, if these serial numbers were programmed together to one bell button or if the second video indoor station was allocated to another video indoor station by parallel connection.

## Deleting serial numbers of indoor stations








 Initiate the programming		if not already realised	
<b>Enter</b>  Entry deleted, images in the index deleted	(* 3 #) ...	<b>* 3 # SNo 1 #</b> <ul style="list-style-type: none"> <li>entry with SNo 1 is deleted, max. 32 serial number pairs can be trained</li> <li>enter always SNo 2 = 0, if only SNo 1 should be trained</li> <li>a positive acknowledgement tone sounds, the yellow LED is ON for 3 s</li> <li>then the yellow LED blinks</li> </ul> The entry and the index with the included images are deleted on the SD card.	(SNo = serial number)    
<i>Invalid value (SNo 1 unknown or enter a SNo 2)</i>		<i>A negative acknowledgement tone sounds when pressing the #-button.</i>  <i>The yellow LED blinks fast for 3 s, then blinks again</i>	  

## Set the delay time of the automatic image recording








 Initiate the programming		if not already realised	
<b>Enter</b>  Delay time is set	(* 4 #) ...	<b>* 4 # Value #</b> Value = 1 to 30 s (WE* = 1 s) <ul style="list-style-type: none"> <li>A positive acknowledgement tone sounds, the yellow LED lights up for 3 s.</li> <li>then the yellow LED blinks</li> </ul> The image recording starts x seconds after an incoming door call.	  
<i>Invalid value</i>		<i>A negative acknowledgement tone sounds when pressing the #-button.</i>  <i>The yellow LED blinks fast for 3 s, then blinks again</i>	  

\*WE = factory setting

### Set the number of images in case of automatic image recording








 Initiate programming		if not already realised	
<b>Enter</b>	⊛ 5 ⊛ ...	<b>* 5 # value #</b> value = number 1 to 4 (WE* = 1)	
Set number of images		<ul style="list-style-type: none"> <li>A positive acknowledgement tone sounds, the yellow LED lights up for 3 s.</li> <li>then the yellow LED blinks</li> </ul> After a door call, x images are stored every second.	  
Invalid value		<i>A negative acknowledgement tone sounds when pressing the #-button.</i>  <i>The yellow LED blinks fast for 3 s, then blinks again</i>	  

### Set the video AS border








 Initiate the programming		if not already realised	
<b>Enter</b>	⊛ 6 ⊛ ...	<b>* 6 # value #</b> AS-address = 0 to 63 (WE* = 31)	
Number of images is set		<ul style="list-style-type: none"> <li>A positive acknowledgement tone sounds, the yellow LED lights up for 3 s</li> <li>then the yellow LED blinks</li> </ul> Images from front-door stations with video AS border smaller or similar adjusted value are recorded.	  
Invalid value		<i>A negative acknowledgement tone sounds when pressing the #-button.</i>  <i>The yellow LED blinks fast for 3 s, the blinks again.</i>	  

\*WE = factory setting

## Set the encoding

 Initiate the programming		if not already realised	
<b>Enter</b>  Encoding is set   Invalid value	* (X) (7) (#) ...	<p><b>* 7 # value #</b>            value (WE* = 1)            = 0 images are stored as BMP file            = 1 images are stored encoded</p> <ul style="list-style-type: none"> <li>A positive acknowledgement tone sounds, the yellow LED lights up for 3 s</li> <li>the yellow LED blinks</li> </ul> <p><i>A negative acknowledgement tone sounds when pressing the #-button.</i></p> <p><i>The yellow LED blinks fast for 3 s, then blinks again</i></p>	     

## Delete all images

 Initiate the programming		if not already realised	
<b>Enter</b>  All images deleted   Incorrect entry, unknown master code	* (X) (9) (4) (#) ...	<p><b>* 94 # master code # master code #</b>            master code = number with 6 digits (unique master code or master code ex works)</p> <ul style="list-style-type: none"> <li>A positive acknowledgement tone sounds, the yellow LED lights up for 3 s</li> <li>then the yellow LED blinks</li> </ul> <p>All images are deleted in the index on the SD card</p> <p><i>A negative acknowledgement tone sounds when pressing the #-button.</i></p> <p><i>the yellow LED blinks fast for 3 s, then blinks again</i></p>	     







Note: This process can take a few minutes.

\*WE = factory setting











## Setting the time




Initiate the programming		if not already realised	
<b>Enter</b>  Encoding is set   <i>Invalid value</i>	(* 9 6 #) ...	<p><b>* 96 # hh # mm # ss #</b>            hh = hour, mm = minutes, ss = seconds            (Stunde: 00 bis 23)</p> <ul style="list-style-type: none"> <li>A positive acknowledgement tone sounds, the yellow LED lights up for 3 s</li> <li>then the yellow LED blinks</li> </ul> <p><i>A negative acknowledgement tone sounds when pressing the #-button.</i></p> <p><i>The yellow LED blinks fast for 3 s, then blinks again</i></p>	     

## Reload to factory settings

**!** Attention! When reloading the factory settings all images are deleted, the master code and all settings will be reset.

Initiate the programming		wenn noch nicht erfolgt	
<b>Enter</b>  Factory settings loaded   <i>Incorrect entry, unknown master code</i>	(* 9 9 #) ...	<p><b>* 99 # master code # master code #</b>            master code = number with 6 digits (unique master code or master code ex works)</p> <ul style="list-style-type: none"> <li>A positive acknowledgement tone sounds, the yellow LED lights up for 3 s</li> <li>then the yellow LED blinks</li> </ul> <p><i>A negative acknowledgement tone sounds when pressing the #-button.</i></p> <p><i>The yellow LED blinks fast for 3 s, then blinks again</i></p>	     

## End the programming

Enter	⊗ 9 #	* 9 #	
or		or	
Wait		<ul style="list-style-type: none"> <li>no programming is realised for 2 min</li> <li>A positive acknowledgement tone sounds, the yellow LED lights up for 3 s</li> </ul>	  
Finished		the yellow LED expires	

### **Programming with TCSK01**

Via Service Device TCSK-01 no programming can be realised!

## Settings

### **Setting the image quality**

A reduced image quality because of conduction loss within the system can be improved by setting the amplification of the video signal at the device.

- Turn the brightness control clockwise until the brightness is optimal.

## Operation

### *Operation in one-family-mode and basic mode*

#### View and delete stored images

- **Condition:** There is no voice connection. The video image is not activated.
- **View:** Press the image button at your indoor station. The video image is activated. Press the function key within 5 s. The image stored latest is shown. If there is no image for the corresponding serial number available, the note "No images stored" is shown.
- **Switch forward:** By pressing the function key, you can switch forward to the next image.
- **Delete:** By pressing the image button, the shown image can be deleted. If all available images are deleted, the not "No image stored" is stored.

#### Store images manually

- **Condition:** An image can only be stored manually if the video image is shown or a voice connection is established (voice connection after a door call came in or after pressing the image button and speech button).
- **Store images:** Press the function key. The current image is stored. Thus, the live image is faded out and a corresponding illustration for confirming is shown.

#### End the image activation

When ending the image activation, the screen is switched off and the connection to the image buffer is terminated.

End manually:

- Press the speech button. Thus, a voice connection to the video front-door station is established.

End with actions in the system:

- In case of an incoming door call, the live video image is shown and images are recorded automatically.
- In case of a door call to another video indoor station.
- The image button is pressed at another video indoor station in the system.
- The speech button is pressed at another video indoor station in the system.

End automatically:

- 75 s after pressing the image button at the video indoor station

### ***Operation in comfort mode***

- For using the comfort mode, the software of all video indoor stations in the system must be prepared for the comfort mode.
- For the operation please see the manual or product information of the video indoor station.
- Combining devices without corresponding software extensions with devices with corresponding software extensions is **not** permitted.



All devices within the system have to work in the same mode!  
The combination of devices with different modes is not permitted!

## **Infrared remote control**

### ***Commissioning***

- Pull out foil stripes in the direction of the arrow carefully.

### ***Keep the remote control***

We recommend to fix the infrared remote control after the finished commissioning with the help of the enclosed self-adhesive bracket near the image buffer where it can be accessed only by qualified persons, e.g. at the inside of the door of the control cabinet or distribution box.

### ***Battery exchange***

For the infrared remote control you need 1 button cell battery CR2025 (DC3.0 V).

1. Remove the battery cover at the backside of infrared remote control.
2. Observe the polarity of the batteries and die “+/-” markings in the battery slot.
3. Insert the batteries.
4. Place the cover.

### ***Information on disposal for batteries***

**Used batteries must not be disposed in domestic waste!**

They must be disposed at a collection point for old batteries.

## Spare parts

Short text	Article number
SD card for FBI6110-0400 / FVM1000-0400	E33392
IR remote control	E23253

## Cleaning the remote control

**!** 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 mild household cleaner.

## Conformity

**CE** This device meets the requirements of the EU standard 2004/108/EG by fulfilling the standards: EN 61000-6-3, EN 61000-6-1.  
Declarations of conformity for download under [www.tcsag.de](http://www.tcsag.de), Downloads, trade 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.



Dispose the parts of the packaging in collecting tanks for card-board and paper resp. plastics.

## Warranty

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

- Please note our **conditions of sale and delivery**, available under [www.tcsag.de](http://www.tcsag.de), Downloads, trade information and included on our current product catalogue.
- Wenden Sie sich bitte an die **TCS HOTLINE**.





## Service

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

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