BFT-510 Intercom
Safety instructions

Electrical equipment must only be installed and assembled by a qualified electrician in accordance with the relevant installation standards, guidelines, regulations, directives, safety and accident prevention regulations of the country.

Failure to comply with these instructions may result in damage to the device, fire or other hazards.

These instructions are an integral component of the product, and must be retained by the end user.
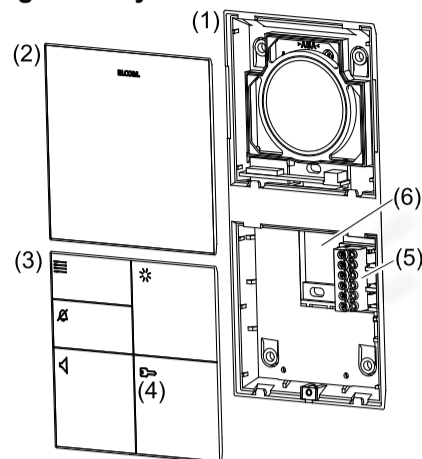
Design and layout of the device

Figure 1: Design and layout of the device

(1) Bottom part
(2) Loudspeaker cover
(3) Button cover
(4) Operation buttons
(5) Connecting terminals
(6) Cable entry / terminal area

Function

The intercom allows communication with door stations or other cameras and unlocking of a door opener.

Correct use

- Visual and acoustic signalling of door, storey and internal calls
- Opening doors
- Not compatible with intercom systems of other manufacturers
- Only suitable for use in indoor areas, no drip or spray water

Product characteristics

- Connection for storey call bell push-button
- Light button, e.g. for stairwell or courtyard light (Elcom automatic light required)
- Ring tone melody and button sound volume as well as microphone sensitivity settable
- 16 ring tone melodies, can be switched off with control LED
- Half duplex operation settable temporarily and permanently
- System of up to 256 intercoms (video and audio) possible
- Internal calls possible
- Call waiting during current call
- Storey call forwarding
- All buttons with LED display
- Cleaning mode
- Parallel switching of max. 3 intercoms

Operation

≣ Menu button
⊘ Button to turn off the ring tone melody
◁ Speak/listen button
☼ Light button
⊏⇒ Door opener button

Establishing a connection/opening the door

A door call is signalled when the assigned bell button on the door station is pressed. This is signalled by the ring tone melody, the ◁ LED flashes and the ⊏⇒ LED lights up.

ℹ The LEDs signal the door call for 90 seconds.

A door call is signalled.

■ Press the ⊏⇒ button to activate the door opener.

The door of the calling door station is unlocked and can be opened. The call is terminated automatically, 10 seconds after the unlocking operation.

or:

■ Press the ◁ button to set up a call to the door station.

The ◁ LED of the radio button lights up. The call connection is established for a maximum of 3 minutes.

■ Pressing the ◁ button again terminates the connection.

ℹ An accepted door call on another intercom terminates the call.

ℹ On the door station, a DIP-switch can be used to set whether the door opener can be also be actuated without a door call.

Switching the ring tone melody on/off

■ Press the ⊘ button to switch on/off.

■ When the ring tone melody is switched off, the LED of the ⊘ button flashes.

Calling up cleaning mode

Clean by wiping the surfaces with a moist, soft, lint-free cloth. In the case of stronger soiling, use a soapy household cleaner diluted with water (e.g. detergent).

■ Press the ≣ button until an acknowledging tone sounds.

The cleaning mode is activated for 60 s and the LEDs of the operation buttons flash.

ℹ Incoming calls terminate cleaning mode.

Switching on the stairwell light

The Elcom automatic light is installed.

■ Press the ☼ button briefly (< 3 s).

The stairwell light is switched on for the set delay time.

or:

■ Press the ☼ button for a long time (> 3 s).

The stairwell light is switched on continuously.

ℹ Pressing the button again in continuous light restarts the delay time.

Audio settings

Audio settings are only possible if the house telephone has already been called.

■ Press the ≣ button for a short time.

The LED of the ≣ button lights up and the LEDs of the ⊘, ◁ and ☼ buttons flash.

■ Set the value.

ℹ Pressing the appropriate button plays back the current setting.

Using the ◁ button, set the ring tone volume to one of 3 levels.
With button ⊘ set one of 16 ring tone melodies for the last calling source.

ℹ The ring tone melody is changed for the call source, which called most recently.

Using the ☼ button, set the button volume to one of 5 levels.

■ Press the ≣ button

The device applies the setting and the LEDs go dark.

ℹ The setting mode is terminated after 60 seconds without any actuation. The LEDs go dark and the settings are saved.

Setting the microphone sensitivity

■ During a call, press the ≣ button for longer than 3 s.
■ Press the ☼ button to increase sensitivity.
■ Press the ⊘ button to decrease sensitivity.

ℹ During the setting operation, the sensitivity is displayed using the button LEDs. All the LEDs are lit at maximum sensitivity.

■ Press the ≣ button to apply the settings.

Information for electricians

Installation

Installing and commissioning the device

■ Select a suitable, flat installation location.

ℹ Installation recommendation: use a flush-mounted wall box

■ Using the supplied drilling template, mark the fixing holes (recommended installation height of 1.5 m).
■ Drill the fixing holes and equip with anchors.
■ Insert the stripped cable into the housing (Figure 1, 6).
■ Fasten the bottom part of the video intercom (Figure 1, 1) to the wall with screws.
■ Connect the stripped wires to the connecting terminals (see Electrical connection).

ℹ The connection cable may only be located in the terminal area (Figure 1, 6).

■ On the button cover, set the group address 0-F of the black rotary encoding switch (Figure 2, 7) according to the setting on the BTE-116 button expander.
■ On the button cover, set the subscriber address of the blue rotary encoding switch (Figure 2, 8) according to the bell push-button connection on the BTE-116 button expander.

ℹ A maximum of 3 intercoms with the identical address setting may be installed (parallel operation).
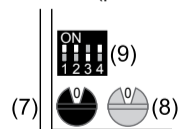

Figure 2: Rotary and DIP-switch setting

■ Set the DIP-switch for operating modes (Figure 2, 9) according to Table 1 below.

Switches		Function (▭ = Factory setting)
1	OFF	Full duplex speech mode
	ON	Half duplex speech mode
2	OFF	Storey call forwarding blocked
	ON	Storey call forwarding to max. 2 intercoms with the same address.
3	OFF	Internal call deactivated
	ON	☼ Button for internal call to address F/F; ⊏⇒ Button for internal call to address F/E (before that, press the ◁ button)
4	OFF	Normal operation (no parallel call to subscriber address 0)
	ON	Parallel call to max. 2 intercoms to subscriber address 0 with an identical group address

Table 1: DIP-switch settings

ℹ In full duplex speech mode, the change-over between listening and speaking takes place automatically according to the volume. The changeover behaviour can be optimised by adjusting the microphone sensitivity. This allows the influence of external background noise to be reduced. Pressing the ◁ button for longer than 2 seconds can switch to half duplex speech mode temporarily in the current call.

ℹ In half duplex speech mode, the change-over between listening and speaking is made using the ◁ button. Press the ◁ button to speak and release it to listen. Brief actuation of the ◁ button terminates the call.

ℹ Internal call F/F and F/E works only in its own line and is not transmitted to other lines via coupler.

■ Hook the bottoms of the button cover and display clover (Figure 3) into the the bottom part and push them up until the locking hooks engage.

■ Remove the protective film of the covers.

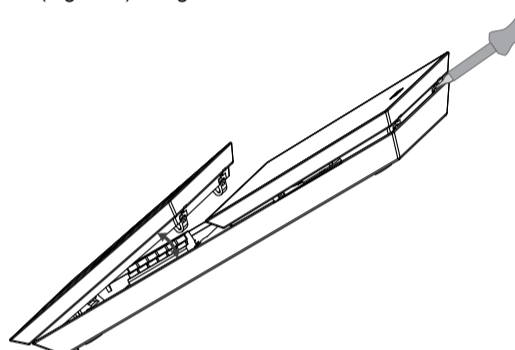ℹ To dismantle the covers, unlock the locking hooks (Figure 3) using a screwdriver.

Figure 3: Assembly / Dismantling

Electrical connection

⚠ **DANGER!**

Touching live parts can result in an electric shock.

An electric shock can be lethal.

Before working on the device or load, disconnect all associated circuit breakers. Cover all live parts in the area!

When working on systems with a 230 V AC power connection, comply with the safety requirements of DIN VDE 0100.

When installing i2-BUS systems, comply with the general safety regulations for telecommunications systems according to VDE 0800:

- Separate routing of power and i2-BUS cables with a minimum spacing of 10 cm.
- Partitions between power and i2-BUS cables in shared cable ducts.
- Use of standard telecommunications' cables, e. g. J-Y (St) Y with 0.8 mm diameter (Table 3).

ℹ **Avoid interference!**

The 13-MHz video carrier frequency used for two-wire video door communication systems can cause reciprocal interference with other devices, such as radios, routers and WLAN devices.

■ Only use shielded cables corresponding to the qualities recommended in this manual.
■ It is essential to comply with the applicable regulations during planning and installation.
■ Route cables, wire the devices, and in particular implement shielding and earthing measures as described below.

ℹ We recommend routing the cables in the same way as for video intercom systems (see system manual). This allows refitting to video intercoms at any time.

BFT-510 Intercom
Art. no.: 171.510.x

6LE003516A

Operating and assembly instructions

2D VIDEO
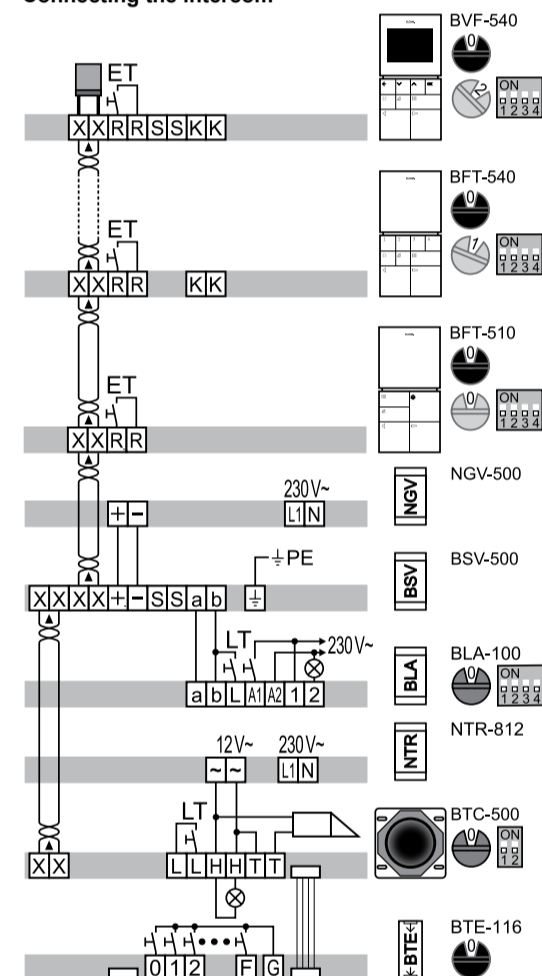
(GB)

Connecting the intercom

Figure 4: Series wiring

Here, two audio intercoms and one video intercom are shown with a single-line pass-through structure, as an example.

Connections:

X X 2-wire video bus cable
R R Storey push-button ET
L LT Push-button for automatic light
T T Door opener relay contact (potential-free, max. 24 V, 1 A)

Devices/elements

⊏▭ Electric door opener
BSV-500 Line power supply
NGV-500 Power supply
BLA-100 Elcom automatic light, optional
NTR-812 Power transformer 12 V~
BTC-500 Camera/door loudspeaker
BTE-116 Button expander

The intercom is fastened, the cables are stripped and inserted.

■ Connect the intercom according to the connection diagram (Figure 4).
■ Connect the video terminator to the last intercom in the 2-wire video line/branch.

or:

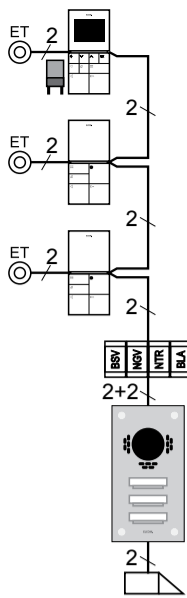■ Do not connect a video terminator to a pass-through device in the line/branch.

Figure 5: Pass-through structure

ℹ️ In a pass-through structure, the bus cable X/X is looped from one intercom to another intercom (Figure 4 and 5).
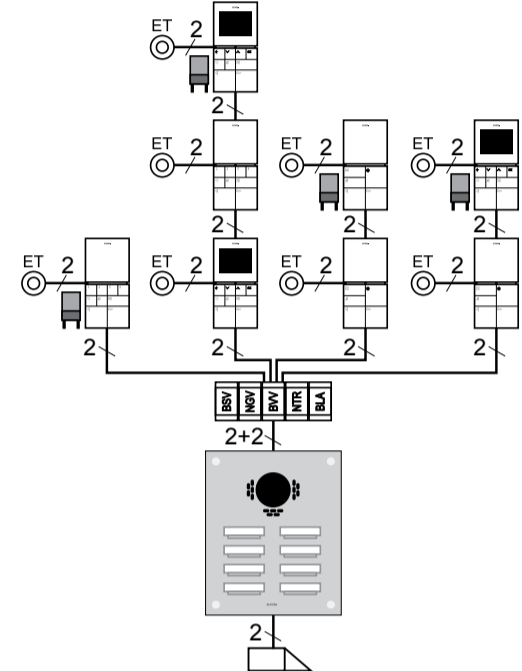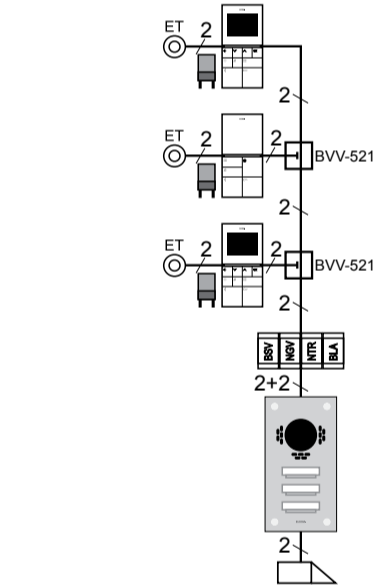

Figure 6: Star or tree structure

Figure 7: Stub structure with video distributors

ℹ️ Video distributors must be used in star, tree (Figure 6) or stub structures (Figure 7).
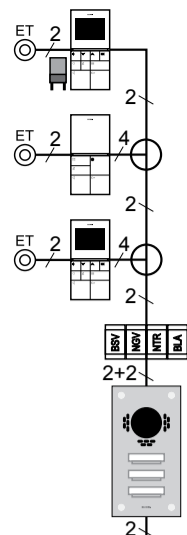

Figure 8: Stub structure without video distributor

ℹ️ In a stub structure without a video distributor (to and from wire in a cable), wrapped cables (e.g. J-Y(ST)Y or CAT) must be used in pairs (Figure 8).

The number of video and audio intercoms of a system is dependent on the number of door stations. Additional connected i2-BUS components (e.g. BLA-100 automatic light) are evaluated like 2 intercoms.

2-wire video - Maximum expansion

Door stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Intercoms	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2

The number of intercoms in a branch is limited to 16. If there are video intercoms in the branch, then the number is reduced to a maximum of 8 intercoms. Additional branches can be created with video distributors, up to the maximum expansion. Figure 9 shows the video distributors available as built-in and RMD variants. The video distributors can be used to distribute or couple in (door stations) the video bus cable. Terminate unused connections (X/X) of the video distributors by attaching the terminator.
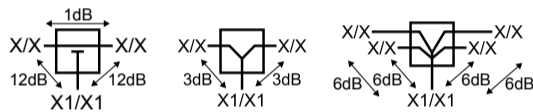

Figure 9: Distributor overview

Video distributors are cascaded for more than 4 inputs or outputs. The outputs of the first video distributors are connected to the inputs of the other video distributors (Figure 10). The attenuations of the video distributors are added together. Table 2 shows the number of video distributors, their attenuation and their space requirements in a distributor.
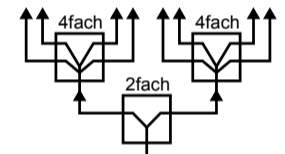

Figure 10: Distributor cascading

Lines	Required video distributors 2-gang	Required video distributors 4-gang	Attenuation	Hat rail
2	1	-	3 dB	1 modules
3-4	-	1	6 dB	2 modules
5	1	1	9 dB	3 modules
6	2	1	9 dB	4 modules
7	-	2	12 dB	4 modules
8	1	2	9 dB	5 modules
9-10	-	3	12 dB	6 modules
11	1	3	12 dB	7 modules
12-13	-	4	12 dB	8 modules
14	1	4	12 dB	9 modules
15-16	-	5	12 dB	10 modules

Table 2: Distributor cascading

Attenuation calculation

The attenuation per branch may not exceed 40 dB. The cable attenuation is 2 dB per 10 m. The following example shows the necessary attenuation calculation.
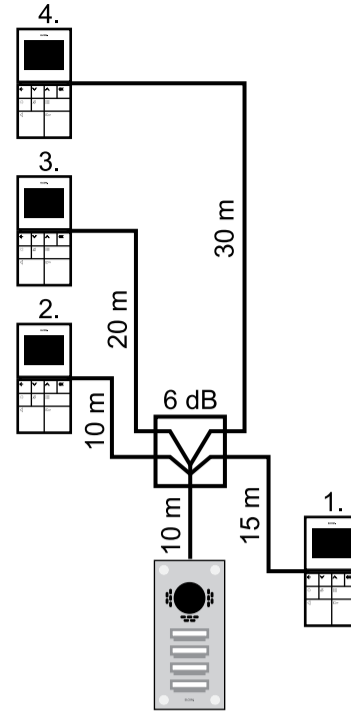

Figure 11: Apartment examples

Apartment 1.
Cable attenuation: 10 m + 15 m = 25 m
25 m x (2 dB / 10 m) = 5 dB

Distributor attenuation: 6 dB

Apartment attenuation 1.: 5 dB + 6 dB = 11 dB
Apartment attenuation 2.: 4 dB + 6 dB = 10 dB
Apartment attenuation 3.: 6 dB + 6 dB = 12 dB
Apartment attenuation 4.: 8 dB + 6 dB = 14 dB

ℹ️ The length of all the connected bus cables may not exceed 1000 m.

ℹ️ Single-sided earthing of the cable shield in the distributor increases interference resistance.

ℹ️ A large number of clamping points/conductors, which may also be soiled, increase the transition resistance, leading to faults.

ℹ️ For information on wiring with multiple door stations or larger multi-line systems, refer to the system manual or, on the Internet, to www.elcom.de.

If interference occurs in telecommunications systems, radio services or other systems during the operation of existing video door communication systems, measures for shielding and earthing the cables and for filtering must be implemented.

- For this purpose, connect all of the drain wires of the cables in a star shape using a terminal.
- Connect all drain wires to the PE rail in the distribution box.

Appendix

Technical data

BFT-510 (i2-BUS 2-wire video)

Supply voltage X/X	19-25 V
Standby current consumption	approx. 10 mA
Connectable terminator	Z=100 Ω
Degree of protection	IP 30
Relative humidity	0-65% (no condensation)
Operating temperature	+5°C … +40°C
Storage/transport temperature	-20°C … +60°C
Connecting terminals for conductor diameter	0.5 ... 0.8 mm
Dimensions W x H x D	96 x 196 x 21 mm

Accessories (extract)

Refer to the catalogue and system manual for more accessories.

BSV-500 Line power supply	170.415.0
NGV-500 Video power supply	231.415.0
BTC-500 Built-in camera/door loudspeaker	181.650.0
BTE-116 Button expander	170.311.6
NTR-812 Power transformer 12 V~	120.100.4
BLA-100 Automatic light	190.110.0
RSR-210 Call switching relay	190.181.0
TKU-210/240 Universal desk console	230.130.0

Cleaning information

Clean by wiping the surfaces with a moist, soft, lint-free cloth. In the case of stronger soiling, use a soapy household cleaner diluted with water (e.g. detergent).

Troubleshooting

In the case of service issues, please contact your systems' engineer.

If you are a certified systems' engineer, please contact the Hager Hotline.

Warranty

We reserve the right to realise technical and formal changes to the product in the interest of technical progress.

Our products are under guarantee within the scope of the statutory provisions.

Cable between		Cable length [m]		
		J-Y(ST)Y 0.6 mm	J-Y(ST)Y 0.8 mm	CAT 0.5 mm
Maximum attenuation		40 dB	40 dB	40 dB
Bus line power supply **and** intercom, video intercom or door station		75/150 [1]	150/150 [1]	50/100 [1]/150 [2]
Door opener/lighting **and** transformer NTR-812	1 A	30/60 [3]	50/100 [3]	20/40 [3]
	0.5 A	60/120 [3]	100/200 [3]	40/80 [3]
Storey push-button ET **and** intercom		50		
Light push-button LT **and** camera/door loudspeaker / door electronics		50		
Button expander **and** bell push-button		1.5		

Table 3: Cable lengths

[1] Cable length for video intercoms with connection of the additional infeed.

[2] With wire doubling of additional infeed

[3] With wire doubling