

(GB)

Design and layout of the device

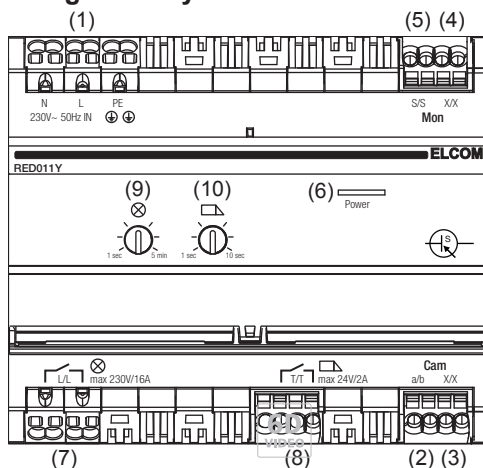


Figure 1: Design and layout of the device

- (1) Phase, neutral conductor and PE connection for floating output **L, N, PE**
- (2) **a/b** connection for i2 audio devices
- (3) **X/X Cam** connection for 2-wire door stations
- (4) **X/X Mon** connection for indoor stations, indoor stations video and floor door stations
- (5) **S/S Mon** connection for additional power supply
- (6) Operating/overload LED **Power**

Only relay version

- (7) Contact for lighting \otimes **LL** (only relay version)
- (8) \square **TT** Contact for door release (only relay version)
- (9) Potentiometer for lighting switch-on time (only relay version)
- (10) Potentiometer for door release unlocking time (only relay version)

Function

Device for centrally supplying the 2-wire, i2 Audio and 6D Video bus subscribers.

Correct use

- Supply of the bus components with polarisation-safe SELV bus low voltage
- Mounting on DIN rail according to DIN EN 60715
- Not compatible with door communication systems of other manufacturers

Product characteristics of line power supply

- Electronic overload and short-circuit protection
- Electronic overheating protection
- All connections with plug-in terminals.

Additional product characteristics for the relay version

- Contact for door release with adjustable unlocking time and for manipulation protected door release
- Contact for lighting with adjustable switch-on time

Operating/overload LED Power (Figure 1, 6)

The LED **Power** on the front indicates the current operating state.

OFF	The device is not ready for operation. There is no operating voltage present.
GREEN	The device is ready for operation.
RED	The device is overloaded or has short circuited.

If an overload or short-circuit is detected, the bus voltage is switched off. The device attempts to switch on again every 10 seconds. After troubleshooting, the LED remains illuminated in red for up to 10 seconds.

- When switching on the line power supply (start phase) the LED is illuminated in red for 8 seconds.

Information for electricians

Installation and electrical connection



DANGER!

Touching live parts in the installation environment 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 door communication systems, comply with the general safety regulations for telecommunications systems according to VDE 0800:

- Separate routing of power and door communication cables according to VDE 0800.
- Partitions between power and door communication cables in shared cable ducts.
- Use of standard telecommunications' cables, e.g. J-Y (St) Y with 0.8 mm diameter.

Bus cables

- J-Y(ST)Y or A-2Y(L)2Y
Use wrapped wire pair.
Recommendation: white/yellow
- CAT
Use wrapped wire pair.
Recommendation: orange/white
- YR
Use adjacent wires.

- Even for a system with audio indoor stations, we recommend routing the cables and the number of devices in the same way as for a system with video indoor stations. This makes a video refitting possible.

Installing the appliance

- Clip device onto DIN rail in accordance with DIN EN 60715. The operating voltage connection (Figure 1, 1) must be at top.
- The device will heat up during operation. Observe maximum operating temperature. Ensure that adequate heat dissipation is provided.

Connect power supply

The lead is protected by a 16 A circuit breaker.

- Connect equipotential bonding conductor to connection **PE** (Figure 1, 1).
- Connect the phase protected by a 16 A circuit breaker to connection **L** and the neutral conductor to connection **N** (Figure 1, 1).

Only relay version:

Connect door release protected against manipulation

- For manipulation protection, connect the door release to the contact \square (Figure 1, 8).

or:

- In the case of multiple door stations, the door release must be controlled 2pole (manipulation protection). Connect one pole to the door release contact of the door stations and the second pole to the door release contact \square (Figure 1, 8) of the line power supply.
2-wire (Figure 2 and 9)
i2 Audio (Figure 14 and 17)
6D Video (Figure 18 and 24)

Safety instructions

Electrical equipment may 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.

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

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.

Connecting door stations

- Connect main video or audio door stations to the terminals **X/X Cam** (Figure 1, 3). 0 ... 9 is adjustable as main door address.

Connecting indoor stations, video indoor stations as well as floor and apartment door stations

- Connect 2-wire line to the terminals **X/X Mon** (Figure 1, 4), e.g. audio indoor stations and video indoor stations as well as floor door stations.
- Connect necessary additional power supplies (Table 3) from video indoor stations to the terminals **S/S** (Figure 1, 5).

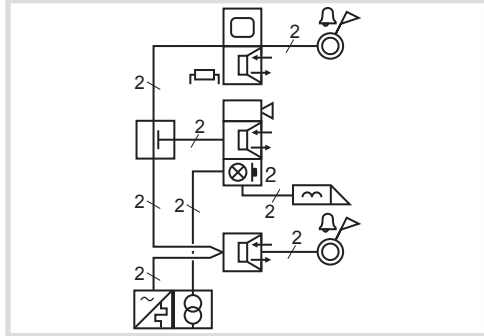


Figure 7: 2-wire – Installation of floor door station

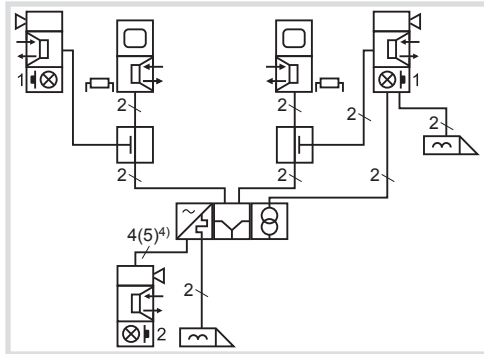


Figure 8: 2-wire – Installation of apartment door stations

- Floor push-buttons must be illuminated separately.
- Floor door stations must not be installed at the end of a line.
- Floor door stations and apartment door stations can only call indoor stations in their own line (branch) (Figure 7 and 8). A ... F is adjustable as address for floor door stations or apartment door stations.

Connect optional devices

- Connect required i2 audio devices, e.g. switching relay and TK interface, to the i2 audio line **a/b** (Figure 1, 2).
- Alternatively, it is possible to connect audio components on the 2-wire bus **X/X** via an audio output coupler, e.g. TK interface per apartment.

Only relay version:

Door release protected against manipulation

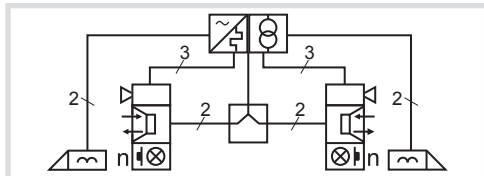


Figure 9: 2-wire – Door release with manipulation protection

Planning a system

The number of audio and video indoor stations of a system is dependent on the number of door stations. Additionally connected i2-BUS components (e.g. switching relay, TK interface etc.) are evaluated as 2 audio indoor stations.

The number of audio indoor stations is limited to 16 per branch. If there are video indoor stations in the branch, then the number is reduced to a maximum of 8 indoor stations. With video distributors additional branches can be distributed up to maximum expansion on the line.

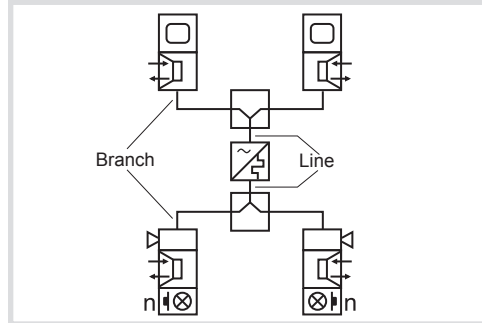


Figure 10: 2-wire – Lines and branches

Number of subscribers on n door stations							
Door stations	1	2	3	4	n	14	15
Indoor stations	32	30	28	26	34-(n x 2)	6	4

Factors that need to be considered in systems with video distributors

Video distributors and branches are available as flush-mounted and RMD versions. They can be used for branching, distributing or coupling (door stations) the video bus cable.

- Terminate unused connections (X/X) by attaching a terminator.



Figure 11: 2-wire – Distributor and branch 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 additional video distributors (Figure 12). 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.

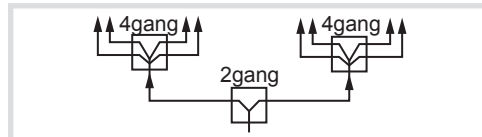


Figure 12: 2-wire – Distributor cascading example

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

Table 2: 2-wire – Distributor cascading

Calculating attenuations

The attenuation on a system with 4 video indoor stations will be calculated here by way of example. The attenuation per branch must not exceed 40 dB (20 dB for YR). The cable attenuation is 2 dB per 10 m.

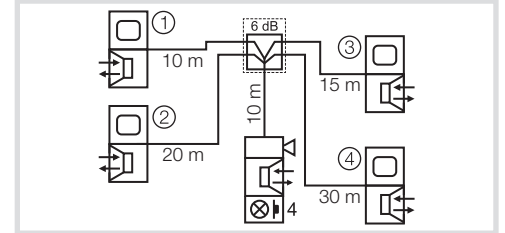


Figure 13: 2-wire – Apartment examples

Apartment ①, attenuation: 6 dB
 Cable attenuation: 10 m + 10 m = 20 m
 $20 \text{ m} \times (2 \text{ dB} / 10 \text{ m}) = 4 \text{ dB}$
 Apartment attenuation ①: 4 dB + 6 dB = 10 dB
 Apartment attenuation ②: 6 dB + 6 dB = 12 dB
 Apartment attenuation ③: 5 dB + 6 dB = 11 dB
 Apartment attenuation ④: 8 dB + 6 dB = 14 dB

Measurement of loop resistance

The loop resistance per line/branch must not be exceeded (Table 3). Installed branch, distributor and clamping points must be measured respectively.

- Disconnect entire intercom system.
- Short-circuit the 2-wire video bus cable to be measured on the line power supply or on the last terminal and measure the resistance on the other end of the line.
- When measuring the door release cable, the door release contacts **TT** must also be bridged.

Cable length, attenuation and loop resistance

Cable type/ diameter	Max. cable length [m]	Max. loop re- sistance [Ω]
Cable from line power supply to audio and video indoor stations		
J-Y(ST)Y 0,6 mm	75 m / 150 m ⁵⁾	8)
J-Y(ST)Y 0,8 mm	150 m / 150 m ⁵⁾	8)
CAT 0,5 mm	50 m / 100 m ⁵⁾ / 150 m ⁶⁾	8)
YR 0,8 mm	75 m / 75 m ⁵⁾	8)
Cable from line power supply to video door station		
J-Y(ST)Y 0,6 mm	75 m	8)
J-Y(ST)Y 0,8 mm	100 m	8)
CAT 0,5 mm	50 m	8)
YR 0,8 mm	75 m	8)
Cable from door release/lighting to the transformer ST320 with door release current consumption 1 A (0.5 A)		
J-Y(ST)Y 0,6 mm	30 m; 60 m ⁷⁾ (60 m; 120 m ⁷⁾)	3.5 Ω (7 Ω)
J-Y(ST)Y 0,8 mm	50 m; 100 m ⁷⁾ (100 m; 200 m ⁷⁾)	3.5 Ω (7 Ω)
CAT 0,5 mm	20 m; 40 m ⁷⁾ (40 m; 80 m ⁷⁾)	3.5 Ω (7 Ω)
YR 0,8 mm	50 m; 100 m ⁷⁾ (100 m; 200 m ⁷⁾)	3.5 Ω (7 Ω)

⁵⁾ Cable length for indoor video indoor stations with additional power supply

⁶⁾ With wire doubling on additional infeed

⁷⁾ With wire doubling

⁸⁾ The cable length for each branch from the door station to the last internal station must not exceed 200 m. The attenuation of 40 dB (20 dB for YR cable) and loop resistance of 15 Ω must not be exceeded here for each branch (including distributors).

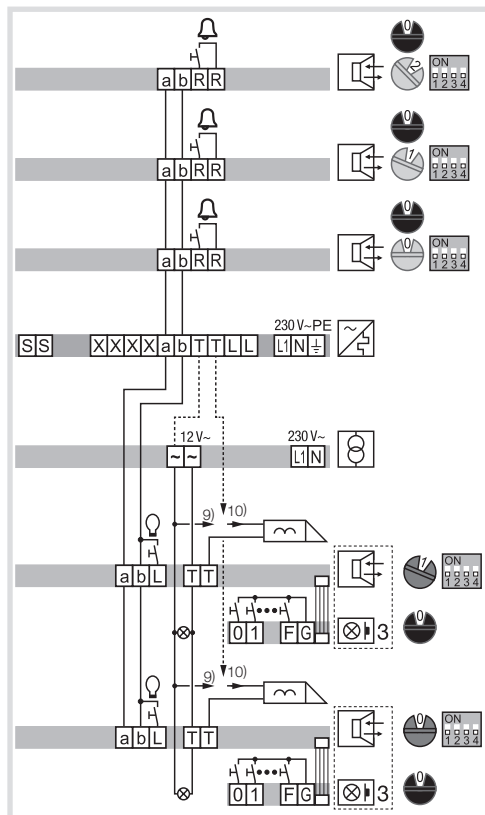
Table 3: 2-wire – Line data

- ❗ Wire doubling of the 2-wire bus cable is not permitted.
- ❗ All connected bus cables and, if available, the longest bus coupler line must not exceed the cable length of 1000 m.
- ❗ For parallel switched indoor stations or additional secondary signal units, the cable length for 2 devices must be reduced to 50 % and for 3 devices to 33 % due to the current consumption.
- ❗ Single-sided earthing of the cable shield in the distributor increases interference resistance.
- ❗ A large number of clamping points/conductors, which may also be soiled, increase the transition resistance, leading to faults.
- ❗ For information on wiring multiple door stations or larger multi-line systems, refer to the system manual or, on the Internet, to www.elcom.de.



Connection and installation

The wiring diagram below shows a 3-tenant house by way of example. Indoor stations, door stations and accessory products can be extended or reduced for other properties in the same way.



9) Standard door release wiring

10) Manipulation protected door release wiring

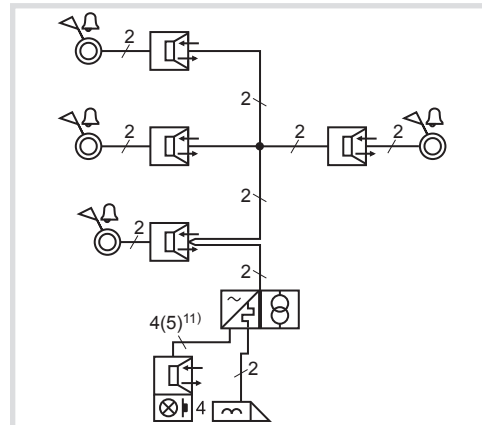
Figure 14: i2 Audio – 3 indoor stations and 2 door stations

- ❗ With the Universal line power supply RMD no relay contacts are necessary.
- ❗ Alternatively, line power supply can also be installed at the line end after the last indoor station.

Types of installation

A 2D audio system can be installed in various ways as a through, star, tree or stub installation. The installation types can be mixed differently than with the other systems (Figure 15).

A star installation or in-series installation with a maximum of 8 subscribers is recommended, as in the case of the 2D video (Figure 3), which makes a subsequent video refitting possible.



11) 5 wires are needed for the manipulation protected door release installation in multiple door stations (Figure 14 or 17).

Figure 15: i2 Audio – Installation

Connecting audio door stations

- Connect the i2 audio line of the main door station to the terminals **a/b** (Figure 1, 2). 0 ... 9 is adjustable as main door address.

Connecting indoor stations as well as floor door stations

- Connect i2 audio line (e.g. with indoor stations and floor door stations) to the terminals **a/b** (Figure 1, 2).

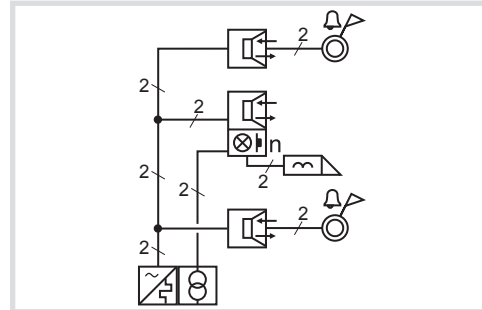


Figure 16: i2 Audio – Connection of a floor door station

- ❗ Floor push-buttons must be illuminated separately.
- ❗ Floor door stations can be installed at any place in the line.
- ❗ Floor door stations can only call indoor stations in their own line (figure 16). A ... F is adjustable as floor door address.

Only relay version:

Connect door release protected against manipulation

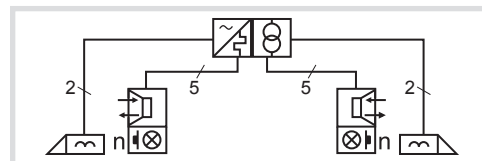


Figure 17: i2 Audio – Door release with manipulation protection

Planning a system

The number of audio indoor stations of a system depends on the number of door stations. Additionally connected i2 audio components (e.g. switching relay, TK interface etc.) are evaluated as 2 indoor stations.

Number of subscribers on n door stations						
Door stations	1	2	3	4	n	15 16
Indoor stations	32	30	28	26	34-(n x 2)	4 2

Cable lengths

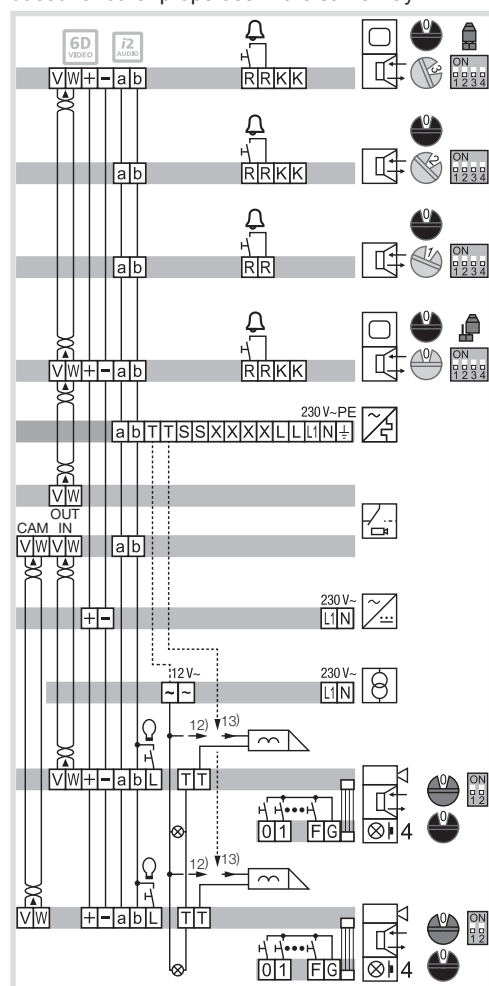
Cable between	Length [m] for copper wire Ø [mm]			Number of indoor stations
	J-Y(STY) 0.6/2x0.6	J-Y(STY) 0.8/2x0.8	CAT 0.5/2x0.5	
Per branch/single line of the line power supply and indoor station (a/b)	200/400	350/700	125/250	32
All branches of the line power supply and, if available, the longest bus coupler line and connected subscribers in star, tree and series structure (a/b), in total	1000			32/line
Door release lighting and transformer RED021Y	1 A	30/60	50/100	20/40
and 0.5 A	60/120	100/200	40/80	-
Floor push-button ET and indoor station	50			1
Light push-button LP and camera/door loudspeaker / door electronics	50			-
Button expander and bell push-button	1.5			-

Table 5: i2 audio – line data

- ❗ For parallel switched indoor stations or additional secondary signal units, the cable length for 2 devices must be reduced to 50 % and for 3 device to 33 % due to the current consumption.
- ❗ Single-sided earthing of the cable shield in the distributor increases interference resistance.
- ❗ A large number of clamping points/conductors, which may also be soiled, increase the transition resistance, leading to faults.
- ❗ For information on wiring multiple door stations or larger multi-line systems, refer to the system manual or, on the Internet, to www.elcom.de.

Connection and installation

The wiring diagram below shows a 4-tenant house by way of example. Indoor stations, door stations and accessory products can be extended or reduced for other properties in the same way.



¹²⁾ Standard door release wiring

¹³⁾ Manipulation protected door release wiring

Figure 18: 6D Video – 2 audio indoor stations, 2 video indoor stations and two video door stations

With the Universal line power supply RMD no relay contacts are necessary.

Types of installation

A 6D video system can be installed in various ways (Figure 19 ... 22).

Through installation

In the case of a through installation, the 6D video bus cable is wired through from one indoor station to the next indoor station each with its own cable.

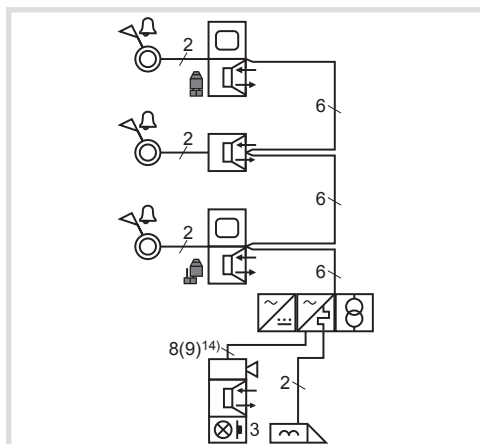


Figure 19: 6D Video – Through installation

Star installation

In a star installation, video distributors have to be used. After the first indoor stations, additional stations can be through-wired.

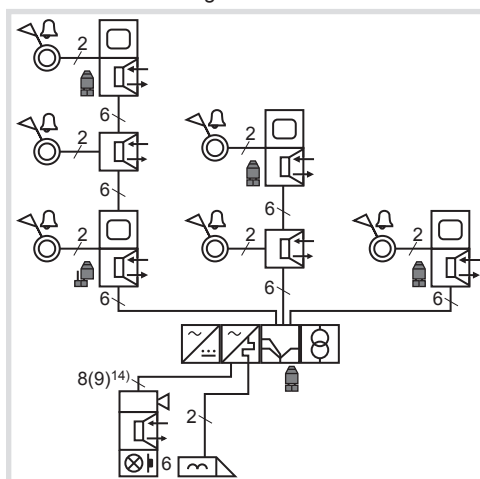


Figure 20: 6D Video – Star installation

Stub installation with distributors (branches)

In stub installations installed with video distributors as branches, no return line is needed.

Unused branches must not be terminated with a terminating resistor.

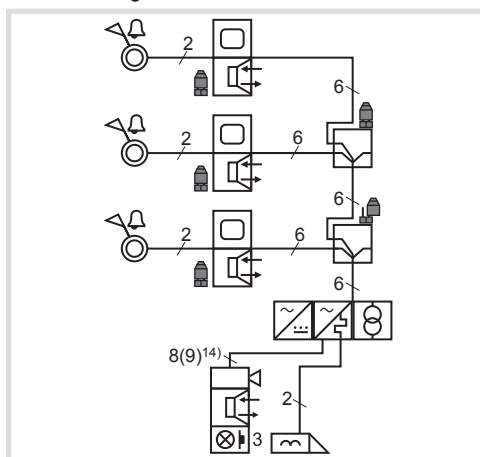
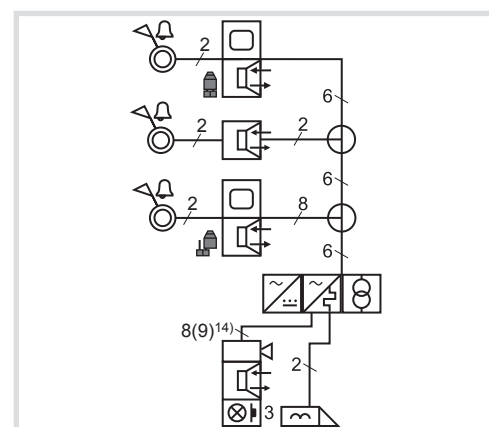


Figure 21: 6D Video – Stub installation with distributor 3gang as branch

Stub installation without distributor

In a stub installation without a video distributor (to and from wires in a cable), wrapped cables (e.g. J-Y(ST)Y or CAT) must be used in pairs for the video lines V/W.



¹⁴⁾ 9 wires are needed for the manipulation protected door release installation (Figure 18 or 24).

Figure 22: 6D Video – Stub installation without distributor

Additional video door stations or cameras should only be used with a video slide switch (Figure 25).

Connecting door stations

Connect the i2 audio line to the terminals a/b of the line power supply. Connect additional connections in accordance with the device instructions.

0 ... 9 is adjustable as the main door address.

Connecting indoor stations and video indoor stations as well as floor door stations

Connect the i2 audio line (e.g. with audio indoor stations and video indoor stations as well as floor door stations) to the terminals a/b (Figure 1, 2 or Figure 18). Connect additional connections in accordance with the device instructions.

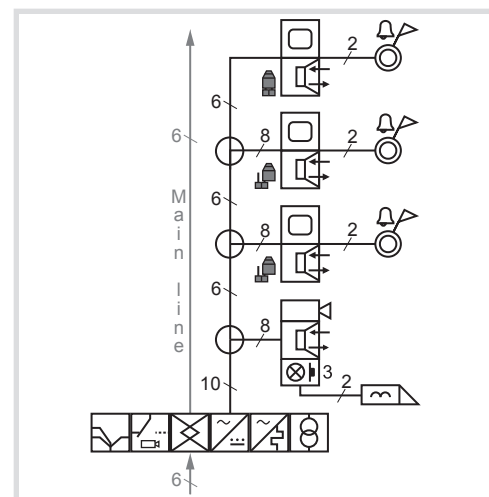


Figure 23: 6D Video connection of a floor door station

Floor push-buttons must be illuminated separately.

An audio floor door station can be installed at any place in the line. In video floor door stations the video signal must be guided via a video slide switch.

Floor door stations can only call indoor stations in their own line (Figure 23). A ... F is adjustable as floor address.

Connect optional devices

- Connect required i2 audio devices, e.g. switching relay and TK interface, to the i2 audio line a/b (figure 1, 2) (see device instructions).

Only relay version:

Door release protected against manipulation

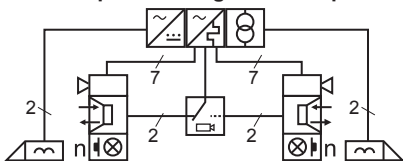


Figure 24: 6D Video – Door release with manipulation protection

Planning a system

The number of audio and video indoor stations in the line/branch depends on the number of door stations. Additional i2-bus components connected to a/b (e.g. switching relay) are evaluated as 2 indoor stations.

The number of audio indoor stations is limited to 16 per branch. If there are video indoor stations in the branch, then the number is reduced to a maximum of 8 indoor stations. With video distributors additional branches can be distributed up to maximum expansion on the line.

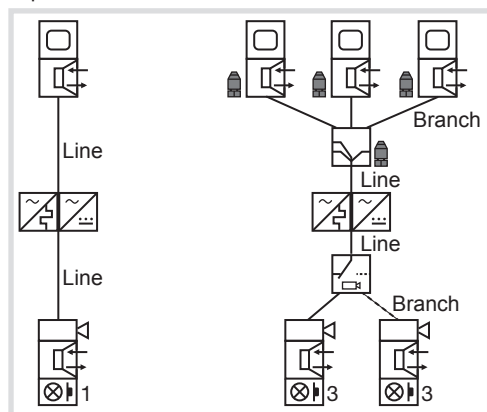


Figure 25: 6D Video – Lines and branches

Number of indoor stations or video indoor stations in n floor door stations									
Door stations									
Video door stations with video slide switch	1	2	3	4	5	6	7	8	9
Video indoor stations	32	28	24	20	16	12	8	4	2
or									
Indoor stations	32	30	28	26	24	22	20	18	16

Video distributors as flush-mounted or RMD device are used for distributing the video line. Signal losses on these active distributors are compensated for by the voltage supply via the video power supply unit. An attenuation calculation is not necessary for active distributors.

Video distributors are wired-through on the input terminals for more than 6 outputs. The incoming and outgoing cable is connected to the input terminal (Figure 26). On wired-through video distributors the jumpers must be opened and on the last video distributor the jumper must be closed.

- Additional connections or star connections on the input terminals are not allowed.
- Unused branches must not be terminated with a terminating resistor.

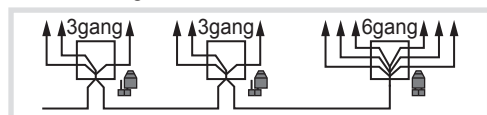


Figure 26: 6D Video – Distributor cascading

Cable lengths

Cable between	Length [m] for copper wire Ø [mm]			Number of indoor stations
	J-Y (STY) 0.6/2x0.6	J-Y (STY) 0.8/2x0.8	CAT 0.5/2x0.5	
Per branch/single line of the line power supply and audio indoor station / video indoor station (a/b)	200/400	350/700	125/250	Indoor stations: Audio 16 Video 8 per branch
All branches of the line power supply and, if available, the longest bus coupler line and connected subscribers in star, tree and series structure installation (a/b), in total	1000			32/line
Camera / video distributor and video indoor station (V/W)	200 ⁽¹⁵⁾ /16	300 ⁽¹⁵⁾ /16	200 ⁽¹⁶⁾	8/branch
Video power supply and video indoor station / video distributor (+/-)	40/80 ⁽¹⁷⁾	70/140 ⁽¹⁷⁾	25/50 ⁽¹⁷⁾	8/branch 32/line
Door release lighting and and transformer RED021Y	1 A 30/60	50/100	20/40	-
and 0.5 A 60/120	100/200	40/80	-	-
Floor push-button ET indoor station	50			1
Light push-button LP and camera/door loudspeaker / door electronics	50			-
Button expander and bell push-button	1.5			-

¹⁵⁾ On unwrapped, properly-routed cables, e.g. YR, the cable lengths are reduced considerably (approx. to 15%).

¹⁶⁾ Wire-doubling of the video line is not permitted and causes image faults

¹⁷⁾ Additional video power supply units can be installed for long cable lengths. When doing so, the negative (-) pole of all video power supply units must be connected.

Table 6: 6D Video – Line data

- For parallel switched indoor stations or additional secondary signal units, the cable length for 2 devices must be reduced to 50 % and for 3 devices to 33 % due to the current consumption.
- Single-sided earthing of the cable shield in the distributor increases interference resistance.
- A large number of clamping points/conductors, which may also be soiled, increase the transition resistance, leading to faults.
- For information on wiring multiple door stations or larger multi-line systems, refer to the system manual or, on the Internet, to www.elcom.de.

Technical data

Operating voltage	230 V~
Frequency	50/60 Hz
Standby current consumption	< 0.3 W
Output voltage SELV	24 V=
Total output current X/X, a/b, S/S	max. 1.25 A
Power dissipation P _v	4,1 W
Protection class	I
Degree of protection	IP 20
Relative humidity	0 ... 65 % (no condensation)
Operating temperature	-5 ... +45 °C
Storage/transport temperature	-20...+60 °C
Door communication connecting terminals for conductor diameter	0.5 ... 0.8 mm
Power connecting terminals	1.5 ... 2.5 mm ²
Width (RMD)	6 TE
Dimensions W x H x D	106 x 90 x 67 mm

Universal line power supply with relay RMD

Door release contact	max. 24 V/2 A
NO contact potential-free	max. 24 V/2 A
Door release unlocking time	1 ... 10 s
Contact for lighting	max. 230 V~/16 A
NO contact potential-free	max. 230 V~/16 A
Contact minimum load	approx. 15 W
Switching capacity of contact for lighting	
- incandescent lamps	2300 W
- HV halogen lamps	2300 W
- electronic transformers and Bi-mode transformers	1500 VA
- Conventional transformers	1500 VA
- Retrofit LED lamps	440 W
- dimmable energy saving lamps	440 W
- compact fluorescent lamps with EVG	22 x 20 W
- fluorescent lamps with EVG	1000 W
- fluorescent lamps uncompensated	1100 W
- Fluorescent lamps parallel compensated	1000 VA / 130 µF
- Fluorescent lamps lead-lag circuit	1000 W
- Mixed loads until the smallest maximum load possible	
Light switch-on time	1 s ... 5 min
■ Conventional and electronic transformers must be loaded in accordance with the manufacturer's specifications.	
■ The performance data includes power dissipation of 20 % for conventional transformers and 10 % for electronic transformers.	

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.

In the event of a service, please contact your system contractor.