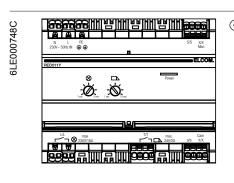
# ELCOM.





# RED011Y

# Bus line power supply with relay RMD

Operating and assembly instructions

# 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 the country.

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

These instructions are an integral component of the product and must be retained by the end

## Design and layout of the device

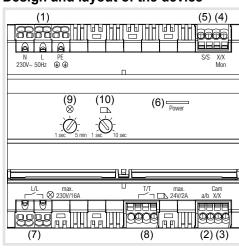


Figure 1: Design and layout of the device

# (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 outdoor stations (4) X/X Mon connection for indoor stations, video
- indoor stations and floor stations
- (5) S/S connection for additional infeed (6) Operating/overload LED Power
- (7) Contact for lighting ⊗ LL
- (8) **TT** Contact for door release (9) Potentiometer for lighting switch-on time
- (10) Potentiometer for door release unlocking time

# **Function**

Device for centrally supplying the 2-wire, i2 Audio

### Correct use

- Supply of the bus components with SELV bus low voltage protected against polarity reversal
- Mounting on DIN rail
- Not compatible with door communication systems of other manufacturers

### Product characteristics

- Electronic overload and short-circuit protection
- Electronic overheating protection All connections with plug-in terminals.
- Contact for door release with adjustable unlocking time and for manipulation protected door release

circuited

Contact for lighting with adjustable switch-on

# Operation/overload LED Power (6)

For display of current operating state

OFF Device is not ready for operation. There is no operating voltage present.

GREEN Device is ready for operation RED The device is overloaded or has short

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

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

### 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 brea kers. Cover all live parts in the area!

When installing door communication systems comply with the country-specific regulations for telecommunications systems e.g.:

- Separate routing of power and door communication cables
- Partitions between power and door communication cables in shared trunkings.
- 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
- Use wrapped wire pair Recommendation: orange/white

# 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

- 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.

## Installing the device

- Clip device onto DIN rail. The operating voltage connection (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 (1).
- Connect the phase to connection **L** and the neutral conductor to connection N (1).

# Connect door release protected against

For manipulation protection, connect the door release to the contact (8).



- In the case of multiple outdoor stations, the door release must be controlled 2pole (manipulation protection). Connect one pole to the door release contact of the outdoor stations and the second pole to the door release contact (8) of the line power supply.
- The door release lead must not be inserted through the outdoor station in order to protect against manipulation.
- Turn potentiometer for door release unlocking time  $\square$  (10) to the desired position. The door release contact (8) can also be swit-
- ched without an incoming call. In multiple-door systems it is only possible to unlock a specific door release without an incoming call with indoor stations comfort and not via coupled lines.

# Connect contact for lighting

- Connect contact ⊗ (7) for switching lighting or for activating a staircase light time switch with switch-off pre-warning.
- Turn potentiometer for switch-on time **⊗** (9) to the desired position.
- During activation of a staircase light time switch, the switch-on time must be set to minimum (1 sec).

# Switching symbols and elements of the circuit diagrams

Indoor station (audio) Indoor station video Line power supply RMD Mains transformer 12 V~ RMD Video power supply RMD

# Stair light time switch

Video branch Video distributor 2gang



Video distributor 3gang Video distributor 4gang

# Video distributor 6gang

Video slide switch

Push-button, NO contact

Storey push-button Light button

Terminator/terminating resistor Video terminator jumper for 6D Video Door release

Video outdoor station resp. video floor station

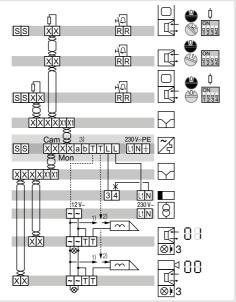
Audio outdoor station resp. audio floor station

Junction box/distribution box Wrapped wire pair for i2 audio devices

Wire pair for i2 audio devices

# Connection and installation

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



- ) Standard door release wiring Manipulation protected door release wiring
- 3) For optional i2 audio devices Figure 2: 1 audio and 2 video indoor stations, as

# well as audio and video outdoor stations

# Types of installation

# Video installation

The video for a 2-wire system can be installed in various ways (Figure 3 ... 6).

# Through installation

In the case of a through installation, wiring through occurs from one indoor station to the next indoor station each with its own cable.

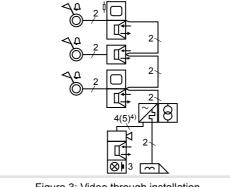
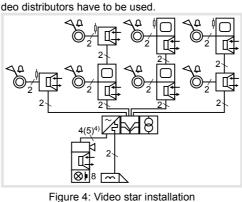


Figure 3: Video through installation

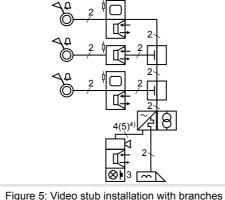
# Video star installation

In a video star installation, vi-



Video stub installation with branches

In stub installations with video branches, no return



In a stub installation without a video distributor (to and from wires in a cable), wrapped cables

Stub installation without distributor

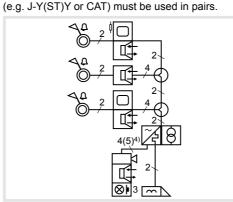


Figure 6: Video stub installation without distributor 4) 5 wires are needed for the manipulation protected door release installation in several outdoor stations (Figure 2 and 12).

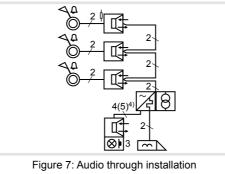
# Audio installation

The audio for a 2-wire system can be installed in various ways (Figure 7 ... 9). No video distributor is required in a pure audio installation.

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.

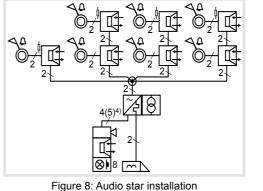
# Audio through installation

In the case of a through installation, wiring through occurs from one indoor station to the next indoor station each with its own cable.



Audio star installation

Star installations are wired starting from a point and moving outwards in a star shape.



# Audio stub installation

In a stub installation, wiring continues from the stub points

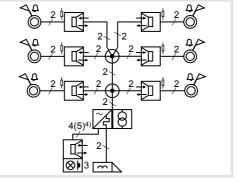


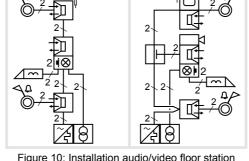
Figure 9: Audio stub installation

### Connect outdoor stations

Connect the main video or audio outdoor stations to terminals X/X Cam (3). 0 to... 9 is adjustable as the main door address

# Connecting audio indoor stations, video indoor stations and floor and apartment stations Connect 2-wire line to terminals X/X Mon (4),

- e.g. audio indoor stations and video indoor stations as well as floor stations. Connect necessary additional power supplies
- (Table 3) from video indoor stations to the terminals S/S (5).



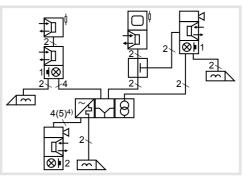


Figure 11: Installation audio/video apartment stations Floor push-buttons must be illuminated separately.

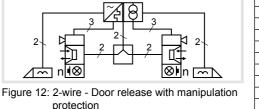
- Floor stations must not be installed at the end of a line (branch).
- Floor stations and apartment stations can only gure 10 and 11). For floor stations or apartment distributor. stations, A ... F is adjustable as floor address.

# Connect optional devices

Connect required i2 audio devices, e.g. switching relay and PBX interface, to the i2 audio line a/b (2) Alternatively, it is possible to connect audio com-

# ponents on the 2-wire bus X/X via an audio output coupler, e.g. PBX interface per apartment.

# Door release protected against manipulation



The video distributor is not required in audio outdoor stations.

Planning a system The number of audio and video indoor stations of a system is dependent on the number of outdoor stations. Additionally connected i2-BUS compon-

ents (e.g. switching relay, PBX 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 video

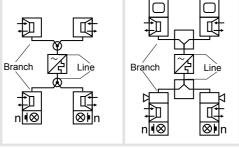


Figure 13: 2-wire - Audio/video lines and branches

lumber of subscribers on n outdoor stations 
 Outdoor stations
 1
 2
 3
 4
 n
 13
 14
 15
 11

 Indoor stations
 32
 30
 28
 26
 34-(n x 2)
 8
 6
 4
 2

 Branches audio min.
 >16=2
 1
 1
 1
 1
 1
 1
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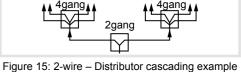
# Branches video min. 4 2, >16=3

# 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 (outdoor stations) the video bus cable.

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

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 15). The attenuations of the video distributors are added together. The table shows the number of video distributors. call indoor stations in their own line (branch) (Fi-their attenuation and their space requirements in a



Required video distri-

Lines	bı	utors	tion	DIN rail
	2gang	4gang	uon	
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 The cable attenuation is 2 dB per 10 m.

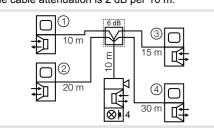


Figure 16: 2-wird - Apartment examples Apartment ①, distributor attenuation: 6 dB Cable attenuation: 10 m + 10 m = 20 m

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.

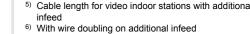
 $20 \text{ m} \times (2 \text{ dB} / 10 \text{ m}) = 4 \text{ dB}$ 

- Disconnect entire intercom system.
- Short-circuit the 2-wire video bus cable to be measured on the line power supply or on the end device 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



J-Y(ST)Y 0.8 mm CAT 0.5 mm 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 J-Y(ST)Y 0.8 mm CAT 0.5 mm



aximum cable length from line power supply to audio

CAT 0.5 mm | 50 m / 100 m<sup>5) /</sup> 150 m<sup>6)</sup> | 8)

ximum cable length from line power supply to video outdoor

150 m / 150 m<sup>5)</sup>

150 m

30 m· 60 m<sup>7</sup>

(60 m: 120 m7))

(100 m: 200 m<sup>7</sup>))

20 m: 40 m<sup>7</sup>)

(40 m; 80 m<sup>7)</sup>)

50 m· 100 m<sup>7</sup>

350/

 $(7 \Omega)$ 

3.5 Ω

(7 Ω)

(7 Ω)

.I-Y(ST)Y 0.6 mm 75 m / 150 m<sup>5</sup>

and video indoor stations

J-Y(ST)Y 0.8 mm

J-Y(ST)Y 0.6 mm

) With wire doubling

per branch from the outdoor station to the indoor station. The attenuation of 40 dB and the loop resistance of 15  $\Omega$  must not be exceeded per branch (including Table 3: 2-wire – line data

8) The cable length per branch must not exceed 200 m

- Wire doubling of the 2D bus cable is not permit-
- 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

All connected bus cables and, if available, the

- 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.

on resistance, leading to faults.

For information on wiring multiple outdoor stations or larger multi-line systems, refer to the system manual or, on the Internet, to www. If interference occurs in telecommunications

systems, radio services or other systems during

the operation of existing video door communication

which may also be soiled, increase the transiti-

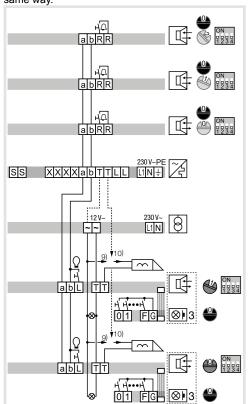
- systems, measures for shielding and earthing the cables and for filtering must be implemented. For this purpose, connect all of the drain wires
- of the cables in a star shape using a terminal. ■ Connect all drain wires to the PE rail in the distribution box



## Connection and installation

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

Connect i2 audio line (e.g. with indoor stations be extended or reduced for other properties in the same way.

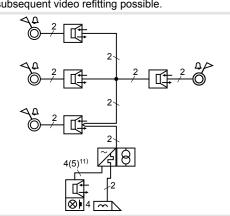


- 9) Standard door release wiring <sup>10)</sup> Manipulation protected door release wiring
- Figure 17: i2 Audio 3 indoor stations and 2 outdoor stations
- Alternatively, line power supply can also be installed at the line end after the last indoor station.

# Types of installation

A 2D audio system can be installed in various way as a through, star, tree or stub installation. The installation types can be mixed differently than with Branches the other systems (Figure 18).

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



11) 5 wires are needed for the manipulation protected door release installation in several outdoor stations (Figure

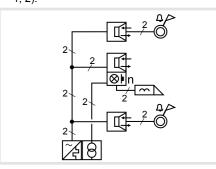
Figure 18: i2 Audio – Installation

### Connect audio outdoor stations

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

# Connecting indoor stations as well as floor

and floor stations) to the terminals a/b (Figure



- Figure 19: i2 Audio Connection of a floor station Floor push-buttons must be illuminated separa-
- Floor stations can be installed at any place in the line.
- Floor stations can only call indoor stations in their own line (branch) (Figure 19). A ... F is adjustable as floor address.

# Connect door release protected against manipulation

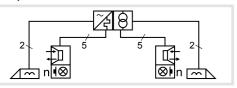


Figure 20: i2 Audio - Door release with manipulation protection

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

	Number of subscribers on n outdoor stations												
ys	Outdoor stations	1	2	3	4	r	n	15	16				
	Indoor stations	32	30	28	26	34-(r	1 x 2)	4	2				
th.	Branches	П		>16	=2			1					

0.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	1 a.						
Cable between		Length	Numb				
		coppe	indoo				
		Y(ST)) 3/2x0.6	J-Y(ST)Y 0.8/2x0.8	CAT 0.5/2x0.5	statio		
		اب o.	اب <u>ي.</u>	0 0			
Per branch/single line of	the		350/700				
line power supply		200/400		125/250	32		
and		200/400	330//00	123/230	02		
indoor station (a/b)							
All branches of the line p							
supply and, if available, t	the						
longest bus coupler line							
and			32/lin				
connected subscribers in	,						
tree and series structure	(a/b),						
in total Door release/lighting							
and	1 A	30/60	50/100	20/40	-		
transformer RED021Y	0.5 A	60/120	100/200	40/80	-		
Floor push-button ET							
and			1				
indoor station							
Light push-button LP							
and			_				
camera/door speaker-mo	dule /						
door electronics							
Button expander							
and			-				

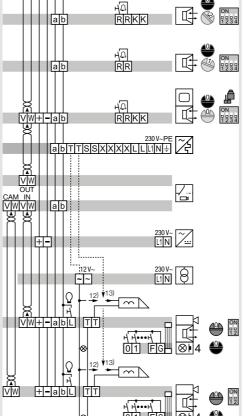
## Table 5: i2 audio - line data

- 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 listributor 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 outdoor stations or larger multi-line systems, refer to the system manual or, on the Internet, to www.

6D

# Connection and installation

The wiring diagram below shows a 4-tenant house, by way of example. Indoor stations, outdoor stations and accessory products can be extended or reduced for other properties in the same way.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 21: 6D video – 2 indoor stations, 2 indoor stations video and two outdoor station video Stub installation without distributor

# Types of installation

(Figure 22 ... 25).

# Through installation

In the case of a through installation, the 6D video bus cable is wired-through from one indoor station

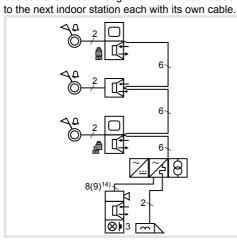


Figure 22: 6D Video - Through installation

### Star installation

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

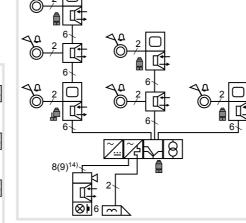


Figure 23: 6D Video - Star installation

# 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 erminating resistor

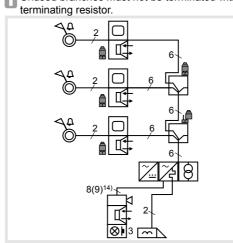
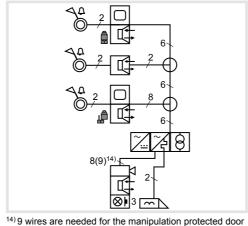


Figure 24: 6D Video - Stub installation with distributor 3gang as branch

In a stub installation without a video distributor (to and from wires in a cable), wrapped cables (e.g. video lines V/W.



release installation (Figure 21 or 27).

Figure 25: 6D Video - Stub installation without distributor

Additional video outdoor stations or cameras should only be used with a video slide switch (Figure 26).

### Connect outdoor 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 indoor stations video as well as floor stations

■ Connect the i2 audio line (e.g. with audio indoor stations and video indoor stations as well as floor stations) to the terminals a/b (Figure 1, 2 or Figure 21). Connect additional connections in accordance with the device instructions

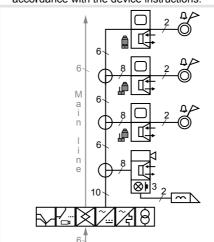


Figure 26: 6D video - Connection of a floor station Floor push-buttons must be illuminated separately.

- An audio floor station can be installed at any place in the line. In video floor stations the video signal must be guided via a video slide switch
- Floor stations can only call indoor stations in their own line (branch) (Figure 26). A ... F is adjustable as floor address.

# Connect optional devices

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

## Door release protected against manipulation

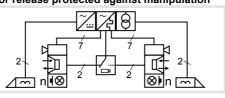


Figure 27: 6D Video - Door release with manipulation protection

# Planning a system

The number of audio and video indoor stations in the line/branch depends on the number of outdoor 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.

Tehalit GmbH, Seebergstraße 37, 67716 Heltersberg, Germany

the jumpers must be opened 🖨 and on the last

video distributor the jumper must be a closed.

the input terminals are not allowed.

Additional connections or star connections on

Figure 29: 6D Video - Distributor cascading

and outgoing cable is connected to the input termi-

terminating resistor.

										recillical uala								
					_	Cable between	Length	Length [m] for Number			Operating voltage							
L L												copper	wire Ø [	mm]	of	Frequency		
			_	\	$\downarrow \downarrow$	_	Br	anc	nes			≥ 9:	<u>≻</u> 8:	.5	indoor	Standby current consumption		
Line				F	\[ \]	Lin	e I			Per branch/single line	of the	J-Y(ST)Y 0.6/2x0.6	J-Y(ST)Y 0.8/2x0.8	CAT 0.5/2x0.5	stations	Output voltage idle mode / full load: - Terminals X/X - Terminals S/S		
<u> </u>				L	/감	<u>/::</u>				line power supply					stations:	Total output current X/X, a/b, S/S		
Line	Line			and audio indoor station /vi	200/400	350/700	125/250	Audio 16 Video 8	Power dissipation Pv									
							Bra	anch	es	indoor station (a/b)					per	Protection class		
							All branches of the line power supply and, if available, the					Degree of protection  Relative humidity 0 65% (no						
⊗I 1   ⊗I 3     SI 3     Figure 28: 6D Video – Lines and branches					longest bus coupler line	bus coupler line		1000		32/line	Operating temperature							
				connected subscribers				02,0	Storage/transport temperature									
					star, tree and series structure installation (a/b), in total Camera / video distributor				1		Door communication connecting term for conductor diameter							
Number of indoo							ldo	or		and	itor	20015)16)	30015)16)	20016)	8/branch	Power connecting terminals		
Stations in n floo Outdoor stations	Out	luo	or s	iai	lions	S	Т	т		video indoor station (V	W)					Width (RMD)		
Video outdoor station		2	3	4	5	6	7	8	9	Video power supply and		40/8017)	70/140 <sup>17)</sup>	25/50 <sup>17)</sup>	8/branch	Dimensions W x H x D 106		
with video slide switch Audio indoor stations	32	30	1 28	26	6 24	22	20	18	16	video indoor station / vid distributor (+/-)	deo				32/line	Door release contact <b>□\( \)</b> ,		
Branches audio min.	102	32 30 28 26 24 22 20 18 16					1	Door release/lighting	1 A	30/60	50/100	20/40	_	NO contact potential-free				
\( \tau_1 \)	100	0		100	2 4 4 2	140				and	0.5 A	60/120	100/200	40/80		Door release unlocking time		
Video indoor station         32   28   24   20   16   12   8   4   2           Branches video min.         >24=4   >16=3   >8=2   1							transformer RED021Y Floor push-button ET and				1	Contact for lighting ⊗ µ contact, NO contact potential-free max						
Video distributors									/ice	indoor station						Contact minimum load		
are used for distributing the video line. Signal losses on these active distributors are compensated for by the voltage supply via the video power						Light push-button LP and camera/door speaker-module / door electronics		50		-	Switching capacity of contact for light - incandescent lamps - HV halogen lamps							
supply unit. An attenuation calculation is not necessary for active distributors.  Video distributors are wired-through on the input						Button expander and 1.5 bell push-button				-	- electronic transformers and Bi-mode transformers							
terminals for more than 6 outputs. The incoming									Table 6: 6D Video – Line data					- Conventional transformers				

lengths are reduced considerably (approx. to 15%). <sup>16)</sup>Wire doubling of the video line is not permitted and causes image faults

- 7) Additional video power supply units can be installed for long cable lengths. When doing so, the negative (-)
- For parallel switched indoor stations or additio-Unused branches must not be terminated with a nal secondary signal units, the cable length for 2 devices must be reduced to 50% and for 3
  - on resistance, leading to faults.

<sup>15)</sup>On unwrapped, properly-routed cables the cable

- nal (Figure 29). On wired-through video distributors
  - pole of all video power supply units must be connected
  - 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 transiti-
  - For information on wiring multiple outdoor stations or larger multi-line systems, refer to the system manual or, on the Internet, to www. elcom.de.

Contact minimum load approx. 15 W Switching capacity of contact for lighting ⊗: 2300 W - incandescent lamps - HV halogen lamps 2300 W

Technical data

230 V~

50/60 Hz

< 0.3 W

26 V / 23.5 V

28 V / 27.2 V

max. 1.25 A

-5 ... +45°C

-20 ... +60°C

0.5 ... 0.8 mm

6 modules

max. 24 V/2 A

1 ... 10 s

1100 W

1.5 ... 2.5 mm<sup>2</sup>

106 x 90 x 67 mm

max. 230 V~/16 A

65% (no condensation)

4.1 W

IP 20

- electronic transformers and Bi-mode transformers 1500 VA 1500 VA Conventional transformers Retrofit LED lamps 440 W

440 W - dimmable energy saving lamps - compact fluorescent lamps with EVG 22 x 20 W fluorescent lamps with EVG 1000 W

fluorescent lamps uncompensated

- Fluorescent lamps 1000 VA / 130 µF parallel compensated

Fluorescent lamps lead-lag circuit Mixed loads until the smallest maximum load possible Light switch-on time

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

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

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

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

T +49 6333 992 0 F +49 6333 992 7666 info@hager.com hager.com - 03.2023