

The LEDs on the front of the coupler display the current operating status:

Operation/overload LED Power (3)

- 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.

Data traffic LED Data (10)

- RED** Data traffic in the coupler line

Backbone LED B1, B2 and B3 (11)

- Flashing green** Video transmission via the displayed backbone.
- GREEN** Video and/or audio transmission in the displayed backbone wire pair.

Information for electricians

Installation and electrical connection



CAUTION!
Risk of destruction of the device
Fault voltages can occur when working under live voltages.
Isolate from voltage before connecting the installation environment.

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 trunkings
- Use of standard telecommunications' cables, e.g. J-Y (St) Y with 0.8 mm diameter

Installing the device

- Clip device onto DIN rail in accordance with DIN EN 60715. The operating voltage connection (2) must be at top.
- The device will heat up during operation. Observe maximum operating temperature. Ensure that adequate heat dissipation is provided.

Connecting the device

The following devices are suitable only from the specified version for operation on the coupler.

Gerät	Ab Version
BTC-500 Built-in camera/door loud-speaker	V2412
CCS-500 Stainless steel outdoor camera	V1011
BVF-500 Video doorphone	V1113
BVF-510 Video doorphone	V2012
BVF-540 Video doorphone komfort	V2012
BVF-560 Video doorphone	V1113
BFT-510 Doorphone	V2012
BFT-540 Doorphone komfort	V2012

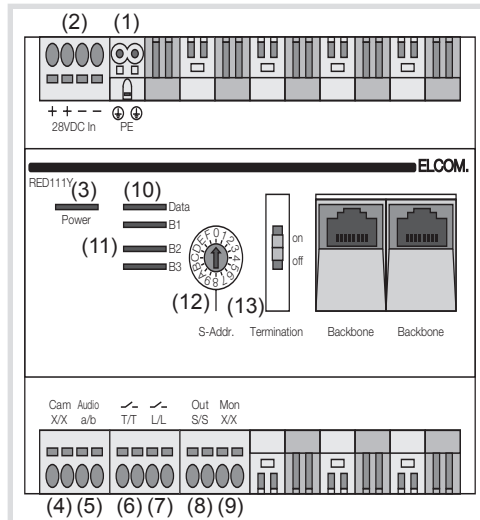


Figure 1: Design and layout of the device

- (1) **PE** connection for floating output
- (2) Operating voltage connection **28 VDC In**
- (3) Operating/overload LED **Power**
- (4) 2-wire video bus **Cam X/X** for connecting video door stations
- (5) **i2 Audio a/b** for connect e.g. audio door stations, bus switching relay, PBX interface
- (6) Door release contact **T/T** (max. 24 V/1 A)
- (7) Light sensor contact **L/L** (max. 24 V/1 A)
- (8) Additional power supply **Out S/S**
- (9) 2-wire bus **Mon X/X** for connection for indoor stations video, indoor stations audio and floor door stations
- (10) **Data-LED** - data traffic in the coupler line
- (11) **B1, B2** and/or **B3** LED - display of the backbone status
- (12) **S-Addr.** Rotary switch for setting the line address
- (13) Switchable backbone terminator
- (14) Backbone connections with RJ45 jacks

Function

Couplers connect single lines to a larger system via the backbone line if necessary. Dropped calls are minimized thanks to a well-planned coupler structure.

Correct use

- Couplers for audio and/or video systems
- Mounting on DIN rail according to DIN EN 60715
- Not compatible with intercom systems of other manufacturers
- Only suitable for use in indoor areas with no drip and no spray water

Product characteristics

- Connect from up to 3 connections simultaneously
- Integrated video signal amplifier (0 ... 20 dB)
- Light sensor contact **L/L** for external components
- Contact for manipulation protected door release
- Switchable backbone terminator
- Overload protection
- All connections with plug-in terminals
- Systems with up to 64 couplers, 150 main door stations and 256 indoor stations (video and audio) possible

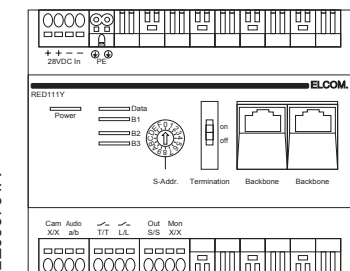
Safety instructions

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 installing and laying cables, always comply with the applicable regulations and standards for SELV electrical circuits.

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

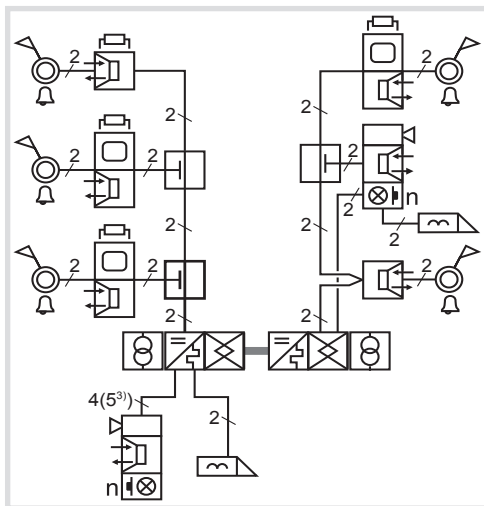
These instructions are an integral component of the product and must be retained by the end user.



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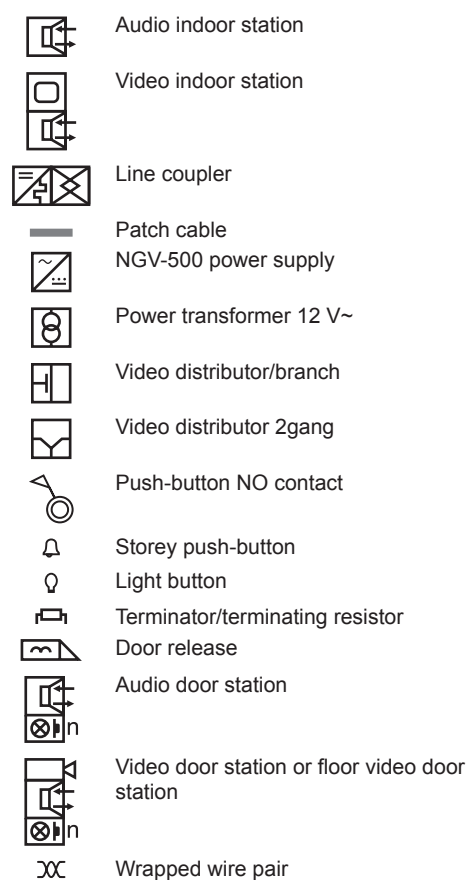
RED111Y
Line coupler RMD 2-wire



3) 5 wires are needed for the manipulation protected door release installation in several door stations.

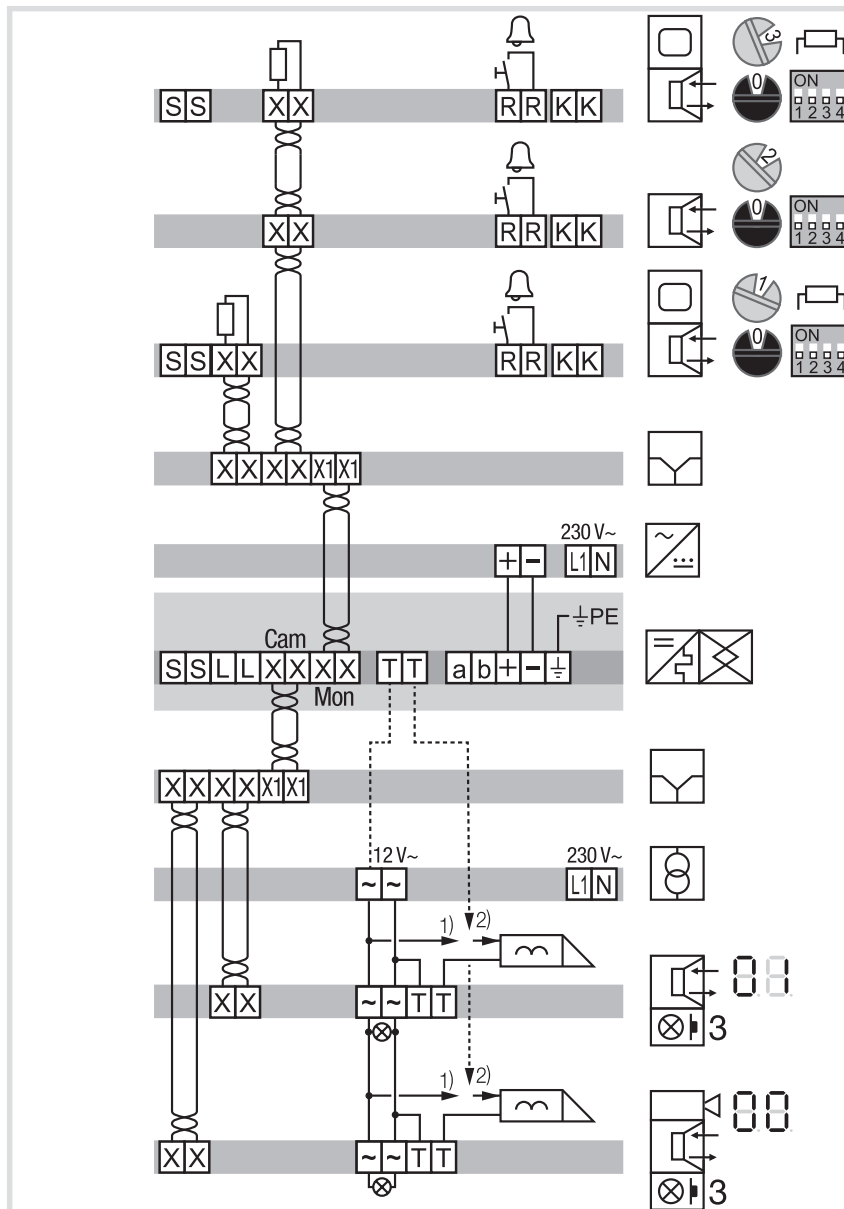
Figure 3: Example, coupling of 2 lines

Circuit symbols and elements of the circuit diagrams (figure 2, 3, 4, 5 and 6)



Connect power supply

- Connect equipotential bonding conductor to plug-in terminal **PE** (1).
- Connect power supply to the plug-in terminals **+** and **-** (2) according to markings.
- If only main video door stations are connected to the couplers, a maximum of 3 couplers can be supplied with a NGV power supply.



1) Standard door release wiring
2) Manipulation protected door release wiring

Figure 2: Wiring diagram of a coupler

Connecting video door stations

- Connect main video door stations to the plug-in terminal **Cam X/X** (4). 0-9 can be set as main video door address.

Connect indoor station audio, indoor station video or floor door station

- Connect 2-wire video line (with indoor station, indoor station audio and/or floor door stations) to the plug-in terminals **Mon X/X** (9).
- Connect the necessary additional power supplies from video indoor stations to the plug-in terminals **S/S** (8).
- Floor door stations can only call indoor stations in their own line (figure 3). A-F can be set as floor door address.
- Indoor stations that are called very frequently e.g. chancelleries) and main door stations that are used frequently (with several entrances) should be installed in systems on a separate coupler. Thus, dropped calls on the other indoor stations and door stations are minimized.
- In the case of concierge applications (internal calls between two coupler lines) the line address „F“ must be set for the concierge.

Connect optional devices

- i2 audio devices such as door stations, switching relays, PBX interfaces connect in to the plug-in terminals **a/b** (5).
- Alternatively, it is possible to connect i2 audio components on the **X/X** bus via an audio output coupler.

Connect door release protected against manipulation

- If there are several door stations the door release is 2pole controlled for manipulation protection (figure 2 and 4). One pole is scanned via the door release contacts on the door stations and the second pole via the door release contact **T/T** (6) of the coupler.
- In the case of only one door station, the connection via the door release contact of the door station can be disregarded. The connection of the door release on the door release contact **T/T** (6) of the coupler is sufficient.
- The door release lead must not be inserted through the door station in order to protect against manipulation.
- The door release on the door release contact of the coupler can also be unlocked without an incoming call.

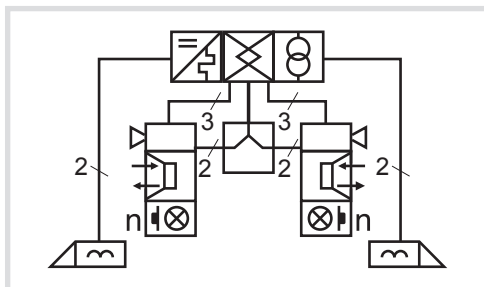


Figure 4: Door release with manipulation protection

Connecting light sensor contact

- Connect light sensor contact **L/L** of the coupler (7) for controlling external low-voltage components.

Both light sensing contacts are scanned on couplers communicating via the backbone when the light button is pressed.

Connecting Backbone

- Connect backbone of the coupler for short connections with RJ45 patch cables (identical assignment), for longer connections with data cables, RMD patch modules and patch cables.
- On the first and last coupler of the backbone the backbone terminator (13) must be switched to **on**.

Double (in pairs) shielded cables S/FTP min. Cat 6 must be used to avoid malfunctions.

Setting coupler address

- Set line address (12) on the couplers.
- Couplers without connected main door stations can use the same line address (address 0 recommended).

Number of devices on 2 communicating couplers

The addition of the door stations and indoor stations must not exceed the maximum expansion on 2 couplers communicating via the backbone.

2-wire maximum expansion for 2 communicating couplers																
Addition of door stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Addition indoor stations	32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2

- Additionally connected i2 audio components (telecommunications interface, bus switching relay etc.) are counted as 2 indoor stations.
- The number of 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 the line can be distributed to additional branches up to maximum expansion.

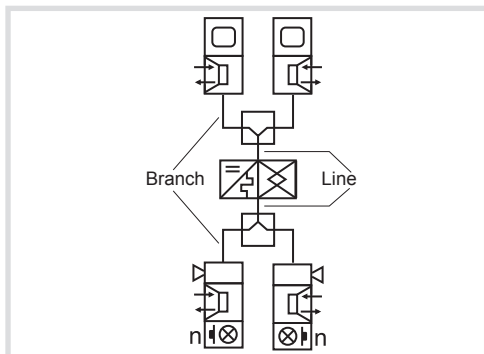


Figure 5: Lines and branches

Cable lengths and attenuations

Information for calculating signal attenuations in 2-wire video systems can be found in the system manual.

The video amplifier integrated in the coupler compensates an attenuation of up to 20 dB generated between the main video door station and the coupler. As a result, the maximum signal level is available again on the connection **Mon X/X** of the coupler. From there, the attenuation can be a maximum of 40 dB until the last indoor station. The signal losses occurring on the coupler in the backbone are also compensated by the integrated video amplifier.

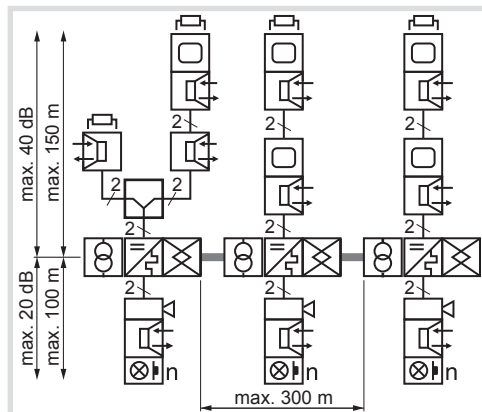


Figure 6: Maximum attenuations and cable lengths

- The length of all the connected bus cables of 2 couplers to be coupled must not exceed 1000 m. The worst possible case must always be considered for systems with several couplers.
- 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.

Cable type	Max. cable length [m]	Max. attenuation [dB]	Max. loop resistance [Ω]
Cable from coupler to video/audio indoor station			
J-Y(ST)Y 0.6 mm	75 m 150 m ¹⁾	40 dB	15 Ω
J-Y(ST)Y 0.8 mm	150 m 150 m ¹⁾	40 dB	15 Ω
CAT 0.5 mm	50 m 100 m ¹⁾ 150 m ²⁾	40 dB	15 Ω
YR 0.8 mm	75 m 75 m ¹⁾	20 dB	15 Ω
Cable from coupler to main video door station			
J-Y(ST)Y 0.6 mm	75 m	20 dB	15 Ω
J-Y(ST)Y 0.8 mm	100 m	20 dB	15 Ω
CAT 0.5 mm	50 m	20 dB	15 Ω
YR 0.8 mm	75 m	15 dB	15 Ω
Cable from door release/lighting to the transformer with door release current consumption 1 A (0.5 A)			
J-Y(ST)Y 0.6 mm	30 m; 60 m ³⁾ (60 m; 120 m ³⁾)	-	3.5 Ω (7 Ω)
J-Y(ST)Y 0.8 mm	50 m; 100 m ³⁾ (100 m; 200 m ³⁾)	-	3.5 Ω (7 Ω)
CAT 0.5 mm	20 m; 40 m ³⁾ (40 m; 80 m ³⁾)	-	3.5 Ω (7 Ω)
YR 0.8 mm	50 m; 100 m ³⁾ (100 m; 200 m ³⁾)	-	3.5 Ω (7 Ω)
Cable from coupler to coupler			
J-Y(ST)Y 0.6 mm	-	-	-
J-Y(ST)Y 0.8 mm	-	-	-
CAT 0.5 mm	300 m	20 dB ⁴⁾	60 Ω
YR 0.8 mm	-	-	-

¹⁾ Cable length for indoor video indoor stations with connection of the additional infeed.

²⁾ With wire doubling on additional infeed

³⁾ With wire doubling

⁴⁾ Typical cable attenuation with Cat 6/7 network cables ~6 dB/100 m

Table 3: Line data

Appendix

Technical data

Supply voltage +/-	28 V=
Standby current consumption without bus load	approx. 60 mA
Door release contact T/T potential-free	max. 24 V/1 A
Light contact L/L potential-free	max. 24 V/1 A
Degree of protection	IP 20
Relative humidity	0 - 65 % (no condensation)
Backbone cable length	max. 300 m
Couplers per system	max. 64
Coupler addresses per system	max. 16
Operating temperature	+5 °C ... +40 °C
Storage/transport temperature	-20 °C ... +60 °C
Connecting terminals for conductor diameter	0.5 ... 0.8 mm
RMD	6 modules
Dimensions W x H x D	106 x 90 x 67 mm

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.