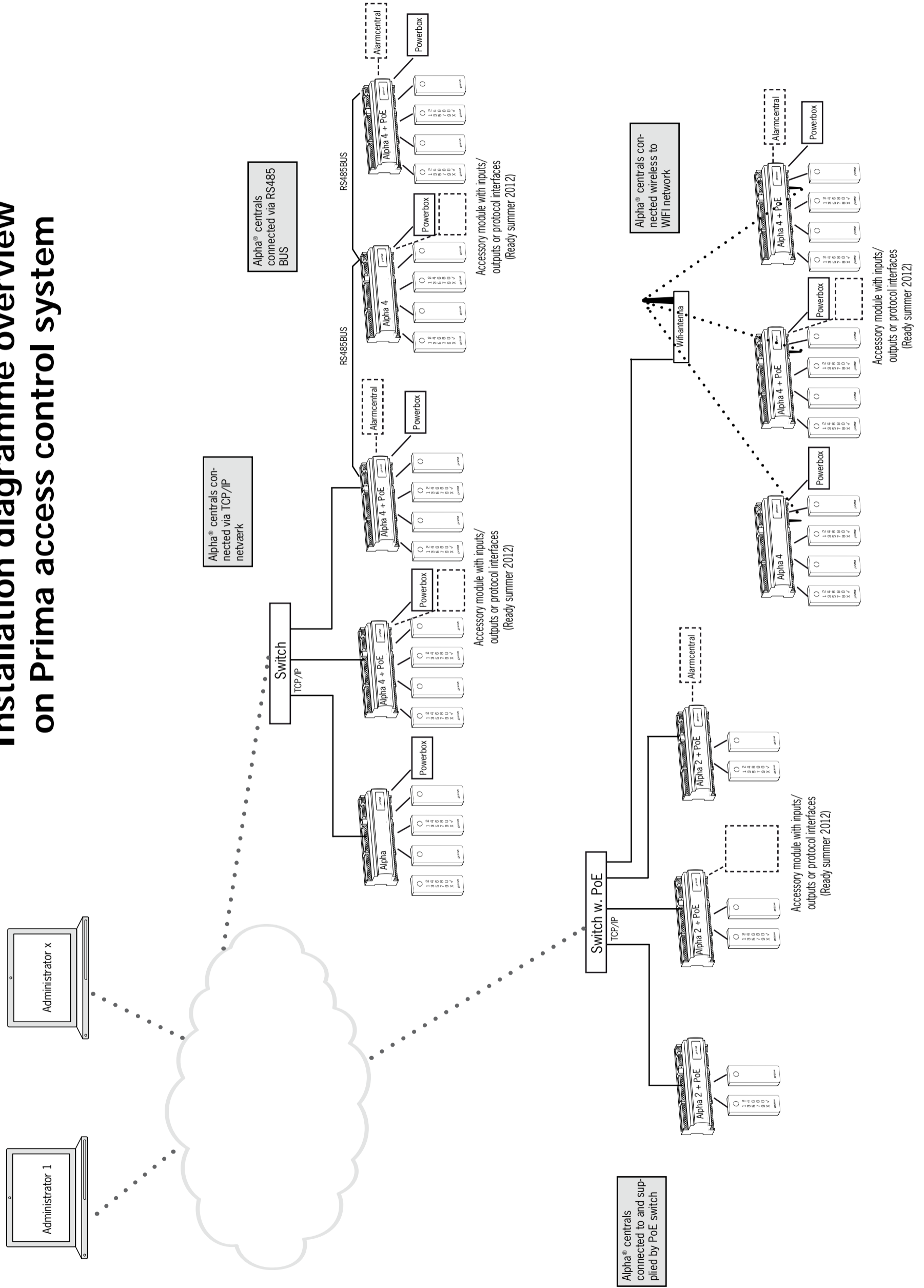


Installation diagramme overview on Prima access control system



Installation diagramme with Alpha® centrals connected

Suggestion to efficient installation and commissioning:

1. Before installation get usable IP-adresses from IT/network administrator
2. Install the equipment: centrals, doorlocks, online readers etc.
3. Connect to the Nova software on the master central (your choice which one is the master)
4. Put the IP and MAC adresses into the Alpha central through the Nova software (under "Hardware Set-up") and write them on the front of centrals in the blank fields
5. Add the central to the system in the software under "Manage Hardware", find this under "Location & Hardware" in the Nova software
6. Search for readers on each central and name them in the system. Write if necessary the names on the doorsockets on the Alpha centrals
7. Add off-line doors to the system and program each off-line doorhandle or cylinder with this information (ready summer 2012)
8. Create access groups under "Users & Access rights " in the Nova Software and add users
9. Create if necessary extra administrators, set authorisations, and distribute log-ins
10. Handout cards/tags to all users
11. Mount the off-line cylinders and doorhandles on the doors (ready summer 2012)
12. Install and programme if necessary stand-alone cylinders and doorhandles

For security reasons centrals connected over the internet have to be connected via a VPN connection or via https connection with security certificate. If not, we strongly suggest installing the centrals on a local and well protected TCP-IP network only.

Cable specifications and distances

Cable type and max. distance for an eventual RS485 BUS between Alpha centrals: 1 UTP cable 4 x 2 AWG23 (0.6 mm) Cat. 6 or UTP cable is a 4 x 2 AWG24 (0.5 mm) Cat. 5 type - max. distance 1000 m

| Distance from Alpha central to online door and cable type | | | | |
|---|--|--|--|--|
| | → 50 m | → 75 m | → 100 m | → 200 m |
| Nexus reader (RA/RB, Supply, RE & DM) | In a UTP Cat. 6 ¹ or a UTP cat. 5 ² cable - 1 pair for RA/RB, 1 pair for + and ÷ 1 pair for for RE and 1 pair for DM. | In a UTP Cat. 6 ¹ or a UTP cat. 5 ² cable - 1 pair for RA/RB, 1 pair for + and ÷ 1 pair for for RE and 1 pair for DM. | In a UTP Cat. 6 cable ¹ - 1 pair for RA/RB, 1 pair for +, 1 pair for ÷ and 1 pair left for RE or DM. If both functions are needed free pairs in the lock cable can be used. In a UTP Cat. 5 cable ² - 1 pair for RA/RB, 1.5 pair for + and 1.5 pair for ÷. If RE or DM functions are needed free pairs in the lock cable can be used. | In a UTP Cat. 6 cable ¹ - 1 pair for RA/RB, 1 pair for +, 1 pair for ÷ and 1 pair left for RE or DM. If both functions are needed an extra cable has to be used. In two UTP Cat. 5 cables ² - 1 pair for RA/RB, 1 pair for RE and 1 pair for DM in cable no. 1 as well as 2 pairs for + and 2 pairs for ÷ in cable no. 2. |
| Lock type: elec-trical strike - consumption 200 mA | In a UTP Cat. 6 ¹ or a UTP cat. 5 ² cable - 1 pair for + and ÷ (this can be the same cable as the reader if there is a free pair). | In a UTP Cat. 6 ¹ or a UTP cat. 5 ² cable - 1 pair for + and ÷ (this can be the same cable as the reader if there is a free pair). | In a UTP Cat. 6 ¹ or a UTP cat. 5 ² cable - 1 pair for + and 1 pair for ÷. | In a UTP Cat. 6 ¹ or a UTP cat. 5 ² cable - 2 pairs for + and 2 pairs for ÷. |
| Locktype: elec-tric mortise lock - consumption 350 mA | PL 2 x 0.75 mm cable or in a UTP Cat. 6 ¹ or a UTP cat. 5 ² cable - 2 pair for + and for ÷. | PL 2 x 1.0 mm cable. | PL 2 x 1.0 mm cable. | Not possible - too big a voltage drop |

1 The recommended UTP cable is a 4 x 2 AWG23 (0.6 mm) Cat. 6 type

2 The recommended UTP cable is a 4 x 2 AWG24 (0.5 mm) Cat. 5 type

Note a The calculations of voltage drop are based on an output from the back-up battery on 12 VDC. During normal operation on 230 VAC the central supply the lock and the lock with 13.9 V.




Note b Wiring for most door phones can also be included in the same UTP cable as the reader or the lock if there are free pairs available.

DIN-rail mounting box (art.no.:800-001-9024) with Alpha Central, Powerbox and back-up battery:

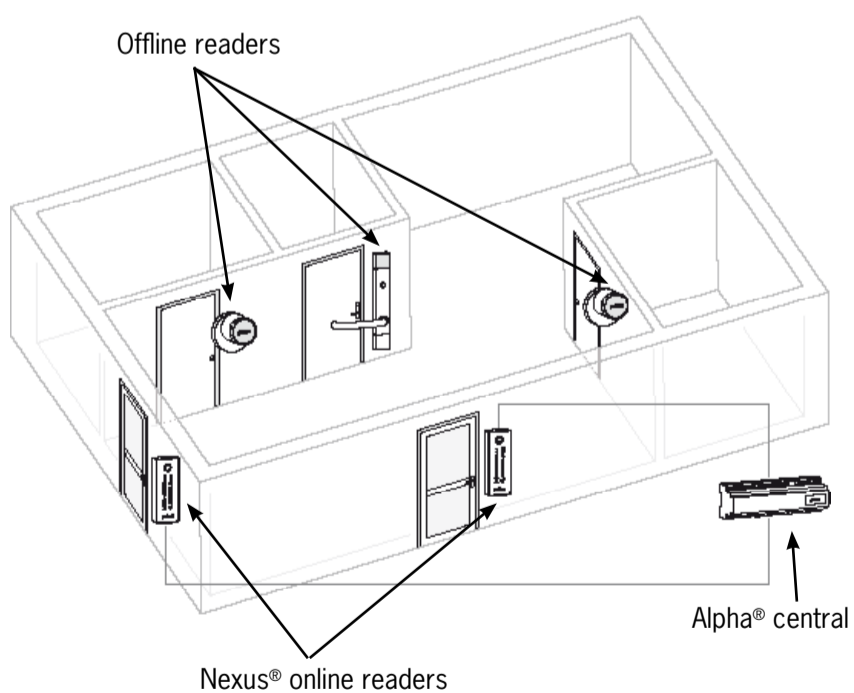


The FlexAir® concept with online, offline & stand-alone readers

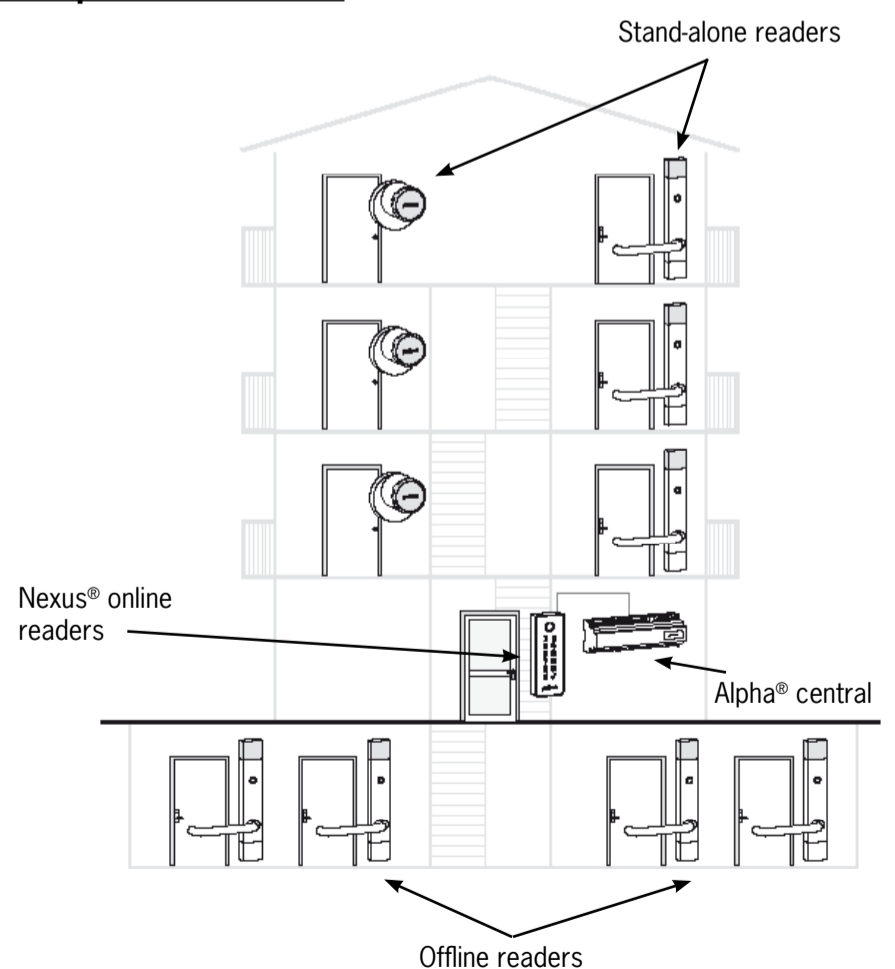
The FlexAir® concept makes it possible to combine traditional online readers connected to the Alpha® centrals with battery-driven offline and stand-alone readers of the PrimaLock® and the SensoLock® type.

| Reader type Models | Online Nexus® readers | Offline PrimaLock® & SensoLock® | Stand-alone PrimaLock® & SensoLock® |
|---------------------------------|---|---|--|
| Control of access rights | Through the Nova® Software | Through the Nova® Software | Through using programming cards |
| | <p>Online readers of the Nexus® type are the "backbone" in the FlexAir® concept. They are always connected to the Alpha® centrals and can always be updated instantly. They give the users access to the doors they are placed by. In the Mifare-version they also read/write on tags and cards that are held in front of the reader. They write the access rights on the tags and cards for the battery powered cylinders (SensoLock®) and doorhandles (PrimaLock®) daily. Online readers are placed by doors with high traffic or where you wish a high level of security. The communication between Nexus® readers and Alpha® the alpha central are based on the RS485 standard and are encrypted for higher security.</p>  | <p>Battery powered doorhandles and cylinders are programmed via the Nova® software and the access is subsequently controlled via the software and the online readers. Offline readers can be used by i.e. secondary doors, rarely used doors and by doors with difficult cabling.</p>  | <p>Stand-alone doors are programmed individually by the door. They are either programmed using programming cards or through use of an independent PC-software - they are therefore complete independent of the systems main software. They have only the used tags in common. The solution is i.e. used in apartments, in lockers, and more, where the individual users want to have control of the access rights.</p>  |
| Can be used with: | | | |
| Mifare cards | √ | √ | √ |
| Prox cards | √ | ÷ | √ |

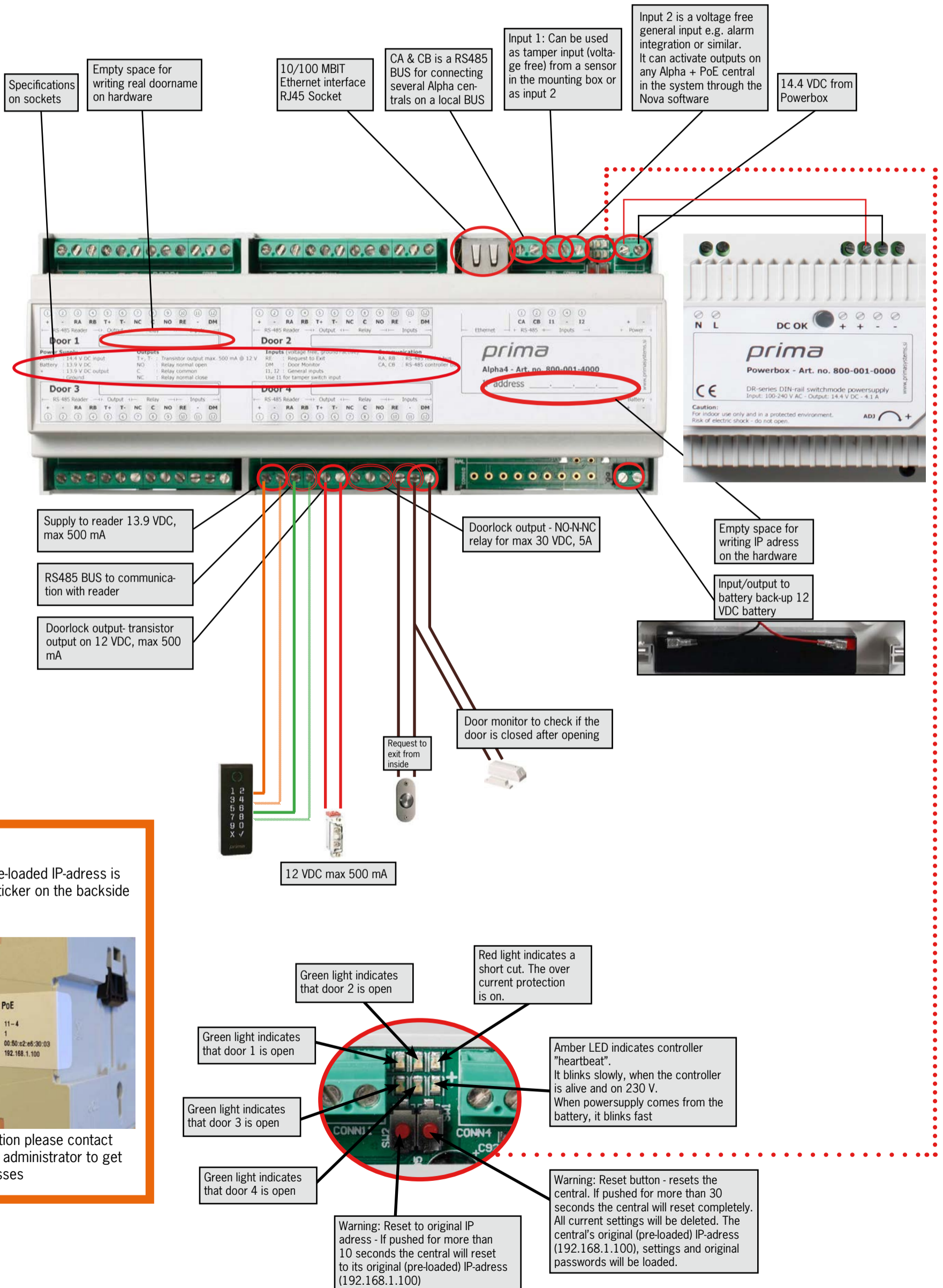
Example of an office building:



Example of a staircase:



Installation diagramme for Alpha® 2 and 4 door centrals (incl. installation of a "standard" Nexus® reader)



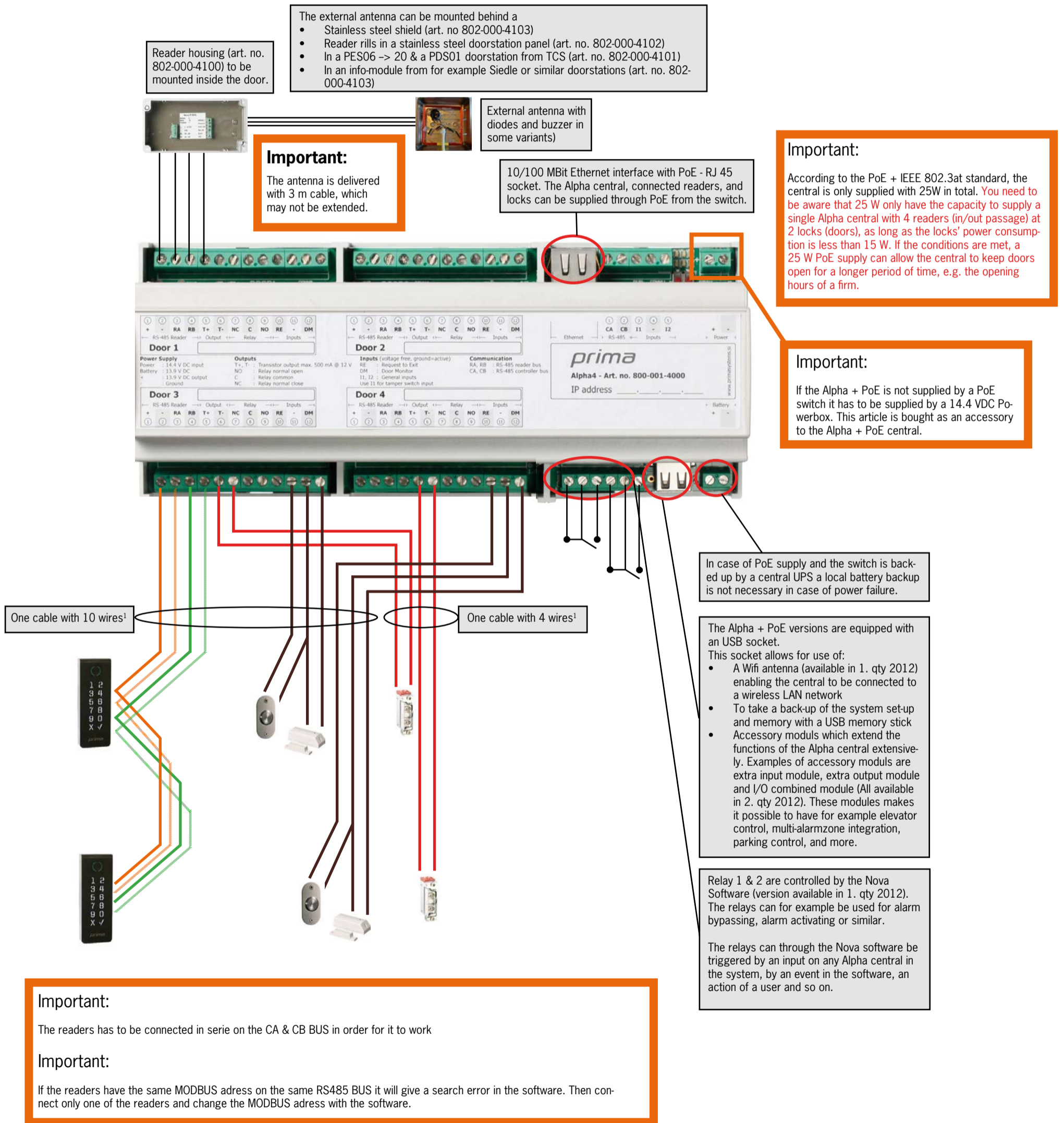
Important:
The central's pre-loaded IP-address is written on the sticker on the backside of the central

BEFORE installation please contact your IT/network administrator to get usable IP-addresses

Installation diagramme for Alpha® 2 or 4 + PoE centrals

(only extra functions are shown on the central)

+ installation of 2 readers in one cable and a Nexus® P reader with external antenna



Note 1: If you want to have more doors on the same cable, you need more wires to accommodate for the functions at the door. Alternatively, if you do not need doormonitor and/or exit call button, you can reduce the number of wires. The cable diameters and the distances mentioned in the cable specification on pages 1 is no longer applicable due to higher consumption. Diameters and distances has to be calculated and measured on the place of installation.

Product specifications on Alpha® centrals and Nexus® readers

Alpha® centrals



| | |
|----------------------------------|--|
| Specifications | 200MHz CPU with 64MB RAM 512 MB Flash 100.000 users 1.000.000 events log |
| Supply voltage | 14.4 VDC +/- 10%, when used with battery backup supply voltage must be between 13.9 VDC and 14.6 VDC. The central's consumption without external loads is 150mA at 14.4 VDC (2W). Maximal consumption is limited to 60W. |
| Battery backup | 12 VDC, 2.1 Ah |
| Real time clock backup capacitor | Minimum 24h |
| Operating temperature | -20 °C to 85 °C If used with battery backup, please check battery limitations. |
| Communications | 1x J45 10/100 MB Ethernet port 1x RS485 central communications port ¹ , distance up to 1000m 1x USB host port ³ |
| Readers | 2x or 4x RS485 ports ¹ supports up to 4 or 8 readers using MODBUS protocol. Maximal power output for each reader port is 500mA at 13.9VDC. |
| Outputs | 2x or 4x lock outputs each as relay (max. 30VDC, 5A) and transistor MOSFET output (13.9 VDC at max. 500mA ²). 2x auxiliary output relays (max. 30VDC, 5A) |
| Alarm output | Use auxiliary relay output ³ |
| Inputs | 2x or 4x requests to exit (voltage free) 2x or 4x door monitors (voltage free) 2x auxiliary inputs (voltage free) Galvanic isolation is provided on all input channels with opto-couplers. |
| Tamper switch | (Art.no.: 800-000-9001) Optional, use auxiliary input |
| PoE (only +PoE models) | Powers up to 25 W, according to standard for PoE+ IEEE 802.3at ³ |
| Dimensions | Central housing is 213mm long, 91mm wide and 62mm high for 35mm DIN-rail. System housing for power supply, central, and battery holder is 287mm long, 361mm wide and 112mm high, IP 40, 2 rows of 12 modules |
| Weight | 230g |
| Standards and certificates | CE |
| Installation | Installation of equipment must be done by a professional electrician on restricted access location |
| Color | White |
| Material | Central housing is made of self-extinguishing blend PC ABS, system housing is made of Acrylonitrile Butadiene Styrene (ABS) |
| Warranty | 2 years |

Note 1 Use AWG23 (0.6mm) Cat. 6 or AWG24 (0.5mm) Cat. 5

Note 2 Maximal overall power consumption of all readers and all transistor outputs is limited to 4A at 13.9 VDC (55.6W). When central is powered over PoE, maximal overall power consumption is 25W.

Note 3 PoE, USB, auxiliary inputs and outputs are only available on centrals Alpha2+PoE and Alpha4+PoE.

Nexus® readers



| | |
|--|---|
| Specifications | Cortex M3 CPU |
| Supply voltage | Min 9V DV - Max 24V DC |
| Typical supply current | 72mA at 14V DC, 1W, with keypad 180 mA at 14V DC, 2.5W |
| Peak current | 150mA at 14V DC, 2.1W, with keypad 200 mA at 14V DC, 2.8W |
| Operating temperature | -20 °C to 70 °C |
| Storage temperature | -45 °C to 85 °C |
| Communications | RS485 port, using MODBUS protocol with encrypted data ¹ |
| LED indicator | Two color: red for locked door and green for open door |
| Buzzer | Short beep if access is granted and longer error beep for otherwise. For each key pressed, you will hear short click sound and see blink of green LED |
| Transmit frequency | 13,56 Mhz (Nexus M or MK) or 125 kHz (Nexus P or PK) |
| Reading distance | Nexus Prox - ISO card: typical 40mm Nexus Prox - Tag: typical 30 mm Nexus Mifare - ISO card: typical 30mm Nexus Mifare - Tag: typical 20 mm |
| Recommended mounting height | 130-160 cm |
| Cable length | 3m |
| Max cable distance from central | 50m - Check cable specifications for details |
| Wiring | Orange + 9-24V DC input Orange/White - Ground Green RA RS-485 BUS Green/White RB RS-485 BUS |
| Anti-sabotage protection (tamper switch) | Optical, integrated |
| Dimensions | Width:54mm x length:149mm x height: 15mm |
| Weight | 165g |
| Standards and certifications | CE |
| IP protection | IP 65 |
| Color | Black |
| Material | Self-extinguishing material PC-ABS (V0) |
| Warranty | 2 years |

Note 1 Available with firmware update

Table for location notes

| Location | IP-adress | MAC-adress |
|----------|-----------|------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |