Instructions

⚠ Disconnect power before wiring and use an ESD bracelet during installation.

⚠ Be sure that the AP7803m, AP7003m I/O terminals are not accessible by the end user.

		Remarks
1.	485bus	To connect AP70xx(m) to AP7803(m) (see Topology)
2.	External power supply	Not necessary when using PoE+, PoE (step 5)
3.	Inputs	Supervised (configurable)
4.	Outputs	Vlock can be used in combination with PoE+ or an external power supply (step 2), Vlock follows Vin
5.	Ethernet	AP7803(m) only (see Topology)
6.	Badge readers	RS485, Wiegand. Vout follows Vin
7.	Battery activation strip	AP7803(m) only
8.	External tamper	External tamper connection (digital input)
9.	Monitor inputs	External power monitoring (digital inputs)

Wiring specifications

⚠ Failure to comply with the specifications may result in reduced performance or malfunction.
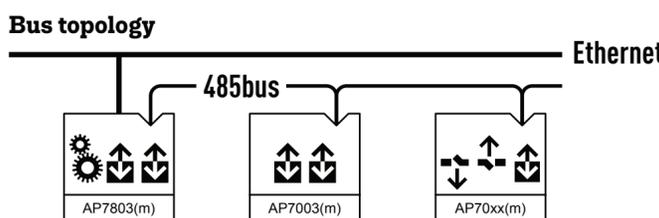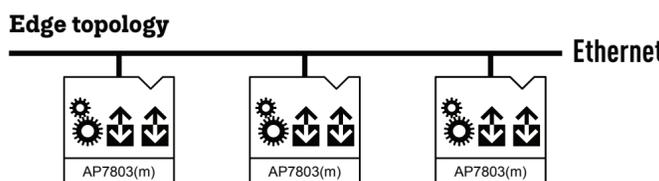
Purpose	Specification
A. Ethernet wiring	UTP CAT 5, max. 100 m
B. 485bus wiring	1 x 2 x 0.22 mm² shielded (100 - 120 Ω), max. 1200 m
C. Ext. power supply wiring	2 x 0.5 mm² shielded, max. 5 m
D. Badge reader wiring	RS485 excl. power: 1 x 2 x 0.22 mm² shielded, max. 1000 m (depending on reader)
E. Badge reader wiring	RS485 incl. power: 2 x 2 x 0.22 mm² shielded, max. 150 m (depending on reader)
F. Badge reader wiring	Wiegand: n x 0.22 mm² shielded, max. 150 m
G. Input wiring	n x 0.22 mm², max. 100 m

Controller / Interface

Door controller (AP7803(m))
Includes controller and requires an ethernet connection (step 5) to connect to the AEOS server.

Door interface (AP7003(m))
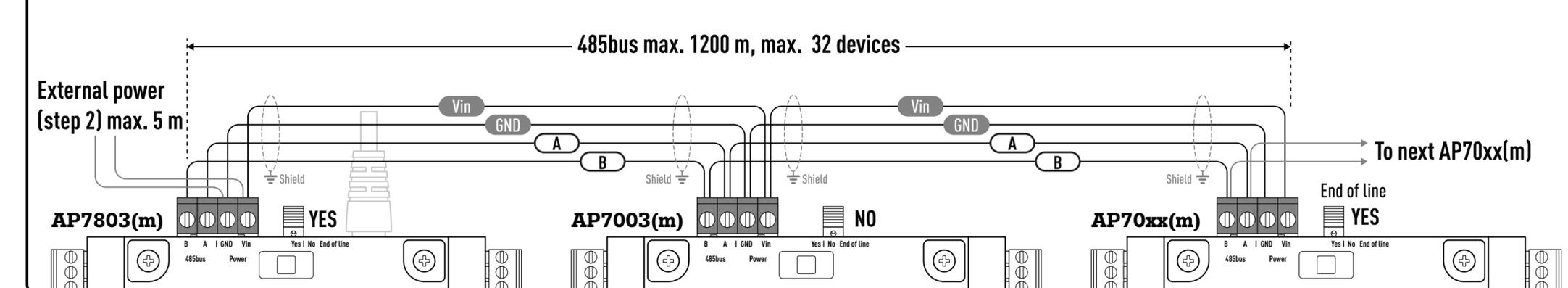Requires an AP7803(m) to function and must therefore be connected to an AP7803(m) through the 485bus (step 1).

Topology

⚠ Before installation, please determine in what topology the device will be placed.

Edge topology

AP7803(m) — AP7803(m) — AP7803(m) — Ethernet

Bus topology

AP7803(m) — AP7003(m) — AP70xx(m) — 485bus — Ethernet

485bus

① 1 x 2 x 0.22 mm² shielded (100 - 120 Ω), max. 1200 m B

⚠ Always use 1 AP7803(m) in the 485bus.

⚠ If a difference in potential is expected, avoid the use of the 485bus or use suitable bus isolators.

ℹ The AP7803(m) can be placed anywhere in the 485bus.

⚠ The end of line jumper must be set to YES for the first and last device in the 485bus.

485bus max. 1200 m, max. 32 devices

External power (step 2) max. 5 m

To next AP70xx(m)

Vin, GND, A, B, Shield

AP7803(m) — YES — B A | GND Vin — 485bus Power — Yes | No End of line

AP7003(m) — NO — B A | GND Vin — 485bus Power — Yes | No End of line

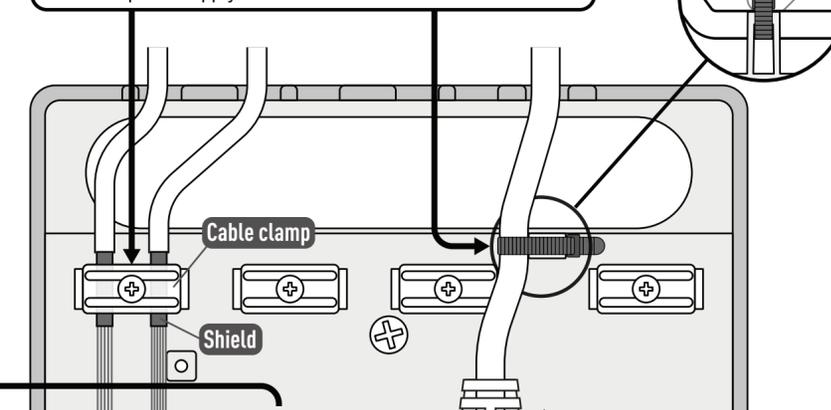**AP70xx(m)** — End of line YES — B A | GND Vin — 485bus Power — Yes | No End of line

External power supply

② 2 x 0.5 mm² shielded, max. 5 m C

⚠ To protect the AP7803(m), AP7003(m) against mains supply voltage dips, a UPS must be used to comply with EN50130-4.

ℹ Use an external power supply, or use PoE+, PoE (step 5) to power the AP7803(m).

Power — Vin / GND

Vin	Vlock	Vreader
13.2 V	12 V / 600 mA	12 V / 500 mA
26.4 V	24 V / 600 mA	24 V / 500 mA

Inputs

③ n x 0.22 mm², max. 100 m G

Supervised
Contact — R=4k7 — INx / GND

Door monitor — IN1 / GND
Manual unlock — IN2 / GND
Emergency unlock — IN3 / GND

Outputs

④ As specified by the manufacturer

⚠ Do not use Vlock in combination with PoE (step 5).

Connect protection diode as near as possible to terminals of the lock.

Door lock — NC / NO / COM — Vlock / GND

Vlock — Vout / GND / NC
Relay — COM / NO

External tamper

⑧ ℹ 2 x 0.22 mm², max. 100 m G

Tamper detection is available through the onboard optical tamper sensor (AP7803, AP7003), or by use of the Ext. tamp. input (AP7803m, AP7003m).

Tamper — Ext. tamp. / GND

Strain relief and shield

⚠ Make sure all cables have a proper shield connection and are properly secured using the available provisions. Shield must be connected to earth, for example via the power supply unit.

Side

Cable clamp

Shield

B A | GND Vin — 485bus Power — Yes No End of line

STATUS — Status LED

nedap

READER A
READER B — Reader LED

Reset button
Operation explained on the backside

Optical tamper sensor — Power LED

Monitor — AC OK Batt. low Ext. tamp. GND

INPUTS A — IN1 GND IN2 GND IN3 GND — Door mon. Man. unl. Em. unl.
OUTPUT A — Vout GND Vlock NC COM Relay A

INPUTS B — IN4 GND IN5 GND IN6 GND — Door mon. Man. unl. Em. unl.
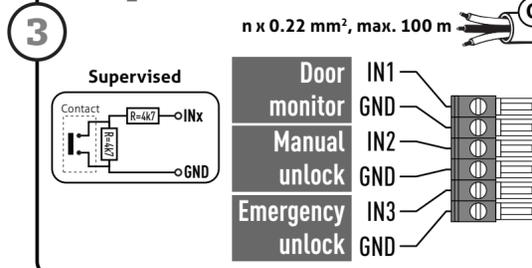OUTPUT B — Vout GND Vlock NC COM Relay B

Reset

Ethernet (AP7803(m))

⑤ UTP CAT 5, max. 100 m A

ℹ Default network settings for each device are: unique hostname (based on MAC address), DHCP as well as static IP (192.168.1.1).

⚠ All cable circuits connected to the AP7803(m) that go outside the building must be isolated.
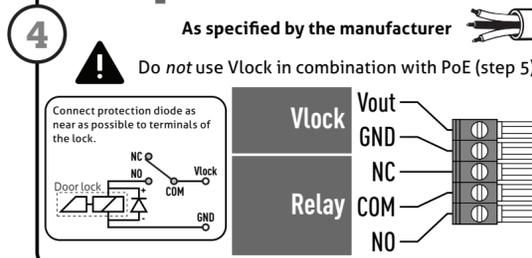
PoE+, PoE (AP7803(m))

⚠ Only use Vlock in combination with PoE+ (not PoE) or an external power supply. PoE+ and PoE cannot power other devices on the 485bus.

Power	Vlock	Vreader
PoE+	12 V / 600 mA	12 V / 500 mA
PoE	Do not use	12 V / 500 mA
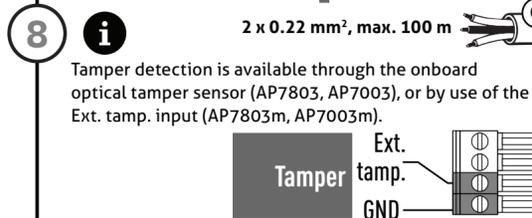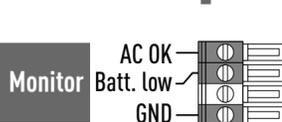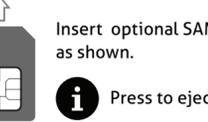
Badge readers

⑥ **RS485**
excl. power: 1 x 2 x 0.22 mm² shielded, max. 1000 m D
incl. power: 2 x 2 x 0.22 mm² shielded, max. 150 m E

RS485 — B(+) / A(-) / GND
Vreader — Vout

Wiegand
n x 0.22 mm² shielded, max. 150 m F

Beeper — OUT3
Red LED — OUT2
Ground — GND
Green LED — OUT1
Wiegand — D0 / D1
Vreader — GND / Vout

OUT3 OUT2 GND OUT1 D0 D1 GND Vout — Beep Red Green Wiegand Vreader
RS485 B(+) A(-) Vreader Vout

Monitor inputs

⑨ G

Monitor — AC OK / Batt. low / GND

SAM card

Insert optional SAM card as shown.

ℹ Press to eject.

Battery activation strip

⑦ ⚠ The battery activation strip must be removed during installation, when power is available. AP7803(m) only.

LED indications

Status LED (AP7803(m))

Colour	Status		Description
Green	Glowing		Running normally
Red	Blinking fast		Controller not running
Pink	Glowing		Service mode
Blue	Blinking medium		Updating
Blue	Blinking slowly		Kernel update successful
Blue	Blinking fast		Update failed / No application
White	Blinking slowly		Beacon activated remotely

Status LED (AP7003(m))

Colour	Status		Description
Green	Glowing		Running normal
Red	Blinking medium		No connection to controller
Blue	Blinking medium		Updating
Blue	Blinking slowly		Kernel update successful
Blue	Blinking fast		Update failed / No application
White	Blinking slowly		Beacon activated remotely

Reader LED

Colour	Status	5s	Description
Yellow	Flash		RS485 connection
Yellow	Blink		RS485 conn. (relay activated)
-	Off		Wiegand connection
Yellow	Static		Wiegand conn. (relay activated)
Yellow	Blinking fast		Badge is being read

Power LED

Colour	Status		Description
Green	Static		Device powered

Ethernet LEDs (AP7803(m))

Colour	Status		Description
Yellow	Static		Speed: 100 Mbps (off: 10 Mbps)
Green	Flashing		Comm. over / link to ethernet

Document information

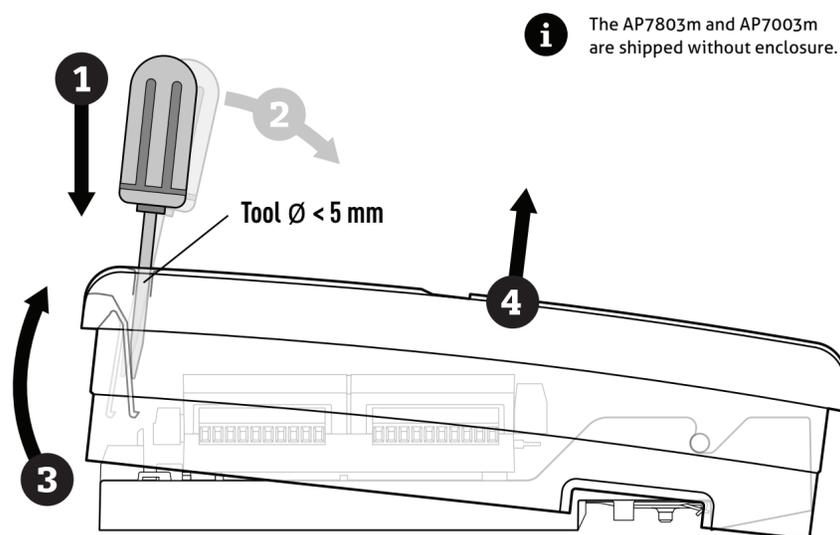|	
Date	16-09-2024
Version	5.2
Part number	5282942

Nedap Security
Parallelweg 2
NL-7141DC Groenlo
The Netherlands

info@nedapsecurity.com
www.nedapsecurity.com
+31 (0) 544 471 111

Install movie

✕ nedap

Opening enclosure (AP7803, AP7003)

ℹ The AP7803m and AP7003m are shipped without enclosure.

Tool Ø < 5 mm

Special functions

Reboot procedure

If you press the reset button with the power supply still connected, you can reboot the device.

Step 1. Press and hold the Reset button.

Step 2. Release the Reset button when the Status LED is blinking in red to reboot the device.

The instructions below apply to controllers with an AX8010 processor inside. More information can be found in the AEOS Technical Webhelp.

Factory reset (AP7803(m))

Installs AEOS version 2019.1.14. Deletes the door configuration and network configurations from the door controller. Deletes any custom additions to the controller keystore. Deletes any custom settings such as event filters etc. Resets the root password to the default value.

⚠ Please contact your local partner for support on this function.

Step 1. Back up the network settings and configuration of the door controller if you want to keep them.

Step 2. Disconnect the power supply.

Step 3. Press and hold the Reset button.

Step 4. Connect the power supply while holding the Reset button. Do not release this button.

Step 5. Release the Reset button when the Status LED is blinking in yellow to start the factory reset procedure.

Step 6. The factory reset is completed after the device has rebooted itself and the Status LED is glowing green.

⚠ Do NOT disconnect the power while the controller is performing its factory reset procedure. The factory reset can take up to 10 minutes to complete. There is no other feedback from the door controller during the update process.

Network reset (AP7803(m))

Deletes network configuration only.

⚠ Please contact your local partner for support on this function.

Step 1. Disconnect the power supply.

Step 2. Press and hold the Reset button.

Step 3. Connect the power supply while holding the Reset button. Do not release this button.

Step 4. Release the Reset button when the Status LED is blinking in pink to start the network reset procedure.

Step 5. The network reset is completed after the door controller has rebooted itself and the Status LED is glowing green.
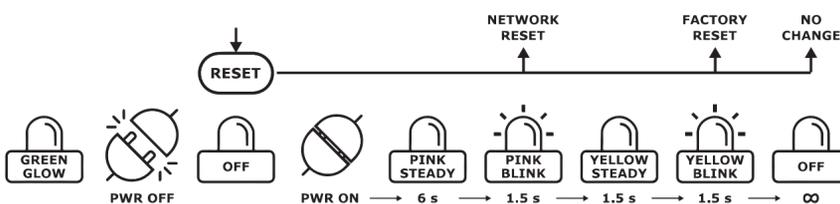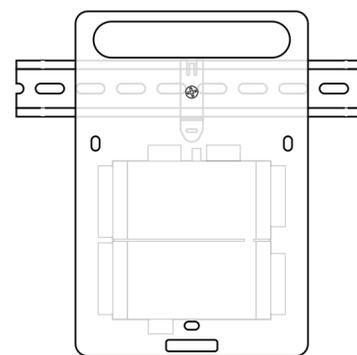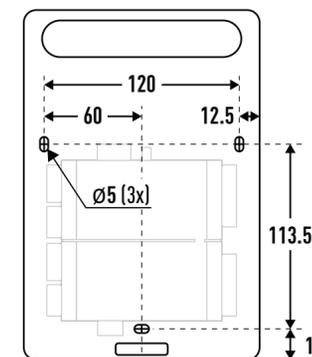

Mounting

ℹ All dimensions are in millimeters (mm).

⚠ For EN-IEC 60839-11-1 compliant installations: Ensure the AP7803, AP7003 is installed in an EN-IEC 60839-11-1 compliant enclosure with a total weight of 4.75 kg or more. Max. installation height: 2 m.

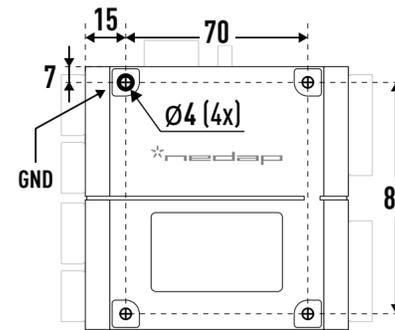## DIN rail 35 x 7.5 mm (AP7803, AP7003)

Drill pattern (AP7803, AP7003)

Drill pattern (AP7803m, AP7003m)

⚠ Ensure the AP7803m, AP7003m is used in an enclosure that enables proper strain relief and shield connection of the cables.

⚠ For EN-IEC 60839-11-1 compliant installations: Ensure the AP7803m, AP7003m is installed in an EN-IEC 60839-11-1 compliant enclosure.

AEOS Blue
door controller   AP7803(m)
door interface   AP7003(m)

Installation guide
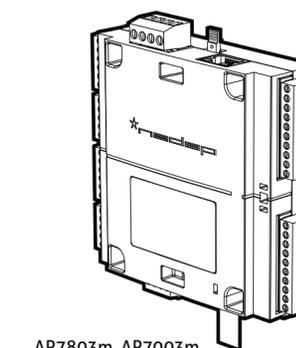
AP7803m, AP7003m

AP7803, AP7003

Technical specifications

AP7803 (9981608), AP7803m (9981624)

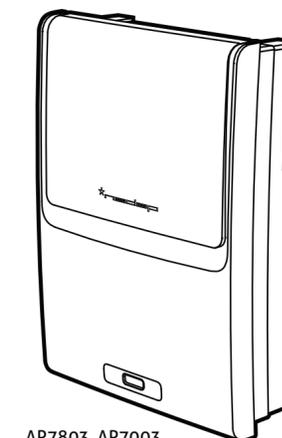|	
Ethernet connection	10/100 Mbps, RJ45
Power over Ethernet	PoE+: IEEE 802.3at (max. 25.5 W)
	Readers: 500 mA @ 12 VDC (shared by both readers)
	Locks: 600 mA @ 12 VDC (shared by both locks)
	PoE: IEEE 802.3af (max. 15.4 W), max. 500 mA @ 12 VDC (readers only)
Ethernet wiring	UTP CAT 5, max. 100 m
Battery	3 V BR1225 (lifetime 1 year if no power present, 10 years total lifetime)

AP7803(m), AP7003 (9981616), AP7003m (9981632)

Dimensions	Enclosure: 230 x 165 x 65 mm (H x W x D)
	Module: 122 x 120 x 35 mm (H x W x D)
Weight	Enclosure incl. module: approx. 700 g, module: approx. 200 g
Housing	PC ABS
Temperature range	Enclosure: operation: 0°C to 45°C, storage: -30°C to 65°C
	Module: operation: 0°C to 55°C, storage: -30°C to 65°C
Relative humidity	10% to 93% (non-condensing)
485bus connection	RS485 based (non-isolated), jumper selectable end of line, support for up to 32 units, bitrate up to 240 kbps
External power supply	12-27 VDC SELV (AP7803(m): min. 250 mA, max. 1.5 A @ 12-27 VDC)
	(AP7003(m): min. 100 mA, max. 1.3 A @ 12-27 VDC)
	Readers: 500 mA @ V_{in} (shared by both readers)
	Locks: 600 mA @ V_{in} (shared by both locks)
	The power supply or power adapter must comply with local regulations for a SELV (ES1), limited power (NEC class2, ps2) output
Readers	2 x RS485 or 2 x Wiegand
Inputs	2 x 3 secured inputs (Door monitor, Manual unlock, Emergency unlock)
	2 digital inputs (AC OK, Battery low)
Outputs	2 x 1 relay, dry contacts (NC, COM, NO), max. 30 VDC, max. 2 A
	2 x 3 open collector outputs (Green LED, Red LED, Beeper), max. 20 mA each
Tamper detection	1 optical tamper sensor (AP7803, AP7003)
	1 digital input (for connecting external tamper switch)
Status LEDs	1 Status LED, 1 Power LED, 2 Reader LEDs
485bus wiring	1 x 2 x 0.22 mm² shielded (100-120 Ω), max. 1200 m
External power supply wiring	2 x 0.5 mm² shielded, max. 5 m
Reader wiring	RS485 excl. power: 1 x 2 x 0.22 mm² shielded, max. 1000 m (depending on reader)
	RS485 incl. power: 2 x 2 x 0.22 mm² shielded, max. 150 m (depending on reader)
	Wiegand: n x 0.22 mm² shielded, max. 150 m (depending on reader)
Input wiring	n x 0.22 mm², max. 100 m

Certifications

RESET

NETWORK RESET   FACTORY RESET   NO CHANGE

GREEN GLOW   OFF   OFF   PINK STEADY   PINK BLINK   YELLOW STEADY   YELLOW BLINK   OFF

PWR OFF   PWR ON → 6 s → 1.5 s → 1.5 s → 1.5 s → ∞