Instructions

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

Be sure that the AP7031m 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	Check total power consumption
3. Inputs	Supervised (configurable)
4. Serial channel (AUX)	Functionallity depending on firmware and configuration
5. Outputs	Dry contacts
6. External tamper	External tamper connection (digital input)
7. 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. 485bus wiring	1 x 2 x 0.22 mm² shielded (100 - 120 Ω), max. 1200 m
B. Ext. power supply wiring	2 x 0.5 mm² shielded, max. 5 m
C. Serial channel wiring	RS485 excl. power: 1 x 2 x 0.22 mm² shielded, max. 1000 m (depending on device)
D. Serial channel wiring	RS485 incl. power: 2 x 2 x 0.22 mm² shielded, max. 150 m (depending on device)
E. Serial channel wiring	RS232: 2 x 2 x 0.22 mm² shielded, max. 15 m (depending on device)
F. Input wiring	n x 0.22 mm², max. 100 m

Controller / Interface

Door controller (AP7803(m))

Includes controller and requires an ethernet connection to connect to the AEOS server.

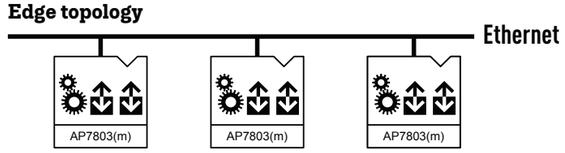
I/O interface (AP7031(m))

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

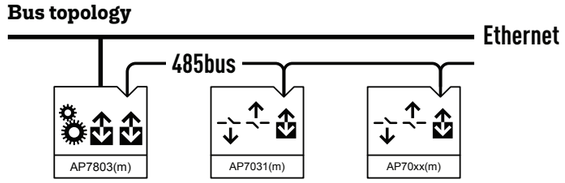
Topology

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

Edge topology



Bus topology



1 485bus

485bus **A**

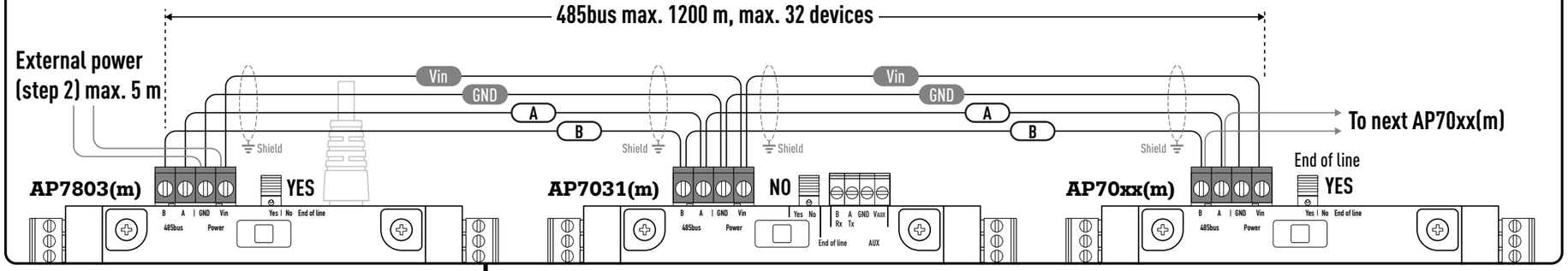
1 x 2 x 0.22 mm² shielded (100 - 120 Ω), max. 1200 m

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.

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.

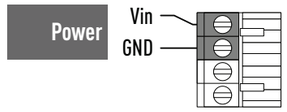


2 External power supply

2 x 0.5 mm² shielded, max. 5 m **B**

To protect the AP7031(m) against mains supply voltage dips, a UPS must be used to comply with EN50130-4.

Each power output (Vout1, Vout2 and Vaux) is independently controlled and checked.

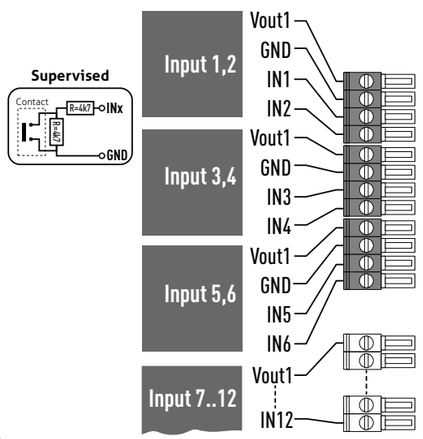


Vin	Vout1 , Vout2	Vaux
13.2 V	12 V / 600 mA	12 V / 250 mA
26.4 V	24 V / 600 mA	24 V / 250 mA

3 Inputs

n x 0.22 mm², max. 100 m **F**

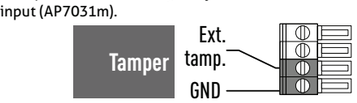
Inputs can be made supervised by settings (up to 6 states).



6 External tamper

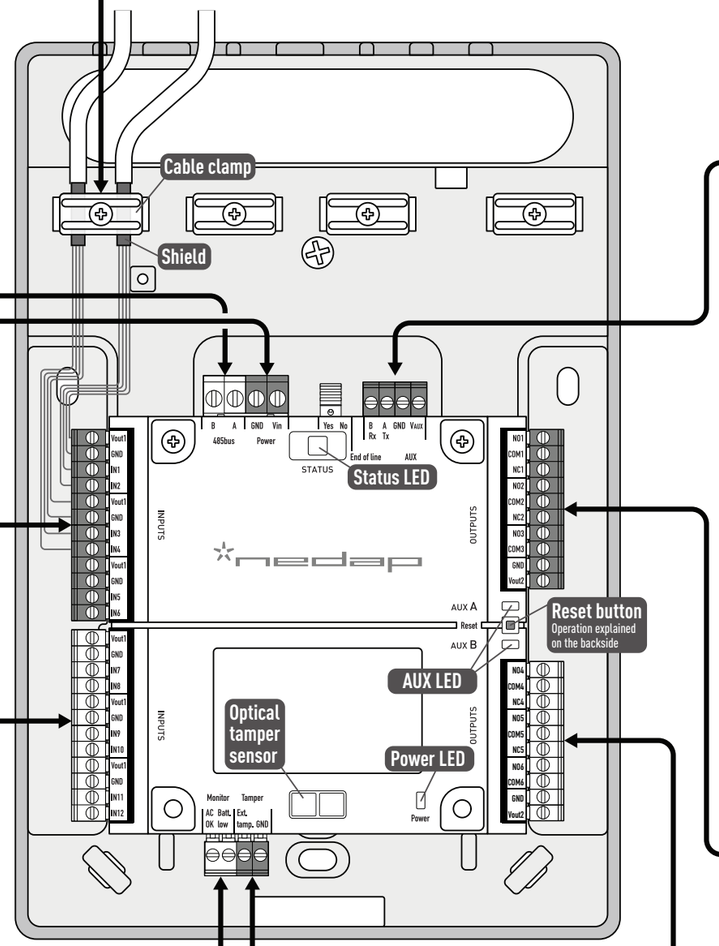
2 x 0.22 mm², max. 100 m **F**

Tamper detection is available through the onboard optical tamper sensor (AP7031), or by use of the Ext. tamp. input (AP7031m).



Strain relief and shield

Make sure all cables have a proper shield connection and are properly secured using the available provisions.



7 Monitor inputs

n x 0.22 mm², max. 100 m **F**

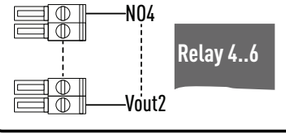
4 Serial channel (AUX)

RS485

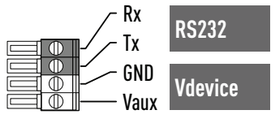
excl. power: **1 x 2 x 0.22 mm² shielded, max. 1000 m** **C**

incl. power: **2 x 2 x 0.22 mm² shielded, max. 150 m** **D**

Firmware and configuration determine RS485 (default) or RS232 functionality.



RS232 **2 x 2 x 0.22 mm² shielded, max. 15 m** **E**



5 Outputs

As specified by the manufacturer

Relay 3 and Relay 6 do not have NC contact.

LED indications

Status LED

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

AUX LED function is controlled by firmware: For NR2 firmware the AUX A LED functionality is identical as reader LED on AP7x03.
LED status can be inverted as LED must show multiple information.

AUX A LED

Colour	Status	5s	Description
Yellow	Flash		RS485 mode (Serial) / Communication reader ok (NR2)
Yellow	Blinking fast		Transmit data RS485/RS232 (Serial) / Badge is being read (NR2)
Yellow	On (or Inverted Flash/Blink)		Relay 1-3: at least one relay active

AUX B LED

Colour	Status	5s	Description
Yellow	Flash		RS232 mode (Serial)
Yellow	Blinking fast		Receive data RS485/RS232 (Serial)
Yellow	On (or Inverted Flash/Blink)		Relay 4-6: at least one relay active

Power LED

Colour	Status	Description
Green	Static	Device powered

Document information

Date	October 12, 2015
Version	1
Part number	5284538

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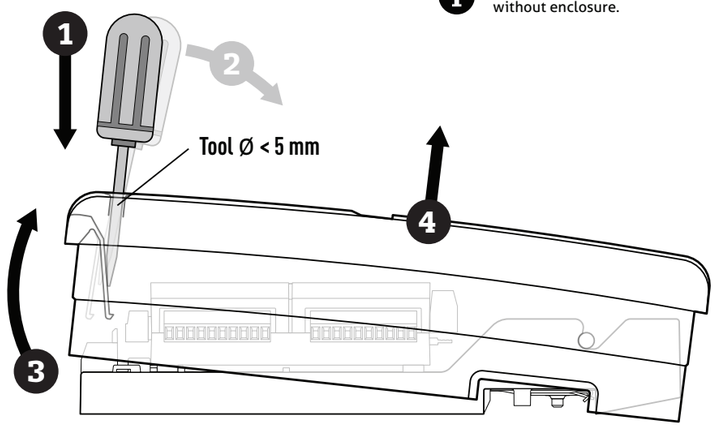
Install movie

technology that matters

Opening enclosure (AP7031)

The AP7031m is shipped without enclosure.



Special functions

Reset

Reset of an AP7031(m) takes a few seconds. (Reset of an AP7803(m) takes 30-60 seconds.)

1. Press and hold the Reset button for 2-3 seconds to cycle through the different modes. See the *Mode selector* below.

2. Release the Reset button when the Status LED is blinking fast in red to reset the device.

Service mode (AP7803(m))

Please contact your local partner for support on this function.

Enable Service mode

1. Press and hold the Reset button for 8-9 seconds to cycle through the different modes. See the *Mode selector* below.

2. Release the Reset button when the Status LED is blinking fast in Pink to enable Service mode.

Disable Service mode

1. Whilst in Service mode, press and hold the Reset button for 2-3 seconds to cycle through the different modes.

2. Release the Reset button when the Status LED is blinking fast in Red to reset the device and disable Service mode.

Factory reset (AP7803(m))

Please contact your local partner for support on this function.

The Factory reset will reset all network settings (e.g. DHCP and hostname) to the factory defaults.

1. Disconnect the power supply.

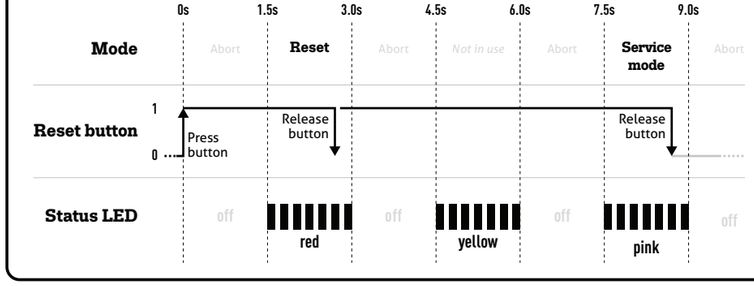
2. Press and hold the Reset button.

3. Connect the power supply while holding the Reset button. The Status LED will show static pink.

4. Release the Reset button when the Status LED is blinking fast in pink.

5. The Factory reset is completed after the device has reset and the Status LED is glowing green.

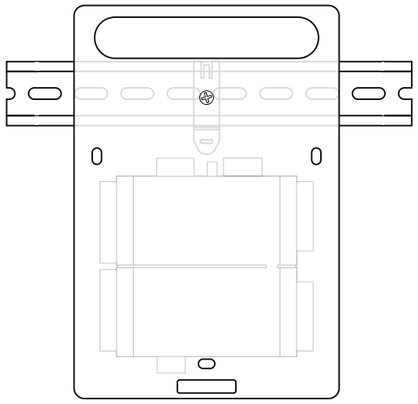
Mode selector



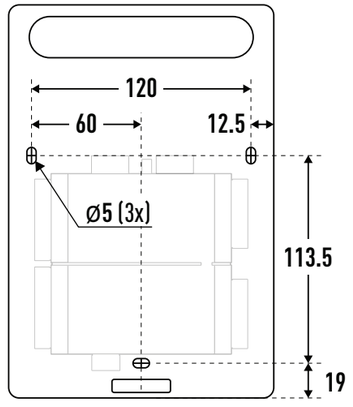
Mounting

All dimensions are in millimeters (mm).

DIN rail 35 x 7.5 mm (AP7031)

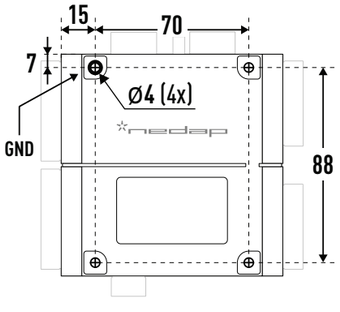


Drill pattern (AP7031)



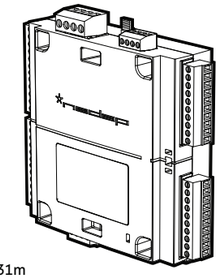
Drill pattern (AP7031m)

Ensure the AP7031m is used in an enclosure that enables proper strain relief and shield connection of the cables.

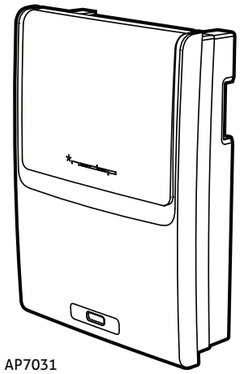


AEOS Blue I/O interface AP7031(m)

Installation guide



AP7031m



AP7031

Technical specifications

AP7031 (9984143), AP7031m (9984135)

Dimensions	AP7031: 230 x 165 x 65 mm (H x W x D) AP7031m: 122 x 120 x 35 mm (H x W x D)
Weight	AP7031: approx. 700 g, AP7031m: approx. 200 g
Housing	PC ABS
Temperature range	AP7031: operation: 0°C to 45°C, storage: -30°C to 65°C AP7031m: 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 (min. 100mA, max. 1.7 A @ 12-27 VDC) For use in low voltage, power limited, class 2 circuits only
Power output	Inputs: 600 mA @ Vin (shared by all inputs) Outputs: 600 mA @ Vin (shared by all outputs) Serial channel: 250 mA @ Vin
Inputs	12 secured inputs (intended for dry contact or open collector) 2 digital inputs (AC OK, Battery low)
Outputs	4 relays, dry contacts (NC, COM, NO), max. 30 VDC, max. 2 A 2 relays, dry contacts (COM, NO), max. 30 VDC, max. 2 A
Serial channel (AUX)	RS485 or RS232 (depending on configuration)
Tamper detection	1 optical tamper sensor (AP7031) 1 digital input (for connecting external tamper switch)
Status LEDs	1 Status LED, 1 Power LED, 2 AUX status 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
Serial channel wiring	RS485 excl. power: 1 x 2 x 0.22 mm² shielded, max. 1000 m (depending on peripheral) RS485 incl. power: 2 x 2 x 0.22 mm² shielded, max. 150 m (depending on peripheral) RS232: 2 x 2 x 0.22 mm² shielded, max. 15 m
Sensor wiring	n x 0.22 mm², max. 100 m

Certifications

This equipment is tested and conforms with the essential requirements of Electromagnetic Compatibility Directive 2004/108/EC: EN50130-4 (2011), EN55022 (2010) + AC(2011); and Low Voltage Directive 2006/95/EG: EN60950-1 (2006) + A11(2009) + A1(2010) + A12(2011) + AC(2011) + A2(2013).

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.