AMC2 - Access Modular Controller

The AMC2 (Access Modular Controller) is used as an access controller in the access control systems:
• BISACE (Access Engine) from version 2.0 onward
• AMS (Access Management System)
• APE (Access Professional Edition).

The device controls a group of one to eight access points. These access points, also known as entrances, can be:
• doors
• gates
• barriers
• turnstiles
• revolving doors
• mantraps
• ID card, PIN and biometric readers
• door opening elements
• sensors.

The AMC2 can control a maximum of eight ID readers (depending on the reader type) and fully processes the access logic at the assigned entrances.

The analog inputs have a status recognition of the connected lines.

The relay outputs activate the door opening elements and/or generate the security activation and signaling.

The AMC2 stores all necessary information in a battery-buffered memory and a compact flash storage element. Thus, even when the unit is offline, it checks independent authorization on access points, takes access decisions, controls closing/opening elements and registers movement events.

System overview

The controller can be connected to the host system through one of the following interfaces, depending on the type of installation:
With RS485 operation, a maximum of eight access controllers can be connected to one party line. The communication between the host system and the controller via RS485 is encrypted with up to AES256, depending on the firmware version used.
In the communication chain of a system, the access controller is integrated between the host system and the peripheral devices.
**Functions**

- Storing downloaded data as listed below:
  - Master data
  - Authorizations
  - Access models
  - Display texts
  - Reader configurations
- Interpretation of transaction data from reader:
  - Authorization check
  - Host request
  - PIN code
- Control/monitoring:
  - Denial or door release
  - Switching alarm
  - Door statuses
  - Reader operation statuses
  - Internal alarm statuses
- Messages to Access Engine:
  - Host requests
  - Transaction data for storing
  - Error and malfunction messages
  - Alarm messages
- Power supply for:
  - Readers
  - Door openers
  - Contact current feeds

**Installation/configuration notes**

**Power supply**

An external power supply (10 to 30 V DC) for the AMC2 is connected to the pin 1 (positive) and 3 (negative). When using an uninterruptible power supply (UPS), the relevant UPS output relay can be connected to the pins:

- 4 and 7 for AC.
- 5 and 7 for battery.
- 6 and 7 for DC.

Otherwise, these pins will short-circuit.

**Quantity restrictions**

- Follow the Access Engine installation and configuration instructions regarding the maximum number of access controllers on one access control system.
- The maximum number of cards that a controller can store is 400,000, depending on the access host system and the license used. For further information, refer to the datasheets of the BIS/ACE and AMS access control systems.

**Connections to the ID card readers**

**Wiegand interfaces**

The AMC2 2WCF has two connections for connecting a maximum of two ID card readers.

The AMC2 4WCF has four connections for connecting a maximum of four ID card readers. The element interfaces of the ID card reader and the door control are divided into groups, each with reader interface, two input and two output contacts. The following definitions apply to the Wiegand interfaces:

- 10-wire interface (including shield).
- Maximum cable length of 158 m (500 ft) to the ID card reader.

**RS485 interfaces**

The AMC2 4R4CF has four connections for connecting a maximum of eight ID card readers, using secure OSDPv2 protocol. The interfaces are divided into two buses. A maximum of eight readers can be connected to one interface.

**Reader and door models**

The AMC2 controls the connected reader through predefined door models. Door models control in accordance with the relevant security requirements.
• Number and usage of the readers connected to the AMC2, such as input and output readers, input readers, buttons.
• Number and application type of the AMC inputs, such as door status, output button, revolving door position.
• Number and usage of AMC outputs, such as door opener, mantrap contact, signal light switching.

The maximum number of entrances to be managed by one AMC2 is ultimately defined by the door models used and their requirements regarding readers and inputs/outputs.

Voltage equalization: grounding
• Potential differences can be compensated through the protective grounding with a jumper.
• A line (shield, equipotential bonding line) with protective ground can only be connected in one position.
• For further instructions, see the operating manual.

Contacts
Inputs
The eight analog inputs can be used as digital or analog contacts. For analog use, resistance values can be specified that make it possible to carry out a further check for cable breaks and short-circuits.

Relay outputs
The relay outputs offer the following functions:
• The outputs can operate with potential free contacts for external power supply (dry mode).
• The outputs can operate using the internal voltage of power supply (wet mode).
• Only ohm resistive loads can be connected to the relay.
• Inductive loads must be bypassed through recovery diodes. These diodes (1N4004) are enclosed.

General instructions
• AMC2 and related equipment should be mounted in a "secured area".
• Detailed connection conditions are specified in the operating manual.
• After purchase, primary AC power must be done by a licensed electrician.

Technical specifications

Hardware
Components and features
• Integrated Microcontroller
• 512 kB-EPROM/FLASH
• 256 kB-SRAM
• Serial EEPROM
• RTC

• Pluggable 2 GB Compact Flash
• Battery for SRAM and RTC
• Reset button
• Host address can be set via DIP switch

Capacity
Number of analog inputs
• AMC2-2WCF: 4
• AMC2-4WCF: 8
• AMC2-4R4CF: 8

Number of relay outputs
• AMC2-2WCF: 4
• AMC2-4WCF: 8
• AMC2-4R4CF: 8

Connectivity
Host interface
• RS485 (2- or 4- wire); opto-decoupled
• Ethernet 10/100BaseT (TCP/IP) with RJ45

Reader interfaces
• AMC2-2WCF: 2 Wiegand
• AMC2-4WCF: 4 Wiegand
• AMC2-4R4CF: 4 RS485; 2-wire, opto-coupled, 9,600 Bd

Electrical
Power supply
10 to 30 VDC, max. 60 VA
Available for external devices: 55 VA

Environmental
Operating temperature (°C)
0 °C – 50 °C

Operating temperature (°F)
32 ºF - 122 ºF

IP rating
IP30

Mechanical
Color
White

Dimension (H x W x D) (mm)
232 mm x 90 mm x 63 mm

Dimension (H x W x D) (in)
9.13 in x 3.54 in x 2.48 in

Material
Base: PPO (UL 94 V-0)
Upper: Polycarbonate (UL 94 V-0)

Mounting type
Rail-mounted
**Engineered Solutions - AMC2 - Access Modular Controller**

<table>
<thead>
<tr>
<th>Weight (g)</th>
<th>503 g - 540 g</th>
<th>Weight (lb)</th>
<th>1.1 lb - 1.19 lb</th>
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**Operation**

**Protection**

Tamper switch

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**Ordering information**

**APC-AMC2-2WCF Door controller WI, 2 readers**

Two Wiegand interfaces for up to 2 card readers, network connection to the host system and Compact Flash memory (2 GB). Host data transfer encrypted. Order number APC-AMC2-2WCF | F.01U.371.285

**APC-AMC2-4WCF Door controller Wiegand with CF card**

Four Wiegand interfaces for up to 4 card readers, network connection to the host system and Compact Flash memory (2 GB). Host data transfer encrypted. Order number APC-AMC2-4WCF | F.01U.027.201

**APC-AMC2-4R4CF Door controller RS485 with CF card**

Four RS-485 interfaces for up to 8 card readers, network connection to the host system and Compact Flash memory (2 GB). Host data transfer encrypted. Reader data transfer encrypted according to reader capabilities. Order number APC-AMC2-4R4CF | F.01U.027.206

**Accessories**

**API-AMC2-4WE Door controller Wiegand extension**

The extension module AMC2 4W-EXT is equipped with four Wiegand type reader-interfaces plus eight inputs and eight outputs. Hence with the AMC2 4W-EXT it is possible to double the number of readers on an AMC2 4W from 4 to 8. Order number API-AMC2-4WE | F.01U.011.593

**API-AMC2-8IOE Extension board with 8-input 8-output**

8 input/output extension board, up to three per AMC, can be combined with the AMC2 16I-EXT and the AMC2 16I-160-EXT. Order number API-AMC2-8IOE | F.01U.027.200

**API-AMC2-16IOE Extension board with 16-input 16-output**

16 input/output extension board, up to three per AMC, can be combined with the AMC2 16I-EXT and the AMC2 8I-80-EXT. Order number API-AMC2-16IOE | F.01U.013.385

**API-AMC2-16IE Extension board with 16-input 16-output**

16 input extension board, up to three per AMC, can be combined with the AMC2 16I-160-EXT and the AMC2 8I-80-EXT. Order number API-AMC2-16IE | F.01U.045.514

**APS-PSU-60 Power supply unit**

A power supply unit with an integrated battery charging device, that supports 12 V/7 Ah, 12 V/14 Ah and 24 V/7 Ah batteries, with selectable 12 VDC or 24 VDC voltage output. Order number APS-PSU-60 | F.01U.282.970

**D126 Battery, 12V 7Ah**

A rechargeable sealed lead-acid power supply used as a secondary power supply or in auxiliary or ancillary functions. Order number D126 | 4.998.125.825

**AEC-AMC2-UL01 AMC enclosure with 1 DIN rail**

Compliant with UL294 system certification for AMC2. Order number AEC-AMC2-UL01 | F.01U.330.018

**AEC-AMC2-UL02 AMC enclosure with 2 DIN rails**

Compliant with UL294 system certification for AMC2. Order number AEC-AMC2-UL02 | F.01U.330.017

**AEC-PANEL19-UPS Fitting panel, 19”**, 2 DIN rails

Mounting plate with two DIN rails, a battery bracket, and screw sockets for the power supply to mount into 19” racks. Order number AEC-PANEL19-UPS | F.01U.066.193

**AEC-PANEL19-4DR Fitting panel, 19”, 4 DIN rails**

Mounting plate with four DIN rails for 19” racks to connect max. four AMC2 devices. Order number AEC-PANEL19-4DR | F.01U.066.194

**ACX-RAIL-400 DIN rail 400mm**

Mounting rail (400 mm) for mounting the AMC2 component (controller and PSU) when the metal housing is not used. Order number ACX-RAIL-400 | F.01U.510.954

**ACX-RAIL-250 DIN rail 250mm**

Mounting rail (250 mm) for mounting the AMC2 component when the metal housing is not used. Order number ACX-RAIL-250 | F.01U.510.935

**Battery CR 2032**

Lithium Manganese Dioxide battery

Order number Battery CR 2032 | F.01U.214.924

**Services**

**EWE-AMCCTR-IW 12 mths wrty ext. AMC Reader Controller**

12 months warranty extension

Order number EWE-AMCCTR-IW | F.01U.364.824

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