BOSCH

AMC2 - Access Modular Controller

▶ Intelligent access manager for one to eight entrances

▶ A maximum of four interfaces include the reader power supply

▶ Standard 2 GB Compact Flash

▶ LCD display for displaying information

▶ A maximum of eight input and output contacts

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
- turn stiles
- 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
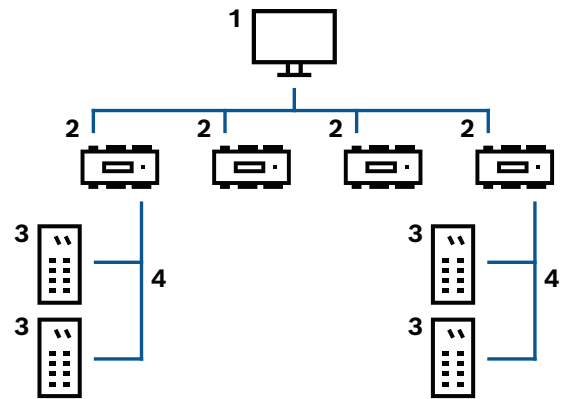
1 Host computer	2 AMC2
3 Card reader	4 Communication and power supply

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

Regulatory information

Region	Regulatory compliance/quality marks
Countries of Eurasian Customs Union	EAC

Region	Regulatory compliance/quality marks	
Europe	CE	
Poland	CNBOP	AMC2 4WCF
	CNBOP	AMC2 4R4CF
USA	UL	UL 294; Refer to Ordering Information
	FCC	Part 15 Class B; Refer to Ordering Information

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.
RS485 interface definition:
- 2-wire interface: Using the 10-pin pluggable connector.
- Maximum length of the bus: 1200 m.
- Transfer rates: 9.6 kbit/s.

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-de-coupled
	• 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 – 45 °C
Operating temperature (°F)	32 °F - 113 °F
IP rating	IP30

Mechanical

Color	White
Dimensions (H x W x D) (mm)	232 mm x 90 mm x 63 mm
Dimensions (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

Weight (g)	503 g - 540 g
Weight (lb)	1.1 lb - 1.19 lb
Operation	
Protection	Tamper switch

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.
F.01U.407.657: CE certification.
F.01U.371.285 / F.01U.411.047: CE and UL certification.
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.
F.01U.407.651: CE certification.
F.01U.027.201 / F.01U.411.048: CE and UL certification.
Order number **APC-AMC2-4WCF | F.01U.407.651 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.
F.01U.407.653: CE certification.
F.01U.027.206 / F.01U.411.050: CE and UL certification.
Order number **APC-AMC2-4R4CF | F.01U.407.653 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. F.01U.407.652: CE certification.
F.01U.011.593 / F.01U.411.049: CE and UL certification.
Order number **API-AMC2-4WE | F.01U.407.652 F.01U.011.593**

API-AMC2-8IOE Extention 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-16O-EXT. F.01U.407.654: CE certification.
F.01U.027.200 / F.01U.411.054: CE and UL certification.
Order number **API-AMC2-8IOE | F.01U.407.654 F.01U.027.200**

API-AMC2-16IOE Extention 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-8O-EXT. F.01U.407.655: CE certification.
F.01U.013.385 / F.01U.411.051: CE and UL certification.
Order number **API-AMC2-16IOE | F.01U.407.655 F.01U.013.385**

API-AMC2-16IE Extention board with 16-input
16 input extension board, up to three per AMC, can be combined with the AMC2 16I-16O-EXT and the AMC2 8I-8O-EXT. F.01U.407.656: CE certification.
F.01U.045.514 / F.01U.411.052: CE and UL certification.
Order number **API-AMC2-16IE | F.01U.407.656 F.01U.045.514**

API-AMC2-16ION Standalone controller for BIS with OPC
Standalone controller with inputs and outputs only. Compatible with BIS in combination with OPC Server only.
Order number **API-AMC2-16ION | F.01U.013.384**

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**

Services
EWE-AMCCTR-IW 12 mths wrty ext. AMC Reader Controller
12 months warranty extension
Order number **EWE-AMCCTR-IW | F.01U.364.824**