Smart Edge Controller M9-SEC

Product Data Sheet

Smart Edge Controller M9-SEC for the cloud integration of FIN Framework, FIN Stack and/or third-party systems.

- 2-port Ethernet switch for LAN (includes daisy chaining)
- 1-port Ethernet for WAN
- USB interface for 4G dongles
- Operating voltage AC 24 V or DC 24 V
- Mounting on standard rails or on the wall
- Plug-in screw terminal blocks
- Multi-site management
- Remote operation and monitoring
- Alarm treatment
- Remote tool access, update, and configuration via Siemens Cloud Services

Functions

Smart Edge Controller provides two integration levels for connecting devices to the cloud: System integration (between the M9-SEC and the devices) and cloud integration (between the M9-SEC and the cloud).

A broad range of devices can be integrated on the system level. Smart Edge Controller supports various protocols (BACnet, Modbus) and Ethernet.

The device supports Ethernet and 4G on the cloud level via the MQTT protocol.

The specific set of supported functions may vary according to the region (for example UL markets) and according to the connected system. Detailed information about the latest supported functions can be found in the release notes of the installed software.

Application

Smart Edge Controller is a physical device where FIN Framework or FIN Stack is running to monitor and control building/s. Additionally to that, FIN Edge2Cloud is provided for secure remote access with no requirement for a VPN.

It can also securely transmit data to the cloud over cable networks or over mobile networks (e.g. 4G: With a router). 4G USB Dongle support is available in addition (see “Accessories”).

Equipment combinations

Accessories

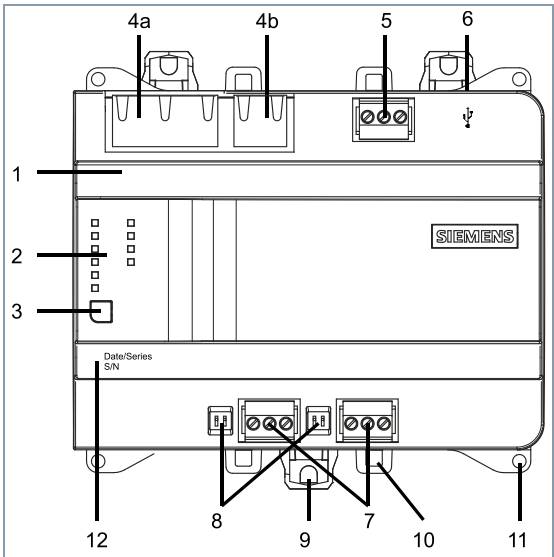
The accessories listed below are tested but not sold by Magnum First.

Manufacturer	Type	Description
Siemens	6EP3332-6SB00-0AY0	Power supply DC 24 V / 2.5 A
Verizon	USB730L / MC730	4G USB Dongle
Huawei	E3372 / E3372h - 153	4G USB Dongle
Huawei	E3372 / E3372h - 320	4G USB Dongle
Alcatel	IK40V-2AALDE1	4G USB Dongle

Please confirm compatibility of the chosen 4G Dongle according to the infrastructure of your regional Internet Service Provider before choosing and ordering a specific device (i.e. compatibility of regional 4G frequency bands). Consult “4G Dongle Commissioning Guide” for further instructions and information.

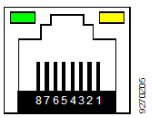
Technical and mechanical design

The compact build can be mounted on standard rails or walls.



1	Plastic housing
2	LEDs for communication and status
3	Service button
4 a)	2-port Ethernet switch with 2 LEDs per port
4 b)	1-port Ethernet interface with 2 LEDs for WAN (Internet access)
5	Plug-in terminal blocks with screw terminals Power supply
6	USB interface for 4G dongles
7	Not supported (For future release)
8	Not supported (For future release)
9	Slider for mounting on standard mounting rails
10	Eyelets for cable ties
11	Holes for wall mounting
12	Date / Series and Serial number

LED indicators

Activity	LED / Interface	Color	Activity	Function
	Ethernet 1...3	Green	Continuously ON	Link active
			Continuously OFF	No connection
			Flashing	Network traffic
		Yellow	Continuously ON	Link 100 Mbps
			Continuously OFF	Link 10 Mbps
	RUN	Green	Continuously ON	Device operational
			Continuously OFF	Device not operational
			Flashing	Start-up or program halted
		Red	Continuously OFF	OK
			Continuously ON	HW or SW fault – power off and on the F200
			Rapid flashing	Firmware or application missing/corrupted
	☁	Blue	Continuously ON	Connection to the cloud OK
			Flashing	No connection to the cloud Onboarding to cloud not finished or device certificates not updated

Notes

Safety

⚠ CAUTION	
	**National safety regulations** Failure to comply with national safety regulations may result in personal injury and property damage. ● Observe national provisions and comply with the appropriate safety regulations.

Mounting position and ambient temperature

The devices can be snapped onto standard rails or screwed onto a flat surface.

Plug-in screw terminals connect power and interfaces (except for Ethernet).

Ambient temperature -5...50 °C (23...122 °F)	Ambient temperature -5...45 °C (23...113 °F)
● Wall, horizontal – From left to right – From right to left	● Overhead ● Wall, vertically – From top to bottom – From bottom to top ● On a horizontal surface

⚠ CAUTION	
	**Risk of overheating for failure to comply with ambient temperature** Burning and damage to the device ● Ensure sufficient ventilation to comply with the permissible ambient temperature within the panel or installation box. The temperature must be at least 10 K (18° F) lower outside the installation box.

Installation

⚠ WARNING	
	**Electric shock** Incorrect installation of the device may lead to electric shock injuries when touching the device! ● Install the device in a lockable cabinet or use terminal covers. ● Do not install the device in locations where children are likely to be present. ● Conductors with a cross-section of 0.5 mm2 (AWG24) or greater shall comply with the requirements of IEC 60332-1-2 and IEC 60332-1-3 or IEC TS 60695-11-21.

Commissioning / service

NOTICE	
	**When using a 4G dongle** Reboot the device after a 4G dongle has been connected. For details see 4G Dongle Setup (A6V12059208).

Technical data

Power supply

Operating voltage 24 V AC (24 V≃, ⊥, ⏚)	AC 24 V -15 / +20 % (SELV / PELV) or AC 24 V Class 2 (US) 48…63 Hz
Operating voltage 24 V DC	DC 24 V -15 / +20 % (SELV / PELV) or DC 24 V Class 2 (US)
Functional ground (US) Functional earth ⏚	The terminal for the functional ground must be connected on the installation side with the building grounding system (PE).
Screw terminals for wire cross sections up to	Max. 2.5 mm^2 (14 AWG)
Internal fusing	2.5 A irreversible / non-replaceable
External supply line fusing (EU)	Non-renewable fuse max. 10 A slow or circuit breaker max. 13 A Tripping characteristic B, C, D per EN 60898 or Power supply with current limitation of max. 10 A

Power consumption (for transformer planning)

Power consumption AC	16 VA
Power consumption DC	8 W

Function data

Hardware information	
Processor	NXP i.MX8 DualX
Storage	2 GB RAM 8 GB eMMC

Data backup in the event of power failure
Super cap to support real-time clock (7 days).

Interfaces

Ethernet interfaces	
Plug	3 x RJ45, shielded
Interface type	10Base-T / 100Base-TX, IEEE 802.3 compatible
Bit rate	10/100 Mbps, autosensing
Protocol	BACnet on UDP/IP, Modbus TCP/IP, KNX IP, Haystack over RESTful API, OPC UA, oBix, Sedona, and SQL.
Cabling, cable type	10 Mbps: Min. CAT3, shielded cable is recommended 100 Mbps: Min. CAT5, shielded cable is recommended
Cable length	Max. 100 m (330 ft)

Screw terminals, plug-in	
Cu-wire or Cu-strand with wire end sleeve	1 x 0.6 mm ø to 2.5 mm^2 (22 to 14 AWG) or 2 x 0.6 mm ø to 1.0 mm^2 (22 to 18 AWG)
Cu-strand without wire end sleeve	1 x 0.6 mm ø to 2.5 mm^2 (22 to 14 AWG) or 2 x 0.6 mm ø to 1.5 mm^2 (22 to 16 AWG)
Stripping length	6...7.5 mm (0.24...0.29 in)
Screwdriver	Slot screws, screwdriver size 1 with shaft ø = 3 mm
Max. tightening torque	0.6 Nm (0.44 lb ft)

USB interface (4G internet connection)	
Plug	Type A
Interface type	USB 2.0
Bit rate	480 Mbit
Max. load	500 mA
Max. cable length	5 m

Conformity

Ambient conditions and protection classification	
Classification as per EN 60730 Automatic action Control function Degree of pollution Overvoltage category	 Type 1 Class A 2 III
Design	Suitable for use in protection class I or II systems

Ambient conditions and protection classification	
Degree of protection of housing to EN 60529 Front parts in DIN cut-out Terminal part	 IP30 IP20
Climatic ambient conditions ● Storage / Transport (packaged for transport) as per IEC EN 60721-3-1 / IEC EN 60721-3-2 ● Operation as per IEC/EN 60721-3-3	 ● Class 1K22 / 2K12 Temperature -25...70 °C (-13...158 °F) Air humidity 5...95 % (non-condensing) ● Class 3K23 Temperature -5...50 °C (23...122 °F) (for details see chapter Mounting) Air humidity 5...95 % (non-condensing)
Mechanical ambient conditions ● Transport per IEC/EN 60721-3-2 ● Operation as per IEC/EN 60721-3-3	 ● Class 2M4 ● Class 3M11

Standards, directives and approvals	
Product standards	EN 60730-1 and EN 62368-1
Product family standard	EN 50491-x
Electromagnetic compatibility (EMC)	For residential, commercial, and industrial environments
EU conformity (CE)	See CE declaration [1)]
UL/cUL approbation (US / Canada)	UL916; http://ul.com/database
CSA certification	C22.2, http://csagroup.org/services-industries/product-listing
Environmental compatibility [1)]	The product environmental declaration [1)] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

FCC Statement

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.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

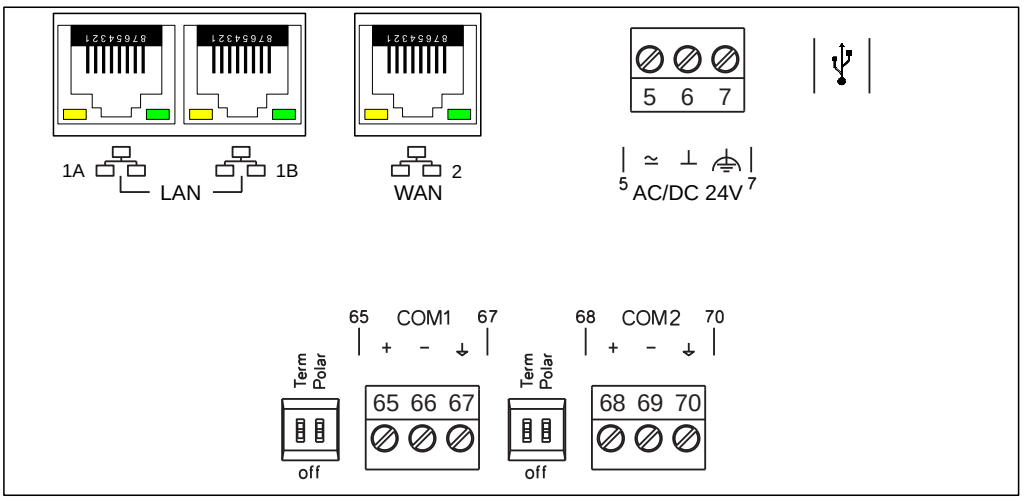
1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation

Housing

Housing

Color top/bottom	RAL 7035 (light grey) / RAL 7016 (anthracite grey)
Dimensions	per DIN 43 880, see dimensions
Weight with/without packaging	350 g / 300 g

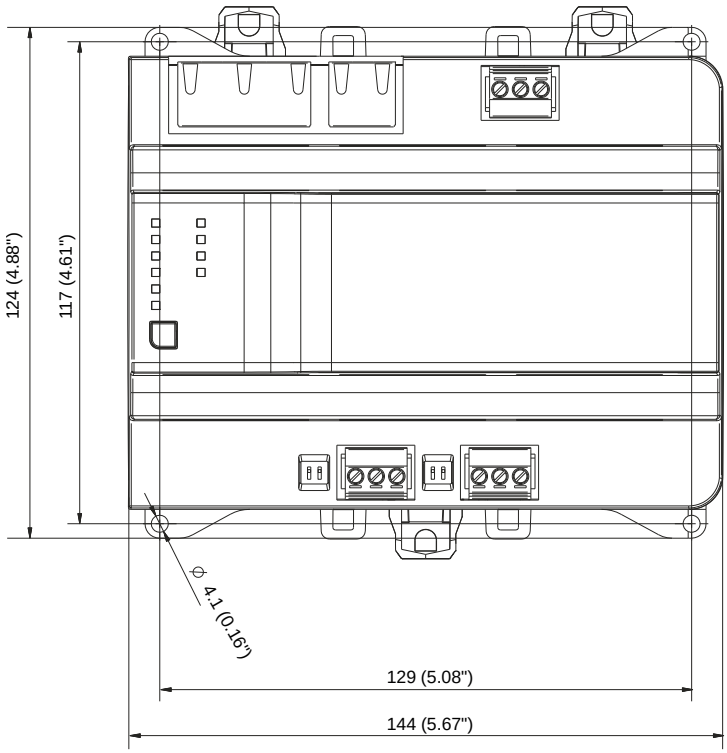
Connection terminals

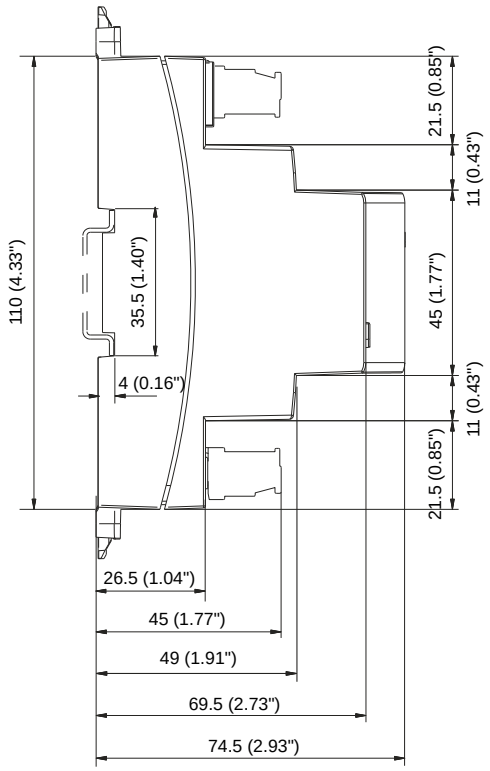


Terminal	Symbol	Description
1A, 1B		2 x RJ45 interface for Ethernet with switch LAN (customer network)
2		1 x RJ45 interface for Ethernet WAN (internet access)
5, 6	≃ , ⊥,	Operating voltage AC 24 V, DC 24 V
7		Functional ground (must be connected on the installation side with the building grounding system (PE).
USB		USB interface for 4G dongles

Dimensions

All dimensions in millimeters and inches.


124 (4.88")
117 (4.61")
ϕ 4.1 (0.16")
129 (5.08")
144 (5.67")


110 (4.33")
35.5 (1.40")
4 (0.16")
21.5 (0.85")
11 (0.43")
45 (1.77")
11 (0.43")
21.5 (0.85")
26.5 (1.04")
45 (1.77")
49 (1.91")
69.5 (2.73")
74.5 (2.93")