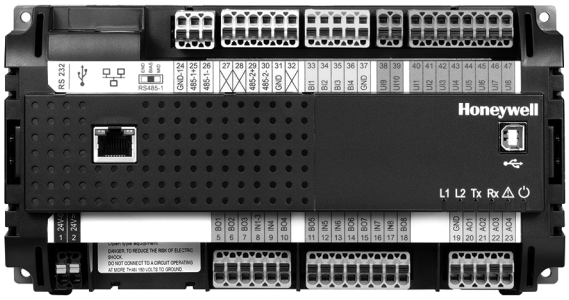
Honeywell

WEB-EAGLEAX26 Controller

PRODUCT DATA



APPLICATION

EagleAX is a BACnet-compliant heating, ventilation, air conditioning (HVAC) building controller supported by WEBs-AX Niagara framework, specifically tuned for Plant controllers.

It provides unparalleled energy efficiency through the use of a vast HVAC Application Library.

EagleAX enables uniform graphical operation, control, data logging, alarming, scheduling, and network management functions for HVAC and non-HVAC applications. Through its integrated web server, it allows real-time access to all information through web-based graphical views.

EagleAX supports full remote engineering, including changes to the control program and the graphical user interface. This greatly supports reduction of life cycle and maintenance cost.

OPERATION IN IP NETWORKS

When operating EagleAX in IP networks, either private (e.g., VPN) networks must be used or protection against the open Internet (e.g., by means of external firewalls) must be ensured. See "Network Security."

FEATURES

- **Reduced total installed cost:** Existing standard Ethernet/LAN infrastructure is used for communication between EagleAX controllers, 3rd-party BACnet® controllers, and BACnet® front-ends. Costs are further reduced by the flexible and optional use of Panel Bus I/Os (which allow manual override independent of the controller, thus obviating the need for external switches) and of onboard I/Os.

  Panel Bus I/Os allow for wiring lengths of up to 800 m, thus obviating the need to lay wire from field devices all the way back to the controller.
- **Reduced life cycle cost:** EagleAX supports the highly reliable Panel Bus I/O modules, which allow for plugging and replacing without any need for re-wiring or engineering, thus minimizing system down-time.

  The Panel Bus is polarity-insensitive, thus reducing potential wiring errors. Furthermore, Panel Bus I/O modules allow the predefinition of output safety positions, ensuring safe operation even if communication with EagleAX is disrupted.
- **Universal operation:** Via Internet browser, EagleAX can be operated from any place, from any PC and/or mobile device connected to the (EagleAX) network! An integrated web-server allows local and remote operation by standard browsers.

Contents

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- **Vendor independence:** Multiple international communi-cation standards are supported, e.g.: BACnet/IP (ISO 16484-5); BACnet MS/TP (ISO 16484-5); LONWORKS (ISO 14908); Modbus RTU and Modbus TCP; oBIX; SNMP; etc.
- **Trending:** Datapoints can be trended and historical values stored and viewed.
- **Reliable control performance:** Embedded LINUX ensures reliable, independent, and secure operation, especially for systems with Internet access.
- **Embedded e-mail alarming:** Configurable e-mail alarming options allow alarms to be sent (via network or Internet-DSL connection) to e-mail accounts and thus also to mobile device using SMTP protocol.
- **EagleAX application library:** Enables highly-effective application generation for optimal energy-efficient control applications.
- **Flexible mounting options:** Mounting onto wall or onto panel back wall, into panel door, onto panel rail, and into sub-panels (fuse boxes).
- **Direct 24 VAC power supply:** No batteries, no movable parts - thus does not require regular maintenance.

OPERATOR INTERFACE

EagleAX is operated via a standard browser. By default, an integrated web-server provides all freely programmable operation pages for full browser-based operation.

Through the consistent use of software standards, any PC platform can be used as an operator interface (client), including laptops, desktops PCs, or touch screen PCs for direct flush mounting into electrical panel doors.

Fig. 1. EagleAX PC homepage (example).

For mobile devices, there is a separate corresponding operator interface.

Fig. 2. EagleAX mobile device homepage (example).

Programming

EagleAX is freely programmable using the graphic WEBs-AX Engineering Tool and is thus ideal for all Integration, Building Control, and Building Management tasks.

Password Protection

EagleAX allows the definition of a large number of user levels. Each user level can be assigned different read and write rights. Several users with individual passwords can be defined for each user level. And different views can be assigned to the individual users.

COMMUNICATION PROTOCOLS

BACnet/IP - ISO 16484-5 and EN 13321-1

Communication with other EagleAX and WEB controllers, 3rd-party BACnet devices and WEBs Supervisors is possible.

EagleAX conforms to the BACnet Building Controller (B-BC) profile. For details on BACnet Interoperability, see the EagleAX Protocol Implementation Conformance Statement (PICS).

BACnet MS/TP - ISO 16484-5 and EN 13321-1

Communication with other BACnet controllers is based on the international BACnet Protocol. Optionally, one or both of the onboard RS485 interfaces can be used for communication via BACnet MS/TP.

ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number. If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Honeywell Environmental and Combustion Controls Sales Office (check white pages of your phone directory).
2. Honeywell Customer Care
   1985 Douglas Drive North
   Golden Valley, Minnesota 55422-4386
3. http://customer.honeywell.com or http://customer.honeywell.ca

International Sales and Service Offices in all principal cities of the world. Manufacturing in Belgium, Canada, China, Czech Republic, Germany, Hungary, Italy, Mexico, Netherlands, United Kingdom, and United States.

LonTalk® - ISO 14908

Optionally, communication with physical I/O modules, with room and zone controllers, and with other LON controllers can utilize LonTalk.

With the optional IF-LON2, a Free Topology Transceiver (FTT-10A or FT-X1) allows a communication speed of 78 Kbaud. Max. cable lengths are 320 m to 2,200 m, depending upon the given wiring topology.

By default, the optional IF-LON2 comprises the LonMark® node object, plus application-specific LONWORKS objects.

Modbus

Optionally, the two onboard RS485 interfaces can be used (even simultaneously) for communication via Modbus RTU. Modbus TCP communication is supported via the onboard Ethernet RJ45 interface. See also EagleAX - Installation & Commissioning Instructions for details.

Panel Bus

Optionally, one or both of the onboard RS485 interfaces can be used for Panel Bus communication with CentraLine Panel Bus I/O modules.

HTTP

EagleAX can be operated with Internet browsers with any desired resolution.

HTTPS

Secure web browser communication is supported for web access via standard web browsers.

SMTP

Simple Mail Transfer Protocol is used for e-mail alarming via network and Internet-DSL connection.

FOX Protocol

EagleAX utilized FOX protocol of Niagara that facilitates data transfer between AX and N4 framework.

BUS AND PORT CONNECTIONS

⚠ WARNING

Risk of electric shock or equipment damage!

Do not touch any live parts in the cabinet!

Disconnect the power supply before making connections to or removing connections from terminals of the EagleAX Controller or Panel Bus I/O modules.

Do not reconnect the power supply until you have completed installation.

It is prohibited to power the EagleAX Controller with the same transformer used to power other controllers or devices.

Observe the rules regarding electrostatic discharge.

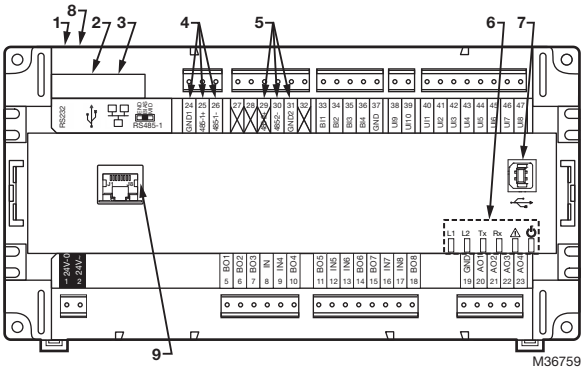

Fig. 3. Top view (shown: model with onboard I/Os).

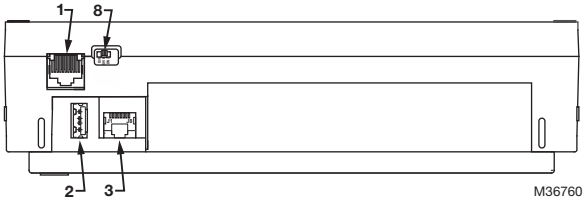

Fig. 4. Side view.

Legend

1. RS232 / RJ45 socket (for RS232-based protocols; factory debugging)
2. USB 2.0 Host Interface (for connection of the optional IF-LON2); max. 500 mA, high speed
3. Ethernet / RJ45 socket (for BACnet IP communication); 10/100 Mbit/s; 1 "link" LED and 1 "activity" LED
4. RS485-1* (isolated; for BACnet MS/TP, Panel Bus, Modbus RTU communication, etc.)
5. RS485-2* (non-isolated; for BACnet MS/TP, Panel Bus, Modbus RTU communication, etc.)
6. LEDs
7. USB 2.0 Device Interface (for connection to WEBs-AX web browsers, and 3rd-party touch panels)
8. Three-position slide switch (for setting bias and termination resistance of RS485-1)
9. Future functionality

***Modbus RTU Master/Slave communication is possible on the two RS485 interfaces.

⚠ WARNING

Risk of electric shock or equipment damage!

It is prohibited to connect any of the RJ45 sockets of the EagleAX Controller to a so-called PoE-enabled device ("Power over Ethernet").

Modbus Connection

The EagleAX controller can function as a Modbus Master/Slave.

For Modbus RTU, the RS485 wiring rules must be followed.

Wiring Topology

Only daisy-chain wiring topology is allowed.

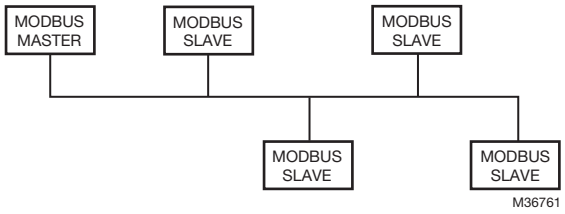

Fig. 5. Allowed Modbus wiring topology.

Other wiring topologies (e.g., star wiring, or mixed star wiring and daisy chain wiring) are prohibited; this is to avoid com-munication problems of the physical layer.

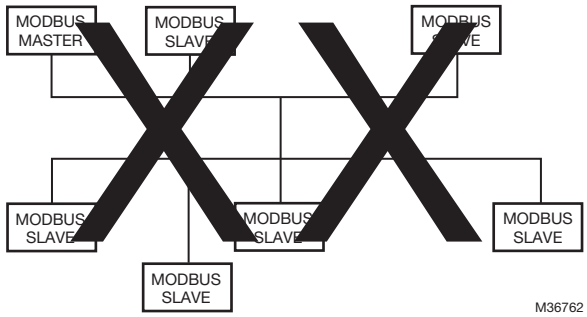

Fig. 6. Prohibited Modbus wiring topology (example).

Cables

See section "EIA 485 Cable Specifications" in EagleAX Controller - Installation & Commissioning Instructions.

Use shielded, twisted pair cable J-Y-(St)-Y 2 x 2 x 0,8.

You **must** use three wires:
- One wire for D1 = Modbus +
- One wire for D0 = Modbus -
- One wire for the signal common

When using one pair for D1 and D0 and one wire of another pair for the signal common, CAT5 cable may also be used.

For connection details, see EagleAX Controller - Installation & Commissioning Instructions.

Shielding

Shielding is especially recommended when the Modbus cable is installed in areas with expected or actual electromagnetic noise. Avoiding such areas is to be preferred.

Use shielded, twisted pair cable J-Y-(St)-Y 2 x 2 x 0,8 and connect the shield to a noise-free earth ground - only once per Modbus connection.

RS485 Repeaters

RS485 repeaters are possible, but have not been tested by Honeywell. Hence, it is the responsibility of the installing / commissioning personnel to ensure proper functioning.

NOTE: Each Modbus segment requires its own line polarization and line termination.

⚠ WARNING

NETWORK SECURITY

Honeywell hereby expressly states that the EagleAX is not inherently protected against cyber attacks from the Internet and that it is therefore intended solely for use in private, protected networks.

Unprotected Internet connections can expose the EagleAX to cyber attacks from third parties who can then damage it and connected facility components or cause them to malfunction, or who can misuse it for illegal purposes for which the operator may then be held liable.

When directly connected to the Internet, the EagleAX automatically becomes a potential target for cyber attacks. Corresponding protective measures are therefore essential if safe and reliable operation is to be ensured.

If it is not necessary for the EagleAX to be accessible from the Internet, the EagleAX should be isolated from the Internet via a suitable firewall.

If it is necessary for the EagleAX to be accessible from the Internet (e.g., in order to perform remote maintenance), the use of a coded VPN connection is indispensable. Suitable VPN routers are available from numerous third-party manufacturers in a wide variety of designs, for operation at 230 V or 24 V.

CONTROLLER SPECIFICATIONS

General

Table 1. Controller Specifications.

Ambient temperature	0 ... 40 °C / 32....104 ° F (wall-mounting) 0 ... 50 °C / 32 ...122 °F (cabinet/door mounting)
Storage temperature	-20 ... +70 °C/ -4 ... +158 °F
Humidity	5 ... 95% r.h. non-condensing
Dimensions	See Fig. 7 and Fig. 8.
Degree of protection	IP20 (mounted on walls, with two accessory MVC-80-AC1 covers) IP30 (mounted in cabinet doors, with accessory MVC-80-AC2)
Fire class	V0
Shock protection	Class II
Pollution degree	2
Installation	Class 3
Rated impulse voltage	330 V for SELV, 2500 V for relay outputs
Overvoltage category	II
Automatic action	Type 1.C
Software class	Class A
Ball-pressure test temperature	Housing parts >75 °C (167 °F) Terminals >125 °C (257 °F)

Electrical Data

Table 2. Electrical data.

Power supply	19 ... 29 VAC, 50/60 Hz, or 20 ... 30 VDC
Power consumption	Typically dc: 5 W; max. 6 W Typically ac: 9 VA; max. 11 VA
Heat dissipation	Max. 6 W at dc power supply Max. 11 W at ac power supply
Current consumption	Typically dc: 210 mA; max. 240 mA Typically ac: 370 mA; max. 410 mA

EagleAX and 24 Vac field devices can obtain their power from the same transformer.

Mechanical Data

Housing Dimensions (L x B x T): 215.5 x 110 x 61 mm

Housing Material: ABS blend; flame retardant V0

Weight: 400 g (without packaging)

Protection Class: IP 20 EagleAX and 24 Vac field devices can obtain their power from the same transformer.

Mechanical Data

Housing Dimensions (L x B x T): 215.5 x 110 x 61 mm

Housing Material: ABS blend; flame retardant V0

Weight: 400 g (without packaging)

Protection Class: IP 20

CPU

Processor: ARM 9 32-bit processor, 450 MHz

Operating System: LINUX

Memory:
512 MB DDR2-RAM
512 KB MRAM
1 GB Flash Memory

Real-Time Clock:
Accuracy: ± 2 minutes per year (at, typically, 25 °C)
Buffered typically for 72 h by gold capacitor

Standards, Approvals, etc.

Device meets EN 60730-1, EN 60730-2-9, UL60730, and UL916.

The device complies with Ethernet Protocol versions IEEEC 802.3.

The device supports BACnet IP and BACnet MS/TP communications as per ANSI / ASHRAE 135-2008.

Mounting

The EagleAX Controller is suitable for mounting as follows:

- in cabinets;
- in fuse boxes conforming with standard DIN43880, and having a slot height of max. 45 mm;
- on walls (using accessory MVC-80-AC1 covers);
- in cabinet front doors (using accessory MVC-80-AC2).

Part Numbers and Accessories

Table 3. Part Numbers and Accessories.

Part Number	Description
XF821A	Pluggable Panel bus - 8 Analog Input
XF822A	Pluggable Panel bus - 8 Analog Output
XFR822A	Pluggable Panel bus - 8 Analog Output, with manual overrides (HOA)
XSU821-22	Screw-type terminal socket for pluggable AI/AO moduels (incl bridge connector, swivel label)
XF823A	Pluggable Panel bus - 12 Binary Inputs
XSU823	Screw-type terminal socket for pluggable BI modules (incl bridge connector, swivel label)
XF824A	Pluggable Panel Bus- 6 Relay Output
XFR824A	Pluggable Panel Bus- 6 Relay Output with manual overrides (HOA)
XFR825A	Pluggable Panel Bus- 3 Floating Output with manual overrides (HOA)
XSU824-25	Screw-type terminal socket for pluggable relay/floating Output modules (incl. bridge connector, cross connector, swivel label)
XFU830A	Mixed Panel Bus I/O module with 8 AI, 8 AO, 12 BI, and 6 RO with screw terminals (incl bridge connecto & swivel label)
XS830	Set of ten terminals. Each package consists of two groups of nine internally connected push-in terminals, for distributing signals/power
XS831	Set of ten terminals. Each package consists of two groups of four pairs of push-in terminals (each with 499 ohm resistor) for converting 0...20mA signals into 0...10VDC signals and one push-in ground terminal per group.
TPU-45-01	Removable terminal plugs, push-in type; complete set of 9 plugs for terminals 1-47 for WEB-EAGLEAX26
MVC-80-AC1	Terminal cover (color: RAL9011) package of ten
MVC-80-AC2	Front door mounting accessory (color RAL9011) package of ten
MVC-40-AC3	Strain relief; package of ten
WEB-EAGLEAX26	WEB EagleAX Controller with 26 on-board I/O count. Licensed for 80 total points with 20 Niagara points
NEL-UP-25P-AX	Upgrades 25 Niagra points to base EagleAX Controller
WEB-UP-25-IO-EAX	Upgrades 25 Panel bus IO points to base EagleAX Controller

MODELS

WEB-EAGLEAX26: with 26 onboard I/Os

Table 4. Overview of models.

Feature	Description		Max. cable length	Order no. WEB-EAGLEAX26
UI	NTC10kΩ / NTC20kΩ / 0...10V / slow BI, 0.4 Hz		400 m	8
	NTC10kΩ / NTC20kΩ / 0...10V fix pull-up / slow BI, 0.4 Hz		400 m	2
BI	open = 24 V / closed 2.0 mA / totalizer 15 Hz		400 m	4
AO	0..11 V (max. 1 mA)		400 m	4
BO	Relay N.O. contact: 3 A, 250 VAC, 30 VDC		400 m	4
	Relay N.O. contact (high in-rush): 10 A, 250 VAC, 30 VDC		400 m	1
	Relay N.O. contact with one common: 3 A, 250 VAC, 30 VDC		400 m	3
Bus Interfaces	RS485-1, isolated, BACnet MS/TP, Panel Bus, or Modbus RTU Master or Slave communication		1200 m[1]	1
	RS485-2, non-isolated, BACnet MS/TP, Panel Bus, or Modbus RTU Master or Slave communication		1200 m[1]	1
	Ethernet Interface (XE "BACnet:BACnet IP via Ethernet Interface")	e-mail communication, browser access	100 m	1
		BACnet IP communication	100 m	1
	USB 2.0 Device Interface (as Network Interface)		3 m	1
	USB 2.0 Host Interface (max. 500 mA)		3 m	1
	RS232 M-Bus communication via PW3 / PW20 / PW60 converters		1000 m[1]	1
LEDs	power LED (green)		--	1
	status LED (red, controllable by firmware)		--	1
	applications-specific LED L1 (yellow)		--	1
	USB-A LED (yellow)		--	1
	bus status LEDs (for isolated RS485-1 interface)		--	2

[1]Depending upon baud rate. For max. cable lengths, refer to the EagleAX - Installation & Commissioning Instructions.

Software Licenses and Upgrades

Table 5. Software Licenses and Upgrades.

Model	Honeywell Panel Bus devices	Onboard I/O and Honeywell Panel Bus points	Integrated Devices	integrated points
WEB-EAGLEAX26 (EagleAX hardware with 26 onboard I/O, with base license; including BACnet, LON and Modbus drivers, no display)	80	60	3	20
NEL-UP-25P-AX (EagleAX upgrade license for an additional 25 Niagara points. Requires base license.	--	--	--	25
WEB-UP-25-IO-EAX (EagleAX upgrade license for an additional 25 panel bus IO points. Requires base license.	--	25	--	--

NOTE: The maximum permitted number of Honeywell Panel Bus points is 400. The maximum recommended number of integrated points is 400. The maximum recommended number of total points is 400.

For more details on the licenses, please refer to the Release Bulletin.

DIMENSIONS

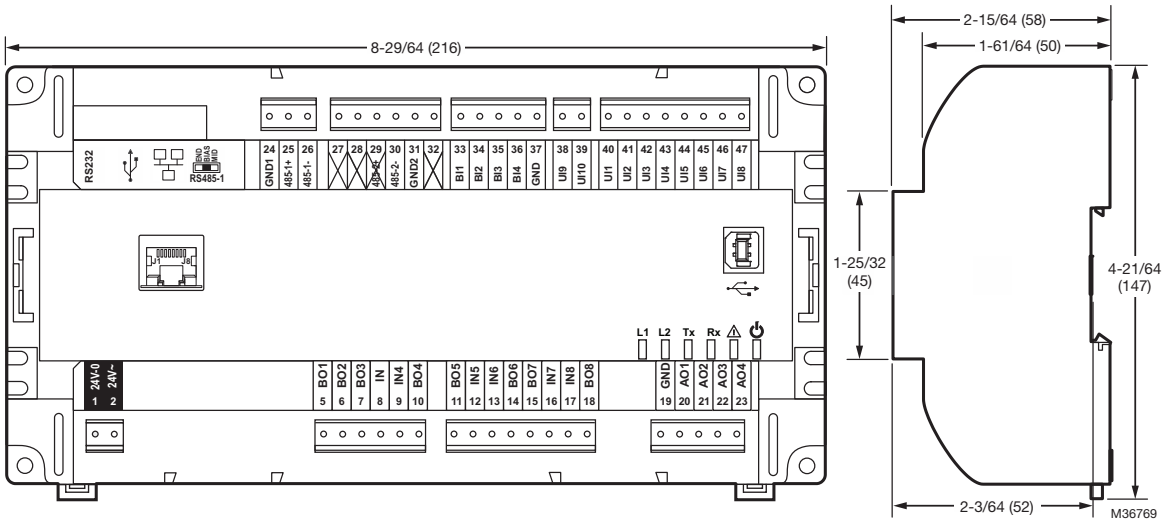

Fig. 7. EagleAX Controller (shown: model with onboard I/Os), dimensions (in mm).

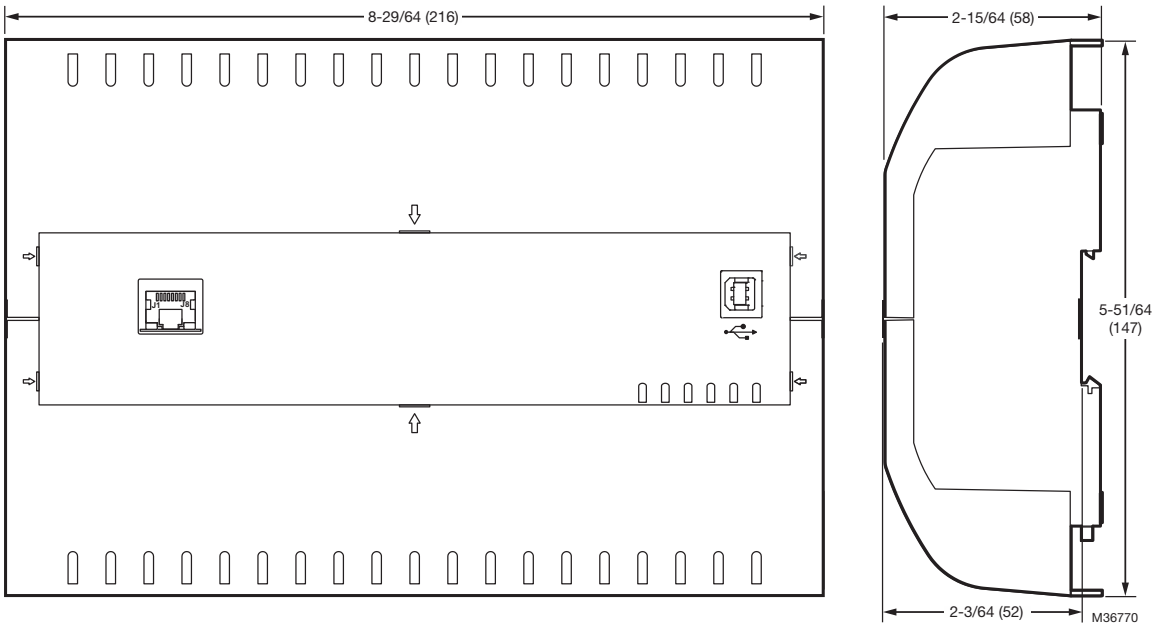

Fig. 8. EagleAX Controller with covers, dimensions (in mm).

NOTE: Use of the covers (MVC-80-AC1) will obstruct access to the Ethernet, USB 2.0, and RS232 interfaces.

Home and Building Technologies

In the U.S.:

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