



CAN-5900-FSN Series

KMC Fusion® I/O Expansion Modules Data Sheet

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DESCRIPTION

KMC Fusion® CAN-5900-FSN Series input/output expansion modules are designed for use with KMN-5900E Series controllers. Multiple modules can be connected to a controller via the EIO communications port (a CAN bus). Each CAN-5901-FSN supports up to eight inputs and eight outputs, and each CAN-5902-FSN supports up to sixteen inputs.

A KMN-5900E Series controller with four connected CAN-5900-FSN series modules can access up to 74 physical (Room Sensor port and terminal block) inputs and up to 40 outputs:

- With four CAN-5901-FSN modules, the controller can access 42 inputs and 40 outputs.
- With four CAN-5902-FSN modules, the controller can access 74 inputs and 8 outputs.
- CAN-5901-FSN and CAN-5902-FSN modules can also be “mixed and matched” for a desired number of inputs and



One KMN-5900E Series Controller And...		Provides a total I/O of...	
CAN-5901-FSN	CAN-5902-FSN	Inputs*	Outputs
0	0	10	8
1	0	18	16
2	0	26	24
3	0	34	32
4	0	42	40
0	1	26	8
0	2	42	8
0	3	58	8
0	4	74	8
1	3	66	16
2	2	58	24
3	1	50	32

* Input totals are reflective of using an HPO-9005 on the KMN-5900E Series controller.

APPLICATIONS

I/O expansion modules for KMN-5900E Series controllers can be used with equipment such as:

- Air handling units
- Boilers
- Chillers
- Pumps
- Cooling towers
- Roof top units
- Heat pump units
- Fan coil units
- Unit ventilators
- Other HVAC and building automation system equipment

(See also [Sample Installation on page 5.](#))

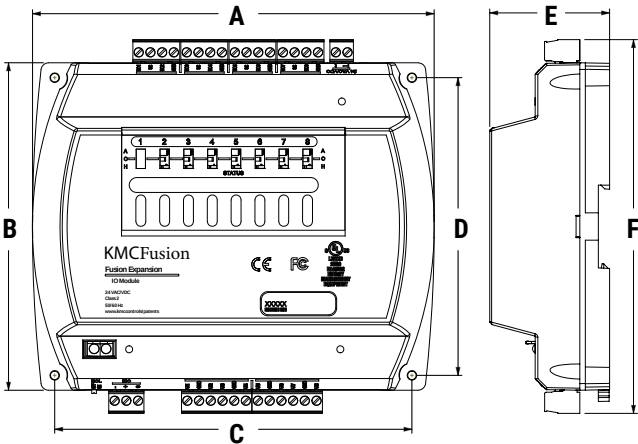
MODELS

APPLICATIONS	INPUTS*	OUTPUTS*	MODEL
Input/Output Expansion	8 universal (software configurable as analog, binary, or pulse input)	8 universal • Software configurable as analog or binary • Override boards give additional options**	CAN-5901-FSN
Input Expansion	16 universal (software configurable as analog, binary, or pulse input)	None	CAN-5902-FSN

*Up to four CAN-5900-FSN series expansion modules can be used with KMN-5900E Series controllers to provide up to 74 inputs or 40 outputs. CAN-5900-FSN modules have only terminal block inputs and do not have a Room Sensor port.

**HPO-6700 series output override board series provide (triac, NC/NO relays, 4–20 mA, adjustable 0–10 VDC) options for devices that cannot be powered from a standard universal output. The boards can also be used with the CAN-5901-FSN.

SPECIFICATIONS



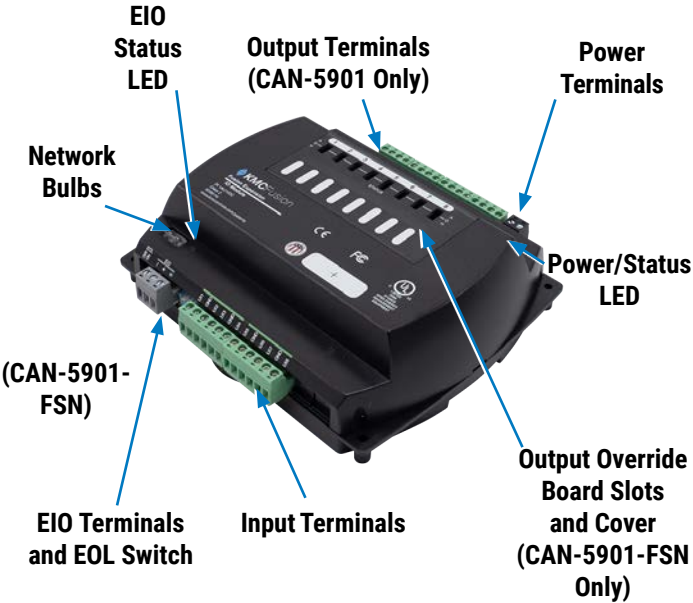
DIMENSIONS

A	6.744 inches	171 mm
B	5.500 inches	140 mm
C	6.000 inches	152 mm
D	5.000 inches	127 mm
E	2.012 inches (CAN-5901)	51 mm (CAN-5901)
	1.500 inches (CAN-5902)	38 mm (CAN-5902)
F	6.279 inches	159 mm

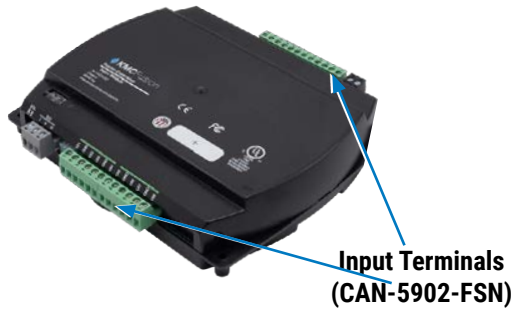
Inputs and Outputs

Inputs, Universal

Universal inputs	Configurable as analog, binary, or pulse input objects (8 on CAN-5901-FSN, 16 on CAN-5902-FSN)
Termination	1K and 10K ohm sensors, 0–12 VDC, or 0–20 mA (without need for an external resistor)
Resolution	16-bit analog-to-digital conversion
Protection	Overvoltage protection (24 VAC, continuous)
Wire size	12–24 AWG, copper, in removable screw terminal blocks



(CAN-5902-FSN)



TERMINAL COLOR CODE	
Black	24 VAC/VDC Power
Gray	CAN Communications
Green	Inputs/Outputs

Outputs, Universal (CAN-5901-FSN Only)

Universal outputs	Configurable as an analog (0 to 12 VDC) or binary object (0 or 12 VDC, on/off); alternately, an output override board is installed for devices that cannot be powered from a standard universal output (8 on CAN-5901-FSN)
Power/protection	Each short-circuit protected universal output capable of driving up to 100 mA (at 0–12 VDC) or 300 mA total for all outputs
Resolution	12-bit digital-to-analog conversion
Wire size	12–24 AWG, copper, in removable screw terminal blocks

Communication Ports

EIO Expansion	One CAN serial bus connection (terminal block) for daisy-chaining I/O expansion modules up to 200 feet (61 meters) from the controller via standard shielded twisted-pair wire
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Configuration Tools

Hardware Network Module	KMC Workbench
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Hardware Features

Processor, Memory, and Clock

Processor	32-bit ARM® Cortex-M4
Memory	Configuration parameters are stored in nonvolatile memory; auto restart on power failure

Indicators and Isolation

LED indicators	Power/status and EIO (CAN) communication
Communication bulbs	One EIO (CAN) communications bulb assembly indicates reversed polarity and isolates circuit
Switch	EOL (end of line) for EIO (CAN) bus

Installation

Power

Supply voltage	24 VAC (50/60 Hz) or 24 VDC; –15%, +20%; Class 2 only; non-supervised (all circuits, including supply voltage, are power limited circuits)
Required power	14 VA, plus external loads
Wire size	12–24 AWG, copper, in a removable screw terminal block

Enclosure and Mounting

Weight	14 ounces (0.4 kg)
Case material	Black flame retardant plastic
Mounting	Direct mounting to panels or DIN rails

Environmental Limits

Operating	32 to 120° F (0 to 49° C)
Shipping	–40 to 160° F (–40 to 71° C)
Humidity	0 to 95% relative humidity (non-condensing)

Warranty, Protocol, and Approvals

Warranty

KMC Limited Warranty	5 years (from mfg. date code)
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Protocol

CAN	CAN (Controller Area Network) bus on EIO terminals
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Regulatory Approvals

UL (both)	UL 916 Energy Management Equipment listed
CE	CE compliant
RoHS	RoHS compliant
FCC (CAN-5901-FSN)	FCC Class A, Part 15, Subpart B and complies with Canadian ICES-003 Class A*
FCC (CAN-5902-FSN)	FCC Class B, Part 15, Subpart B and complies with Canadian ICES-003 Class B*

*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.

ACCESSORIES

NOTE: For accessory details, see the respective product data sheets and installation guides.

Actuators and Sensors

MEP-4xxx	Actuators, 25 to 90 in-lb., fail-safe and non-fail-safe
MEP-7xxx	Actuators, 180 and 320 in-lb., fail-safe and non-fail-safe
STE-60xx	Room temperature sensors
STE-14xx	DAT, OAT, and other temp. sensors

Miscellaneous Hardware

HCO-1103	Steel control enclosure, 10-1/8 x 2-5/8 x 7-19/32 inches (257 x 67 x 193 mm)
HCO-1035	Steel control enclosure, 20 x 24 x 6 inches (508 x 610 x 152 mm)
HCO-1036	Steel control enclosure, 24 x 36 x 6 inches (610 x 914 x 152 mm)
HPO-0055	Replacement network bulb assembly (pack of 5)
HPO-0063	Replacement output (override board) jumper, 2-pin (pack of 5)
HPO-9901	Controller replacement parts kit with terminal blocks and DIN clips

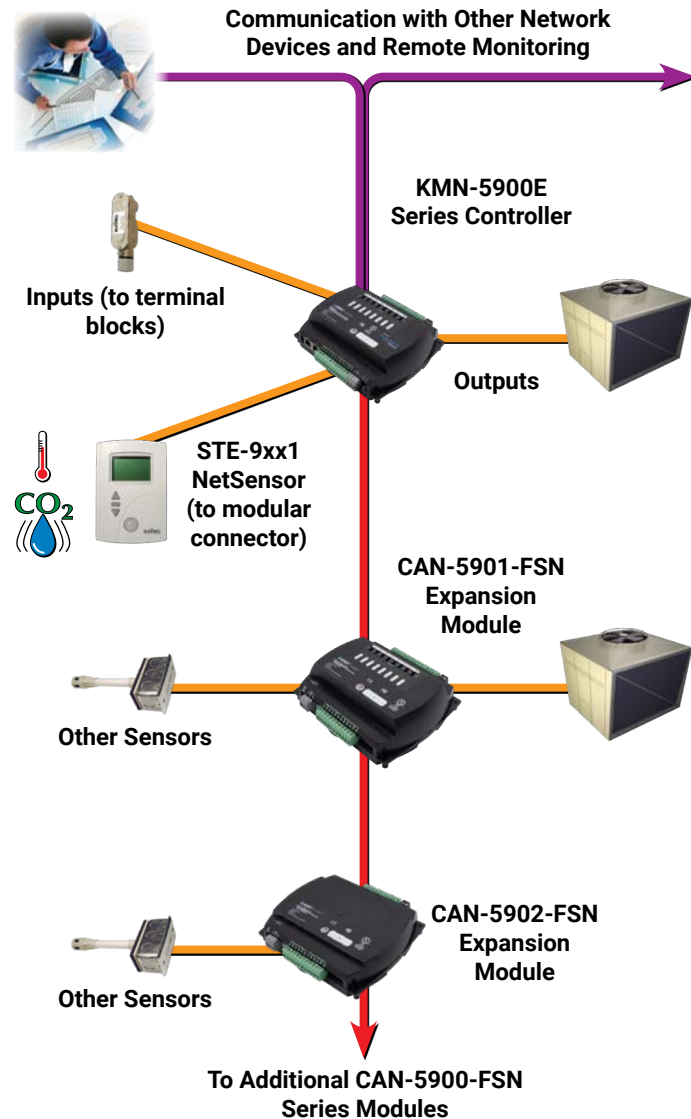
Output Override Boards (for CAN-5901-FSN)

HPO-6701	Triac output w/ zero-cross switching (AC only)
HPO-6702	0–10 VDC analog with adjustable override potentiometer
HPO-6703	Relay, NO contacts (AC/DC)
HPO-6704	4–20 mA DC current loop with adjustable override potentiometer
HPO-6705	Relay, NC contacts (AC/DC)

Transformers, 120 to 24 VAC

XEE-6111-050	50 VA, single-hub
XEE-6112-050	50 VA, dual-hub
XEE-6112-100	96 VA, dual-hub (approved for smoke control applications)

SAMPLE INSTALLATION



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SUPPORT

Additional resources for installation, configuration, application, operation, programming, upgrading, and much more are available on the web at www.kmccontrols.com. Log-in to see all available files.



For more information about installation and operation, see:

- [CAN-5900-FSN Series Expansion I/O Module Installation Guide](#)
- [KMN-5900E Series Controller Installation Guide](#)
- [KMN-5900E Series Controller Data Sheet](#)
- [KMC Fusion Selection Guide](#)