



KMD-5290E

KMDigital LAN Controller

DESCRIPTION

The KMD-5290E LAN Controller is an intelligent, programmable direct digital controller and high-level LAN communications manager suitable for use in facilities management systems.

The LAN Controller operates as a stand-alone unit or as an integral part of a fully networked, peer-to-peer digital system. The KMD-5290E uses a Tier 1 (Ethernet) network to communicate with other LAN Controllers. Two dedicated EIA-485 ports provide connection to up to 124 devices on each (SubLAN A and SubLAN B) Tier 2 network. A serial port provides direct connection to a PC using an RS-232-to-USB Type A cable.

Control up to 64 inputs and 32 outputs with the LAN Controller using CAN-5900 Series Expansion Modules. Each CAN-5901 provides 8 inputs and 8 outputs. The CAN-5902 Expansion Module provides 16 inputs. Up to four expansion modules can be connected in series to the KMD-5290E in various combinations via the LAN controller's EIO communication port.

Communications can be configured by connecting an HTML5-compatible web browser to the KMD-5290E's built-in served web pages. The LAN controller can also be connected to a Niagara system using the KMD-5551 Translator and KMC Converge software.

The firmware in the KMD-5290E uses Control Basic, a high-level, easy-to-learn programming language accessible from TotalControl™ Design Studio and KMC Connect software for custom applications.

TotalControl™ Design Studio software additionally provides the capability to create graphical web pages (hosted on a remote web server) as a custom user interface for controllers.

APPLICATIONS

The KMD-5290E can be used with the following types of equipment:

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

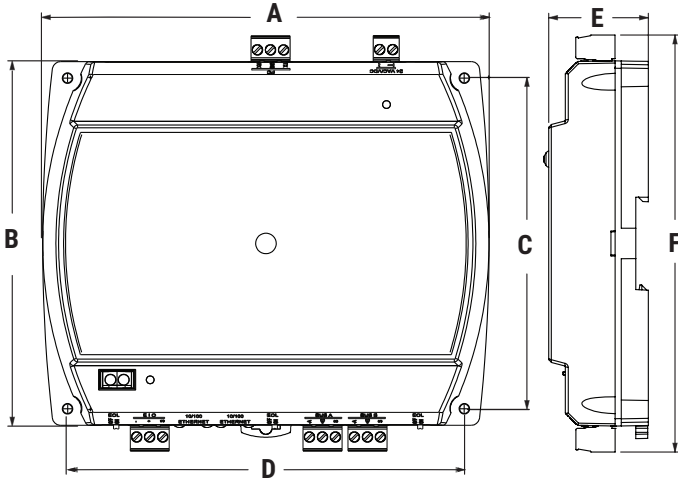
NOTE: Applications generally require custom programming.



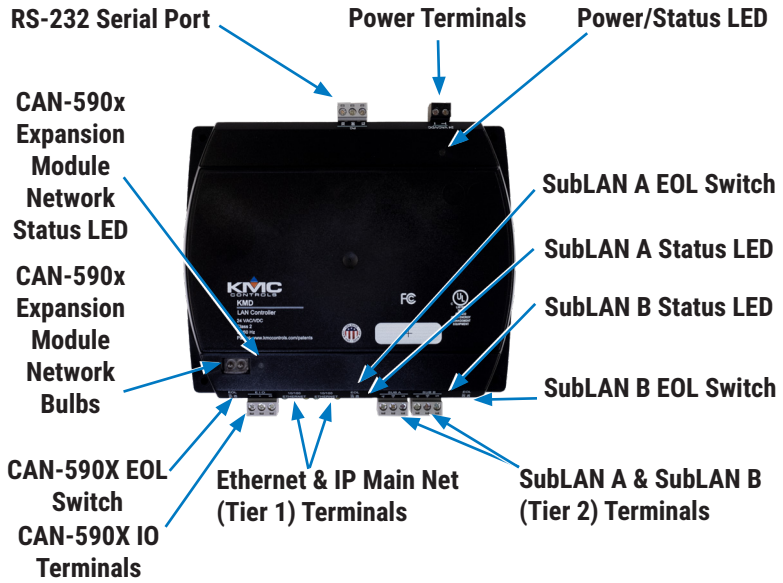
SPECIFICATIONS

Configurability

OBJECTS	MAXIMUM #*
Inputs and Outputs	
Analog or binary inputs	64
Analog or binary outputs	32
Variables	
Analog or binary variables	256
Programs and Control Loops	
Programs (Control Basic)	128
PID loops	64
Schedules	
Weekly schedules	32
Annual schedules	16
Logs	
Trend logs	96
Runtime logs	128
Graphics	
System groups	64
User-Defined Tables and Arrays	
Tables	5
Arrays	48



DIMENSIONS		
A	6.750 inches	171 mm
B	5.500 inches	140 mm
C	5.000 inches	127 mm
D	6.000 inches	152 mm
E	1.500 inches	38 mm
F	6.300 inches	160 mm



TERMINAL COLOR CODE	
Black	24 VAC/VDC Power
Gray	RS-485, RS-232 and CAN Communications

Inputs and Outputs

Inputs

CAN serial bus	One serial bus connection to a CAN-5900 series Expansion module
Resolution	16-bit analog-to-digital conversion
Wire size	12–24 AWG, copper, in removable screw terminal blocks

Outputs

CAN serial bus	One serial bus connection to a CAN-5900 series Expansion module
Resolution	12-bit digital-to-analog conversion
Wire size	12–24 AWG, copper, in removable screw terminal blocks

Communications

Serial	One RS-232 serial port
Expansion (EIO)	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
Ethernet	Two 10/100BaseT Ethernet connectors for IP Main Net and Ethernet 802.3 (ISO 8802-3); segmentation supported; up to 328 feet (100 m) between controllers (using T568B Category 5 or better cable)
SubLAN A, SubLAN B	Two SubLAN terminals for connecting to KMD Tier 2 networks. Connectors are three-screw terminal blocks, 12–22 AWG wire. The SubLAN B terminal may also be used for a BACnet MS/TP network connection.

Hardware Features

Processor, Memory, and Clock

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

Indicators and Isolation

LED indicators	Power/status, EIO (CAN) communication status, KMD Tier 2 SubLAN A and SubLAN B communication status, Ethernet communication status
Network bulbs	One network bulb assembly indicates reversed polarity and isolates circuit
Switches	EOL (end of line) for KMD Tier 2 SubLAN A network, SubLAN B network and 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	11.2 ounces (0.32 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)

CAN (External Inputs/Outputs) Protocol

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

UL	UL 916 Energy Management Equipment
RoHS 2	RoHS 2 compliant
FCC	FCC Class A, Part 15, Subpart B and complies with Canadian ICES-003 Class A*

*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

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

Communications

HPO-0055	Replacement network bulb assembly (pack of 5)
HPO-5551	Technician Cable Kit: Includes USB-A to USB-Micro cable, Ethernet cable, and MS/TP to NetSensor cable
HSO-9001	Ethernet patch cable, 50 feet
HSO-9011	Ethernet patch cable, 50 feet, plenum rated
HSO-9012	Ethernet patch cable, 75 feet, plenum rated
KMD-5672	PC-to-Controller serial cable, 8 feet
KMD-5567	Network surge suppressor
KMD-5575	Repeater

I/O Expansion Modules

- CAN-5901** 8-input, 8-output expansion module*
- CAN-5902** 16-input expansion module*

***NOTE:** Up to four CAN-5900 series I/O expansion modules can be used with KMD-5290 controllers to provide up to 64 inputs and up to 32 outputs. See the **CAN-5900 Series data sheet** for more information.

Miscellaneous Hardware

- HCO-1103** Steel control enclosure (single controller) with DIN rail mounting, 10 x 7.5 x 2.5 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-9901** Controller replacement parts kit with terminal blocks (1 gray, 1 black, 2 green 3-terminal, 4 green 4-terminal, 2 green 5-terminal, 2 green 6-terminal) and DIN clips (2 small for router and 1 large for controllers)
- SP-001** (KMC branded) screwdriver with a hex end (for NetSensor cover screws) and a flat blade end (for controller terminals)

Room Sensors, Analog

- STE-6010W10** Temperature sensor, white
- STE-6014W10** Sensor with rotary setpoint dial, white
- STE-6017W10** Sensor with rotary setpoint dial and override button, white
- HPO-9005** Room sensor adapter; allows the use of other sensors and optional setpoint potentiometers (with wire leads or terminal blocks) to be used instead of STE-601x sensor models with modular jacks

NOTE: Various other models can be used with an HPO-9005 adapter or with the controller screw terminals. See the STE-6000 series data sheet for more information. For digital sensor information, see the STE-9000 series.

NOTE: To order the STE-601x sensor with a light almond color instead of white, omit the W ("White") at the end of the model number.

Sensors, Miscellaneous

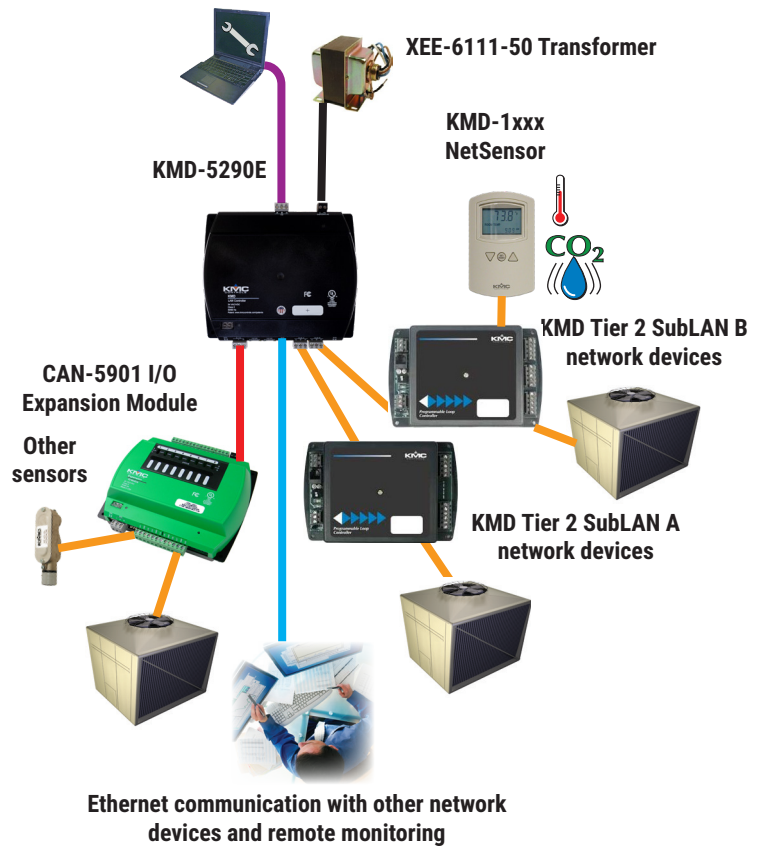
- STE-1405** DAT sensor with plenum-rated cable
- STE-1451** OAT sensor

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

PC access via serial or USB port



SUPPORT

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

