KMC Commander
IoT and Automation Platform

KMCCommander™
IoT and Automation Platform

DESCRIPTION

Analytics at the Edge

KMC Commander™ is a next-generation IoT (Internet of Things) solution that connects your building and other devices to the cloud and provides meaningful data in real-time to your PC or mobile device. The KMC Commander platform consists of Dell Edge Gateway 3002 hardware plus KMC IoT software and cloud services. It is an out-of-the-box solution to visualize, connect, and manage energy, building, and other systems. It not only works with KMC controllers, but also most third-party meters and many other energy and automation devices. It is designed to aggregate, analyze, secure, and relay data from diverse sensors and equipment...and communicate the analytics and visualizations to your mobile device. From a mobile device in the palm of your hand, you can analyze and act on data at the edge of the network with this IoT platform, purpose-built for building and industrial automation.

Built Tough for Demanding Environments

Unlike PCs and servers, the KMC Commander IoT appliance (hardware) is designed to attach to a wall, panel, or DIN rail in commercial and industrial environments.

Engineered with an industrial-grade form factor and fanless, solid-state design, KMC Commander can reliably run 24/7 with long life at extended temperatures, in addition to withstanding the higher levels of humidity and dust typical of commercial environments.

Connect Multiple Communication Protocols

Make the most of the equipment you already have and expand capabilities with new technologies. Use KMC Commander to connect with the physical world, bridging both legacy systems and modern sensors to the Internet. Connect to BACnet IP (directly), BACnet MS/TP (with a BAC-5051E router), KMDigital (with a KMD-5551E translator), and Modbus (directly). Connect also (coming soon) to SNMP.

Security Built In

You can depend on KMC Commander's security. A Trusted Platform Module (TPM) chip performs hardware root of trust, secure boot, and BIOS-level lock-down of unused I/O ports. Embedded Ubuntu Core software ensures secure operation. White lists and black lists prevent unauthorized IP connections. Custom user permissions, data encryption, and other measures enhance security.

APPLICATIONS

KMC Commander provides data collection, analysis, visualization, and management for the modern smart building ecosystem, including HVAC, lighting, security, and other building applications. For just one example, see **Sample Installation on page 6.**

MODELS

KMC COMMANDER BASE PACKAGES		
Wi-Fi	**Cellular (AT&T)**	**Cellular (Verizon)**
CMDR-V2-WIFI-BASE package includes: • **(Wi-Fi) KMC Commander** (CMDR-V2-WIFI-3002)	**CMDR-V2-ATT-BASE** package includes: • **(AT&T) KMC Commander** (CMDR-V2-ATT-3002)	**CMDR-V2-VRZ-BASE** package includes: • **(Verizon) KMC Commander** (CMDR-V2-VRZ-3002)

All base packages also include:

- **Antennas** for Wi-Fi or cellular Internet connection
- **250 Points License** (CMDR-V2-LIC-00250)—for alternative or additional licenses, see **KMC Commander LITE Packages on page 2** and **Additional Points Licenses on page 2**
- **5 GB Cloud Storage** (CMDR-CLOUD-5GB)—for additional storage, see **(Additional) Cloud Storage (Licenses) on page 2**
- A CMDR-D3-PWR-POE **Power Over Ethernet injector** (or use a third-party 12–57 VDC, 20 watt or greater, power supply with the supplied terminal block)
- A CMDR-D3-DINMT mounting adapter for **DIN-rail mounting** (or order separately a CMDR-D3-WALLMT mounting adapter for optional wall/panel mounting)

(See also **Accessories on page 4**)

KMC COMMANDER LITE PACKAGES
For smaller projects, "LITE" packages (with an added **-L** on the model number) are identical to the equivalent base packages above but have a **100** points license (CMDR-V2-LIC-00100) instead of 250 points: • CMDR-V2-WIFI-BASE**-L** • CMDR-V2-ATT-BASE**-L** • CMDR-V2-VRZ-BASE**-L**

ADDITIONAL POINTS LICENSES
For larger projects, add additional points: • **250** Points License (CMDR-V2-LIC-00250) • **500** Points License (CMDR-V2-LIC-00500) • **1K** Points License (CMDR-V2-LIC-0001K) • **5K** Points License (CMDR-V2-LIC-0005K)
NOTE: Licenses are for one year and provide continuing maintenance, storage, security, and software updates. After the first year, renewals are approximately 18% of the cost of the initial first year licenses. Contact KMC Customer Service for pricing and ordering information.

(ADDITIONAL) CLOUD STORAGE (LICENSES)
• **5** GB of Data Storage Annually (CMDR-CLOUD-5GB) • **25** GB of Data Storage Annually (CMDR-CLOUD-25GB)
NOTE: • KMC licenses annual subscriptions to KMC Cloud services based on the required total amount of data storage. • For more information, see the section **How Much Annual Cloud Storage Is Needed? on page 5**.

SPECIFICATIONS (COMMANDER IOT APPLIANCE HARDWARE)

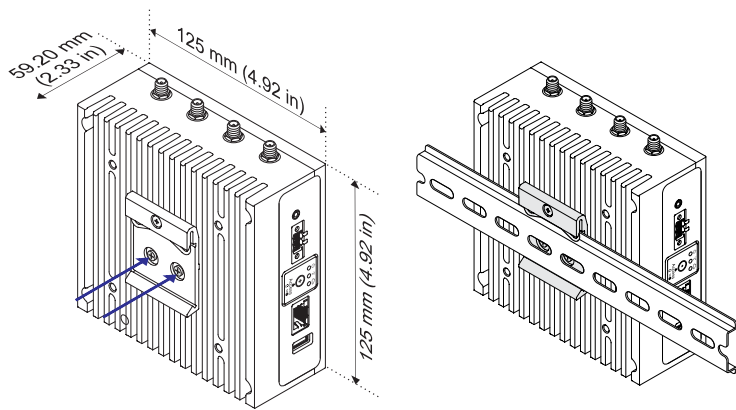|	
Processor	Intel® Atom™ E3805, 1.33 GHz, 64-bit, 2 cores, 1 MB cache
Memory	2 GB RAM, 8 GB eMMC
Storage	Industrial-grade Micro-SD card: 8, 16, 32, or 64 GB (not included)
Environmental	Operating temperature −22 to 158° F (−30 to 70° C); relative humidity 10 to 95%, non-condensing, IP50 rating, shock and vibration resistant
Dimensions	4.9 x 4.9 x 2.0 inches (125 x 125 x 51 mm)
Form Factor	Fanless design, optimized for DIN-rail mounting (with a CMDR-D3-DINMT mounting adapter) or wall/panel mounting (with a CMDR-D3-WALLMT mounting adapter)—see **Accessories on page 4**
Weight	2.69 pounds (1.22 kg)
Power Requirements	Power Over Ethernet Injector (CMDR-D3-PWR-POE) or a third-party 12−57 VDC, 20 watt or greater, power supply (with the supplied terminal block)—see **Accessories on page 4**
I/O	Gigabit Ethernet (RJ-45), Wi-Fi, and (optional) cellular
Status Indicators	Power, Ethernet, WLAN, and Cloud connection
Operating System	Ubuntu Core Series 16
Security	Trusted Platform Module (TPM) 2.0 chip, Secure Boot, BIOS lockdown of unused I/O ports, intrusion switch connector
Manageability	Dell Edge Device Manager (EDM)
KMC Limited Warranty	1 year (from manufacturing date code)
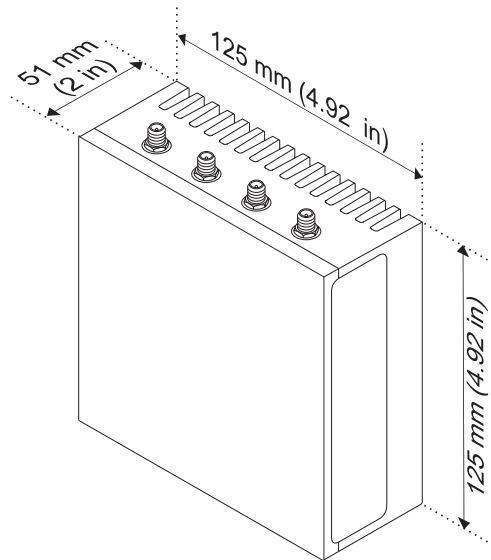
## SPECIFICATIONS (SUPPORTED COMMUNICATION PROTOCOLS)

BACnet IP	Direct network connection to Ethernet port
BACnet MS/TP	With a KMC **BAC-5051E** BACnet router connected to Ethernet network
KMDigital	With a KMC **KMD-5551E** translator connected to Ethernet network
Modbus	Direct network connection to Ethernet port

ACCESSORIES

Power supply	• Replacement (**CMDR-D3-PWR-POE**) Power Over Ethernet injector (included in base packages—or use a third-party 12−57 VDC, 20 watt or greater, power supply with the supplied terminal block)
Mounting on a DIN rail or on a wall or panel	• A replacement (**CMDR-D3-DINMT**) adapter for DIN-rail mounting (included in base packages) • A (**CMDR-D3-WALLMT**) adapter for optional wall or panel mounting
Mounting inside an enclosure	• Steel control enclosure, 16 x 18 x 6 inches (**HCO-1034**) or equivalent—and use a CMDR-D3-DINMT or CMDR-D3-WALLMT adapter to mount the Commander inside
Remote mounting of antennas (outside of an enclosure or at a distance for better range/reception)	• Extension cables (pack of two), Wi-Fi or cellular, 3-foot (**CMDR-ANT-EXT-3**) • Extension cables (pack of two), Wi-Fi or cellular, 15-foot (**CMDR-ANT-EXT-15**)
Network communication accessories	• Single-port BACnet router (**BAC-5051E**)—use for connecting to an MS/TP network • KMDigital to BACnet translator (**KMD-5551E**)—use for connecting to a KMDigital network • EIA-485 network surge suppressor (**KMD-5567**) • Ethernet patch cable, 50 feet (**HSO-9001**) • Ethernet patch cable, 50 feet, plenum rated (**HSO-9011**) • Ethernet patch cable, 75 feet, plenum rated (**HSO-9012**)
SIM card for cellular service	• For a cellular base package, a carrier SIM (Subscriber Identity Module) card is shipped in the carton, which needs to be activated by contacting AT&T or Verizon
SD card for expanded storage	• Micro-SD card: 8, 16, 32, or 64 GB (purchase from third party)

With DIN Rail Adapter (Included in Base Packages)
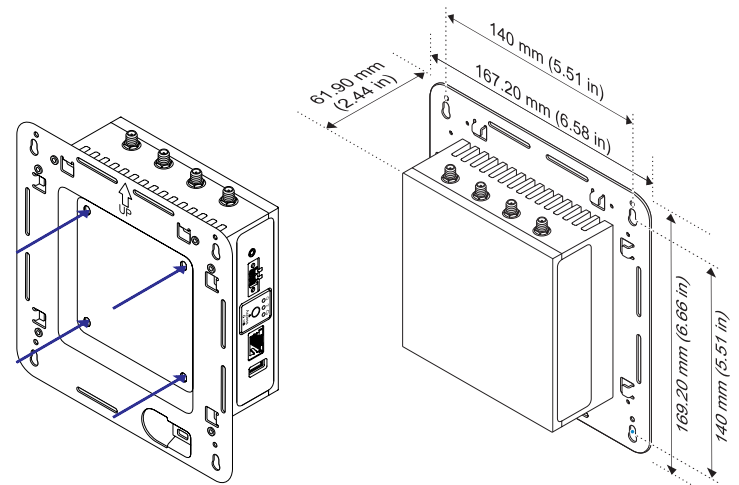
With Wall/Panel Adapter (Ordered Separately)

FREQUENTLY ASKED QUESTIONS

Why Purchase the Wi-Fi Base Package?

During Commander installation, Wi-Fi is used to discover and set-up the hardware (for all models). This is the package to order if cellular service is not needed for operation.

NOTE: In all base packages, Wi-Fi is used during installation and then disabled for security reasons. During operation, Ethernet or cellular (see below) is normally used for the Internet connection.

Why Purchase a Cellular Base Package?

A cellular package is primarily used in locations where Internet access is unavailable through Ethernet or Wi-Fi or as a way of separating from a building's Ethernet network for added security. A cellular data plan provides the Internet access instead. Activation of the SIM card included in the cellular base package and an active AT&T or Verizon account are required to use the option.

What Is a Points (of Interest) License?

A **point** is a device data point that is alarmed, scheduled, trended, or used in control logic. Examples of data points include, but are not limited to, temperature, air volume, CO_2 level, door status (open/closed), pressure, tank level, and binary status (on/off). When one of these points is manually selected to be continuously tracked, it counts as a point of interest and is licensed as such.

A **point of interest** is any user-selected point that is configured to be tracked and/or commanded by the Commander. Not all points in a controller will be points of interest. Points of interest are continuously subscribed to in the KMC Commander software.

Each point of interest being pulled from a device uses 1 license point. For example, 60 controllers gathering 8 points of interest each would need a total of 480 license points. A base package plus an additional 250 point license would cover this amount and provide room for small future additions to the project. Point licenses can be purchased in increments of 250 to 100K and are available for purchase as projects expand.

How Does Licensing Work?

Licensing is an annual term and based on total number of system points identified as points of interest. Licensing also includes cloud storage as well as software and security updates and enhancements for the length of the term.

If the license is not renewed after the term expires, Commander will continue to function, but it will no longer be remotely accessible, receive updates and enhancements, or store data in the cloud.

License renewal notifications will be forwarded in advance and prior to expiration of the existing license term.

How Much Annual Cloud Storage Is Needed?

A 5 GB annual cloud storage license will be sufficient for most initial Commander installations. However, if you want to ensure you have enough storage, use this simple calculation: GBs Needed = (Points x Years)/2,000. For example: You are using 5,000 points of interest and you want to know how much storage you'll use over the next 4 years. (5,000 x 4)/2,000 = 10 GB. This means that a 5 GB annual subscription plan would be sufficient for two years before you need to upgrade. However, this calculation is an approximation depending on the type of data you're storing (e.g., numbers, text strings, photos, videos).
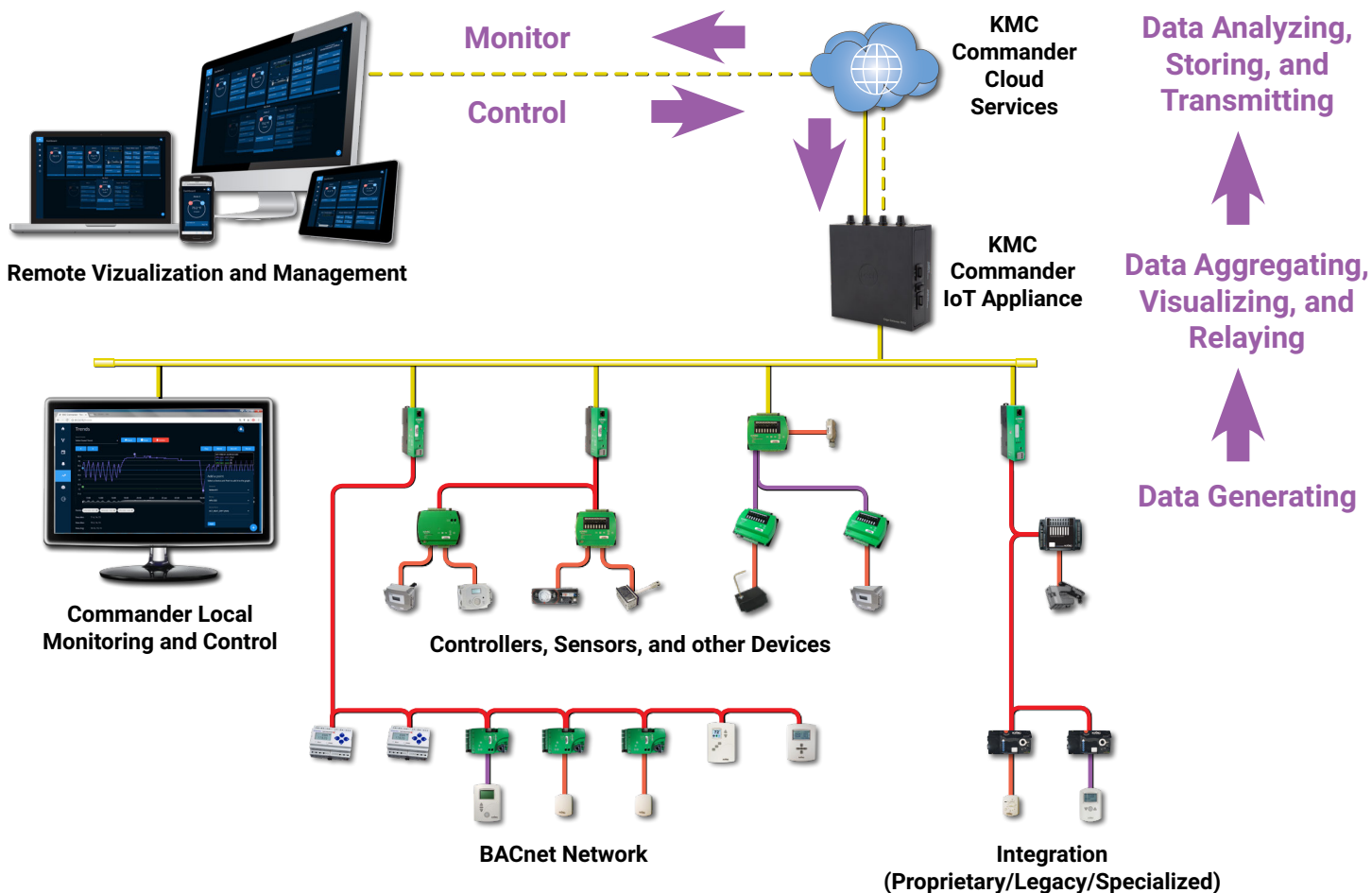
NOTE: If you wish to not use KMC's cloud hosting, contact KMC Customer Service to discuss your options.
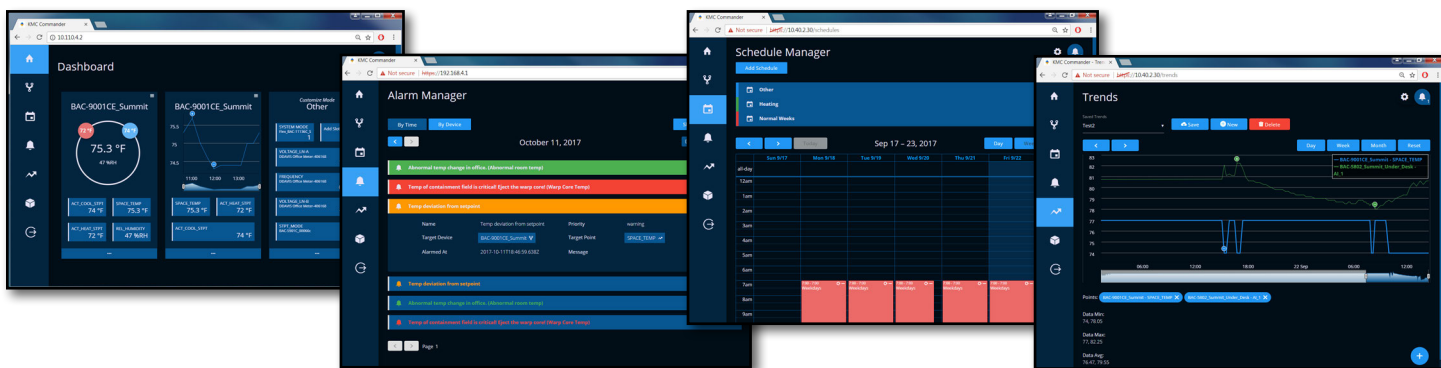
What is the Commander Cloud Service?

The Commander cloud service provides important data and security benefits to customers. Cloud services include:

- Securely storing data
- Processing data
- Relaying data to mobile and other devices
- Managing control devices
- Providing automatic software enhancements and security updates

SAMPLE INSTALLATION

Monitor

Control

KMC Commander Cloud Services

Data Analyzing, Storing, and Transmitting

Remote Vizualization and Management

KMC Commander IoT Appliance

Data Aggregating, Visualizing, and Relaying

Commander Local Monitoring and Control

Controllers, Sensors, and other Devices

Data Generating

BACnet Network

Integration (Proprietary/Legacy/Specialized)

SAMPLE SCREENS

SUPPORT

Additional KMC product information and resources are available on the web at **www.kmccontrols.com**. To see all available files, log-in to the KMC Partners site.