

DKM

Proprietary KVM Matrix Switching and Extension



Step into the world of cutting-edge technology with the DKM FX and Compact II Matrix Switching systems, brought to you by Black Box®. This remarkable matrix switching solution is set to redefine the way you handle multiple signal types. Say goodbye to the clutter of multiple devices and welcome a single, versatile solution into your setup. The DKM FX platform seamlessly handles routing, switching, and multi-point distribution of a wide range of video standards, including SDI, 3G-SDI, HD-SDI, HDMI™, DisplayPort™, and DVI. Discover a world where technology simplifies your life.

Ideal for a Wide Range of Industries

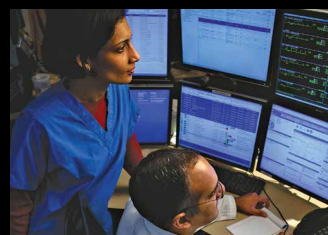
DKM's adaptability and expansiveness make it well-suited for diverse sectors, such as continuous operations and control centers, medical imaging facilities, and process monitoring settings.



Command and Control Rooms



Broadcast and Post-Production



Medical



Air Traffic Control and ATM



Public Safety



Industrial

Table of Contents

| | |
|---------------------------------|-----------------|
| DKM System Benefits | Page 3 ▶ |
| DKM in Control Rooms | Page 4 ▶ |
| DKM Compact II Switches..... | Page 5 ▶ |
| DKM FX KVM Matrix Switches..... | Page 6 ▶ |
| DKM Extenders | Page 8 ▶ |
| Modular DKM Extenders | Page 8 ▶ |
| Compact DKM Extenders..... | Page 9 ▶ |



DKM Benefits

Versatile Matrix Switching Solution

A modular, reliable, and proprietary (non-IP) video and peripheral matrix switching and routing system that supports high-resolution video and control signals. Provides up to 576 bidirectional ports to connect sources and user workstations.

Switches Within Milliseconds

Switch seamlessly and almost instantaneously from any source to another - in less than one frame. Hot-key switching enables user to bypass the standard on-screen display for instant access to critical systems.

Multiple Supported Interface Types

Supports high-quality, full-frame digital video via HD-SDI, HDMI™ 1.3/1.4/2.0, Ultra HDMI™ 1.4, DisplayPort™ 1.1/1.2, Ultra DisplayPort™ 1.1, DVI, VGA. Boasts 4K/UHD digital resolutions up to 3840 x 2160 at 60 Hz. Distributes peripheral signals via USB HID/2.0/3.0, PS/2, and serial RS-232/422.

Designed for Easy Expansion

Add connections and change inputs/outputs as your enterprise's needs evolve. When a department purchases new hardware, just slide a new interface card into the chassis. You can also cascade multiple switch chassis if you exceed the number of available ports.

Enhanced Management & Control Options

Included control card supports management via KVM, network, or serial console. Allows external control via Black Box® ControlBridge® Touchscreens and Control Processors.

Extends Your Reach

DKM switches support device-to-device singlemode fiber links up to 10 km and CATx links up to 140 m. Used midway between an extender transmitter and extender receiver, the switch works as a repeater, essentially doubling the supported distance.

Reduced Downtime

Modular in design, DKM enables you to change peripheral and computer connections on the fly to ensure zero downtime. Add or remove cards and SFPs or reroute inputs and outputs while the system is up and running. Also supports redundant power supplies.

CATx or Fiber - Your Choice

Choose from CATx, fiber, SFP, and hybrid modular card interfaces. Single-mode fiber interface cards also work over multimode fiber. Enables mixing of media on inputs and outputs - CATx in and fiber out, or vice versa.

Connect With Virtual Machines

Connect your DKM system to your virtualized server infrastructure by combining it with the Black Box Emerald® KVM over IP system and Boxilla® KVM manager.

Additional Licenses for Enhanced Management

Various optional licenses available: Java® utility permits remote preset and macro creation; Syslog/SNMP license enables remote monitoring; Cascade software connects multiple chassis for remote management.

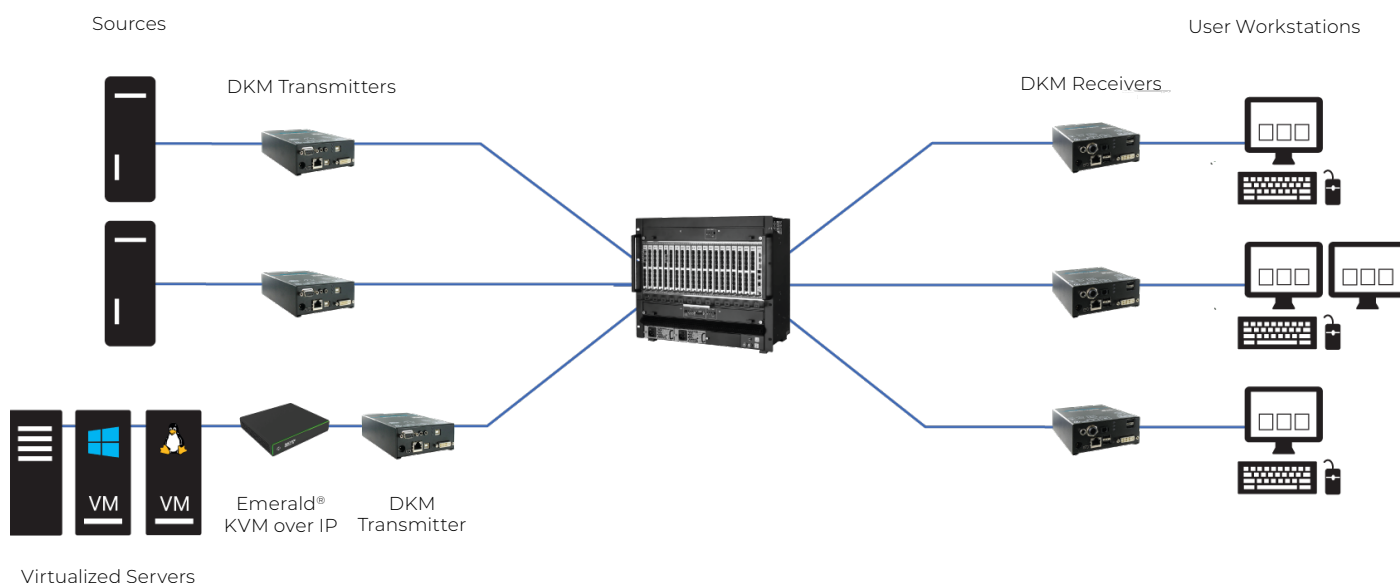


Fig 1.: DKM matrix switching setup connects multiple source computers and user workstations



DKM in Control Rooms

A control room typically operates as the nerve center of an organization's operation. Examples include emergency dispatch centers, surveillance monitoring centers, master control rooms, or military command rooms. These rooms are centralizing a huge amount of information and data and often centralize multiple functions such as a coordination office, an alarm monitoring center, and process control.

This setup comes with special requirements in terms of operator workspace, 24/7 reliable operations, and secure connectivity of various different data sources. Multiple users need to have reliable access to visual feeds, video walls, real-time data, and peripheral signals.

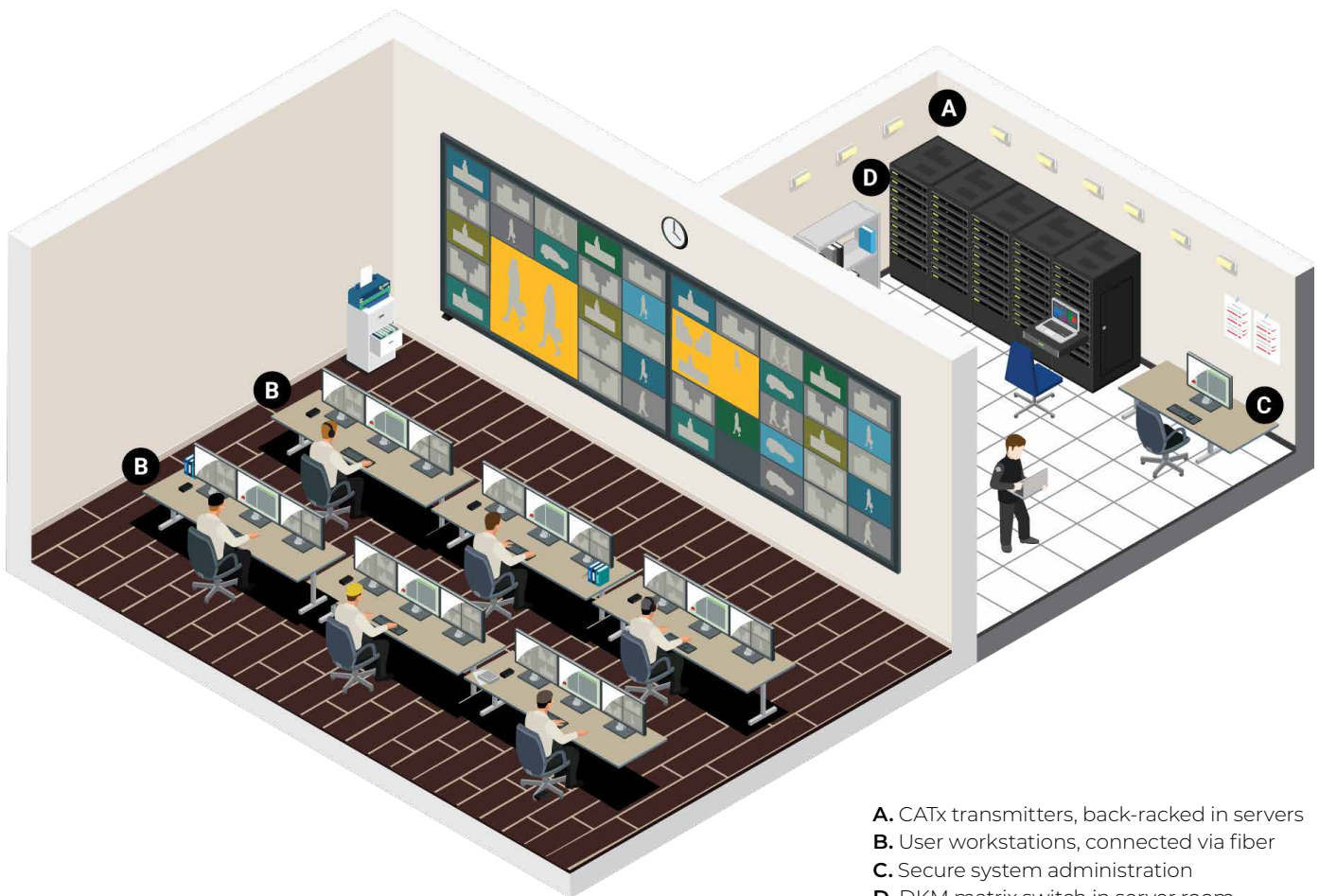
A KVM Matrix Switching System allows the convenient, reliable, and secure connectivity between computers, live-feeds, and users/operators that need to access them. These connections can be extended through several rooms or buildings, which allows the separation of critical server infrastructure and operators.

DKM provides a high level of flexibility in terms of supported signal standards, the number of ports and the transmission medium (copper or fiber), which makes it a perfect fit for complex environments that require a high degree of secure human-machine connectivity.

By offering an array of ports that can be dynamically allocated as input or output, a large number of servers can be connected to any number of user workspaces and video walls. All connected ports can be switched according to the user's requirements and access rights. As long as there are available ports, you can switch in any combination of inputs and outputs.

In the example below, a server room houses servers and the main management switch, plus all the CATx transmitters (A). CATx is used for the input because it is pre-existing in the infrastructure. The outputs on the DKM chassis (D) are then fiber optic cables to the DKM receivers connected to each computer (B) distributed throughout another room (or to other buildings on campus). Using fiber optic cabling increases distance, prevents ground loops, and corrects voltage disparity.

Video distribution comes from a single workstation, and operators and system administrators work at the workstations (C) while viewing video on a quad screen. Operators require only a single set of peripherals (keyboard, mouse, speakers, etc.) to control any number of connected computers.



- A. CATx transmitters, back-racked in servers
- B. User workstations, connected via fiber
- C. Secure system administration
- D. DKM matrix switch in server room



DKM Product Family

DKM Compact II Switches

The DKM Compact II KVM Matrix Switches come in sizes of 1, 2, and 4 U, supporting up to 120 CATx, fiber, or mixed CATx and fiber connections. With their capability to facilitate 1G and 3G network speed technology within a single frame, they support modern applications with a mix of HD and 4K video, USB, audio, and serial extension and switching in a very economical way. Their custom-design chassis allows for future field upgradability, so you can scale your system from 40 ports to 80 ports or even up to 160 ports to meet your business needs.

- Send your signals as far as you need them to go. These DKM Switches enable you to extend KVM signals up to 400 m over standard multimode fiber or even 10 km over singlemode fiber.

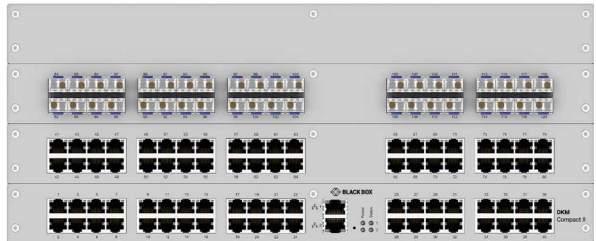
- With a 10G grid option, you can link multiple DKM Compact II KVM Switches together to create a bigger system. This functionality allows you to build a homogeneous large matrix grid for your enterprise.
- DKM Compact II KVM Matrix Switches are compatible with all current and future DKM extenders. Just make sure to use the correct link speed, interface, codec version, and firmware.
- Use DKM Modular or preconfigured Extenders and Extender Kits to connect DKM Compact II Switches with computers (connect to transmitter units) and users (connect to receiver units).

Selected DKM Compact II Models

| Product Code | Total # of Ports | # Fiber Ports | # CATx Ports | Transmission Bandwidth | Rack Units Required |
|---------------|------------------|---------------|--------------|------------------------|---------------------|
| ACXC16-3G | 16 | - | 16 | 3G | 1 U |
| ACXC16F-1G | 16 | 16 | - | 1G | 1 U |
| ACXC24F-3G | 24 | 24 | - | 3G | 1 U |
| ACXC24FH16-3G | 40 | 16 | 24 | 3G | 1 U |
| ACXC40FH40-1G | 80 | 40 | 40 | 1G | 2 U |
| ACXC80FH40-3G | 120 | 40 | 80 | 3G | 4 U |

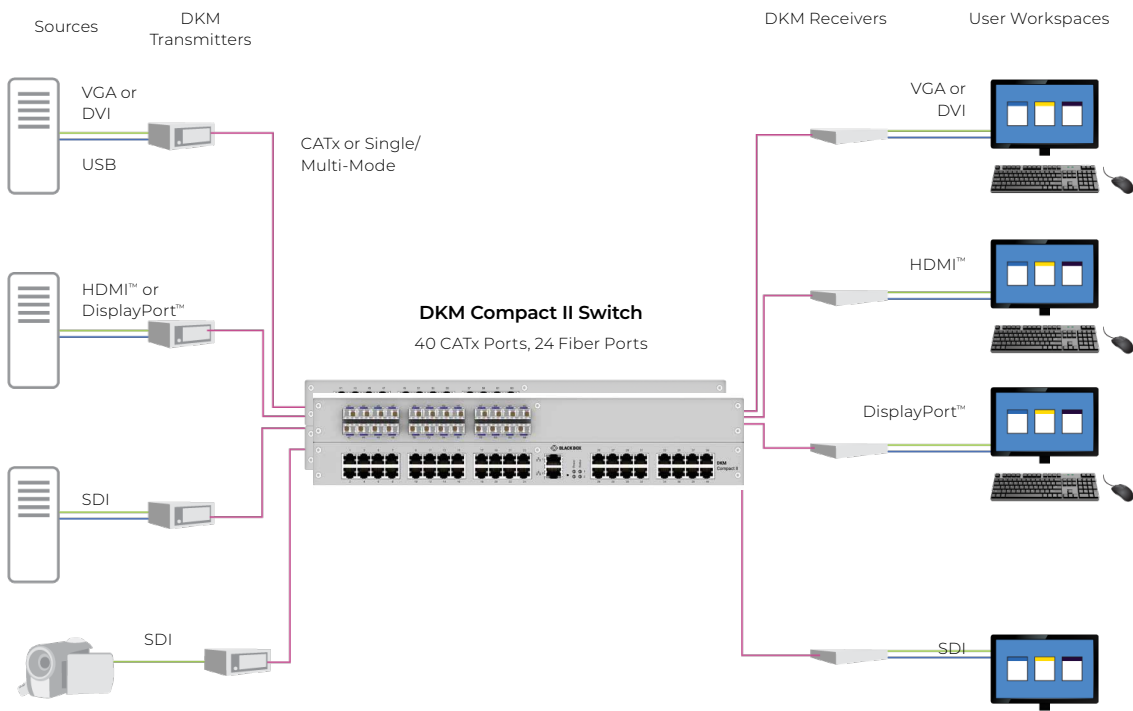


ACXC16-3G



ACXC80FH40-3G

To learn about additional models visit blackbox.com/dkm ►



DKM FX KVM Matrix Switches

The DKM KVM matrix system enables flexible, instantaneous, and reliable matrix switching and extension of high-quality video, audio, and peripheral signals. Choose from chassis-based, modular KVM matrix switches in multiple sizes, compact CATx and fiber switches, and DKM extenders. The proprietary signal transmission architecture of DKM matrix switches make them particularly well suited for mission-critical installations as their multi-level redundancy offers the highest reliability for 24/7 operation.

- Different chassis sizes with 48, 80, 160, 288, or 576 ports. Any port can be a computer- or user-connection.
- Boasts digital resolutions up to 4K at 60 fps (DisplayPort™ 1.2) or up to 2560 x 1600/1080p (DVI & HDMI™).
- Supports many video input formats like DVI, DisplayPort™, HDMI™, SDI, VGA, and other analog standards.
- Nearly instantaneous video switching. Virtually no delay or blanking.
- Central management with full support of external controllers for automated processes (via optional software ACX-API).
- Dedicated bandwidth allocation guarantees optimum performance of all connected user devices.
- Various interface cards available for your peripherals with USB HID, USB 2.0, USB 3.0, PS/2, RS-232, RS-488, analog and digital audio.
- Flexible connections, depending on the required distances: up to 140 m over CATx or up to 10 km over fiber.

- Enables mixing of media on inputs/outputs —CATx in and fiber out or vice versa.

Depending on your unique requirements, our system engineers will help you to select from a variety of KVM matrix switch chassis as well as pre-configured or modular transmitter and receiver units that will be used to build out your matrix switching system.

To learn about models, cards, and extenders visit blackbox.com/dkm ►



DKM FX KVM Matrix Switches with 80, 160, and 288 ports

DKM Matrix Switches Technical Specifications

| Application | KVM | | | Universal (KVM/SDI) | |
|------------------------------|---|------------------------------|----------------------------|-----------------------------|-------------------------------|
| # of Ports | 48 ports (3 U) | 80 ports (4 U) | 160 ports (9 U) | 288 ports (13 U) | 576 ports (25 U) |
| Input / Output | CATx | Fiber | Fiber XV | Multi-mode Fiber | Coax |
| Maximum Distance | 140 m | 10 km | 5 km | 100 m | |
| Bandwidth | 1G | 1G | 3G | 6G | |
| Supported Signals | DisplayPort™, HDMI™, DVI-D, DVI-I, USB 2.0, USB-HID, S232, RS-422, analog / digital or balanced audio | | | USB 3.0 | SDI |
| Maximum Resolutions | DVI Single Link | DVI Dual Link | DisplayPort™ or HDMI™ 4K | - | Video |
| | 1920 x 1200 @ 60 Hz / 24 bit | 2560 x 2048 @ 60 Hz / 24 bit | 4K / UHD up to 60 Hz | - | up to 1080p |
| Power Supply (max./per unit) | 5 A, 100-240 VAC, 50/60 Hz | 5 A, 100-240 VAC, 50/60 Hz | 9 A, 100-240 VAC, 50/60 Hz | 12 A, 100-240 VAC, 50/60 Hz | 14.5 A, 100-240 VAC, 50/60 Hz |
| # of Power Supplies | 1 | 1 | 2 | 2 | 2 |
| Dimensions | 483 x 133 x 230 mm | 483 x 178 x 230 mm | 483 x 400 x 330 mm | 483 x 578 x 330 mm | 483 x 1108 x 435 mm |



DKM Extenders

The DKM series includes two types of extenders that can be used to connect endpoints to a DKM matrix switch or to create point-to-point extension: modular extenders and compact extenders.

The **DKM Modular Extenders** are customizable for various digital and analog connections, including USB, audio, serial, and video formats like HDMI™, DVI, and DisplayPort™. They're scalable for growing enterprise needs, with options for mixing CATx and fiber connections. Choose from and combine different chassis and extension card options to build just the right types of extenders for your needs.

The **DKM Compact Extenders** are pre-configured for efficient space utilization, supporting interfaces like DVI-D and USB HID. These extenders are ideal for both standalone applications or integration into DKM matrix switch systems, handling high-definition video up to 4K/60 over CATx or fiber.

Both extender types offer varying slot configurations - 2, 4, 6, or 21 - and come with redundant power supply options, ensuring reliability and adaptability to different operational requirements.

Modular DKM Extenders

The Modular DKM Extender setup provides the widest range of possible interface combinations, which makes it easy to customize them for your specific application.

They are comprised of modular housings, basic link modules and upgrade modules for your peripheral needs. Special converter modules provide a video conversion for analog video input formats to DVI outputs. The 8-port DKM FXC switching modules integrate KVM switching into the DKM Extender to save even more space.

Modular Housings

The Housings are available with slots for 2, 4, 6, or 21 modules. For mission-critical applications, all housings are available with redundant power. DC-power with 12-, 24- or 48-VDC for industrial usage can be supplied, too. Choose one housing with transmitter modules for your computer end and one housing with the corresponding receiver modules at your user station.

Basic Link Modules

Each housing must be equipped with at least one basic link module. The basic link modules provide a video and USB HID ports as well as the connecting link to the central switch. Choose from versions with Single-Link or Dual-Link DVI-D, SL DVI/VGA, HDMI™ or DisplayPort™ video formats. Basic link modules with redundant transmission offer two link connections. Use them to establish backup channels or to split a video channel for two users. Mix and match the modules within the housing according to your needs.

Upgrade Modules

The Upgrade Modules carry their signals over the cable connections from the basic link modules to save on infrastructure needs. They provide a large variety of peripheral interfaces like USB HID, PS/2, embedded USB 2.0 at 36 Mbps, serial RS-232 or RS-422, bidirectional analog audio and uni-, or bidirectional digital audio. Mix and match the options according to your application needs.

Converter Modules

The DKM Converter Modules allow the integration of analog video inputs like component and composite video as well as industrial video formats like EGA, CGA, and MDA. In addition, there are options for SDI, HD-SDI, or 3G-SDI available. The modules convert these signals into digital DVI-D signals being transmitted over the distance without any losses.

KVM Switching Modules

The Switching Modules provide real space savings. The modules feature the full function set of a compact matrix switch but in a very compact design occupying only 2 slots in your DKM extender chassis.

Mounting Options

The desktop housings can be mounted with optional kits on DIN-rails, walls, under the table, as well as in 19" racks. The 21-slot housing comes ready for mounting into a 19" cabinet. No matter which chassis you select, all ports are arranged on the front side of the chassis to ensure comfortable access while installing and maintaining them.

Visit our **Online DKM Extender Configurator** ► to build just the right extenders for your application.



Various Modular DKM Extenders



Compact DKM Extenders

- Connect users and computers to your DKM FX or DKM Compact II while extending the signals simultaneously over long distances.
- Also work as standalone point-to-point KVM extension without a DKM Switch.
- Compact housing enables high-density mounting within 19" racks (up to four devices in 1U).
- Choose the cable media depending on your distance requirements: CATx up to 140 m, multimode fiber up to 1 km, singlemode fiber up to 10 km.
- Options for DVI-D and DVI-I video; Peripheral options for USB HID, transparent USB 2.0, RS-232, analog and bidirectional analog audio.
- Compatible with the DKM Modular Extenders.
- Order one transmitter for each computer connected to the DKM and one receiver for each user within the DKM system.



ACX1T-12A-C



ACX1T-12A-SM

| Description | Product Code |
|---|--------------|
| CATx | |
| Single Monitor DVI-D, (2) USB HID, (1) CATx | ACX1T-11-C |
| Single Monitor DVI-D, (2) USB HID, (1) CATx, TX and RX Kit | ACX1K-11-C |
| Single Monitor DVI-D, (4) USB HID, Audio, (1) RS-232, (1) CATx | ACX1T-12A-C |
| Single Monitor DVI-D, (2) USB HID, (2) USB 2.0 at 36 Mbps, RS-232, Audio, (1) CATx | ACX1T-14A-C |
| Single Monitor DVI-D, (2) USB HID, (2) USB 2.0 at 36 Mbps, RS-232, Audio, (1) CATx, TX and RX Kit | ACX1K-14A-C |
| Dual Monitor (2) DVI-D, (4) USB HID, (2) CATx | ACX1T-22-C |
| Fiber | |
| Single Monitor DVI-D, (2) USB HID, (1) Singlemode Fiber | ACX1T-11-SM |
| Single Monitor DVI-D, (4) USB HID, Audio, (1) RS-232, (1) Singlemode Fiber | ACX1T-12A-SM |
| Dual Monitor (2) DVI-D, (4) USB HID, (2) Singlemode Fiber | ACX1T-22-SM |
| Single Monitor DVI-I, (2) USB HID, IR Remote Control, (1) Singlemode Fiber | ACX1T-11V-SM |

For **Receivers** replace "T" in product code with "R", e.g. ACX1R-11-C

Additional Products

ControlBridge Control Processor and Touchscreen

ControlBridge® is a versatile control processor and touchscreen-based appliance that allows you to control all aspects of your workspace or control room, including KVM switching, lighting, window shutters, automated furniture position, and video walls.

- Multiple control processors and touchscreen devices (7" and 12") available.
- Bidirectional control of any IP-enabled or I/O device.
- Active matrix touchscreen display offers resolutions of 1280 x 800, 32-bit (true color) images, and full-motion streaming video preview.
- Includes built-in microphone, speakers, and light and motion sensors.
- Mobile device support through optional app license.
- Black Box will help you to design a custom interface for your specific requirements.

Learn more at blackbox.com/controlbridge ▶



ControlBridge 12" touchscreen

| Product Code | Description |
|--------------|---|
| CB-TOUCH7-T | ControlBridge Touch Panel, 7" |
| CB-TOUCH12-T | ControlBridge Touch Panel, 12" |
| CB-CP100 | Control Processor for Small-Sized Applications |
| CB-APP-LIC | ControlBridge Single-Seat Mobile Device License |



Notes

Notes

Why Black Box

Expertise

Black Box® project engineers can assist with system assessment, design, deployment, and training.

Breadth

Black Box offers the most comprehensive suite of engineered KVM, AV, and infrastructure solutions in the industry.

Support

Reflecting our commitment to complete satisfaction, our dedicated team of highly trained support technicians is available by phone free of charge, every day of the year.

Service Level Agreements

Our service level agreements give customers access to technical support, product training, dedicated application engineers, and more.

Experience

Providing leading technology solutions since 1976, Black Box helps more than 175,000 customers in 150 countries build, manage, optimize, and secure IT infrastructures.

Warranties

Multi-year warranties with multi-year extensions and replacement options are available.

Center of Excellence

Black Box offers a Center of Excellence, featuring professional services and support agreements that help optimize customers' systems and maximize uptime.