Digiplex IV
A Matrix Switching Control System for Large CCTV Installations

Overview

Digiplex® IV is an expandable matrix switching system that manages video inputs and monitor outputs. It is designed for use in large CCTV systems.

At the core of the system is the KTD-440 Master Switcher Chassis, which can manage 64 video inputs by 32 monitor outputs. With the addition of color-coded expansion cards and an expansion chassis, the KTD-440's matrix switching capabilities can be increased to 512 inputs by 64 outputs. Digiplex IV also offers video loss detection cards, which monitor video signals and alert users in the event of camera failure.

Outstanding Features

Digiplex IV switches video using cross-mapped BNC connections into the master and slave chassis, and ribbon cables between the expansion and master/slave chassis. This arrangement maintains familiar system programming and operation, while reducing the amount of coaxial cable required for inputs and outputs.

The system's improved, compact design requires 75 percent less space than previous Digiplex switchers. A fully expanded system requires only 28 units (49 inches) of space in a standard 19-inch rack.

The Digiplex IV system features built-in LED indicator lights—making it easy to monitor system, power, video, and switcher operations.

Because the components of each Digiplex IV system are shipped preconfigured, labeled, and ready to install, assembly is easy.

The following components make up the rest of the Digiplex IV system: KTD-440G Gathering Panel, KTD-440N Monitor Expansion Chassis, KTD-441 Slave Chassis, KTD-442 Expansion Chassis, KTD-443 Video Input Card, KTD-444 Monitor Output Card, KTD-445 Video Loss Card, KTD-446 Power Supply, KTD-447 CPU Card, and KTD-449 Monitor Expansion Cable.

Standard Features

- **Industry-changing compression preserves picture quality**

- **Base system: 64 video inputs by 4 monitor outputs; expands to 512 inputs by 64 outputs**

- **Easy-to-install expansion chassis**

- **Internal video loss detection**

- **Built-in diagnostic LEDs**

- **Transparent cross-mapped inputs**

- **Video ribbon cable interconnect**

- **Easy sequential switching**

- **PC keyboard programmable**

KTD-440 Master Switcher Chassis

With the capacity to manage 64 video inputs by 32 monitor outputs, the KTD-440 Master Switcher Chassis is the primary building block of the Digiplex IV system. When expansion cards and expansion chassis are added, its matrix switching capability can be expanded to 512 inputs by 64 outputs.

The KTD-440 accepts up to two video input cards, eight video output cards, one video loss card, and one CPU card. It provides transparent cross-mapped inputs, sequential switching, and an option for internal video loss detection. LED status indicator lights make it easy to monitor system diagnostics. The KTD-440 occupies 3 units (5.25 in.) of rack space in a standard 19-in. rack. Each chassis is supplied with one KTD-446 Power Supply.

KTD-440-G Gather Panel

The KTD-440-G Gathering Panel manages video signals going from the slave chassis into the master switcher chassis via the expansion chassis. It is designed for systems with more than 128 video inputs.

KTD-440 Specifications

Electrical
Input
- Voltage[1]: 100 to 240 VAC @ 50/60 Hz
- Power[1]: 25 VA
- Data signal: RS422
- Computer interface: RS232

Output
- Remote data signal: RS422
- Video loss alarm: Dry contact

Connections
- Video loss alarm, RS422: Removable terminal strip
- Computer interface: RJ45
- PC keyboard: 6-pin mini DIN
- Power: Molex Mini-fit, Jr., 5557 dual-row, 2-pin
- Video: BNC connectors
- Video output bus: 3M mini D-sub
- Video expansion bus: 3M mini D-sub, 68-pin

Environmental
- Ambient temperature: 32° to 158° F (0° to 70° C)

Mechanical
- Dimensions: 5.25 in (3U) H x 19 in W x 11.25 in D
- Weight: 14.3 lb (6.5 kg)
- Material: Die-cast aluminum and steel
- Finish: Custom gray paint

KTD-440-G Specifications

Electrical
- Voltage[1]: 100 to 240 VAC @ 50/60 Hz
- Power[1]: 15 VA

Connections
- Power: Molex Mini-fit, Jr., 5557 dual-row, 2-pin
- Video: (9) 3M mini D-sub, 36-pin

Mechanical
- Dimensions: 1.75 in (1U) H x 19 in W x 8.25 in D
- Weight: 3.10 lb (1.4 kg)
- Material: Custom gray ABS

Environmental
- Ambient temperature: 32° to 158° F (0° to 70° C)

[1] Provided by KTD-446 Power Supply

KTD-440-G Specifications

Electrical
Input
- Voltage[1]: 100 - 240 VAC @ 50/60 Hz
- Power[1]: 25 VA
- Data Signal: RS422
- Computer Interface: RS232

Output
- Remote Data Signal: RS422

Connections
- Computer Interface: RJ45
- PC Keyboard: 6-pin mini DIN
- Power: Molex Mini-fit, Jr., 5557 dual-row, 2-pin
- Video Expansion Bus: 3M mini D-sub,m 68-pin

Environmental
- Ambient Temperature: 32° to 158° F (0° to 70° C)

Mechanical
- Dimensions: 5.25 in H (3U) x 19 in W x 11.25 in D
- Weight: 13.3 lb (6.0 kg)
- Material: Die-cast steel
- Finish: Custom gray paint

KTD-441 Specifications

Electrical
Input
- Voltage[1]: 100 to 240 VAC @ 50/60 Hz
- Power[1]: 5 VA

Connections
- Power: Molex Mini-fit, Jr., 5557 dual-row, 2-pin
- Video: BNC connectors
- Video Output Bus: 3M mini D-sub, 36-pin
- Video Expansion Bus: 3M mini D-sub, 68-pin

Environmental
- Ambient Temperature: 32° to 158° F (0° to 70° C)

Mechanical
- Dimensions: 3.5 in (2U) H x 19 in W x 11.25 in D
- Weight: 13.3 lb (6.0 kg)
- Material: Die-cast steel
- Finish: Custom gray paint

[1] Provided by KTD-446 Power Supply

KTD-440N Monitor Expansion Chassis

The KTD-440N Monitor Expansion Chassis provides the Digiplex IV system with 32 additional monitor outputs.

The KTD-440N can hold up to two video input cards. The first switches inputs for monitors 33 through 48; the second switches inputs for monitors 49 through 64. The KTD-440N can also accept up to eight video output cards and one CPU card. Each monitor expansion chassis is supplied with out KTD-446 Power Supply.

KTD-441 Slave Chassis

The KTD-441 Slave Chassis provides the Digiplex IV system with 64 additional video inputs. Seven of these units expand the system to its maximum capacity of 512 video inputs.

A ribbon cable connects the slave chassis to the master switcher chassis via the gathering panel. It features LEDs for monitoring system diagnostics.

The KTD-441 Slave Chassis can hold up to two video input cards. The first switches inputs for monitors 1 through 16; the second switches inputs for monitors 17 through 32. Each slave chassis comes supplied with one KTD-446 Power Supply.

KTD-442 Expansion Chassis

The KTD-442 Expansion Chassis accepts video inputs from up to four slave chassis for output to monitors 33 through 64. These inputs are transmitted to the gathering panel, which manages video signals going into the master switcher chassis.

The gathering panel can accommodate two KTD-442 Expansion Chassis, each of which can accommodate four slave chassis. Each expansion chassis comes equipped with one KTD-446 Power Supply.

KTD-446 Power Supply

The KTD-446 Power Supply provides a 5 VDC power output from a 100 VAC to 240 VAC input (50/60 Hz). One power supply is included with each chassis unit.

KTD-442 Specifications

Electrical

Input
- Voltage[1]: 100 to 240 VAC @ 50/60 Hz
- Power[1]: 18 VA

Connections
- Power: Molex Mini-fit, Jr., 5557 dual-row, 2-pin
- Video output bus: (4) 3M mini D-sub, 36-pin
- Video expansion bus: (4) 3M mini D-sub, 68-pin

Environmental
- Ambient temperature: 32° to 158° F (0° to 70° C)

Mechanical
- Dimensions: 5.25 in (3U) H x 19 in W x 11.25 in D
- Weight: 13.0 lb (5.9 kg)
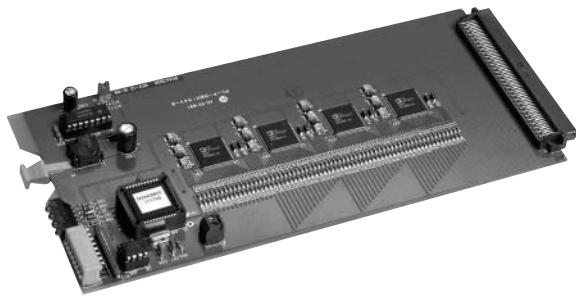- Material: Die-cast aluminum and steel
- Finish: Custom gray paint

Video Specifications

- Inputs: 64 to 512
- Outputs: 4 to 64
- Formats: NTSC or PAL
- Video input range: ± 1.5 VDC
- Bandwidth: 4.1 MHz @ -1 dB, 6.5 MHz @ -3 dB
- Signal-to-noise ratio (typical)

KTD-440	(64 x 32)	64 dB
KTD-440 + KTD-441	(128 x 32)	61 dB
KTD-440 + KTD-440G + KTD-441	(512 x 32)	60 dB
KTD-440 + KTD-440N	(64 x 64)	64 dB
KTD-440 + KTD-440N + KTD-441 + KTD-442	(128 x 64)	52 dB
All	(512 x 64)	52 dB

- Differential gain: < 0.5 percent
- Differential phase: < 0.5 deg
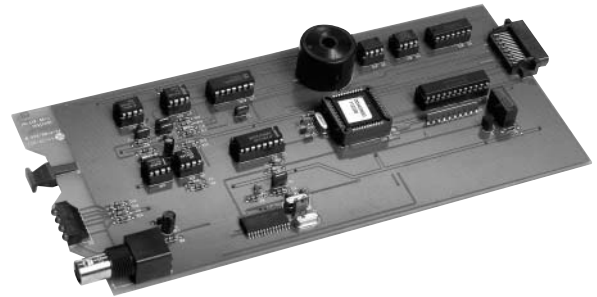- Gain: 0 dB ± -3 dB

[1] Provided by KTD-446 Power Supply

KTD-443 Video Input Card

The green color-coded KTD-443 Video Input Card switches 64 video inputs to 16 monitor outputs. It is used in the master switcher chassis, monitor expansion chassis, and slave chassis, each of which accepts up to two video input cards. It is also used in the expansion chassis, which can accept up to eight video input cards.

Each card provides excellent video performance, DIP switch addressing, and built-in diagnostic LEDs. The LEDs enable users to monitor power, processing, video connections, and the data rate of slave communication.

KTD-445 Video Loss Card

The red color-coded video loss card monitors incoming video signals. When a video-related malfunction occurs, it audibly alerts users and generates an onscreen list of faults. Onscreen menus enable users to specify which video inputs are scanned for video loss. Video loss detection levels are adjustable.

The KTD-445 uses one monitor output to provide video signal detection. Diagnostic LEDs indicate when the card is powered and processing, the data rate of slave communication, the data rate of control communication, and when a fault has been detected.
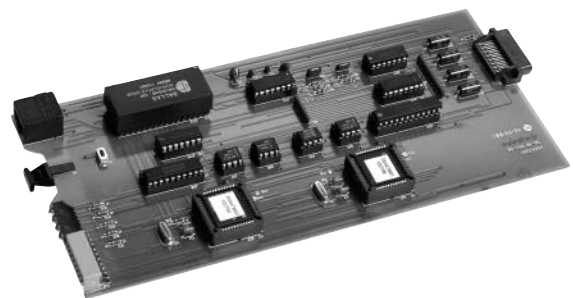

KTD-444 Monitor Output Card

The blue color-coded monitor output card generates alphanumeric titles for four monitors. It also provides built-in diagnostic LEDs, which indicate communication between the CPU card and the monitor. The LEDs indicate the functional mode of each monitor as well as the receipt of control data by the corresponding monitor.

The master switcher chassis accepts up to eight KTD-444 Monitor Output Cards, making it possible to generate titles for 32 monitors. Each output drives a 75 ohm load.

KTD-447 CPU Card

The black color-coded CPU card provides the master switcher chassis with switching control for 32 monitor outputs. Nonvolatile RAM holds user-programmable data. The KTD-447 also provides a keyboard port and an RS232 port for uploading and downloading programming information with the use of Kalatel software. Built-in diagnostic LEDs indicate when the card is powered and processing, the data rate of RS232 serial communication, video sync detection, and functionality of Digiplex RS422 control communication.
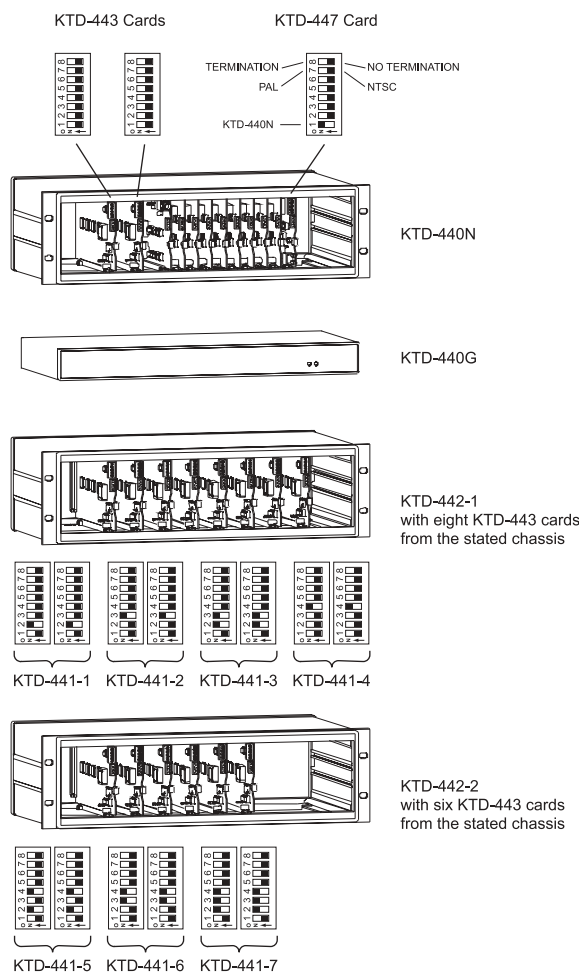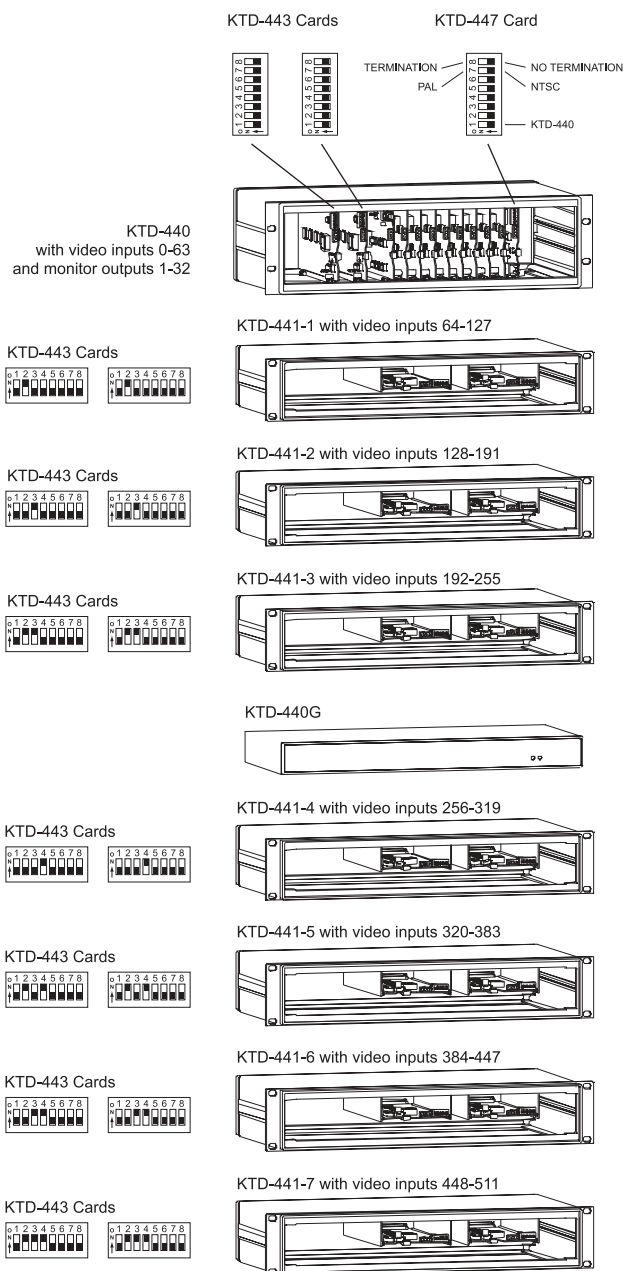
Front Layout of Digiplex IV

512 x 64
video inputs x monitor outputs

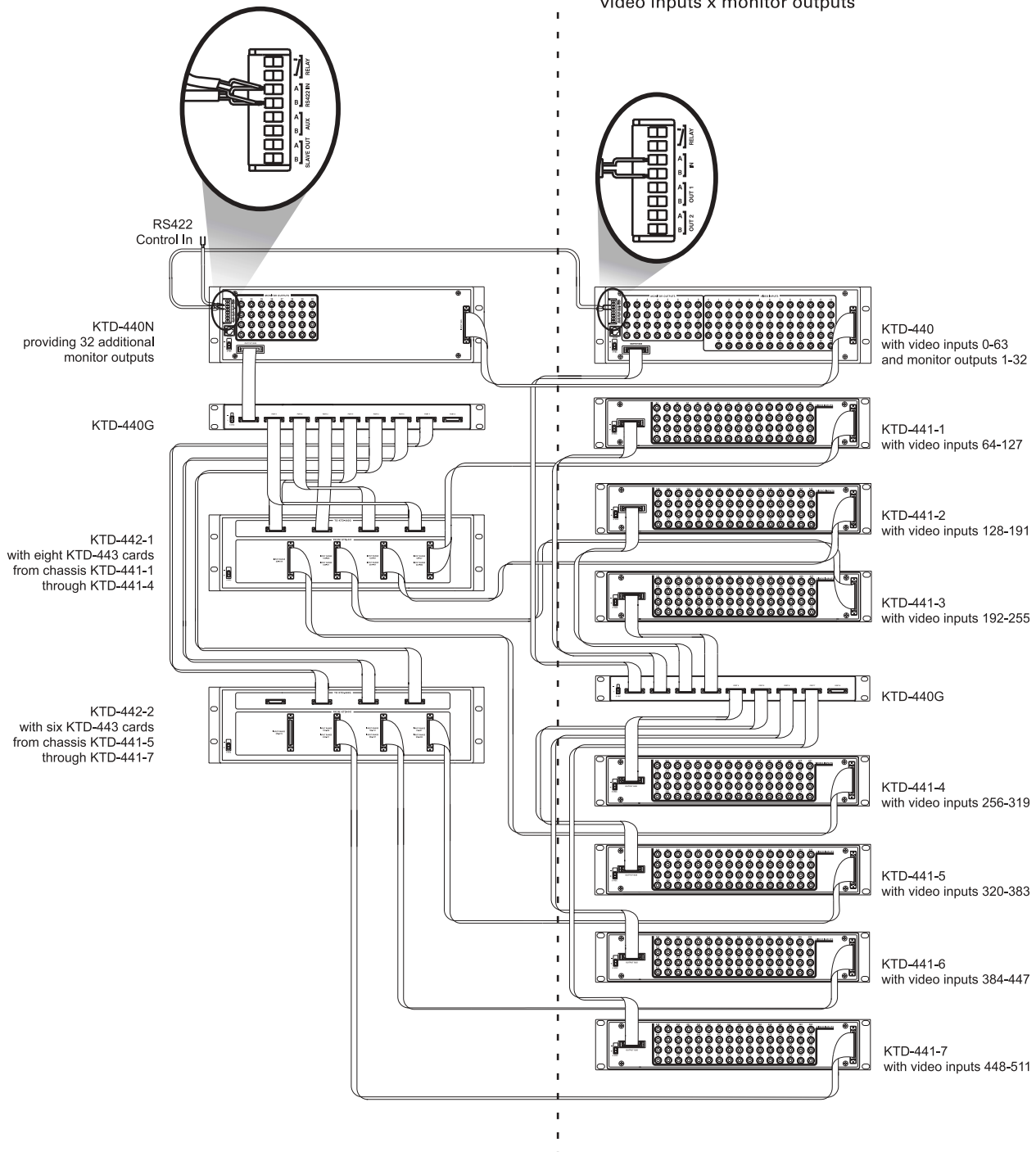**512 x 32**
video inputs x monitor outputs

KTD-443 Cards   KTD-447 Card

TERMINATION — NO TERMINATION
PAL — NTSC
KTD-440

KTD-440
with video inputs 0-63
and monitor outputs 1-32

KTD-441-1 with video inputs 64-127

KTD-443 Cards

KTD-441-2 with video inputs 128-191

KTD-443 Cards

KTD-441-3 with video inputs 192-255

KTD-443 Cards

KTD-440G

KTD-441-4 with video inputs 256-319

KTD-443 Cards

KTD-441-5 with video inputs 320-383

KTD-443 Cards

KTD-441-6 with video inputs 384-447

KTD-443 Cards

KTD-441-7 with video inputs 448-511

KTD-443 Cards

KTD-443 Cards   KTD-447 Card

TERMINATION — NO TERMINATION
PAL — NTSC
KTD-440N

KTD-440N

KTD-440G

KTD-442-1
with eight KTD-443 cards
from the stated chassis

KTD-441-1   KTD-441-2   KTD-441-3   KTD-441-4

KTD-442-2
with six KTD-443 cards
from the stated chassis

KTD-441-5   KTD-441-6   KTD-441-7

Back Layout of Digiplex IV

512 x 64

video inputs x monitor outputs

512 x 32

video inputs x monitor outputs

RS422
Control In

KTD-440N
providing 32 additional
monitor outputs

KTD-440G

KTD-442-1
with eight KTD-443 cards
from chassis KTD-441-1
through KTD-441-4

KTD-442-2
with six KTD-443 cards
from chassis KTD-441-5
through KTD-441-7

KTD-440
with video inputs 0-63
and monitor outputs 1-32

KTD-441-1
with video inputs 64-127

KTD-441-2
with video inputs 128-191

KTD-441-3
with video inputs 192-255

KTD-440G

KTD-441-4
with video inputs 256-319

KTD-441-5
with video inputs 320-383

KTD-441-6
with video inputs 384-447

KTD-441-7
with video inputs 448-511

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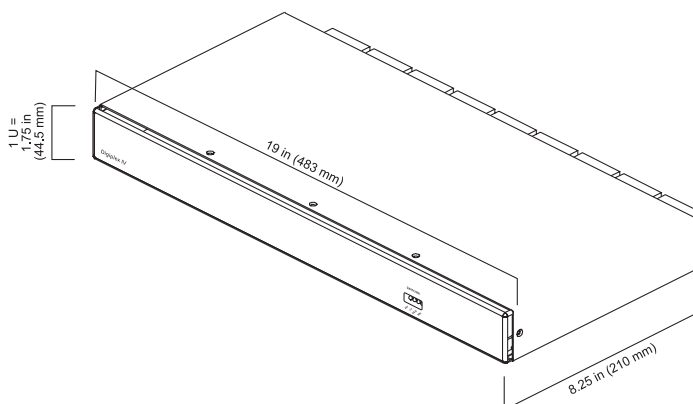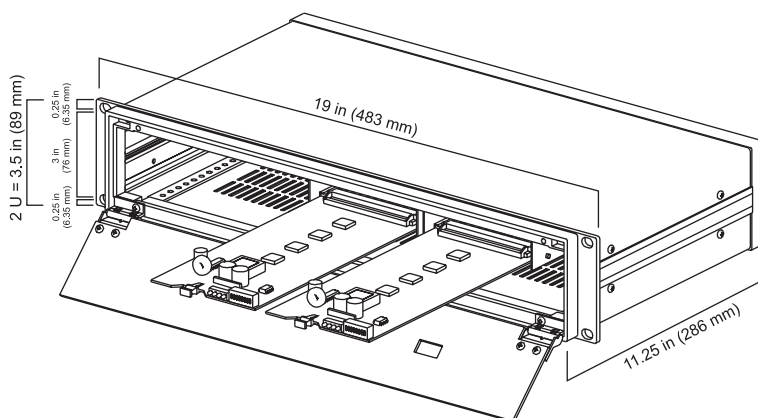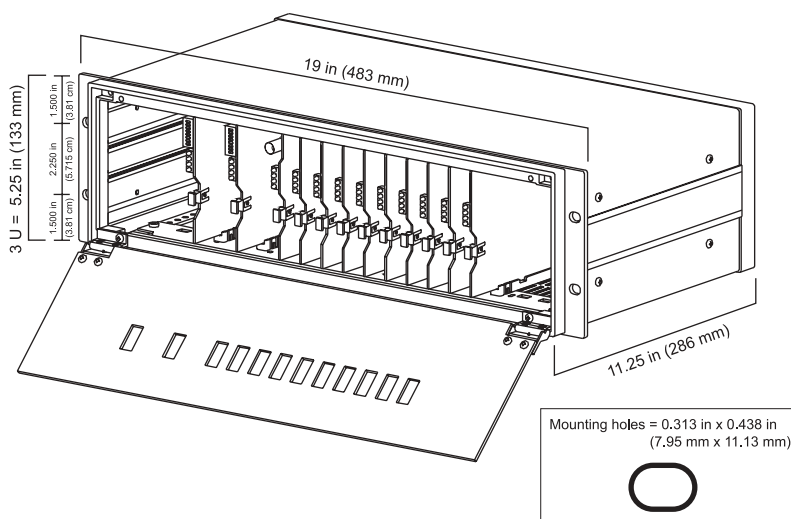
Dimensions

Digiplex IV components mount into standard 19-inch racks. All chassis are 1 to 3 Us high. Each U equals 1.75 in.

Three components use the same chassis and therefore share the same dimensions:
- KTD-440 Master Switcher Chassis (shown)
- KTD-440N Monitor Expansion Chassis
- KTD-442 Expansion Chassis

KTD-441 Slave Chassis

KTD-440G Gathering Panel

Mounting holes = 0.313 in x 0.438 in (7.95 mm x 11.13 mm)