

# DGE-100

## Digital Graphics Engine 100

- > Touch screen graphics engine for the Crestron® TSD-2220 or a third-party USB HID compliant touch screen
- > Also supports OSM applications without a touch screen
- > HDMI® output supports display resolutions up to Full HD 1080p60 and WUXGA
- > Displays dual-window or full screen video from HDMI and H.264 streaming sources<sup>[1,3]</sup>
- > Supports video input resolutions up to 1080p60 via HDMI
- > Receives H.264 streaming video signals up to 1080p60/25Mbps<sup>[1]</sup>
- > HDCP 1.4 compliant (HDMI only)
- > Crestron Smart Graphics™
- > Built-in annotation capabilities
- > Customizable audio feedback
- > Built-in web browsing
- > On-screen multi-language keyboard
- > Customizable screensaver
- > USB 2.0 port supports most USB HID compliant touch screens, mice, and keyboards
- > High-speed 10/100 Ethernet LAN port
- > Enables device control via CEC, IR, and RS-232
- > Powered via PoE or local power pack
- > 100-240V universal power pack included
- > Compact, surface-mountable form factor fits in tight spaces

The DGE-100 Digital Graphics Engine transforms an HD touch screen display into an advanced Crestron® controller. Featuring Crestron Smart Graphics™ technology, the DGE-100 provides for the creation of a completely custom graphical environment combining advanced controls for audio & video, lighting, shades, HVAC, security, and other functions with dual-window video display, annotation, audio feedback, and web browsing. Its low-profile, surface-mountable design allows for a discreet installation behind a flat-panel display, under a table, or inside a lectern or equipment rack.

The DGE-100 features an HDMI® output for connection to the display device, and includes a USB HID port for touch, mouse, and/or keyboard input. Additional control ports are provided to enable control of the display device and other equipment. A single HDMI input allows an [AirMedia®](#) wireless presentation gateway or other high-definition video source to be connected and displayed on screen. Additionally, H.264 streaming video signals can be received over a high-speed Ethernet connection.<sup>[1]</sup> Ethernet also provides the interface to a Crestron control system.

### Touch Screen Interface

The DGE-100 pairs perfectly with a Crestron [TSD-2220](#) HD Touch Screen Display to deliver a high-definition 21.5" touch screen control panel that's ideal for home automation, corporate multimedia presentation, and command center applications. Third-party touch screens of varying sizes can be used with the DGE-100 to fulfill a range of control, collaboration, video display, and interactive kiosk solutions.



### OSM Interface

On-screen menu (OSM) capability offers an alternative to touch screen control, enabling a fully-customizable control menu to appear on any TV or video display, with simple navigation provided using the same Crestron handheld remote that's controlling the TV. A USB mouse may also be used.

The DGE-100 delivers stunning menu graphics that pop up unobtrusively at the edge of the screen alongside the video image, letting you quickly adjust lighting and climate control settings, lower the shades, check security system status, and lock or unlock the front door without interrupting the movie or TV program you're watching. Detailed alert messages can also appear on screen in case of a security alarm, doorbell, or other event. You can even pop up a live streaming camera window to see who's at the door or coming up the driveway.

### Smart Graphics™

The DGE-100 uses Smart Graphics to deliver the ultimate user experience and the ultimate value by enabling the creation of dynamically rich user interfaces with incredible efficiency and unparalleled functionality. Using Smart Graphics, programmers can swiftly integrate fluid gesture-driven controls, animated feedback, rich metadata, embedded apps and widgets, and full-motion video for a deeply engaging and ultra-intuitive touch screen experience.

Crestron Smart Graphics offers these enhancements and more:

- Cool-looking graphical buttons, sliders, knobs, and gauges that are intuitive and fun to use
- Kinetic effects to enhance the feeling of realism, with lists and toolbars that scroll with momentum at the flick of a fingertip
- Drag-and-drop objects that snap into place, offering an easy way to switch sources
- Dashboard widgets to personalize the touch screen with clocks, weather, news, and other information<sup>[2]</sup>
- A power-saving screensaver that allows display of time, temperature,

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Top View



Bottom View

and other text content at a reduced brightness level

- Customizable themes allowing a completely different look and feel for every user, event, or season
- Fully-developed SmartObjects® that enable sophisticated control over complex devices with minimal programming
- A consistent look and feel across touch screens of varying sizes

## HD Streaming Video

High-definition streaming video capability makes it possible to view security cameras and other video sources over the network right on the touch screen. Native support for H.264 and MJPEG formats allows the DGE-100 to display live streaming video from an IP camera, a streaming encoder (Crestron [CEN-NVS200](#), [DM-TXRX-100-STR](#), or similar), or a [DigitalMedia™](#) switcher.<sup>[1]</sup>

## HDMI® Input

An HDMI input is included to allow a local HD video source to be connected and displayed. Wireless presentation capability can also be enabled by connecting an AirMedia gateway ([AM-101](#)) to the HDMI input, allowing Wi-Fi® enabled laptops and mobile devices to connect wirelessly to the DGE-100.<sup>[3]</sup>

## HDCP Support

Support for HDCP (High-bandwidth Digital Content Protection) ensures seamless compatibility with content-protected DVD, Blu-ray Disc®, broadcast TV, and Internet TV sources.

## Web Browsing

Using the DGE-100's built-in web browser, it's possible to access online program guides and other web-based services at the touch of a button, allowing enhanced touch screen control of DVRs and other appliances without having to pick up a separate tablet or smartphone. If a device can be controlled or managed through a web browser, it can be integrated into the Crestron system through the DGE-100. Of course, the web browser may also be used to simply browse the Internet, watch online videos, and check up on social media.<sup>[2]</sup>

## Multi-Touch Support

Paired with the TSD-2220 or other multi-touch compatible touch screen display, the DGE-100 affords enhanced capabilities for browsing web pages using multi-touch gestures.

## On-Screen Keyboard

An on-screen multi-language keyboard allows for quick entry of passwords, URLs, and text searches.

## Built-in Annotation

Whether conducting a high-level boardroom meeting or training seminar, sharing ideas in a huddle space, or watching sports in your home theater, annotation helps put the fine point on any presentation. Native to the DGE-100, annotation provides the ability to illustrate your thoughts on-the-fly, letting you draw and write over video and computer images, and sketch out ideas on a whiteboard screen.

Remote annotation capability allows multiple participants, each with a separate touch screen, to draw with their fingertips over the same video image or whiteboard, enabling enhanced collaboration in a classroom, courtroom, or council chamber. Remote annotation works using multiple DGE-100's and other Crestron touch screens. Adding a dedicated DGE-100 to the main display in any room allows the annotation session to be viewed by the entire audience.

## Device Controller

The DGE-100 includes built-in RS-232 and IR control ports to allow for programmable control of the connected display and other devices via the control system. Additional control capability is afforded by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Via its Ethernet connection to the control system, the DGE-100 provides a gateway for controlling the display device right through its HDMI connection, potentially eliminating the need for any dedicated serial cables or IR emitters.

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## Low-Profile Installation

The DGE-100 mounts conveniently to a wall, ceiling, or other flat surface. Its compact, surface-mountable form factor fits easily behind a flat panel display, beneath a tabletop, or inside a lectern or other furniture. It can even be attached directly to a single rack rail in the back of an equipment cabinet. It can be powered using the wall mount power pack (included), or PoE (Power over Ethernet) for a true one-wire solution.

## SPECIFICATIONS

### Graphics

**Graphics Engine:** Crestron Smart Graphics, landscape or portrait orientation

**Features:** Local and remote annotation, multi-language web browser<sup>[2]</sup>, 10-point multi-touch support, multi-language on-screen keyboard, screensaver

**Video Windowing:** Scalable dual video windowing (displays any combination of HDMI and/or streaming sources)<sup>[1,3]</sup>

### Languages

**Smart Graphics:** Arabic, Chinese (Simplified), Chinese (Traditional), Czech, Danish, Dutch, English (UK), English (US), Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Portuguese (Brazilian), Romanian, Russian, Slovak, Spanish, Swedish, Thai

**On-Screen Keyboard:** Arabic, Chinese (Simplified), Croatian, Czech, Danish, Dutch, English (UK), English (US), Finnish, French (Canada), French (Switzerland), German, Hebrew, Hungarian, Italian, Japanese, Norwegian Bokmal, Polish, Portuguese, Russian, Serbian, Spanish, Swedish, Turkish

**Web Browser:** Arabic, Bulgarian, Catalan, Chinese, Croatian, Czech, Danish, Dutch, English, Filipino, Finnish, French, German, Greek, Hebrew, Hindi, Hungarian, Indonesian, Italian, Japanese, Korean, Latvian, Lithuanian, Norwegian Bokmal, Pashto, Persian, Polish, Portuguese, Romanian, Romansh, Russian, Serbian, Slovak, Slovenian, Spanish, Swedish, Thai, Turkish, Ukrainian, Vietnamese

### Memory

**DDR3 SDRAM:** 2 GB

**Flash:** 4 GB

**Maximum Project Size:** 1 GB

### Communications

**Ethernet:** 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), SNMP, IPv4 or IPv6, IEEE 802.1X, IEEE 802.3af and 802.3at Type 1 compliant, web browser setup, Crestron control system integration

**USB Host:** Supports the Crestron TSD-2220 touch screen display and most third-party USB HID compliant touch screens, mice, and keyboards

**USB Device:** For computer console (installer setup and firmware update)

**RS-232:** 2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system)

**IR/Serial:** 1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 Volts) up to 19.2k baud (via control system)

**HDMI:** HDCP 1.4, EDID, CEC

*NOTE: Supports management of HDCP; supports management of CEC between the connected HDMI devices and a control system*

### Pointing Device Support

The DGE-100 is compatible with the Crestron TSD-2220 touch screen display and most third-party USB HID compliant touch screens, mice, and keyboards

### Streaming Decoder

**Video Formats:** H.264 (MPEG-4 part 10 AVC), MJPEG

**Audio Formats:** AAC stereo

**Bitrates:** Up to 25 Mbps<sup>[1]</sup>

**Resolutions:** Up to 1080p60

### Video

**Input Signal Types:** HDMI (DVI & Dual-Mode DisplayPort compatible<sup>[4]</sup>)

**Output Signal Types:** HDMI (DVI compatible<sup>[4]</sup>)

**Input Resolutions:** 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1365x1024@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), plus any other resolution allowed by HDMI up to 148MHz pixel clock

*NOTE: Interlaced video is not supported*

**Output Resolutions:** 640x480@60Hz, 800x600@60Hz, 1024x768@60Hz<sup>[5]</sup>, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x800@60Hz<sup>[5]</sup>, 1366x768@60Hz<sup>[5]</sup>, 1440x900@60Hz<sup>[5]</sup>, 1600x900@60Hz<sup>[6]</sup>, 1600x1200@60Hz, 1680x1050@60Hz<sup>[5]</sup>, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz

### Audio

**Input Signal Types:** HDMI (Dual-Mode DisplayPort compatible<sup>[4]</sup>)

**Output Signal Types:** HDMI

**Input/Output Format:** 2 channel LPCM

**Audio Feedback Formats:** MP3

### Connectors

**CONSOLE, USB:** (1) USB Micro-A connector, female; USB computer console port; Type A to Micro-A USB cable included

**IR 1 – 2:** (1) 4-pin 3.5 mm detachable terminal block; Comprises (2) IR/Serial ports; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud

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**COM:** (1) 5-pin 3.5 mm detachable terminal block;  
Bidirectional RS-232 port;  
Up to 115.2k baud, hardware and software handshaking support

**HDMI INPUT:** (1) HDMI Type A connector, female;  
HDMI digital video/audio input;  
(DVI & Dual-Mode Displayport compatible <sup>[4]</sup>)

**HDMI OUTPUT:** (1) HDMI Type A connector, female;  
HDMI digital video/audio output;  
(DVI compatible <sup>[4]</sup>)

**USB:** (1) USB Type A connector, female;  
USB 2.0 host port for connection of a USB HID compliant touch screen,  
mouse, or keyboard

**LAN PoE:** (1) 8-pin RJ45 connector, female;  
10Base-T/100Base-TX Ethernet port;  
Power over Ethernet compliant

**24VDC 0.75A:** (1) 2.1 x 5.5 mm DC power connector;  
24 Volt DC power input;  
PW-2407WU power pack included

**Ground:** (1) 6-32 screw;  
Chassis ground lug

## Controls & Indicators

**PWR:** (1) Green LED, indicates operating power is supplied via the local power pack or PoE, flashes while booting

**RESET:** (1) Recessed pushbutton for hardware reset

**SETUP:** (1) Red LED and (1) recessed pushbutton for Ethernet setup

**ONLINE:** (1) Green LED, indicates connection to a control system via Ethernet

**HDMI IN & OUT:** (2) Green LEDs, indicate HDMI signal presence at the HDMI input or output

**LAN PoE:** (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

## Power

**Power over Ethernet:** IEEE 802.3at Type 1 (802.3af compatible) Class 0 (12.95 W) PoE Powered Device

**Power Pack (included):** Input: 100-240 Volts AC, 50/60 Hz;  
Output: 0.75 Amps @ 24 Volts DC;  
Model: PW-2407WU

**Power Consumption:** 8 Watts (typical)

## Environmental

**Temperature:** 32° to 104° F (0° to 40° C)

**Humidity:** 10% to 90% RH (non-condensing)

**Heat Dissipation:** 27.3 BTU/hr

## Enclosure

**Chassis:** Metal, black finish, with (2) integral mounting flanges, vented sides

**Mounting:** Freestanding, surface mount, or attach to a single rack rail

## Dimensions

**Height:** 6.42 in (163 mm)

**Width:** 7.40 in (188 mm)

**Depth:** 1.35 in (35 mm)

## Weight

19.6 oz (554 g)

## MODELS & ACCESSORIES

### Available Models

DGE-100: Digital Graphics Engine 100

### Included Accessories

PW-2407WU: Wall Mount Power Pack, 24VDC, 0.75A, 2.1mm, Universal (Qty. 1 included)

### Available Accessories

TSD-2220: 21.5" HD Touch Screen Display

PWE-4803RU: PoE Injector

CEN-SW-POE-5: 5-Port PoE Switch

CEN-SWPOE-16: 16-Port Managed PoE Switch

CEN-NVS200: Network Video Server

DM-TXRX-100-STR: HD Streaming Transmitter/Receiver

CBL Series: Crestron® Certified Interface Cables

CNSP-XX: Custom Serial Interface Cable

IRP2: IR Emitter

Notes:

1. Supports up to two simultaneous streaming inputs with a maximum combined total bitrate of 25 Mbps.
2. Web browsing, weather information, and certain other functions require an Internet connection.
3. The HDMI input signal cannot be downscaled by more than 4x. For instance, a 1920x1080 source signal can be displayed no smaller than 480x270 pixels.
4. HDMI connections require an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HD-DVI interface cables are available separately.
5. With or without reduced blanking.
6. With reduced blanking only.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at [www.crestron.com/salesreps](http://www.crestron.com/salesreps) or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

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