

TESSERA SX40 LED PROCESSOR

The gold standard



The Brompton Technology Tessera SX40 LED processor combines Tessera's industry-leading feature set and easy-to-use software interface with our highest-ever capacity processor.

Available in a standard 2U rack form with a total output capacity of 9 million pixels, the SX40 offers support for full 4K LED walls at up to 60Hz, 12-bit colour depth. It supports latency-free 4K up/down scaling to match the source to the screen, as well as all of the industry-leading Tessera processing features.

These features include HDR and Dynamic Calibration, as well as Extended Bit Depth, Ultra Low Latency, HFR+(High Frame Rate), Frame Remapping, ShutterSync® and 3D LUT Import. The SX40 also supports On-Screen Colour Adjustment (OSCA) for seam corrections; Dark Magic for dark-area detail, and ChromaTune for colour control. Additionally, Stacking can be used to control multiple SX40 processors as one.

Used in combination with the Tessera XD Distribution unit, the SX40 provides a cost-effective and powerful system for supporting the biggest and boldest LED projects.

There are several powerful, flexible options for configuring fixtures within the 4K standard canvas such as:

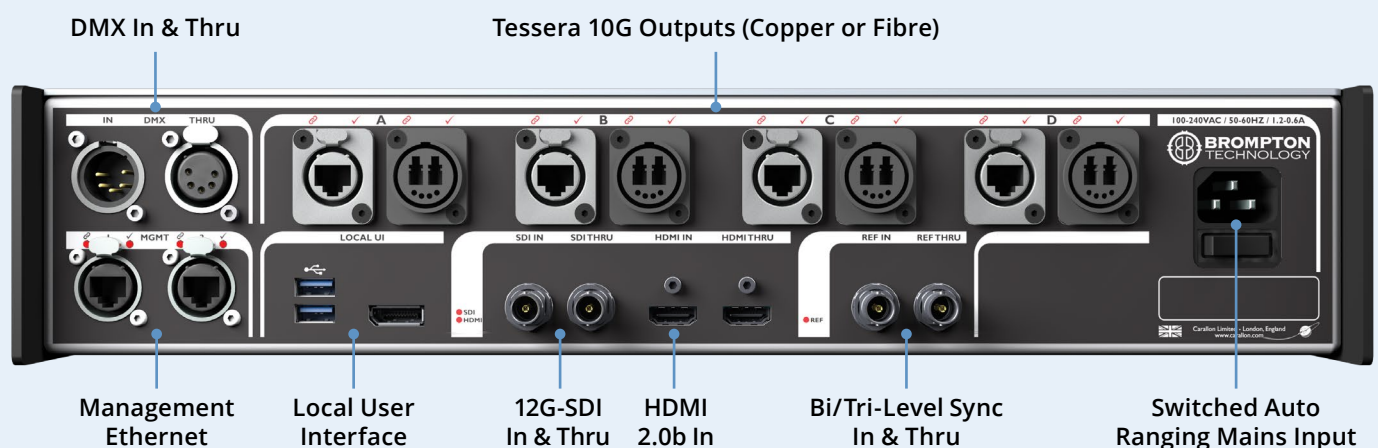
- Quick Association for a fast and easy way to associate large numbers of fixtures to a Brompton processor
- Pixel mapping that allows free placement and rotation of fixtures to 0° / 90° / 180° / 270° regardless of cabling order
- Sub-fixture support

The SX40 also supports Processor Redundancy. If a problem occurs with the video input or output on a primary processor, it can be configured such that a back-up processor takes over in just a few seconds, and can be used with or without closed loop redundancy.

TESSERA SX40 | FRONT



TESSERA SX40 | REAR



TESSERA XD DATA DISTRIBUTION UNIT

The Tessera XD data distribution unit is a sophisticated single box solution designed to manage the complications of mass cabling that can arise with large LED display systems.

Trunk connections between Tessera SX40 and XD, or between XD units, use a 10G Ethernet-based backbone to reduce the number of homerun connections required. For maximum cabling convenience, each 10G trunk connection supports up to ten independent 1G connections to fixtures, each having the same pixel capacity as a 1G Tessera output, subject to system capacity. For more information see the XD Data Distribution Data Sheet.

EXTENDED BIT DEPTH

Extended Bit Depth unlocks higher PWM bit depth output for all panels using the Brompton R2 or R2+ receiver card. Up to 3.3 additional bits of precision improves low-brightness performance – reducing visual artefacts and bringing out additional detail and nuance in dark areas of the image. This substantial increase in dynamic range is invaluable when reproducing HDR content or working with LED on camera.

HIGH FRAME RATE +

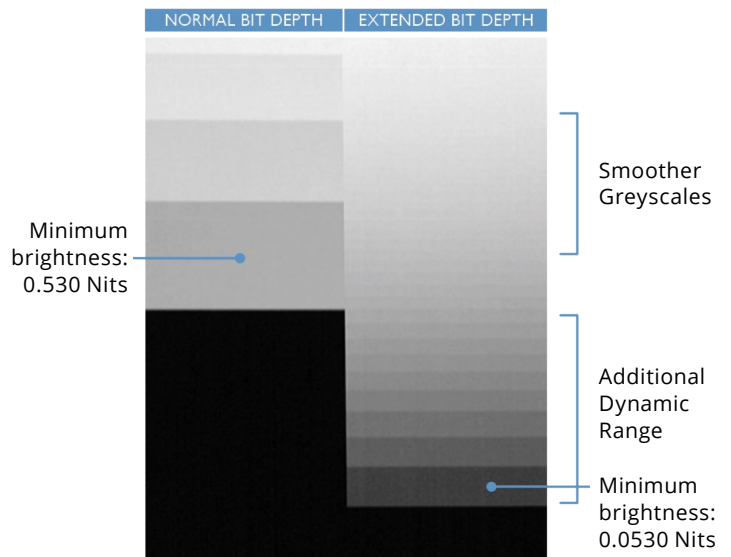
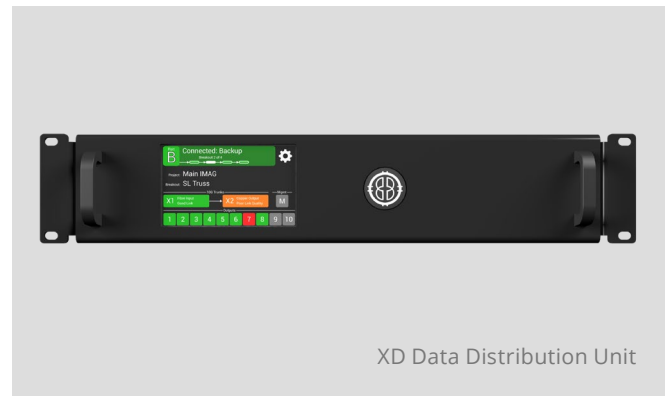
HFR+ gives you the power to play video content on an LED screen at up to 250 fps (frames per second).

This gives smoother visuals in eSports and simulator applications using high-frame rate content. It also makes it possible to shoot slow motion visual effects with over-cranked cameras against LED screens and still retain perfect synchronisation between screen and camera.

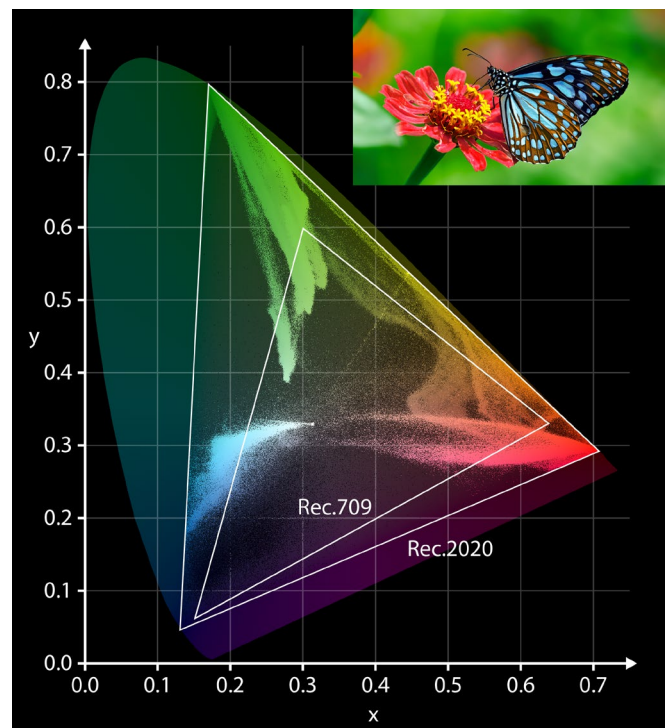
HDR

The Tessera SX40 processor automatically detects and handles HDR content, accepting HDR video at up to 12 bits per colour. The system switches seamlessly between SDR, PQ and HLG with no interruptions. HDR is beautifully supported at all resolutions and frame rates, in both of the commonly used HDR formats (PQ (ST-2084) and HLG).

All Tessera SX40 processor features are available for HDR content, ensuring a fully optimised, exceptional performance. HDR is exclusive to R2-based panels that have been calibrated with Dynamic Calibration.



Banded Gradient: "Performance at 0.05% brightness with Dark Magic disabled, illustrating PWM bit depth improvement: Frame grab from camera footage of 2000 Nits panels running at just 1 Nit."



An illustration of how the colours in a source image (inset) are distributed in the CIE 1931 xy colour space

TESSERA SX40 LED PROCESSOR

Full Specifications



PHYSICAL (WXHXL)

Unboxed

- 482.6mm (19") x 88.9mm (3.5") x 406.4mm (16")
- Rear width: 431.8mm (17")

Boxed

- 550mm (21.65") x 220mm (8.66") x 520mm (20.5")



WEIGHT

- Unboxed: 7.50Kg (16.53lbs)
- Boxed: 10Kg (22lbs)



ELECTRICAL

- Switched autoranging power supply
- 100 - 240V AC
- 50Hz - 60Hz
- 1.2 - 0.6A



HDMI 2.0b INPUT

- One HDMI 2.0b input
- Full 18Gbps HDMI 2.0b bandwidth, maximum 600MHz pixel clock
- Up to 4096 x 2160 resolution (progressive only)
- 23.98Hz to 250Hz frame rate
- 8,10 and 12 bits per channel colour depths
- RGB and YCbCr 4:4:4, 4:2:2 and 4:2:0
- Compatible with DVI-D and DisplayPort sources via adapters



SDI INPUT & RE-CLOCKED THRU PORT

- One 12G SDI input that supports the following:
 - HD-SDI - ST-292
 - 3G-SDI - ST-424, Level A and Level B-DL
 - 6G-SDI - ST-2081
 - 12G-SDI - ST-2082, 2SI format
- Up to 4096 x 2160 resolution (progressive only)
- 23.98Hz to 60Hz frame rate
- 10 bits per channel colour depth
- YCbCr 4:2:2



OUTPUTS

- Four 10GBASE-T copper output ports
- Supports nominally 9 million pixels at 36 bits per pixel @ 60Hz
- Supports Neutrik etherCON Cat 6A / etherCON (CAT5e) connectors
- Compatible with standard Cat6A / Cat5e RJ45 connectors
- Requires Cat6A cable (up to 60m) or Cat5e cable (upto 30m)
- Four 10GBASE-LR Tessera XD fibre output ports
- Supports Neutrik opticalCON DUO / DUO ARMORED / DUO X-TREME / DUO LITE connectors
- Compatible with standard LC-Duplex connectors
- Requires 1310nm, 9/125um single-mode fibre (up to 2KM) with PC or UPC connectors
- Each 10G output independently auto-switches between fibre and copper
- Closed loop redundancy support
- Processor redundancy support



GENLOCK

- Bi-level and Tri-level sync
- Sync to source
- Processors genlock from source right through to panel refresh



LATENCY

- 2 frames end-to-end system latency (all features)
- 1 frame end to end in Ultra Low Latency mode



TESSERA MANAGEMENT SOFTWARE

- Local management using monitor, keyboard and mouse connected directly to processor
- Up to 3840x2160 local monitor resolution supported, minimum 1920x1080 recommended



TESSERA REMOTE

- Available free for Windows PC and Mac OS
- Remote management using Windows PC or Mac connected to processor via Ethernet network
- Two Gigabit Ethernet management network ports



REMOTE CONTROL

- Support for eDMX protocols:
 - Art-Net
 - Streaming ACN
- DMX-512A on 5-pin XLR in and thru
- IP Control
- Stacking: Allows multiple processors in a setup to be controlled in unison



I/O

- Two USB 2.0 ports on front
- Two USB 3.0 ports on rear
- One DisplayPort (DP++) monitor output supporting HDMI, DVI and VGA with adapter



FRONT PANEL

- Six status LEDs
- Power LED
- Freeze button
- Blackout button



WARRANTY

- Two years



CERTIFICATIONS

- CE, ETL/cETL
- TAA
- NDAA

The ShutterSync® feature is patented under US Pat. 11,445,123.



TESSERA SX40 | WINNER



2023 ENGINEERING, SCIENCE AND TECHNOLOGY EMMY® AWARD

Brompton Technology is the market leader in LED video processing for the most demanding applications across key sectors including Virtual Production & ICFVFX, Live Events & Touring, Corporate & Education, Broadcast & Studio and Esports. The company has won multiple awards and become a globally respected brand, known for the quality and reliability of its products and exceptional technical support. For more information, visit www.bromptontech.com.