



# TESSERA SX40 LED PROCESSOR

Big, Bright, Bold Projects



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:

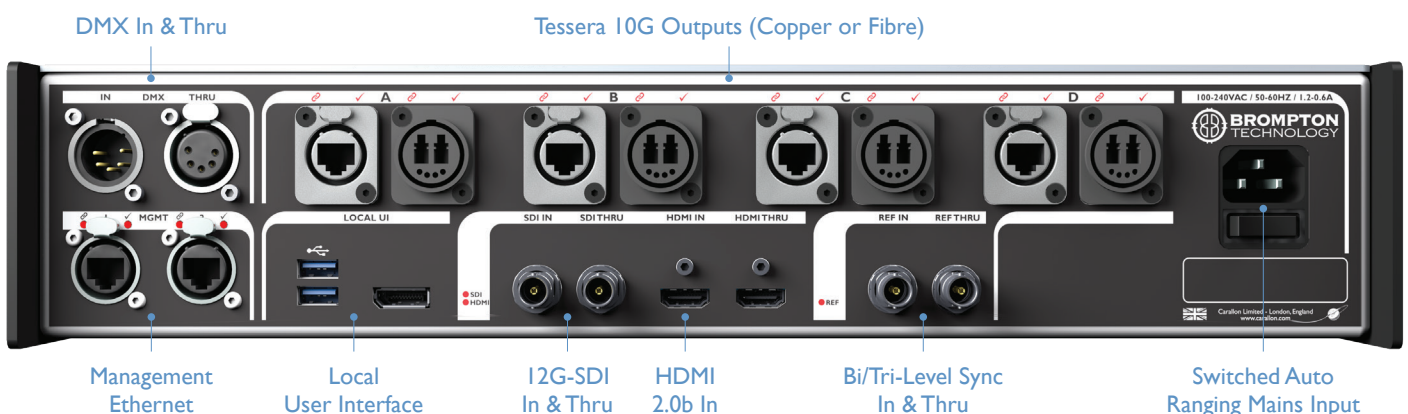
- Quick Association for a fast and easy way to associate large numbers of fixtures to a **Brompton** processor
- Pixel mapping that allows free placement and rotation of fixtures to 0° / 90° / 180° / 270° regardless of cabling order
- Sub-fixture support

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.

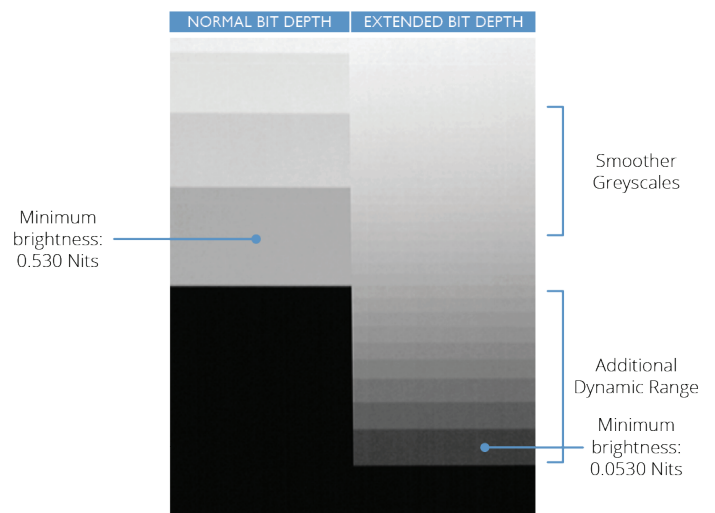
Trunk connections between **Tessera SX40** and **XD**, or between **XD** units, use a 10G Ethernet-based backbone to reduce the number of homerun connections required. For maximum cabling convenience, each 10G trunk connection supports up to ten independent 1G connections to fixtures, each having the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



*XD Data Distribution Unit*

## 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.



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."

## HIGH FRAME RATE +

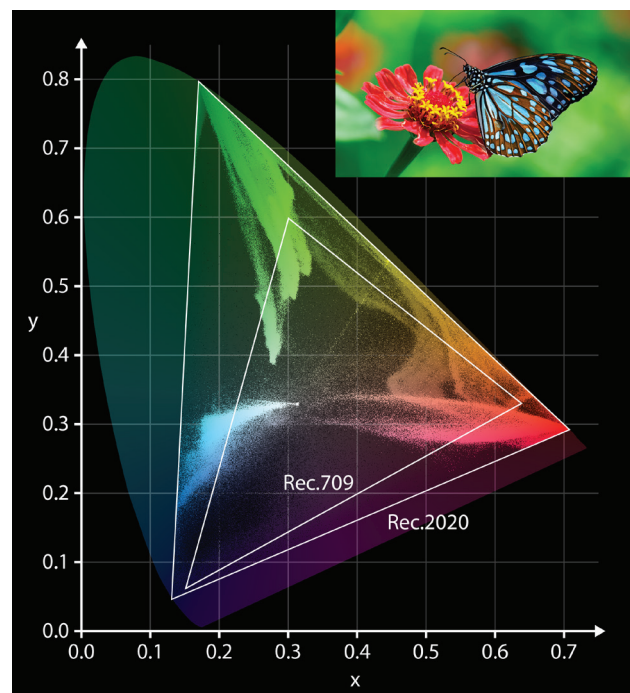
**HFR+** gives you the power to play video content on an LED screen at up to 250 fps (frames per second).

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**.



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

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 live events, virtual production, broadcast/XR, simulation/VR, fine-pitch installations 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](http://www.bromptontech.com).