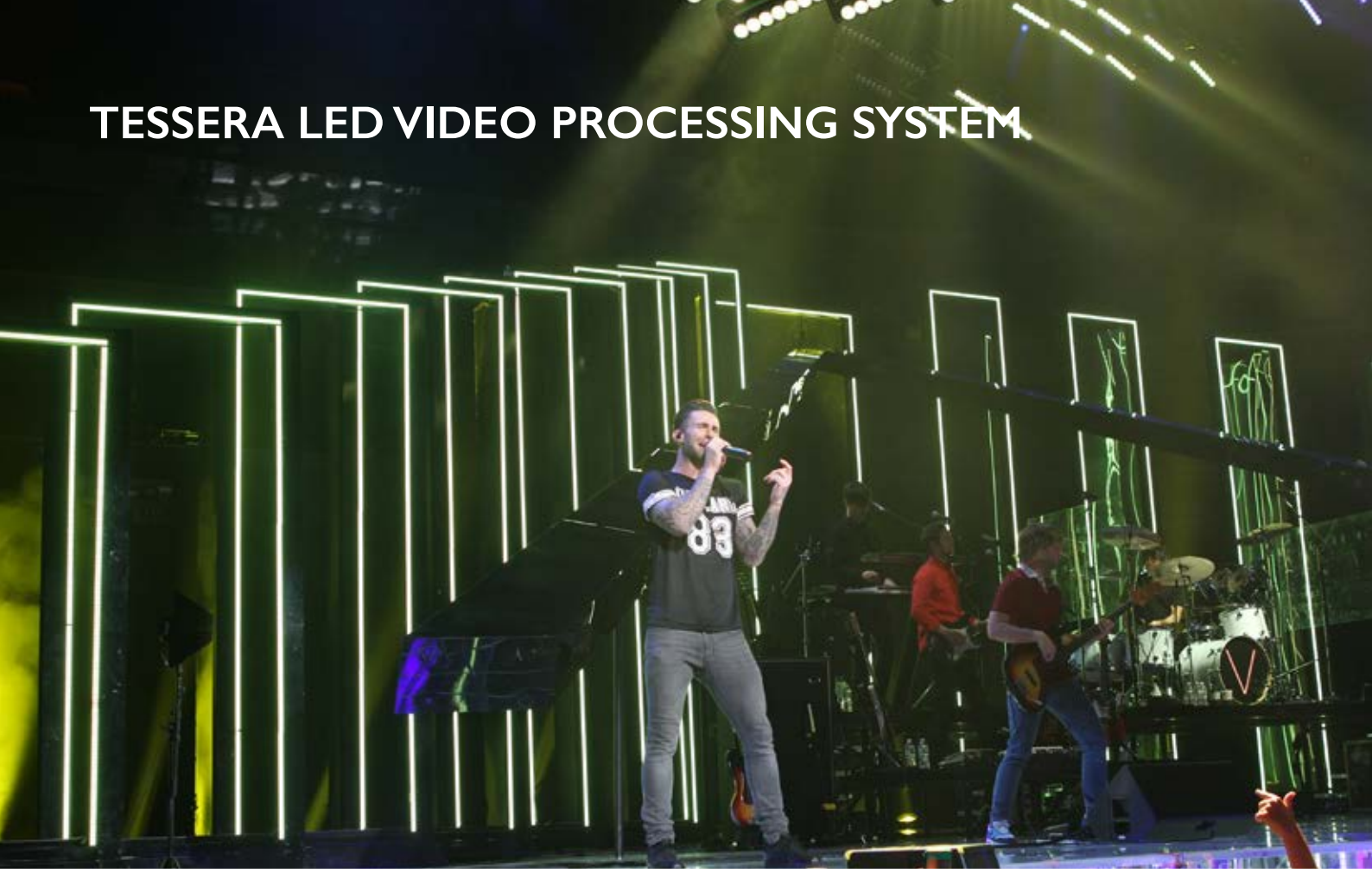
BROMPTON TECHNOLOGY

TESSERA

LED PROCESSING

TESSERA LED VIDEO PROCESSING SYSTEM

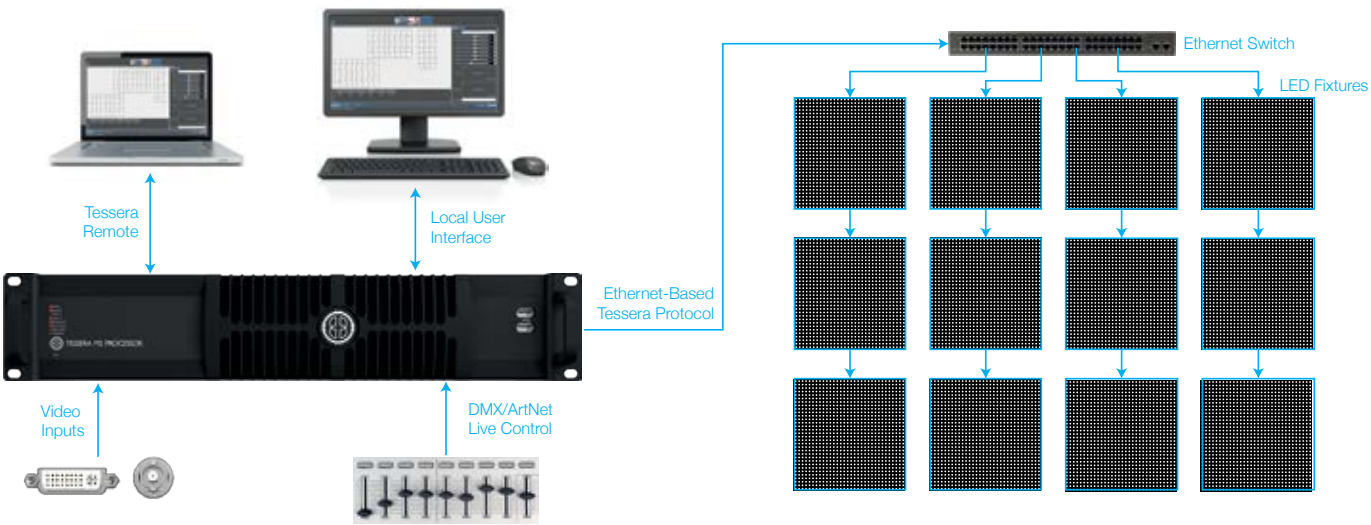


The Brompton Technology Tessera LED Video Processing system combines industry leading performance and functionality with powerful real time control. Tessera has the power to support the most demanding productions, combining robust, reliable operation with ease of use and quick set up which makes even complex layouts of LED fixtures simple to configure. This, together with the system's powerful feature set, allows unequalled creative possibilities for shows and events.

Tessera is trusted by professionals around the world to drive high profile events, concerts, TV shows, and installations. Our processing has been fitted to many different fixture types from high resolution panels, to floor systems, meshes and creative strips.

Unlike rival systems, Tessera is not a digital signage system which has been adapted for live event or rental use. Tessera has been designed from the ground up with entertainment industry professionals in mind, by a UK-based team with decades of experience in building video and lighting control systems.

The Tessera system comprises of 4 distinct components: a **Tessera Processor**, the **Tessera Receiver Cards** which are fitted to host LED fixtures, the **Tessera Protocol** which allows the processor to communicate with Tessera Receiver Cards, and the **Tessera Management Software**. The Management Software can run remotely on a Windows PC or Mac, or locally on the processor itself, by connecting a keyboard, mouse and a monitor.



TESSERA PROCESSORS

The Tessera family consists of three processor series, each targeted at different applications.

M-Series is our flagship range of processors. Perfect for rental companies, these rugged 2U rack-mount units offer unrivalled flexibility and performance.

Dual-pipeline front-end processing combines broadcast quality deinterlacing, scaling and cropping with the ability to seamlessly switch or fade between inputs or settings. The Tessera Panel Processing Engine allows completely free placement and rotation of panels, and automatic scaling to match pixel pitches.

S-Series is value-optimised, ideally suited for large screens built from a single fixture type. Some of the more advanced creative features are removed while maintaining Tessera's class-leading control options and processing quality.

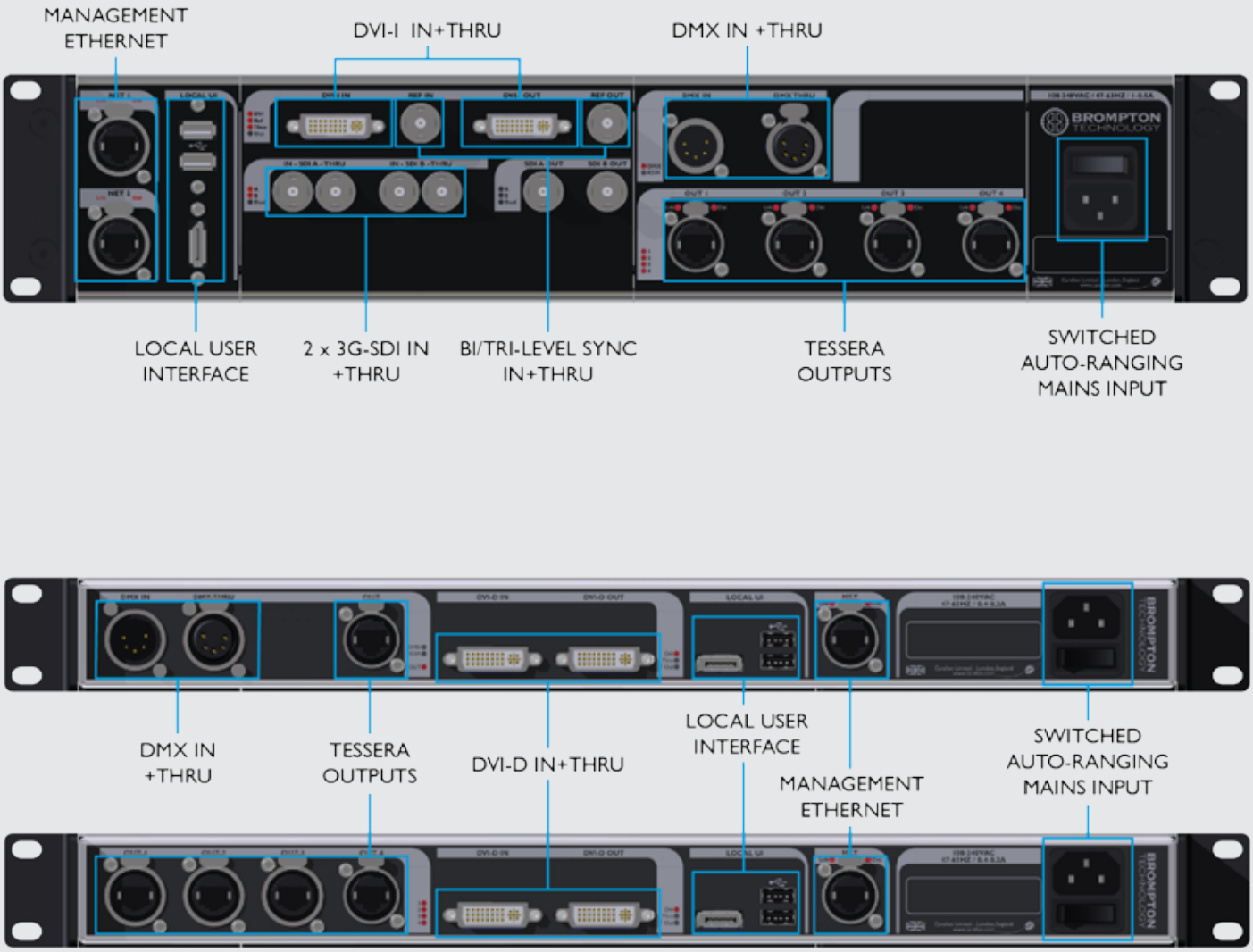
T-Series processors are perfect for small creative setups, offering the same extensive Tessera feature set as M-Series, but with a reduced pixel capacity.

All Tessera processors come in rugged rack-mount chassis designed for touring or installation. Ethernet connections are via ruggedised Neutrik etherCON connectors, which are backwards compatible with standard RJ45 connectors. DVI inputs use a patent-pending DVI caddy system, meaning damaged or worn connectors can be easily and cheaply replaced. All processors also feature forced air cooling, with replaceable fan filters, to ensure they maintain their optimum operating temperature.

The processors are configured using the intuitive and powerful Tessera software, either from a remote Mac or Windows PC, or locally, by plugging a mouse, keyboard and monitor into the processor.

PROCESSOR FEATURE COMPARISON TABLE

Features	M2	S4	T1
Inputs	2 x 3G-SDI + DVI-I + Bi-/Tri-level Reference	DVI-D	DVI-D
Nominal capacity	2M pixels	2M pixels	0.5M pixels
Front-end processing	Dual pipeline	N/A	Single pipeline
Input/setting switching	Seamless / cross-fade	N/A	Clean / fade-through-black
Panel processing	Full creative PPE	Simplified	Full creative PPE
Mechanical	2U 19" rack	1U 19" rack	1U 19" rack
User interface	Local or remote	Local or remote	Local or remote
Live control	DMX / Art-Net / Tessera Control	Tessera Control	DMX / Art-Net / Tessera Control



VIDEO INPUTS

Tessera Processors support video input in a range of common industry standard formats, reducing the need for external converters.

The DVI-I input is capable of receiving digital (DVI-D) or analogue (VGA/RGBHV) progressive signals up to full HD 1920x1080 resolution at frame rates from 24Hz to 60Hz (up to 148.5MHz pixel clock). It may also be used to receive standard definition or high definition component video (YPbPr) via a passive DVI to BNC breakout cable. S- and T-Series Processors feature a digital-only DVI-D input.

For compatibility with different source colour spaces, the DVI-D input can be switched from RGB to YCbCr mode. HDCP is not supported, so the processor EDID will report this to sources, to encourage them to send content without HDCP encryption.

For applications requiring broadcast-standard digital video input, M-Series processors provide two 3G-SDI inputs, each supporting SD-SDI, HD-SDI and 3G-SDI (both Level A and Level B compatible). SDI offers 10 bits per colour channel, with 4:2:2 YCbCr sampling. All common broadcast resolutions are supported, including 720p50/60, 1080i50/60 and 1080p50/60, and fractional frame rates such as 59.94.

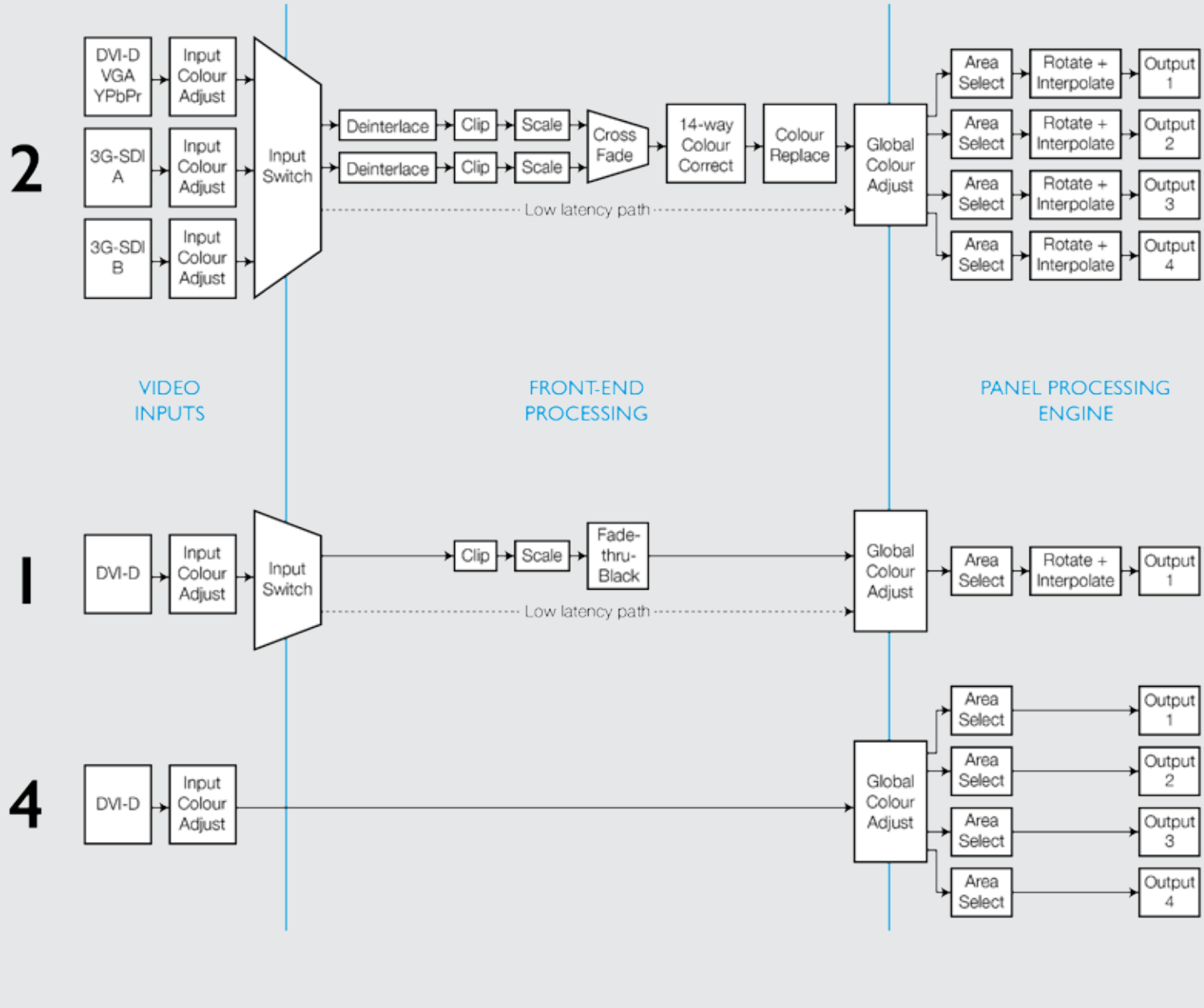
The two SDI inputs may be combined together to offer a dual-link HD-SDI input if required.

All inputs feature re-clocked pass-through connectors, allowing for stacking of processors or connection of other equipment such as confidence monitors.

FRONT-END PROCESSING

Tessera M- and T-Series Processors feature powerful front-end video processing. This removes the need for external scaler/scan converter equipment, resulting in lower overall system cost, latency and complexity.

Broadcast-quality polyphase scalers provide the option to scale incoming video to larger or smaller sizes as required to ensure the image is displayed at the correct size on the LED wall. A clipper on the input to the scalers lets users select only the desired region of the incoming video for scaling. The scaler can also be disabled to ensure 1:1 pixel mapping if required.



Interlaced SDI input signals are fed through a high quality, motion-adaptive deinterlacer to convert them to progressive scan signals as required for LED screens.

M-Series Processors feature dual processing pipelines with fully flexible input routing, enabling seamless switching or cross-fading between inputs or scaler settings. As they have only one input, T-Series Processors feature a single pipeline, but switching between settings will always be clean and without glitches, switching to black for a few frames while the pipeline is configured. Alternatively the user can choose to fade to/from black before/after the pipeline configuration. The duration of fades is set by the user.

Video is processed internally at up to 12 bits per colour channel, 4:4:4 sampling, ensuring the image quality is maintained at all times.

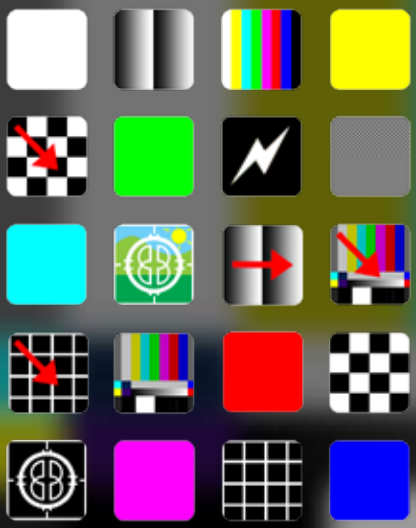
In situations demanding the lowest possible latency, the front end processing paths can be bypassed and progressive video is fed directly from an input into the rest of the system. In this mode, no de-interlacing, scaling or mixing is available, but latency is reduced by one frame. S-Series processors always operate in low latency mode.

GENLOCK

Tessera Processors are capable of genlocking to any of their video input ports, to an internal reference at a user-definable frequency, or to an external bi-/tri-level sync input (M-Series only). The selection of the genlock source does not depend on which input is selected, so the second 3G-SDI input (M-Series only) can be used as a digital timing reference if desired. When in low latency mode, the processor automatically locks to the currently selected input source for minimum possible latency.

When the selected timing reference does not match the selected video source, frames of video will be automatically duplicated or dropped as required to match the source's frame rate to the timing reference.

All fixtures in the system will be locked to the selected timing reference, through to the refresh of the LEDs. This guarantees that all fixtures will be perfectly synchronised, meaning large multi-processor systems can be built without any risk of tearing between sections of the screen. Genlock is also vital for on-camera screens as it provides a means of locking the screen to the camera to help prevent the appearance of flickering and scrolling black bars.



TEST PATTERNS, FREEZE AND BLACKOUT

For times when external video sources are not available, an internal test pattern generator may be used to display a range of static and animated test patterns specifically designed for LED wall testing. These include grids, gradients, solid colours, checkerboards, colour bars and a strobe. Users can also import an image file to use as a custom test pattern. Typical applications for this include event logos and content maps for testing alignment.

Animated test patterns always move exactly one pixel per frame, giving perfectly smooth motion and making it very easy to confirm the entire system is providing pixel perfect output.

Video freeze and blackout modes are included. S-Series processors feature front panel buttons for enabling/disabling freeze and blackout, for cases when no user interface is connected.

PANEL PROCESSING ENGINE

The video feed resulting from the front-end processing is fed into the Panel Processing Engine to extract the desired areas of the image for each of the LED fixtures in the project.

M- and T-Series Processors contain a fully flexible Panel Processing Engine.

Each fixture may be freely located within the full canvas area with sub-pixel accuracy. Unlike other processing systems, it is not necessary for fixtures connected to one port to be mapped to a certain area of the video. Each fixtures may also be rotated to any angle for creative designs or integration into set pieces.

Position and rotation is updated on the fixtures in real-time as they are dragged across the GUI, making it easier than ever to lay out your show. When using the local user interface, video-on-canvas mode allows users to preview how the content is mapped without the need for real fixtures.

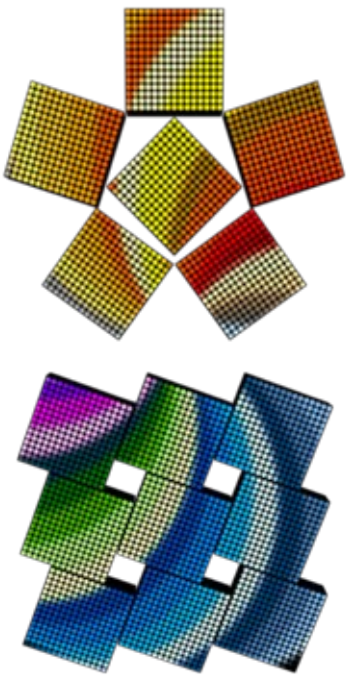
Multiple different fixture types can be supported simultaneously in the same project file, regardless of size, shape, resolution or pixel pitch.

The Panel Processing Engine has two modes:

Interpolated mode: When using fixtures of different pixel pitches, the fixture with the finest pixel pitch operates at its native resolution, and content for fixtures with coarser pitches is automatically scaled so that the content appears the same physical size across all fixture types.

1:1 mode: Pixel pitch information is ignored, ensuring perfect 1:1 mapping of input pixels to LEDs on fixtures, regardless of pixel pitch. This is useful in situations where content has been pre-mapped upstream, in a media server for example.

S-Series Processors contain a simplified Panel Processing Engine, supporting free placement of fixtures, 90˚ rotation and a single fixture type.



COLOUR CONTROLS

Tessera Processors offer four groups of colour controls:

Per-input controls include contrast, brightness, hue, saturation, and individual shadow and highlight controls for each of the RGB channels. These controls are intended for correcting deficiencies in the incoming video signal, for example to ensure that the content is utilising the full dynamic range. Another common application is using the black-level control to clean up encoded video content, which often has noise in dark areas of the image that can be particularly noticeable on LED screens.

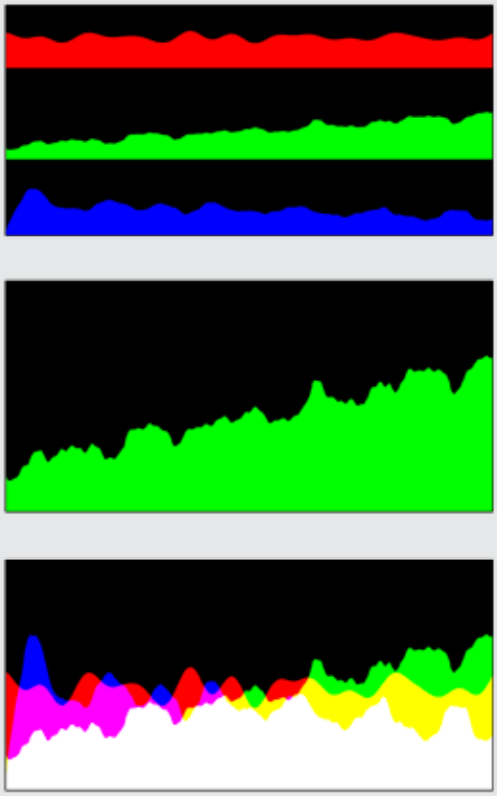
Global controls include a real-world brightness control, gamma and colour temperature. The brightness control is shown in Nits rather than as a percentage, meaning fixtures of different types can easily be matched to each other even if they have different maximum brightnesses. These adjustments are applied in the fixtures themselves, for highest possible quality.

Per-group/fixture controls include RGB and Intensity gains for simple corrections and creative effects. For more fine-grained controls, for example to correct calibration or batching problems, the On-Screen Colour Adjustment mode is provided, see below.

Colour correction incorporates two independent correction schemes: a **14-way colour corrector** and a **colour replace** system. These corrections are ideal for tweaking only certain colours within an image, without affecting the other colours. A typical application is to ensure that a logo is rendered in the corporate colour scheme. This feature is only available in M-Series processors.

HISTOGRAMS

Histograms provide a real-time view of colour distribution of the input video, after the per-input colour corrections. Available modes include side-by-side, individual and overlaid RGB channels. Linear and logarithmic vertical scales are also available.



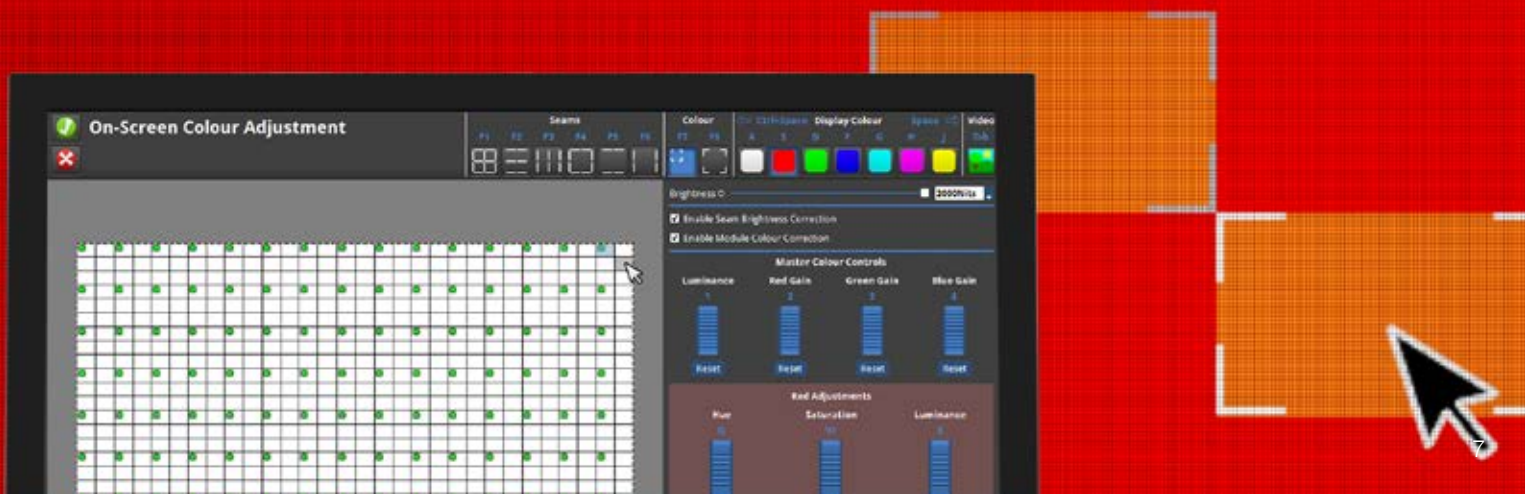
ON-SCREEN COLOUR ADJUSTMENT (OSCA)

OSCA is supported on all Tessera Processors, and helps solve two very common problems with LED displays found in both rental and install.

Inconsistent ageing, mixed batches or different calibration targets can cause colour/brightness mismatches between modules or panels. OSCA lets techs adjust the colours and brightness of each module to compensate for the inconsistencies. Individual primary and secondary colours can be adjusted independently, without affecting other colours, achieving a much better match than simple RGB gains.

Mechanical tolerance issues can cause the appearance of bright or dark lines between adjacent modules or panels. OSCA lets techs manually dim or brighten the seams between adjacent modules or panels, to make the mechanical issues less visible to the viewer's eye.

OSCA is called on-screen colour adjustment because a special user interface appears on the LED screen itself, making it very quick and easy to select modules and edges to adjust. Every control also has a keyboard shortcut, so power users can quickly learn to make adjustments without ever taking their eyes off the LED wall.



LIVE CONTROL

For seamless integration with a lighting control system, Tessera M- and T-Series processors offer live control via DMX512 or eDMX protocols such as Art-Net.

Channels can be configured to control a wide range of parameters including input port selection, input colour settings, fixture group positioning, RGB gains and screen intensity.

Processors include a number of pre-built profiles with common sets of controls. Using pre-built profiles saves time entering the profile on the lighting desk, but power users with specific needs are also able to build their own profiles with a custom set of controls.

Controls may be updated at up to the video frame rate, enabling real-time dynamic control.

In addition to industry-standard DMX/eDMX protocols, all Tessera Processors can be controlled by the Tessera Control software. This simple app, separate from the main Tessera Management Software, offers the ability to easily control multiple processors simultaneously, removing the need for a separate lighting desk or lighting control software.

The Tessera Control user interface offers a simple easy-to-use interface with basic controls presented in a similar style to the main Tessera software. Controls include screen brightness, preset triggering and input switching. Tessera Control is free to download as part of the Tessera Remote installer, and is available for both Windows PC and Mac.

NON-STANDARD CANVAS RESOLUTIONS

By default Tessera Processors use a full HD 1920x1080 resolution canvas. Often LED screens do not conform to standard aspect ratios, so a number of other ‘non-standard’ canvas resolutions are also available. These include 1600x1200, 1080x1920, and extra-tall / extra-wide canvas resolutions.

The EDID of the DVI-D input is automatically updated to reflect the canvas size and to suggest suitable timings to the source device, as the DVI-D pixel clock must not exceed 148.5MHz.

Non-standard resolutions can also be useful when building a larger-than-HD screen. For example a 3000x1200 pixel screen would require four 1920x1080 canvases, but only two 1600x1200 canvases.

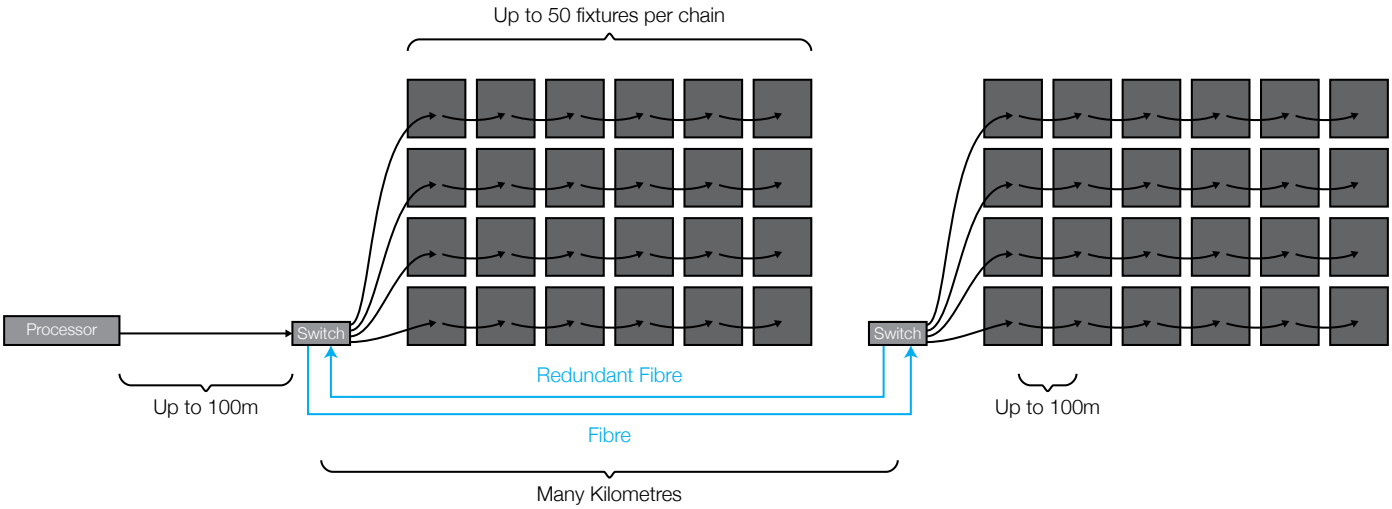
When using a non-standard canvas resolution the processor is automatically switched into low-latency mode, so scaling, clipping, and deinterlacing are disabled. All colour controls and Panel Processing Engine functionality, including free placement of fixtures, are maintained.

OUTPUTS

The outputs to fixtures are via Neutrik etherCON locking connectors. These are backwards compatible with standard RJ45 plugs to support off-the-shelf Cat 5e cables if preferred.

Communication with the fixtures uses the proprietary Tessera Protocol, a high performance protocol, which we designed and optimised for LED displays.

TESSERA PROTOCOL



ETHERNET-BASED

The Tessera Protocol is based on standard 1000BASE-T Gigabit Ethernet and is transmitted over conventional Cat 5e cable. It is a proprietary protocol built on Layer 2, using MAC addressing, so configuration of IP addresses and subnets is not required.

Tessera adopts many of the key benefits of Ethernet. Low cost Cat 5e cabling can be used with up to 100m cable length both between fixtures and between the fixtures and the processor. Conventional off-the-shelf Ethernet infrastructure can also be used. This includes simple unmanaged switches to 'split' a single output into multiple strings of panels, or fibre transceivers to extend the signal up to many kilometres.

Any valid Ethernet topology is supported, and there are no restrictions on which types of fixtures can be connected together in a string. There are also no restrictions on the order in which fixtures are connected, for maximum cabling convenience.

Standard networking techniques such as link aggregation (running multiple connections between switches) may be used to provide redundancy and fault tolerance, as long as the infrastructure guarantees a full gigabit of bandwidth to each port.

CAPACITY AND LATENCY

Each Tessera Protocol port on a Tessera Processor supports a nominal 525000 pixels at 24 bits per pixel and 60 frames per second, up to a maximum of 500 fixtures. Pixel capacity, frame rate and bit depth can be freely traded as outlined below.

Due to the additional processing overhead, the full nominal pixel capacity may not be achievable when using small fixtures (<16px width or height) or when fixtures are rotated. Documentation is available outlining the capacity for each type of fixture.

The end-to-end system latency, given in the table below, depends on the front-end processing in M- and T-Series processors, and whether generic or PWM-enabled driver ICs are used in the fixtures. If both IC types are mixed, a frame of delay will automatically be added to the lower latency fixtures so that all fixtures match. Up to five additional frames of latency can be added to match the Tessera system with other legacy systems.

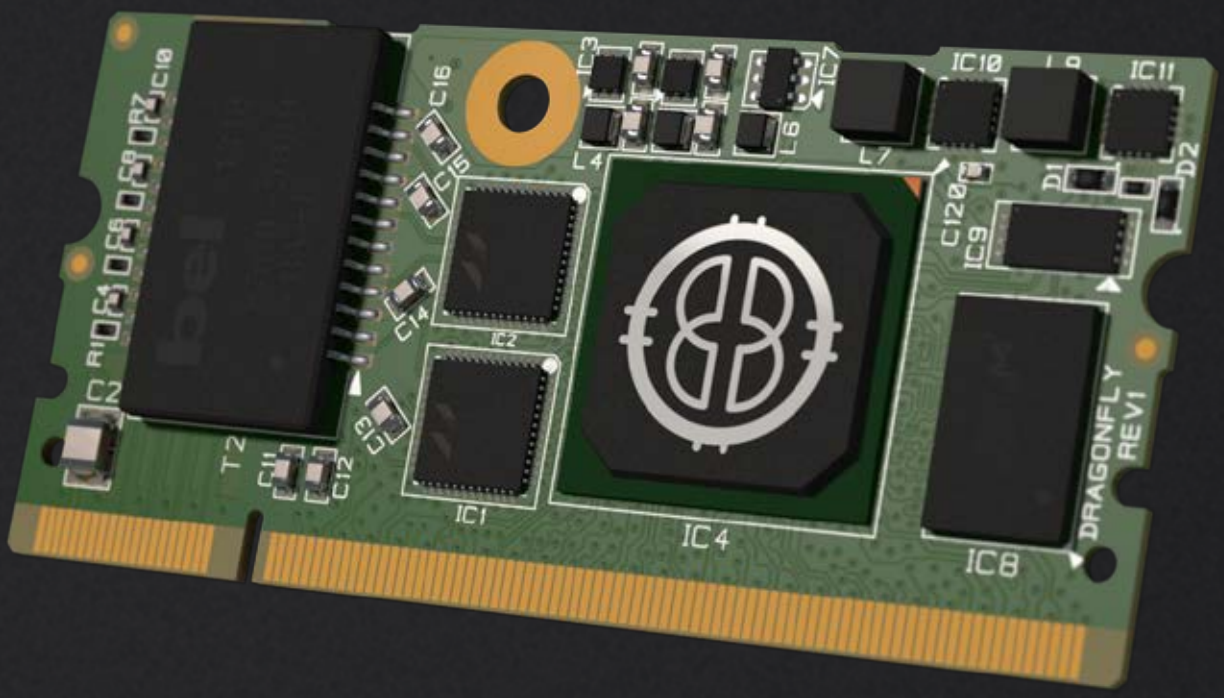
Interlaced signals are deinterlaced by the processor at the incoming field rate, for example i50 becomes 50 Hz progressive and i60 becomes 60 Hz progressive. Therefore latencies for interlaced signals are measured in fields.

NOMINAL PIXEL CAPACITY PER PORT

	Bits per colour channel		
Frame Rate	8	10	12
24 Hz	1312500	1050000	875000
25 Hz	1260000	1008000	840000
30 Hz	1050000	840000	700000
50 Hz	630000	504000	420000
60 Hz	525000	420000	350000

END-TO-END SYSTEM LATENCY

	Generic driver ICs	PWM-enabled driver ICs
S4	1 frame	2 frames
M2 / T1 in low latency mode	1 frame	2 frames
M2 / T1 with scaling (progressive content)	2 frames	3 frames
M2 with scaling and deinterlacing (interlaced content)	2 fields	3 fields



TESSERA RECEIVER CARDS

Each Tessera compatible LED fixture contains a Tessera Receiver Card. The Receiver Card receives data from the Tessera Processor, performs more processing and converts the data into the signals required by the LED driver ICs.

TESSERA R2

Tessera R2 is our latest generation Receiver Card. R2 pioneers a more modular approach to receiver card design, removing the need for many different form factors to suit different fixture types.

R2 is a compact 68 x 32mm module, based around the SO-DIMM form factor commonly used for laptop memory, making it the smallest high-capacity receiver card on the market.

In most cases a fixture's existing hub/spine board can be updated to include the R2 socket. Alternatively, for compatibility with existing processing, simple carrier cards can be used to mimic other receiver card form factors.

Each Receiver Card features two independent Gigabit Ethernet ports, allowing multiple panels to be daisy chained. The Card is intelligent and can send back panel status and diagnostic information via the Ethernet connection to the processor, as well as being able receive firmware updates from the processor.

Up to 65536 RGB pixels can be controlled from a single R2 Receiver Card.

LED DRIVER IC SUPPORT

The LED driver control signals generated by the Receiver Card are configurable to support a number of different LED driver chips, including both 'generic' constant-current LED drivers and PWM capable LED drivers.

Generic constant-current LED drivers are typically most suited to low resolution, coarse pixel pitch panels. This type of LED drivers are only capable of turning the LED on and off when instructed by the Receiver Card. As such the Receiver Card needs to generate the correct sequence of on and off signals to dim the LED to the correct brightness. For this, Tessera Receiver Cards use a custom variant of an algorithm called Bit Angle Modulation (BAM). This includes techniques to increase the effective refresh rate and improve low brightness performance.

PWM enabled driver ICs are recommended for most new panel applications. These driver ICs require the Receiver Card to send a brightness value for each LED, and the IC is responsible for deciding when to turn on/off each LED to achieve that level of dimming. This typically results in much higher refresh rates and greater bit depth than the equivalent generic IC implementation.

FLEXIBILITY

R2 supports up to 36 chains of driver ICs on dedicated pins. If more chains of driver ICs are required, these 36 pins can be converted into 72 virtual channels using a small circuit on the hub/carrier board.

Within a module, R2 supports completely arbitrary connection of LEDs to driver ICs. This helps designers build more efficient fixtures, as there are no restrictions on which LEDs are routed to which ICs and which chains.

Up to 32:1 scan multiplexing is supported, for applications where it is desirable to drive multiple LEDs from a single driver IC output.

REFRESH RATE AND GENLOCKING

Tessera Receiver Cards derive the refresh rate of the LEDs from the frame rate of the incoming signal, with support for any frame rate from 24Hz to 60Hz. This ensures that the panel output is perfectly regular with no 'judder' from doubled or dropped frames, or flicker from excessive blanking, even when operating at non-standard frame rates.

All Receiver Cards in a system are fully locked to the processor, and multiple processors can easily be locked together using lock-to-source or the dedicated reference input. Every fixture therefore refreshes simultaneously, eliminating the possibility of tearing in large systems with multiple processors.

For applications where panels may be filmed by video cameras the system can be genlocked to the camera's timing, reducing the appearance of flicker or artefacts.

COLOUR PROCESSING AND CALIBRATION

All colour processing inside Tessera Receiver Cards is performed at 48 bits per pixel. This includes gamma correction, per-pixel colour calibration and brightness adjustment. This results in smooth gradients and excellent low-brightness performance.

MANAGEMENT AND MONITORING

Tessera Receiver Cards support a number of external peripherals including temperature, humidity and orientation sensors, fan controllers, status LEDs and push buttons.

The management features of the Tessera system are fully supported, including reporting fixture status such as temperature and orientation. Each Receiver Card is programmed with the fixture's serial number for easy identification in the Tessera software.

Fail-safe in-field firmware update means that even in the event of a power or communication failure during the firmware reload process, the fixture will always start up again correctly when power is reapplied.

TESSERA PARTNER PROGRAMME

We have an experienced and knowledgeable team ready to support manufacturers wishing to partner with Brompton and integrate Tessera Processing into their products. This includes our in-house Field Applications Engineering team and engineering support partners in China.

A comprehensive Technical Reference Manual and accompanying reference designs are available. These provide tested schematic snippets for all of R2's features, reducing the time taken to create a compatible design. Many of our reference materials are also available in Chinese.

We help guide manufacturers through the process of integrating Tessera Processing to help create a successful product. Examples of ways we can help include offering design advice, reviewing schematics and helping to test prototypes. This results in reduced prototyping costs, a reliable product and a fast time-to-market.

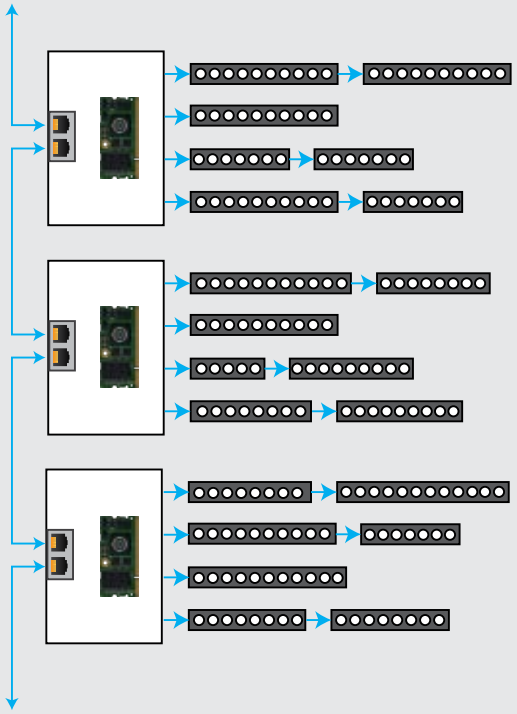
Manufacturers considering integrating Tessera Processing should contact us on info@bromptontech.com at the earliest opportunity during the design process.

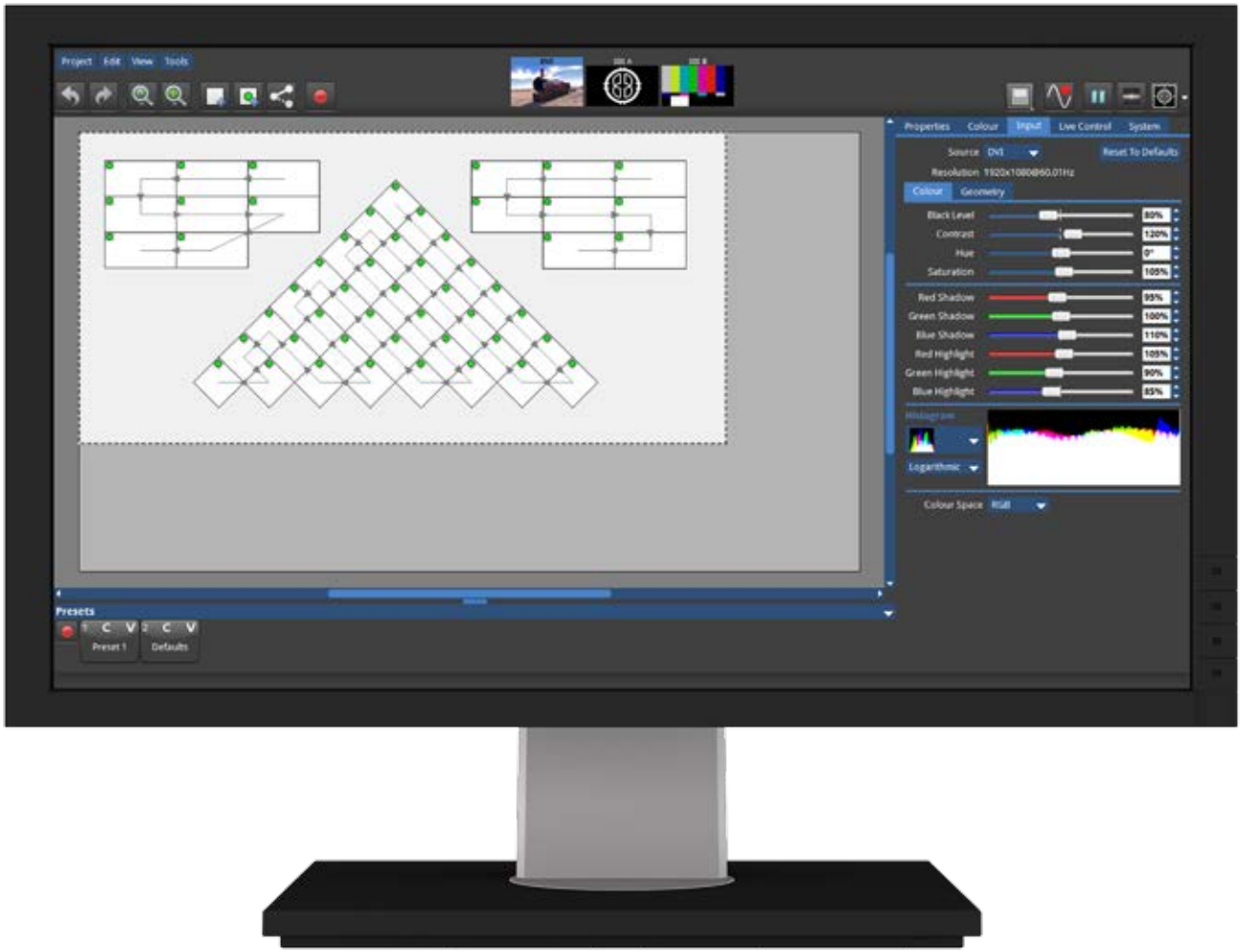
SUB-FIXTURES

A unique feature of Tessera Receiver Cards is the ability to support multiple 'sub-fixtures' from a single Receiver Card. This is especially useful for creative fixtures, such as LED strips, where there is typically a single power supply 'root node' controlling multiple strips.

Multiple different types of sub-fixture can be supported from the same root node, as long as they all use the same driver IC type and scan multiplexing ratio. Each sub-fixture can be independently positioned by the processor and the number and types of sub-fixture connected to each Receiver Card can be configured at run time, resulting in greatly increased flexibility for creative applications.

Receiver Cards in root nodes behave similarly to normal panels - they can be connected in the same Ethernet string as other root nodes or panels and they support peripherals such as sensors and status LEDs.





TESSERA MANAGEMENT SOFTWARE

INTUITIVE SOFTWARE

The Tessera Management Software makes it quick and easy to set up your project, whatever the configuration. There are no constraints on the layout of fixtures – they can be arranged with any spacing or rotation – and intuitive tools help you lay out large numbers of fixtures in a single step. Different fixture types can be used together in a single configuration and even different pixel pitches are managed automatically with high quality interpolation where required.

The software tracks how the data connections are linked between fixtures, making it topology-aware. This makes it extremely quick to associate the fixtures detected on your network with the fixtures in your layout, minimising on-site setup time and assisting with fault-finding.

FULL CONTROL

The user interface gives direct control of the powerful video input processing options, including scaling, using intuitive controls. Any input can be previewed, with auto-detection of resolution and timing and status reporting.

For the selected video source, various video-on-canvas modes let users preview how the video will map to fixtures. This allows video inputs and fixture maps to be fully configured before the actual video wall is built.

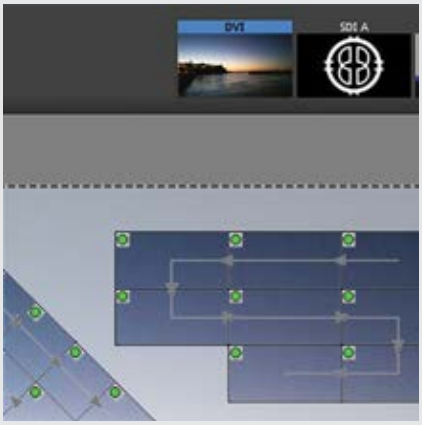
Many project settings, including fixture group position and rotation, global colour settings, and all settings of the video input, can be stored into presets, allowing for fast one-touch recall of configuration changes. Variable parameters – including fixture position – or the recall of presets can also be linked to live control inputs such as DMX512 or eDMX making it easy to integrate the LED video within a larger system.

LOCAL AND REMOTE ACCESS

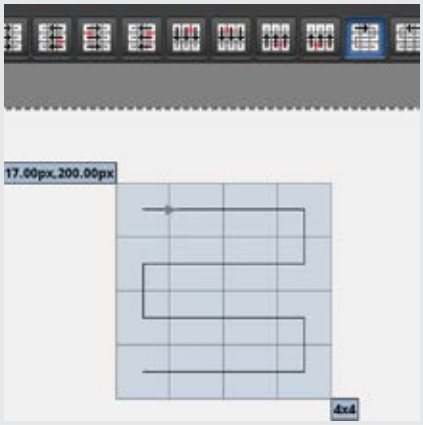
The user interface can be accessed from a monitor, keyboard and mouse connected directly to a Tessera processor. A similar user interface is also accessible by running Tessera Remote software on a Windows PC or Mac that is connected to the processor via an Ethernet network.

Video data is streamed over the network to allow input thumbnails even when controlling the system from Tessera Remote. This unique remote control ability allows for control of the system from a convenient front-of-house or vision gallery position, while placing the processor close to the video sources or the video wall to minimise cabling complexity.

TESSERA SOFTWARE SCREENSHOTS

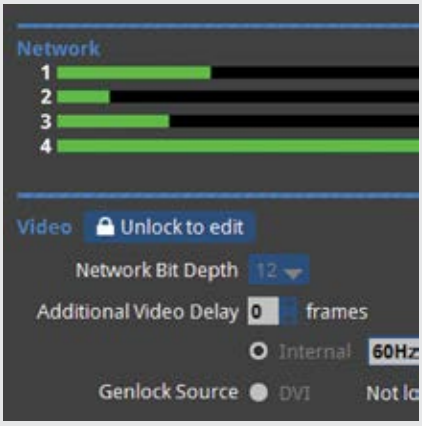


Preview content using thumbnails, and mapping on the fixtures themselves with video-on-canvas modes.

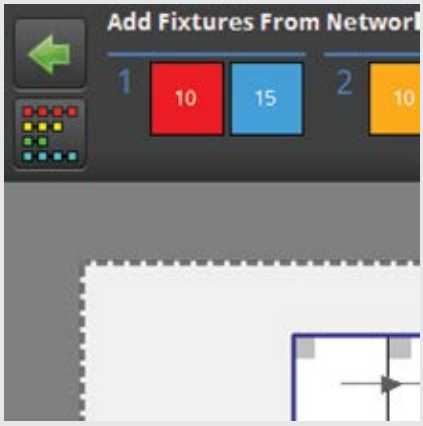


Quickly draw arrays of any size, selecting from a range of topologies, or place fixtures individually.

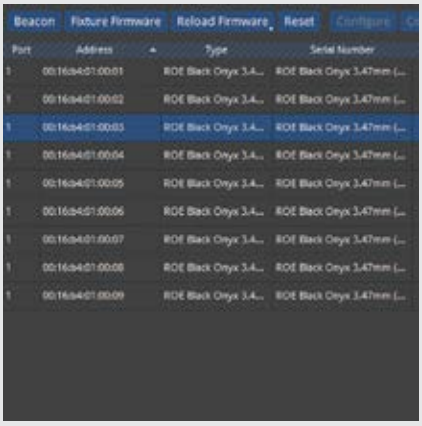
Save colour, video and group position settings to presets for quick recall during the show.



Load bars give visual indication of remaining network capacity at chosen bit depth and frame rate.



When adding fixtures from the network, strings are automatically detected and coloured for easy association.



Detected fixtures are available in a tabular view, providing a quick way to perform tasks such as firmware reload.

TESSERA CALIBRATION SYSTEM

Due to the variation in LED performance, even within a tightly-controlled binning process during LED manufacture, each individual pixel within a fixture will by default produce a slightly different luminance (brightness) and chromacity (colour). This results in areas of solid colour suffering from a speckled, noisy appearance, or mismatches between adjacent fixtures.

Tessera Receiver Cards are capable of applying a unique correction to each pixel to compensate for these variations, giving substantially improved uniformity. The Tessera Calibration system calculates the required per-pixel correction factors.

The Tessera Calibration system is available both to fixture manufacturers for factory calibration, and to end customers for re-calibration to extend the life of their inventory.

OFF-THE-SHELF EQUIPMENT

The system uses off-the-shelf equipment, including a Nikon DSLR and Photo Research spectroradiometer. These provide faster and more accurate results than custom hardware and let customers take advantage of local supply and service channels.

TEMPERATURE REGULATION

Unique temperature regulation technology helps to reduce the effect of the calibration environment on the calibration result. This greatly improves fixture-to-fixture matching, even for fixtures calibrated at different times or in different locations.

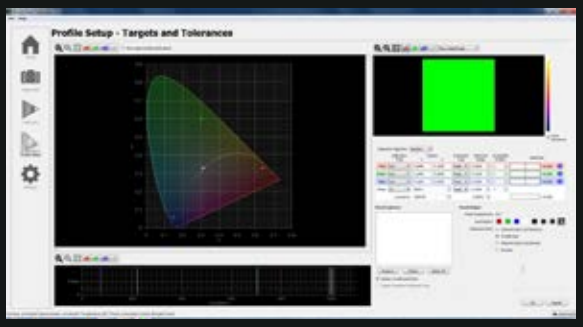
STORAGE

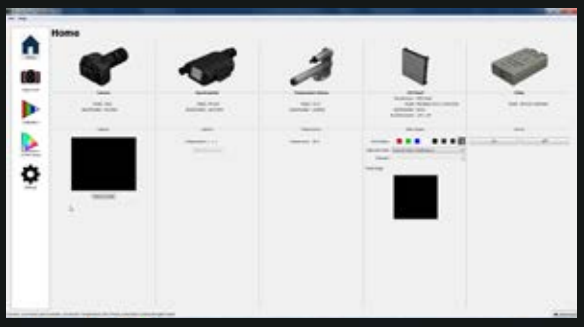
Calibration data can be stored either in the R2 Receiver Card or in EEPROM/flash storage on the LED modules. The latter is desirable as this allows for easy in-field module swapping, without the need to worry about re-uploading calibration data.

SOFTWARE

The Tessera Calibration system uses bespoke software to manage the whole process. This has been designed specifically for colour calibration, making it easy for users to get the best possible performance from their fixtures.

For administrators, comprehensive tools facilitate the analysis of fixtures and choosing of settings, colour targets and pass/fail criteria. For operators, a simple easy-to-use interface is available for running calibrations and indicating success/failure without needing to worry about accidentally changing calibration settings.





TECHNICAL SUPPORT

FREE SOFTWARE UPDATES

We regularly publish free updates to the Tessera software applications and firmware. These include new features, enhancements and bug fixes. We are committed to continually improving the Tessera experience for our users, and many of these improvements are developed as a direct result of feedback from people using our products in the field.

Updates are freely available to download from our website. All releases of the Tessera Remote software include matching Tessera Processor firmware, which can be loaded over the remote connection. Alternatively, the processor firmware can be loaded from a USB memory stick when using the local user interface. Firmware for Tessera Receiver Cards can also be easily updated via the software.

All firmware updates are quick – the whole process taking only a few minutes – and fail-safe. In the event of a power or communications failure, the system will start up running the existing firmware on restart.

TRAINING

Tessera software is designed to be intuitive and easy to use, and many video technicians successfully get started with the software without any formal training. However, to help users get the most out of the system, we are happy to arrange a training session with one of our team.

We also publish written resources including a user manual, quick start guide and application notes covering various specific use cases.

SUPPORT CONTACTS

Should further assistance be required, our knowledgeable London-based technical support team are here to help, via email or phone. We know that live events work cannot always wait until the following day, so out-of-hours contacts are also available for emergency use.

See bromptontech.com/support for further details.

BROMPTON TECHNOLOGY LTD

International House
Ealing Broadway
London
W5 5DB
United Kingdom

WWW.BROMPTONTECH.COM

+44 (0)20 7471 9444

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