

ONE BOX

3 IN 1

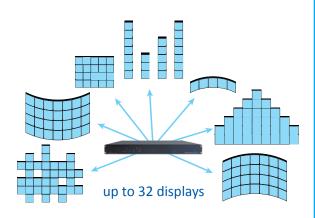


4K RESOLUTION

Supports resolution - 3840x2160x60 Hz (8Kx1K available)



UP TO 32 DISPLAYS AT A TIME



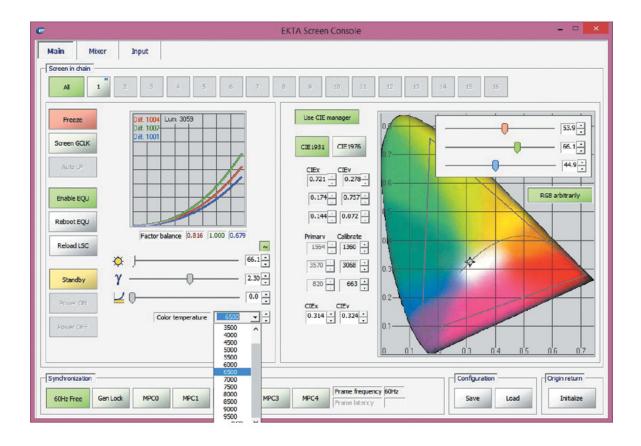
VARIETY OF INPUT/OUTPUT SIGNALS

3G-SDI / DP 1.2 / HDMI 1.4



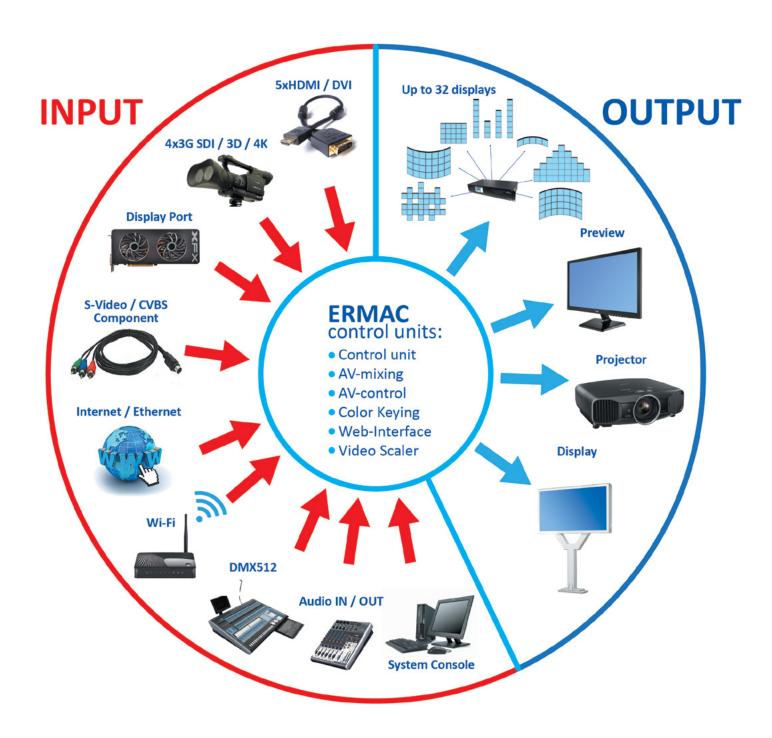
ONE TOUCH

REAL TIME SETTINGS

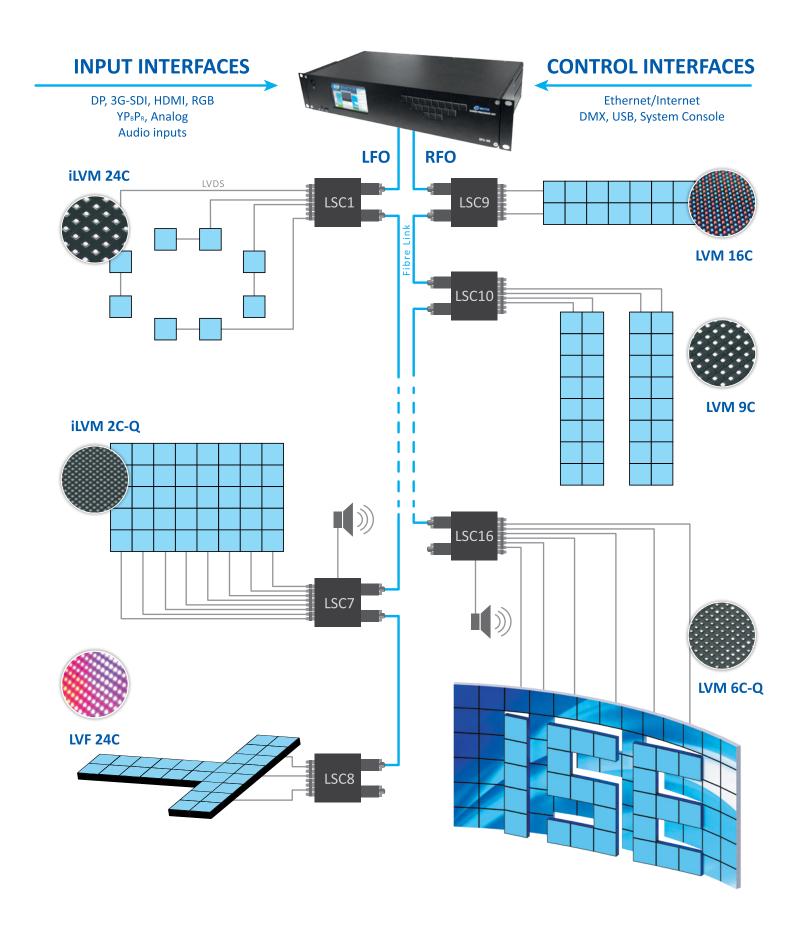


- ▶ Color temperature from 3,000 to 10,000 K
- ▶ Level of brightness from 0.1 100%.1024 gradation for each color
- Gamma curve

ENVIRONMENT



APPLICATIONS



COLOR UNIFORMITY SYSTEM

Automatic color adjustment of LED screens composed with LEDs of different delivery lots or with LEDs of different manufacturers.

BEFORE AFTER





- ▶ Ensures up to 99% illumination uniformity
- ▶ EKTA screens display up to 281 trillion colors thanks to the 48 or 54-bit pixel color management
- Operation at a low brightness with no loss in color quality
- Real time adjustments

DISPLAY TYPES















Endless design possibilities





Ultrathin module













Front maintenance system





Heedless of the weather













RENTAL/FIXED TYPE

Shock-resistance



ERMACUltra



For the latest in control system flexibility for LED video display screens and other video equipment, EKTA's unique design ERMACUltra three-level architecture has revolutionised video processing technology for large-scale LED displays and visualisation equipment.

Combining six different products into a single state-of-the-art solution, the versatile design of ERMACUltra supports all current EKTA screen models, including FrameLED Outdoor and Indoor, BladeLED Outdoor and Indoor plus WOWFloor product lines. Incorporated into the ERMACUltra unit, the new SPU-10 processor provides the ultimate solution for controlling EKTA's cutting edge screens – iLVM 2C-Q (pp=2.68 mm, 17 bit processing, 120 Hz), iLVM 4C-Qs (pp=4.0 mm, 18 bit processing, 120 Hz), LVM 6C-Q (pp=6.9 mm, 18 bit processing, 120 Hz, outdoor) and iLVM 1.9C-E (pp=1.9 mm, 16 bit processing, 60 Hz) as well as supporting complex video equipment.

SYSTEM LEVEL DEVICE - ERMACULTRA / SPU10

FEATURES

- 19" 1RU rack mounting case
- Up to five image channels (flexible configurations of new 3G HDMI, 3G SDI (Copper or on-board fiber input) and Display Port 1.2 standards)
- Up to four simultaneous image windows with fader and cross-fader between them
- 10 bit processing from 480i to 1080p and 4K x 60 Hz resolution
- 18 bit processing for LED-to-LED uniformed corrections, screen brightness adjustment, gamma and color temperature control
- Embedded Q7 Processor
- Five control interfaces USB 2.0 for Desktop/Laptop PC and Touch Screen, System Console, DMX512, Ethernet and Internet
- Up to 32 various pixel pitch LED screen devices or digital panels in the chain
- Up to four Fibre Optic (FO) and one HDMI outputs with frame rates of 30, 50, 60, 75, 100, 120 Hz
- · 3D-ready on board
- Feedback link for:
 - diagnostics module operating parameters (temperature, voltages and current)
 - reading LED parameter measurement tables for LED-to-LED color calibrations
 - reading luminous sensor value for automatic screen brightness control
- · Audio IN/OUT and translate audio packets over Fibre Optic

INPUT

Image Channel Input:

- Display Port 1.2 up to 3840 x 2160 x 60 Hz (540 MHz pixels rate)
- 3G HDMI up to 2560 x 1600 x 60 Hz (297 MHz pixels rate)
- 2 x CVBS/YPbPr/HDMI (switched) up to 1080p
- 2 x (3G SDI) up to 1080p (Copper or fiber input switched, auto-configure for 3G-, HD- and SD-SDI)

Audio Input:

- Any 3G SDI
- Any HDMI or DP input*

CONTROL

Control Interface (selectable)

System, USB 2.0, Ethernet, Internet, DMX Control Unit

Touch Screen, System Console, Web Console, DMX Console, Desktop/laptop PC

Configurable and Control Software

ESConsole, EsPanel, Drivers

PROCESSING

Internal Processing

10/12 bit color depth processing (except DVI); up/down scaler; de-interlacing; Windows manager; fader and cross-fader between image windows; system VS from Ex. GenLock, selected input or free-run; random LED display tile connection.

OUTPUT

Digital Video Output

- 4 x 6.1 Gbit fiber optic (4 FO Screen Link), 30 bpp display device chain output:
- Pixel rate: 152.5 MHz (Single FO Mode); 610 MHz (Quad FO Mode)
- Horizontal size max. (X): up to 8192 pixels
- Vertical size max. (Y): up to 4096 pixels
- X*Y size max.: up to 10 000 000 pixels/60 Hz (Quad FO, 3840 x 2160 included)
- 3G HDMI output: 2560 x 1600 pixels
- HDMI and Single FO simultaneously: 1920 x 1200 pixels

Audio Output

- AES/EBU
- HDMI Output*
- Audio Packets Translations over FO

DIAGNOSTICS

FeedBack Display Monitoring

LED cluster temperature; module power supply values; LED module current; outside temperature; external luminance; project version, LED cluster manufacturing ID; etc.



GENERAL DESIGN

Dimensions:

 $19^{\prime\prime}$ rack, face or reverse mounting case, height - 1RU, depth - 220 mm Power :

100-240 VAC, 50-60 Hz, 60 Watt

Hardware Configuration:

- Motherboard (up to 4 independent image channel)
- DMX IN
- 4 x 6.1G full duplex fiber optic screen link, 30 bpp (bit per pixel)
- 297 MHz HDMl output

Multiformat Image Channel and Output Windows:

- Up to 4 independent image channels
- Up to 4 simultaneous output windows
- · 30 bit image layer
- Desktop color settings

Screen Link:

- Up to 32 (8 x 4FO Link) screen devices in the chain
- Variable-technology screen device types LED, PDP, LCD, projector
- Distance between screen devices 500 m tactical multi-mode fiber, 10 km single-mode fiber

MODULE (CABINET) LEVEL DEVICES

ERMACUltra / LBRD 02x (LED Block Refresh and Diagnostic) ERMACUltra / LTCP (LED Tile Control Processing) Loop-Through LVDS input port for Devices Cascade Up to 128 devices in chain for one LSC port FPGA based design for flexible customization

DEVICE AVAILABILITY

Input por

Two bidirection RJ45, two bidirection 6.5 Gbit serial port (indoor) Two bidirection IP67 Connector (outdoor) for cascade

Output port

TTL round cable (4 port), TTL Wago Terminal (4 port) LVDS Flat Cable (up to 10 port)

TTL Direct Connect (6 port, BackPlane Variant)

SCREEN LEVEL DEVICES

ERMACUltra / LSC 08x, LSC09x LED Screen Controllers

- Loop-Through FO 6.1 GHz for Device Chain Cascade
- 16 LVDS output ports (cat 5e or cat 6 cable)
- 12.5-15 MHz (cable dependent) pixel rate for each port
- 240 MHz total pixel rate

Processing: Ping-Pong picture buffered, frame clipper, block (cabinet) connected, audio processing

Version	SPU-10B (base)	SPU-10M (medium)	SPU-10F (full)	
SYSTEM FEATURE				
Embedded PC	None	Qseven standard	Qseven standard	
Embedded OS	None	Windows 8 Embedded Standard	Windows 8 Embedded Standard	
Image Channel (simultaneous)	2	2 3		
CONTROL				
Control Interface (simultaneous)	USB 2.0, DMX	System, USB 2.0, Ethernet, DMX	System, USB 2.0, Ethernet, Internet, DMX	
Control Unit	Desktop/laptop PC, DMX Console	System Console, Desktop/laptop PC, Touch Screen, DMX Console	System Console, WEB Console, Desktop/laptop PC, Touch Screen, DMX Console	
Configurable and Control Software	ESConsole, Screen Builder, drivers (Desktop/laptop PC Location) ESConsole, Screen Builder, drivers (Embedded PC Location)		ESConsole, Screen Builder, drivers (Embedded PC Location)	
INPUT				
Display Port	1920 x 1200 x 60 Hz	2560 x 1600 x 60 Hz	3840 x 2160 x 60 Hz	
3G HDMI	No	2560 x 1600 x 60 Hz	2560 x 1600 x 60 Hz	
2xCVBS/YPbPr/HDMI (switched)	No	Up to 1080p	Up to 1080p	
3G SDI (Copper)	1	1	2	
3G SDI (Fiber)	No	No	Yes	
Audio Input	3G SDI or DP input	3G SDI, any HDMI or DP input	3G SDI, any HDMI or DP input	
ОUТРUТ				
6.1G full duplex fiber optic screen link	1 (1920 x 1200 x 60 Hz)	2 (2560 x 1600 x 60 Hz)	4 (3840 x 2160 x 60 Hz)	
3G HDMI	No	1 (2560 x 1600 x 60 Hz)	1 (2560 x 1600 x 60 Hz)	
3G SDILOOP-THROUGH	No	1	1	
Audio Output	AES/EBU HDMI Output*	AES/EBU HDMI Output* Audio packet transfer over FO	AES/EBU HDMI Output* Audio packet transfer over FO	

ERMACPlus



For the latest in control system flexibility for LED video display screens and other video equipment, EKTA's unique design ERMACPlus three-level architecture has revolutionised video processing technology for large-scale LED displays and visualisation equipment.

Combining six different products into a single state-of-the-art solution, the versatile design of ERMACPlus supports all current EKTA screen models, including FrameLED, BladeLED and WOWFloor product lines. Incorporated into the ERMACPlus unit, the new SPU-006 processor provides the ultimate solution for controlling EKTA's cutting edge screens – iLVM 2C-Q (pp=2.68 mm, 17 bit processing, 120 Hz), iLVM 4C-Qs (pp=4,0 mm, 18 bit processing, 120Hz), LVM 6C-Q (pp=6,9 mm, 18 bit processing, 120Hz, outdoor) and iLVM 1.9C-E (pp=1.9mm, 16 bit processing, 60Hz) as well as supporting complex video equipment.

SYSTEM LEVEL DEVICE - ERMACPlus / SPU-006

FEATURES

- Motherboard and four Add-In-Cards (AiC) 19" rack mounting case
- Five image channels (one motherboard (MB) & four AiC with flexible configurations of new HDMI, 3G SDI (Copper or on-board fibre input) and Display Port standards
- Five simultaneous image windows with fader and cross-fader between them
- ▶ 10 bit processing from 480i to 1080p and 4K resolution
- ▶ 18 bit processing for LED-to-LED uniformed corrections, screen brightness adjustment, gamma and color temperature control
- Embedded Intel Atom Based Processor
- Five control interfaces Integrate Console, System Console, DMX512, Ethernet and Internet WEB-Interface
- Up to 16 various pixel pitch LED screen devices or digital panels in the chain
- Two Fibre Optic (FO) and one HDMI outputs with frame rates of 30; 50; 60; 75; 100; 120 Hz
- 3D ready on board
- Feedback link for:
 - diagnostics module operating parameters (temperature, voltages and current)
 - reading LED parameter measurement tables for LED-to-LED color calibrations
 - reading luminous sensor value for automatic screen brightness control
- Audio IN/OUT and translate audio packets over Fibre Optic



INPUT			
MB Image Channel Input	DVI/HDMI or DisplayPort - up to 4K (297MHz Pixels Rate) 3G SDI - up to 1080p (Copper or fibre input switched, auto-configure for 3G-, HD- and SD-SDI)		
MB Video Input for AiC (are processed by any AiC)	Composite video, 2xBNC Y/C, 2xMiniDin YPbPr 1xD-Connector 3G SDI - up to 1080p		
AiC Video Input (for all AiC options)	Up to 4xDVI (HDMI connector) .1920 x 1200 Up to 4xHDMI .1080p* Up to 4xRGB		
Audio Input	2 stereo balanced inputs 2 stereo non-balanced inputs S/PDIF, 1 copper/fiber 3G SDI Any HDMI or DP input*		
OUTPUT			
Digital Video Output	2x6.1 Gbit fiber optic (Left FO and Right FO), 30bpp display device chain output: - Pixel Rate		
Audio Output	S/PDIF, 1 copper/fiber HDMI Output* Audio Packets Translations over FO		
PROCESSING			
Internal Processing	8/10/12 bit color depth processing (except DVI); up/down scaler; de-interlacing; Windows manager; fader and cross-fader between image windows; system VS from Ex. GenLock, selected input or freerun; hardware auto-configuration (including screen chain); random LED display tile connection.		
CONTROL			
Control Interface (selectable)	Integrate, System, Ethernet, Internet, DMX		
Control Unit	Integrate, System Console, Desktop/laptop PC (Windows XP, 7, 8)		
Configurable and Control Software	ESConsole, Screen Builder, drivers		
DIAGNOSTICS			
FeedBack Display Monitoring	LED cluster temperature; module power supply values; LED module current; outside temperature; external luminance; project version, LED cluster manufacturing ID; etc.		
GENERAL DESIGN			
Dimensions	19" Rack, face or reverse mounting case, height - 2RU, depth - 220 mm		
Power	100-240 VAC, 50-60 Hz, 100 Watt		
Hardware Configuration	Motherboard (MB) + 4 ADD-IN Cards (AiC) + AudioMixer Board 5 independent image channels (one at MB, four on the AiCs) Transformer De-coupling audio mixer DMX IN/OUT 2 x 6.1G full duplex fiber optic screen link, 30 bpp (bit per pixel) 165 MHz DVI (HDMI Connector) output		
AiC Type	HDMI/3G SDI Picture Channel Slot (hsPCS) HDMI 4K Picture Channel Slot (hPCS) Standard Definition Video (eSDV) Random Configurations AiC in the SPU-006		
Multiformat Image Channel and Output Windows	Up to 5 multi-input image channels Up to 5 simultaneous output windows 30 bit image layer Desktop color settings		
Screen Link	Up to 16 screen devices in the chain Variable-technology screen device types - LED, PDP, LCD, projector Distance between screen devices - 500 m tactical multi-mode fibre, 10 km single-mode fibre		

Screen Level Devices

ERMACPlus / LSC 08x, 09x (LED screen controllers)

- Loop-Through FO 6.1GHz for Devices Chain Cascade
- 16 LVDS output ports (cat. 5e or cat.6 cable)
- 12.5-15MHz (cable depended) Pixel Rate for each port
- 240MHz Total Pixel Rate
- Horizontal Size max. 4096 Pixel
- Vertical Size max. 4096 Pixel

Processing: Ping-Pong picture buffered, frame clipper, block (cabinet) connected, audio processing

Module (Cabinet) Level Devices

ERMACPlus / LBRD 02x (LED Block Refresh and Diagnostic)

ERMACPlus / LTCP (LED Tile Control Processing)

- Loop-Through LVDS input port for Devices Cascade
- Up to 128 Device in chain for one LSC port
- FPGA based design for flexible customization

Device availability

Input port: Two RJ45 (indoor) IP67 Connector (outdoor)

Output port:

TTL round cable (4 port), TTL Wago Terminal (4 port) LVDS Flat Cable (up to 10 port) TTL Direct Connect (6 port, BackPlane Variant)

ERMAC



ERMAC three-level software architecture has revolutionised video processing technology for large-scale LED displays and visualisation equipment, combining six different products into a single state-of-the-art solution.

Its versatile design supports all current EKTA screen models, including FrameLED, BladeLED and WOWFloor product lines. The new SPU-005 processor provides the ultimate solution for controlling EKTA's cutting edge iLVM 4C, iLVM 6C (16 bit processing) and iLVM 4C-Q (18 bit processing) LED video displays.

SYSTEM LEVEL DEVICE - ERMAC / SPU-005

FEATURES

- Motherboard and four Add-In-Cards (AiC) 19" rack mounting case
- ▶ Five image channels (one motherboard (MB) & four AiC with flexible configurations of new HDMI, 3G SDI standards
- Five simultaneous image windows with fader and cross-fader between them
- ▶ True HD 10 Bit processing from 480i to 1080p
- ▶ 18 bit processing for LED corrections, screen brightness adjustment, gamma and color temperature control
- ▶ Three control interfaces USB-2.0, Ethernet (UDP) and stand-alone (embedded ARM9)
- ▶ Up to 16 various pixel pitch LED screen devices or digital panels in the chain
- Two Fibre Optic (FO) and one HDMI outputs with frame rates of 50; 60; 75; 100; 120 Hz
- 3D ready (optional)
- Feedback link for: diagnostics module operating parameters (temperature, voltages and current); reading LED parameter measurement for LED-to-LED color calibrations; reading luminous sensor value for automatic screen brightness control
- Audio IN/OUT and translate audio packets over Fibre Optic
- On-board TFT control monitor with touch screen (frame image and ARM9 share)



INPUT				
MB Image Channel Input	DVI (HDMI connector) = 1920 x 1200 pixels HDMI 1080p* RGB 1280 x 1024 YPbPr 1080p			
MB Video Input for AiC (are processed by any AiC)	Composite video, 4xBNC Y/C, 2xMiniDin HD SDI, 2xBNC (switched), auto-configuration for HD-SDI, SD-SDI			
AiC Video Input (for all AiC options)	Up to 4xDVI (HDMI connector) .1920 x 1200 pixels Up to 4xHDMI .1080p* Up to 4xRGB .with pixel rates up to 150 MHz (included 1280x1024) Up to 4xYPbPr .1080p Up to 4x3G SDI .1080p (auto-configure for 3G-, HD- and SD-SDI)			
Audio Input	2 stereo balanced inputs 2 stereo non-balanced inputs S/PDIF, 1 copper or fibre SDI Any HDMI input*			
ОИТРИТ				
Digital Video Output	2x2.5 Gbit fibre optic (FO) 8/10 bit screen device chain output: - Horizontal size (X): .800 – 4096 pixels. 10240 pixels (optional) - Vertical size (Y): .272 – 2048 pixels - X*Y size max. .2 446 000 pixels (Dual FO) DVI (HDMI connector) output, .1920 x 1200 pixels DVI and Dual FO simultaneously .1920 x 1200 pixels			
Audio Output	S/PDIF, 1 copper or fibre			
PROCESSING				
Internal Processing	8/10/12 bit color depth processing (except DVI); up/down scaler; de-interlacing; Windows manager; fader and cross-fader between image windows; system VS from Ex. GenLock, selected input or free-run; hardware auto-configuration (including screen chain); random LED display tile connection.			
CONTROL				
Control Interface (selectable)	Ethernet, USB 2.0, Integrate (embedded ARM-9 processor), DMX			
Control Unit	Desktop/laptop PC (Windows XP, Windows Vista, Windows 7), IP, embedded ARM-9			
Configurable and Control Software	ESPanel, Screen Builder, drivers			
DIAGNOSTICS				
FeedBack Screen Monitoring	LED cluster temperature; module power supply values; LED module current; outside temperature; external luminance; project version, LED cluster manufacturing ID; etc.			
GENERAL DESIGN				
Dimensions	19" Rack, face or reverse mounting case, height – 2RU, depth – 220 mm			
Power	100-240 VAC, 50-60 Hz, 90 Watt			
Hardware Configuration	Motherboard (MB) + 4 ADD-IN Cards (AiC) + AudioMixer Board 5 independent image channels (one at MB, four on the AiCs) Transformer De-coupling audio mixer DMX IN/OUT 2 x 2.5G full duplex fibre optic screen link (selectable 24/30 bit/pixel) 165 MHz DVI (HDMI Connector) output			
AiC Type	HDMI/3G SDI Picture Channel Slot (hsPCS) Standard Definition Video (eSDV) Random Configurations AiC in the SPU-005			
Multiformat Image Channel and Output Windows	Up to 5 multi-input image channels Up to 5 simultaneous output windows 30 bit image layer Desktop color settings			
Screen Link	Up to 16 screen devices in the chain Variable-technology screen device types – LED, PDP, LCD Distance between screen devices – 500 m tactical multi-mode fibre, 10 km single-mode fibre			

Screen Level Devices

ERMAC / LSC 080 (LED screen controller)

- Loop-Through FO 2.5GHz for Devices Chain Cascade
- 16 LVDS output ports (cat. 5e or cat.6 cable) with IP67 Connectors
- 2.3-2.8 MHz (cable depended) Pixel Rate for each port
- 45 MHz Total Pixel Rate
- Horizontal Size max. 4096 Pixel
- Vertical Size max. 2048 Pixel
- Processing:

Ping-Pong picture buffered, frame clipper, module (cabinet) connected, audio processing

Module (Cabinet) Level Devices

ERMAC / LBRD 02x (LED Block Refresh and Diagnostic)

- Loop-Through LVDS input port for Devices Cascade
- Up to 128 Modules in chain for one LSC port
- FPGA based design for flexible customization

Device availability

Input port:

IP67 Connector Output port:

TTL round cable (4 port), TTL Wago Terminal (4 port), LVDS Flat Cable (up to 10 port)

CeLSC-085



CeLSC-085 has been developed for creating video nets on the basis of all EKTA LED video display products, including FrameLED, BladeLED and WOWFloor product lines. Application spheres are digital signage, sports, transport systems etc.

FEATURES

- Is created as a separate unit connected to EKTA LED screens modules
- ▶ Embedded industrial processor
- ▶ 16 bit processing for LED corrections, screen brightness adjustment, gamma and color temperature control
- ▶ Three control interfaces ethernet and internet WEB-interface, service system console
- ▶ 8 bit processing up to 768p
- Frame rate 60 Hz
- ▶ Feedback link for: diagnostics module operating parameters (temperature, voltages and current); reading luminous sensor value for automatic screen brightness control
- Audio OUTs: S/PDIF, Line

Embeded industrial PC	CeLSC-081: Atom 1.66 GHz, 1 GB DDR2 533 MHz, 4 GB SSD, Intel® GMA 500, HDTV/HD capable, Decoder for MPEG2 / HD / H.264 CeLSC-085: Q7-BT 1.91 GHz, RAM DDR3L 4GB, SSD 32GB, Intel® HD 4000, H.264, MPEG2, MVC, VC1, VP8, MJPEG formats		
INPUT			
USB	3 x USB 2.0 (1 channel configurable as client)		
Ethernet	10/100/1000 Mbit LAN		
SD card	micro SD slot		
ОUТРUТ			
Ekta Video Interface	8 LVDS output ports (cat. 5e) with IP67 Connectors, 2.8 MHz pixel rate for each port Frame rate - 60 Hz, 22.5 MHz Total Pixel Rate Horizontal Size max. 1024 Pixel Vertical Size max. 768 Pixel		
Audio Output	S/PDIF, Line		
PROCESSING			
Inside Processing	8 bit processing up to 768p		
CONTROL			
Control Interface	Ethernet and internet WEB-interface, service system console		
Control Unit	System Console, Desktop/laptop PC (Windows XP, 7, 8)		
Control Software	CeLSC-081 Win XP/7 CeLSC-085 Win 8 ESPanel, drivers		
DIAGNOSTICS			
Feedback Display Monitoring	LED cluster temperature; module power supply values; LED module current; outside temperature; outside luminance; project version, LED cluster manufacturing ID etc.		
GENERAL DESIGN			
Dimensions	170 x 170 x 25 mm		
Power	12 VDC, 20 Watt		
Operating temperature	CeLSC-085: -25° to 60° C without preheating		

FEATURE COMPARISON

	ERMAC Ultra SPU-10F	ERMAC Ultra SPU-10M	ERMAC Ultra SPU-10B	ERMAC Plus SPU-006	ERMAC SPU-005	Cel.SC-085
Maximum Resolution	4096x2970 12.1 Mpx	4096x2200 9.0 Mpx	4096x1486 6.1 Mpx	3840x1580 6.1 Mpx	1920x1274 2.4 Mpx	1024x768
Maximum number of output	4	2	1	2	2	1
Screen devices in the chain	32	16	8	16	16	1
Frame rate		30/50/60/75/100/120				60
Input signal for any picture format	DP/HDMI/SDI			HDMI/SDI	-	
HDMI compatible	1.4	1.4	1.4	1.4	1.3	-
DP compatible	1.2	1.2	1.2	1.1	-	-
Color processing	10 / 12	10 / 12	10 / 12	10 / 12	10	8
Proprietary color correction function	+	+	+	+	+	+
Maintenance information signal output	+	+	+	+	+	+
Signal output to external monitor	+	+	+	+	+	+
Control and setting through RS-232C, LAN or remote controller	+	+	+	+	+	+
Gamma correction	+	+	+	+	+	+
Multi-window display in a single screen or separate screens	4	3	2	5	5	-
Supports 3G-SDI input	+	+	+	+	+	-
Web software loaded	+	+	+	+	+	-
Operation record storing	+	+	-	+	+	+

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