

OPTION-A

TO BE FILLED UP BY THE BIDDER AND SPECIFICATION SHEETS OF THE PRODUCTS INDICATING MODEL NO AND BRAND

SHOULD BE ATTACHED.

Sl.No	Description	Total Quantity	Unit	Brand/Make	Model	Comments /Notes
1.00 Lighting Fixtures						
LF-1.01	Supply at site of 3000W 5600K Strobe with minimum specification as per supplied specification sheet	5	Nos			
LF-1.02	Supply at site of Weatherproof enclosure for strobe with glass front meaning unit requires no attendance.	3	Nos			
LF-1.03	Supply at site of 72W 3 in 1 RGB LED IP66 Linear Wash Fixture	36	Nos			
LF-1.04	Supply at site of DMX Interface	9	Nos			
LF-1.05	Supply at site of Interconnection Cables - 1m	4	Nos			
LF-1.06	Supply at site of Interconnection Cables - 5m	32	Nos			
LF-1.07	Supply at site of Ground Spike - Stainless Steel/Brackets Mount	36	Nos			
LF-1.08	Supply at site of 36 Deg RGBW 5300 Lumen IP65 Flood Luminare	15	Nos			
LF-1.09	Supply at site of Star Foot Mount	6	Nos			
LF-1.10	Supply at site of Upright Mount 1.2m	9	Nos			
LF-1.11	Supply at site of IP68 LED Uplighter 4 integrated RGBW LED, DMX Controlled, Real White Capable, with full colour calibration	28	Nos			
LF-1.12	Supply at site of Power Supply for EX100	6	Nos			
LF-1.13	Supply at site of Interlin cables, power and data on same cables of LF-1.11	28	Nos			
LF-1.14	Supply at site of Signal/power splitter for LF-1.11	14	Nos			
LF-1.15	Supply at site of Custom mounting brackets for LF-1.11	28	Nos			
LF-1.16	Supply at site of Purpose Built Lighting Controller with built in dual core CPU, 32GB SSD, 4GB RAM, HDMI and VGA Output, Gigabit Arcnet and MAXNet, 3.5" touchscreen, 4 digital encoders, 8 customisable function keys, 4 DMX Prts expandanbe, control of upto 4096 parameters, 4 Universe Licence, GUI, effects engine, 1000 cues fader assignable, 1000 cuesplayback control buttons, paralell execution of cuelists, submaster, groupmaster and override functions.	1	Nos			
LF-1.17	Supply at site of DMX Interface Card	2	Nos			
LF-1.18	Supply at site of SMPTE Input Card	1	Nos			
LF-1.19	Supply at site of Ir Remote Controller for assignign channels and configuration of LF-1.11	1	Nos			
LF-1.20	Supply at site of Light shield of LF-1.11	28	Nos			
LF-1.21	Programming of above equipment at site- Per Day	5	Lot			
LF-1.22	Supply at site of 1:5 DMX Splitter/Booster as per specification	5	Nos			
2.0 Audio System						
A-2.01	Supply at site of High Power 2-Way All Weather Loudspeaker with 1 x 15" LF & 1 X 1.5" HF	8	Nos			

A-2.02	Supply at site of Mounting from Sepakers (Pole Mount)	8	Nos			
A-2.03	Supply at site of Dual 10" Weatherised Subwoofer	4	Nos			
A-2.04	Supply at site of Enclosure for Subbass	4	Nos			
A-2.05	Supply at site of U Bracket for Installation of SB 210 Subwoofer	4	Nos			
A-2.06	Supply at site of Power Amplifier 1200 W@ 4 ohm, 650 W @ 8 ohm per channel	6	Nos			
A-2.07	Supply at site of Fixed IO DSP 12in 8 out	1	Nos			
A-2.08	Supply at site of Wall Mounted Ethernet based controller	1	Nos			
A-2.09	Supply at site of Super Cardioid Dynamic Microphone with Switch	1	Nos			
A-2.10	Supply at site of Digital Dual Diversity Receiver	1	Nos			
A-2.11	Supply at site of Digital Encrypted Hand Held Wireless Transmitter	2	Nos			
A-2.12	Supply at site of Active Omnidirectional Wideband UHF Antenna	2	Nos			
A-2.13	Supply at site of Antenna Cables	2	Nos			



3.0 Projection System						
P-3.01	Supply at site of 1-DLP, Dual Lamp, WXGA 1280x800 8500lm, 37.5 lbs -- no lens *	1	Nos			
P-3.02	Supply at site of Lens ILS 1.5-2.0SX+/1.4-1.8HD	1	Nos			
P-3.03	Supply at site of Replacement of Rear Projection Screen Fabric - Twin White and repair of screen system mechanics	1	Nos			
P-3.04	Supply at site of Projector Enclosure	1	Nos			
P-3.05	Supply at site of Dual Channel Video Server	1	Nos			
P-3.06	Supply at site of Fibre Optic Transmitters/Receivers and Fibre	1	Lot			
4.0 Show Control						
S-4.01	Supply at site of Automated Show Controller	1	Nos			
S-4.02	Supply at site of Main Control Computer	1	Nos			
S-4.03	Supply at site of iPad for remote Show Control	1	Nos			
S-4.04	Show Programming at site - per day	5	Lot			
5.0 Content						
C-5.01	30 Min Video and Audio in English, Hindi and Bengali	1	Lot			
6.0 Installation						
I-6.01	Supply and laying at site of DMX Cabling - Lot	1	Lot			
I-6.02	Supply and laying at site Audio Cabling - Lot	1	Lot			
I-6.03	Supply and laying at site of Electrica Cabling & I Rectification Works - Lot	1	Lot			
I-6.04	Supply and laying at site of Video Cabling	1	Lot			
I-6.05	Supply at site of 40 KV UPS	1	Nos			
I-6.06	Supply at site of Equipment Rack - 42 clw all blank plates, Accessories etc - Lot	1	Lot			
I-6.07	Installation, testing, & commissioning of the above mentioned equipments - Labour	1	Lot			

TO BE FILLED UP BY THE BIDDER AND SPECIFICATION SHEETS OF THE PRODUCTS INDICATING MODEL NO AND BRAND

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LF-1.16	Supply at site of Purpose Built Lighting Controller with built in dual core CPU, 32GB SSD, 4GB RAM, HDMI and VGA Output, Gigabit Arcnet and MAXNet, 3.5" touchscreen, 4 digital encoders, 8 customisable function keys, 4 DMX Prts expandanbe, control of upto 4096 parameters, 4 Universe Licence, GUI, effects engine, 1000 cues fader assignable, 1000 cuesplayback control buttons, paralell execution of cuelists, submaster, groupmaster and override functions.	1	Nos			
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A-2.04	Supply at site of Enclosure for Subbass	4	Nos			
A-2.05	Supply at site of U Bracket for Installation of SB 210 Subwoofer	4	Nos			
A-2.06	Supply at site of Power Amplifier 1200 W@ 4 ohm, 650 W @ 8 ohm per channel	6	Nos			
A-2.07	Supply at site of Fixed IO DSP 12in 8 out	1	Nos			
A-2.08	Supply at site of Wall Mounted Ethernet based controller	1	Nos			

A-2.09	Supply at site of Super Cardiod Dynamic Microphone with Switch	1	Nos			
A-2.10	Supply at site of Digital Dual Diversity Reciever	1	Nos			
A-2.11	Supply at site of Digital Encryted Hand Held Wireless Transmitter	2	Nos			
A-2.12	Supply at site of Active Omnidirectional Wideband UHF Antenna	2	Nos			
A-2.13	Supply at site of Antenna Cables	2	Nos			

3.0 Projection System						
P-3.01	Supply at site of 3 CHIP DLP , SXGA + 22000 LUMENS , 3.0 KW XENON LAMP PROJECTOR	2	Nos			
P-3.02	Supply at site of Lens ILS 1.5-2.0SX+/1.4-1.8HD	2	Nos			
P-3.03	Supply at site of Mounting Structure	2	Nos			
P-3.04	Supply at site of Projector Enclosure	2	Nos			
P-3.05	Supply at site of Dual Channel Video Server	1	Nos			
P-3.06	Supply at site of Fibre Optic Transmitters/Receivers and Fibre Cable	2	Lot			
4.0 Show Control						
S-4.01	Supply at site of Automated Show Controller	1	Nos			
S-4.02	Supply at site of Main Control Computer	1	Nos			
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C-5.01	30 Min Video and Audio in English, Hindi and Bengali	1	Lot			
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I-6.04	Supply and laying at site of Video Cabling	1	Lot			
I-6.05	Supply at site of 60 KV UPS	1	Nos			
I-6.06	Supply at site of Equipment Rack - 42 clw all blank plates, Accessories etc - Lot	1	Lot			
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Specification Sheet

OPTION-A

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.01
Item Description: High Power 2-Way IP56 Loudspeaker with 1x15"LF 1 x 1.5" HF

General Specification

The unit shall be a High Power 2-Way All Weather Fibre Glass Body Loudspeaker EN 54- 24 compliant with 1x15"LF, 1 x 1.5" HF and shall have the minimum specification as shown below:

Detail Specification:

Frequency Range (-10 dB)	:	35 Hz – 20 kHz
Frequency Response (± 3 dB)	:	55 Hz – 17 kHz
Coverage Pattern	:	120° x 60°, rotatable waveguide
Directivity Factor (Q)	:	7.9
Directivity Index (DI)	:	9 dB
Crossover Frequency	:	1.1 kHz
Long-Term System Power Rating (IEC)	:	600 W (2400 W peak), 100 hrs
Maximum SPL	:	128 dB-SPL cont avg (134 dB peak)
System Sensitivity (1W @ 1m)	:	100 dB
70V/100V Transformer Taps	:	70V: 400W, 200W, 100W, 100V: 400W, 200W 1 x (15 in.) Differential Drive® driver with 75 mm (3 in)
Low Frequency Driver	:	dual voice coil
LFD Nominal Impedance	:	8 ohms
LFD Sensitivity (1W @ 1m, within operational band)	:	98 dB SPL
High Frequency Driver	:	38 mm (1.5 in) exit compression driver, 75 mm (3 in) voice coil
HFD Nominal Impedance	:	8 ohms 113 dB SPL
Environmental Specifications	:	IP 55C per IEC 529

Acceptable Manufacturer: JBL, BOSE

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.02
Item Description: Mounting Poles for A-2.01

General Specification

This unit shall be a custom made mounting pole at height between 2.5 and 3m. This mount shall be used to support the speaker at the required height. The mount shall provide security and covering for the speaker.

Detail Specification:

The mount shall be made from commercial grade materials, shall be able to withstand the maximum wind velocity in the area of installation, and to be painted with exterior primer and then finished with automotive paint at a colour as per Rites instructions.

The pole shall be between 2.5 – 3m as required to ensure speaker is keep more than 2300 mm above ground level. Speaker is to be mounted with stainless steel hardware to avoid rust and corrosion, Wall terminations of cabling shall be done to IP65 standards. Speaker shall be secured in a manner to ensure theft is not easy and shall be provided with an environmental cover.

The finished mount shall be approved by Rites before manufacturing is recommended and drawings shall be submitted along with any samples as so required by Rites.

Acceptable: Custom Manufactured by vendor

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire

System: Audio

Reference No: A-2.03 & A-2.05

Item Description: Dual 10" Subwoofer

General Specification:

This unit shall be a Dual 10" Weatherised Subwoofer. The unit shall have the minimum specification as shown below.

Detail Specification:

System:

Frequency Range (-10 dB): 42 Hz - 200 Hz

Frequency Response (-3 dB): 48 Hz - 120 Hz

Power Capacity¹: 800 Watts Continuous Program Power

400 Watts Continuous Pink Noise

Nominal Sensitivity²: 95 dB, 1W @ 1m in half-space (2 loading)

Max SPL @ 1m³: 122 dB (in half-space)

Nominal Impedance: 8 Ohms

Minimum Impedance: 7 Ohms at 100 Hz

Transducers:

Low Frequency: 2 x 250 mm (10 in.) dia., 50 mm (2 in.) edge wound ribbon voice coil, Aluminum/Ceramic Composite cone.

Physical:

Enclosure Material: High Impact PolyStyrene (HIPS) w/internal 8 mm polyurethane co-mold

Grille: Thermoset composite coated steel, multi-layer

Overload Protection: SonicGuard™

Included Accessories: 1 input panel cover, 4 floor standing foot, 4 pc foot receptacle for stacking.

Special Accessories : U-Bracket from speaker manufacturer to mount the speaker as per item no LF A 2.05 has to be supplied.

Stereo/mono high passing network with Satellite outputs

Acceptable: JBL, BOSE

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire

System: Audio

Reference No: A-2.04

Item Description: Mounting Enclosure for A-2.03

General Specification

This unit shall be a custom made mounting enclosure for the sub bass to provide environmental protection and shall be raised off the ground by 150mm, shall be provided with drain holes, and shall be made from commercial grade metal and fixtures and have a front cover.

Detail Specification:

The enclosure shall be made from commercial grade materials, shall be minimum 1500mm off the ground level, shall be fitted with drain holes and a front enclosure, and to be painted with exterior primer and then finished with automotive paint at a colour as per Rites instructions.

Speaker is to be mounted with stainless steel hardware to avoid rust and corrosion, All terminations of cabling shall be done to IP65 standards. Speaker shall be secured in a manner to ensure theft is not easy and shall be provided with an environmental cover.

The finished enclosure shall be approved by Rites before manufacturing is recommended and drawings shall be submitted along with any samples as so required by Rites.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.06
Item Description: 1200 W @ 4 ohm, 650W @ 8ohm per channel power amplifier

General Specification

The unit shall be a 2 Channel Power amplifier, 1200W @ 4 ohm, 650W @ 8 ohms per channel shall have the minimum specification as shown below. The unit is to be rack mounted and to be supplied with rack ears.

Acceptable: Custom Manufactured by vendor

Performance

Sensitivity (for full rated power at 4 ohms): 1.4 Vrms

Frequency Response (at 1 watt, 20 Hz to 20 kHz): +0 dB, -1 dB

Signal-to-Noise Ratio (below rated 1kHz power at 8 ohms):
100 dB (A weighted),

Total Harmonic Distortion (THD): < 0.5%

Damping Factor 20 Hz to 1 kHz: > 500

Crosstalk (below rated power): 20 Hz - 1 kHz: > 70 dB

Input Impedance (nominal): 20k ohms balanced, 10k ohms unbalanced

Maximum Input Signal: +22 dBu typical

AC Line Voltage and Frequency Configurations: 100 VAC, 120 VAC, 220-240 VAC 50/60 Hz

AC Line Current (120 VAC amplifier playing):

1/8 power pink noise into 4 ohms per ch): XTi 4002: 10.5A; no more than 38W at idle,

Operating Temperature: 0degC to 40degC at 95% relative

Controls

Level: Two front-panel rotary level controls, one for each channel.

Power Switch: On/Off switch applies AC power to the amplifier.

Sel/Prev/Next Buttons: Three buttons near the LCD screen that are used to access menu items and front panel lockout.

LCD Screen: Backlit liquid crystal display that shows preset and processing status.

Detail Specification:

Integrated Processing

Input EQ: 6 parametric filters per channel with adjustable Q, ± 15 dB boost/cut. Also adjustable high and low shelving filters. This 8-filter EQ section can be bypassed.

Crossover Filters: Highpass and Lowpass per channel. Butterworth 6/12/18/24 dB per octave. Linkwitz-Riley 24/48 dB per Octave Also includes ± 15 dB bandpass gain and

Output EQ: 8 parametric filters per channel with adjustable Q, ± 15 dB boost/cut. This 8-filter EQ section can be bypassed.

Delay: For signal alignment of driver; 50 ms of total delay.

Input/Output Connectors

Input Connectors: XLR, one per channel

Link/Out Connector: Loop-thru signal from input connector for linking another amplifier, one per channel.

Output Connectors: Two Neutrik® Speakon® NL4MP output connectors. Channel-1 Speaker® is wired with Ch. 1 and Ch. 2 outputs for use with optional single 4-conductor Two binding post outputs (in parallel with cable.Speakon® connectors).

HiQnet™ USB Connector: Type B, connects to HiQnet™ network.

Construction

Chassis: Steel

Front Panel: Cast aluminum

Cooling: Proportional speed fan with front-to-rear airflow.

Acceptable: Crown, Bose

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Audio
Reference No:	A-2.07
Item Description:	Digital Audio Processor with 12 mic / line input and 8 audio outputs

General Specification
The unit shall be a Digital Audio Processor with 12 mic / line input and 8 audio outputs and shall have the minimum specification as shown below:

Analog Inputs:	12 electronically balanced on Phoenix/Combicon removable screw connect
Mic/Line Inputs:	Nominal gain 0dB, electronically switchable up to +48dB, in 6dB steps
Input Impedance:	3.5kOhm
Detail Specification:	
Maximum Input Level:	+20dBu with 0dB input gain, +8dBu with 12dB gain
CMRR:	>75dB at 1kHz
Input Noise (E.I.N.):	<-123dBu typical with 150 Ohms source
Phantom Power:	48V nominal, selectable per input
A/D Latency:	37/Fs [0.77ms@48k, 0.39ms@96k]
Analog Outputs:	8 electronically balanced on Phoenix/Combicon removable screw connectors
Maximum Output Level:	+19dBU
Frequency Response:	20Hz to 20kHz(+0.5/-1Db)
THD:	<0.01% (20Hz to 20kHz,+10dBu output)
Dynamic Range:	108Db typ.(22 Hz to 22kHz unweighted)
Output Impedance:	40 Ohms balanced and 20 Ohms unbalanced
Power and Dimensions:	
Power Consumption:	<55VA
BTU Rating:	<188 BTU/hr
Dimensions (H x W x D):	45mm x 483mm x 229mm
Control Ports: 12 inputs and 6 outputs	
Control Input Voltage:	0 to 4.5v
Control Input Impedance:	4.7kΩ to +5V (2-wire mode), >1MΩ (3-wire mode)
Logic Output Voltage:	0 or +5V unloaded
Logic Output Impedance:	440Ω
Logic Output Current:	10mA source, 60mA sink
Proprietary Network link:	
Connectors:	2 x RJ45 Ethernet connectors
Maximum Cable Length:	100m/300ft on Category 5e cable between devices

Front Panel Led Indicators:

Per Input	Signal Present, CLIP, 48V (Input only)
Other:	COM, STAT, ERR, PWR

Power and Dimensions:

Mains Voltage:	100-240V AC, 50/60Hz
Power Consumption:	<55VA
BTU Rating:	<188 BTU/hr
Operating Temp. Range:	5 (41) to 35 (95) degrees C (degrees F)

Acceptable: **BSS Audio, Bi Amp, Bose**

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.08
Item Description: Wall Mounted Ethernet based controller

General Specification

The unit shall be aWall Mounted Ethernet based controller and shall have the minimum specification as shown below:

Control Network:

Connectors: RJ45 Ethernet connector

Detail Specification: Maximum Cable Length: 100m/300ft on Category 5 cable

Power and Dimensions:

Power Connector: 2-way Screw Terminal

Power Consumption: 300mA max at 12V

Operating Temperature Range: 0 (32) to 40 (104) degrees C (degrees F)

Dimensions (H x W x D): Approximate 122.96mm x 169.96mm x 50.52mm

The unit shall feature two rotary encoders, one nine-segment meter and five push-buttons. The device can be configured to work in one of three modes of operation:

- Single Mode (One Page)
- Button Mode (Four Pages)
- Encoder Mode (Eight Pages)

RGB LEDs on the unit allow unique colors to be assigned to differed zones, giving visual feedback and a high level of user confidence in adjustments made to remote zones.

The nine-segment meter is fully customizable through software and any valid pattern of LEDs can be displayed. The meter normally shows the program level of the currently selected zone but takes on temporary representation of the gain level as soon as an adjustment is made.

The unit can be programmed to enter a 'Sleep' state after a predetermined delay time. In this state, all LEDs are extinguished apart from the dimly glowing Locate Button. When a control adjustment is made, the device will once again display full visual feedback for the currently selected zone.

A lockout feature can be implemented for controllers situated in public areas. In order to make adjustments to the controller, the operator must first enter a pre-configured 4-digit PIN. This lockout feature can be combined with the sleep feature, allowing the device to automatically enter the locked out state upon entering the sleep state.

The unit shall be available in white or black as two different versions. Custom metal faceplates and overlays are shall

OPTION-A

Acceptable: BSS Audio, Bi Amp , Bose

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.09
Item Description: Super Cardioid Dynamic Microphone with Switch

General Specification

The unit shall be a Super Cardioid Dynamic Microphone with Switch and shall have the minimum specification as shown below:

Detailed Specification:

General	Polar Pattern	Super cardioid
	Audio Frequency bandwidth	70 to 20000 Hz
	Sensitivity	2.6 mV/Pa
	Electrical Impedance	600 Ohms
	Recommended Load Impedance	2000 Ohms
Audio Output	Type	Balanced XLR
	Gender	Male
	Contacts	3-pin
Design	Body	Metal
	Finish	dark stage blue

- **The unit shall have a laminated diaphragm** for crisp sound that cuts through every mix
- **High feedback suppression with supercardioid polar pattern** for trouble-free use with on stage monitoring
- **Dual shock mount of microphone capsule** that eliminates any kind of handling noise
- **Integrated pop filter** for elimination of pops and wind noise
- **Spring-steel wire-mesh grille and rugged die-cast housing**

Acceptable: AKG, BEYER DYNAMIC , SENNHEISER

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Audio
Reference No:	A-2.10
Item Description:	Digital Dual Diversity Receiver

General Specification
 The unit shall be a Digital Dual Diversity Receiver and shall have the minimum specification as shown below:

Detailed Specification:

Audio	Audio Frequency bandwidth	25 to 20000 Hz
	Signal to Noise	120 dB-A
	THD at 1 kHz	0.05 Prozent
Enhanced	Operating temperature range	-10 to 55 Celsius
	Radio Sensitivity	-98 dBm
Radio	Switching bandwidth	155 MHz
	Simultaneous channels	40
General	Number of selectable frequencies	6160 (selectable in 25kHz steps)
	Frequency Selection	Selectable frequency in 25kHz steps
	Wireless channels within device	-
	Radio Range (Line of Sight)	100m (depending on antenna system)
	Switchable RF Power	yes
	Modulation	Digital FSK
	Encryption	512 bit
	Diversity	Digital Diversity
	Pilot Tone	no
	Transmitter Synchronization	Infrared
	HiQnet compatible	Yes (via HUB4000 Q)
	Racksize	Full Racksize (19")
	Rackheight	1 RU
Antenna Interface	Amount	2
	Type	BNC
	Gender	Female
	Note	Radio input for connection to remote antennas
Audio Outputs 1	Amount	2
	Type	Balanced XLR

Audio Outputs 2	Amount	2
	Type	Unbalanced Jack(1/4")
	Gender	Female
	Contacts	3-pin
	Note	Unbalanced audio output
Audio Outputs 3	Amount	1
	Type	Balanced XLR

OPTION-A

Acceptable: AKG, BEYERDYNAMIC, SENNHEISER

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Audio
Reference No:	A-2.11
Item Description:	Digital Encrypted Hand Held Wireless Transmitter

General Specification

The unit shall be a Digital Encrypted Hand Held Wireless Transmitter and shall have the minimum specification as shown below:

Detailed Specification:

Audio	Audio Frequency bandwidth	25 to 20000 Hz
	Signal to Noise	120 dB-A
	THD at 1 kHz	0.05 Prozent
Enhanced	Operating temperature range	-10 to 55 Celsius
Radio	Switching bandwidth	155 MHz
	Simultaneous channels	40
	Number of selectable frequencies	6160 (selectable in 25kHz steps)
	Frequency Selection	Selectable frequency in 25kHz steps
	Wireless channels within device	-
	Radio Range (Line of Sight)	100m (depending on antenna system)
	Switchable RF Power	yes
	Modulation	Digital FSK
	Encryption	512 bit
	Diversity	Digital Diversity
Transmitter	Pilot Tone	no
	Radio Output Power (min/max)	10 to 50 mW
	Microphone head versions	D5
	Interchangeable Microphone Head	no
	Transmitter Synchronization	Infrared
Battery 1	Batterietype	LR6 AA alkaline battery
	Compatible Charging System	CU700
	Number of Batteries	2
	Operating Time	7 h

OPTION-A

Battery 2	Batteriestype	HR 6 AA (NiHM) rechargeable battery
	Number of Batteries	2
	Operating Time	8 h
Design	Body	Metal
	Finish	dark blue

Acceptable: AKG, BEYERDYNAMIC , SENNHEISER

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire

System: Audio

Reference No: A-2.12 &A-2.13

Item Description: Active Omnidirectional Wideband UHF Antenna

General Specification
 The unit shall be aActive Omnidirectional Wideband UHF Antenna and shall have the minimum specification as shown below. The unit must match the specified microphones for fault free operation.

Detailed Specification:

General	Switching bandwidth (from/to)	500 to 865 MHz
	Antenna Gain	21.5 dBi
	Covering Angle	70 Grad
Antenna Output	Amount	1
	Type	BNC
	Gender	Female
	Note	RF output (50 Ohms)
	Recommended Load Impedance	50 Ohms
Powering Interface	Type	BNC
	Voltage	8 to 8 V
Design	Body	Plastic
	Finish	black

A-2.13 – Cables as per manufacturers specifications for Item 2.12

Acceptable: AKG, BEYERDYNAMIC, SENNHEISER

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Content
Reference No: C-5.01
Item Description: 30 min Video , Lighting & Audio in English , Hindi & Bengali

30 mins Son Et Luminaire consisting Video , Audio & Lighting in three languages – Hindi, English & Bengali as per the approved basic script by VMH/RITES. The scope of work includes also submission & approval of Basic Script, Dramatized Script, Arranging Voice, Music, Recording, Mixing, Balancing etc.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.01
Item Description: DMX Cabling

DMX cabling has to be done with Cat 6 or Cat 5 cable as per requirement.

Manufacturer : Kramer/Extron/Belden

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.02
Item Description: Audio Cabling

MICROPHONE, PORTABLE, HAND HELD, HIGH FLEX, NOISE CANCELLING) - Star-quad type high flexibility, 4 x AWG 24 stranded copper conductors for equivalent AWG 21 conductor area, braided shield minimum 95% coverage, matte finish PVC outside jacket, 6mm nominal overall diameter.

LOUDSPEAKER CABLE – PVC insulated AWG 18 high strand count copper twisted pair, individually PVC insulated with Black & White jackets, in an overall PVC insulated Jacket, 4.67mm nominal overall diameter.

Manufacturer : Kramer/Belden/Extron

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.03
Item Description: Electrifcal Cabling & Rectification Works

The existing electrical panel and cabling would be used . All rectification of the existing panel including switches , plugs , sockets and connectors and all additional electrical cabling work has to be done as per the satisfaction of the engineer in charge.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.04
Item Description: Video Cabling

75 Ohm Broadband Coaxial Video cable, RG-6, with braided shield for minimum 60% coverage and triple foil shielding for minimum 100% coverage. Acceptable for horizontal cable runs of less than 150'. Sweep Tested: 5 MHz - 1 GHz, Structural Return Loss 20 dB minimum. High Frequency Attenuation performance equal to or better than at 1000MHZ (-21.5dB, 100m), as specified type, in an overall PVC insulated jacket, 6.99mm overall diameter.
Plenum Equivalent:

Manufacturer : Kramer/Belden/Extron

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Show Control
Reference No:	I-6.05

TECHNICAL SPECIFICATIONS FOR 40 KVA UPS SYSTEMS

PARAMETER	REQUIRED SPECIFICATIONS
Rating	40 KVA (40 KVA/36 KW). Both KVA and KW ratings need to be maintained
Configuration	40 KVA True On-Line Double Conversion UPS System with provision for paralleling upto 4 units for scalability and redundancy.
Technology	Online, double-conversion topology with DSP (Digital Signal Processing) Technology using IGBT rectifier and IGBT inverter with static bypass switch and maintenance bypass switch.
Input Parameters	
Nominal input voltage(VAC)	380/400/415 VAC three-phase
Input voltage range	-15%, +20% from nominal at 100% load, -50%, +20% from nominal at 50% load
Input Operating frequency	50 Hz (45 to 55 Hz)
Input power factor	0.99 without using filters
Input current distortion	<5% THDi without using filters
Rectifier type	IGBT based only
Isolation Transformer	Input isolation Transformer of 60 KVA Rating with each UPS module for providing galvanic isolation between input & output. The isolation transformer should be at the input of the UPS such that the load is galvanically isolated in Bypass mode also. Isolation Transformer (in Delta/Star Configuration with 1:1

OPTION-A

	ratio) should be external to the UPS and placed inside a suitable enclosure with powder coated paint and provided with cast iron wheels at bottom and hooks for lifting the unit.
Output Parameters	
Nominal output voltage	380/400/415 VAC three- phase
Output voltage regulation	±1 % static
	±5% dynamic at 100% load change with <20 ms response time
Output Frequency	50/60 Hz; ±1 or ±2 Hz selectable, synchronisation to mains, ± 0.05 Hz free-running (single module)
Output power factor	0.9
Overload capacity	125% for 10 minutes, 150% for 60 seconds
Voltage distortion	<2% THD on linear load
	<5% THD on nonlinear load
Overall Efficiency (AC-AC)	94% or better in Double Conversion mode
	98% or better in Eco Mode.
User interface	
LCD display	The UPS control panel shall be a digital front panel display that features a backlit LCD display. The LCD shall display UPS status, metering, battery status, alarm/event queue, active alarms and other necessary parameters.
Events	Should Display the list of Active System Events and a historical log of system events with a detailed time stamped list.
LED indicators	UPS on, On battery, On bypass, Alarm
Interface panel	The UPS shall be equipped with an interface panel which provides the following signals and communication features
Alarm contact	A dry contact for annunciating a summary alarm shall be provided for customer use.
Standard Communication Ports	2 nos x Mini-Slot, 1 no x Emergency Power Off input (NC or NO), 3 nos x Building Alarm inputs, 1 x RS232 and 1 x USB
Optional Communication Ports	Mini-Slot cards: Web/SNMP, Relay/RS232, Industrial Relay, ModBus

OPTION-A

Communications	The UPS shall be equipped with WEB/SNMP communication support as standard. The UPS shall have Power Management feature to provide UPS monitoring, notification, management, and emergency computer shutdown capabilities.
Battery	
Type	Sealed lead-acid batteries Maintenance Free.
Battery charging	Advanced Battery Management (ABM)
DC Voltage	> 360V
Back-up Time	The system must be capable of providing 10-15 minutes of battery back-up time at full load using 12V, Sealed lead-acid Maintenance Free batteries (QUANTA / EXIDE makes only).
Battery Bank Details & VAH Rating	Min VAH = 16120 VAH for 10-15 mins back-up with each UPS module. Battery Bank Details (No. of Batteries, rating of each battery, etc.) to be provided. The vendor has to supply the necessary battery rack and interconnecting cables.
Construction	The UPS should be designed and constructed using multiple Slide Out Power Modules so as to reduce mean-time-to-repair to less than 30 minutes. UPS should have Front Service Access only for easy maintenance.
Cabinet rating	IP20 with standard washable dust filters
Environmental	
Operating temperature	0°C to +40°C
Storage temperature	-25°C to +50°C
Altitude	< 1000 m
Audible noise at 1 metre	65 dB
Humidity	15-95 % RH Non-condensing
Certification	(Documentary evidence to be furnished)
Quality System	ISO 9001 , ISO14001, OHSAS 18001
Markings	CE
Safety	IEC 62040-1
EMC Compliance	IEC 62040-2
Environmental	RoHS
Warranty	Comprehensive on-site warranty of the system (including batteries) for 01 year should be offered. Also rate of AMC after warranty has to be mentioned clearly

OPTION-A

	in the price bid.
Others	<ul style="list-style-type: none">- All technical specifications should be verifiable through the official website of the UPS manufacturer.- One set of Original printed brochure along with operation/user's manual of the quoted model should be compulsorily enclosed with the technical bid.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.06
Item Description: 42 U Equipment Rack , Wall Plates, Connection Boxes etc

42 U equipment Rack with all accessories, wall plates & connection boxes as per requirement and as per satisfaction of Engineer in Charge.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.07
Item Description: Installation, testing & commissioning

Installation testing & commissioning of all the equipments specified for the SEL show of the project as a whole as per satisfaction of Engineer in charge.

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: 3000W 5600K High Impact Strobe
Manufacturer	: Martin / Clay Paky
Lamp	: Type: Xenon discharge Approved lamps: MAX-15 Xenon (200-240 V power), MAX-7 Xenon (100-120 V power) Dynamic Effects Variable strobe: 0 - 650 ms ,or 0 - 530 ms Strobe rate: 0 - 25 flashes/second ,0 - 30 flashes/second Blinder effect: Continuous with auto fade Strobe intensity: Blackout - maximum Special effects: Ramp up, ramp down, ramp up-down, random flash, lightning, spikes, blinder, single flash
Control/Programming	: Control options: DMX, stand-alone, multi-fixture chase (with Detonator remote), MC-1 DMX channels: 1, 3, and 4 channel modes Stand-alone control: Via N.O. or N.C. SPST switch Stand-alone options: Selectable flash rate or blinder effect Setting and addressing: DIP switch Protocol: DMX512 Receiver: RS-485
Connections Electrical	: Power Connection: 1.5mt cable tail, DMX Data/In:3 pin & 5 pin XLR sockets AC power (MAX-7 model): 100-120 V nominal, 50/60 Hz AC power (MAX-15 model): 200-240 V nominal, 50/60 Hz Peak current consumption: 33 A Typical current consumption (MAX-15, high power mode): 8 A Main fuse (all AC power voltages): 20 AT (slow blow), 250 V Power supply unit: Auto-ranging electronic switch-mode AC mains power cable: 14 AWG or 2.5mm ²
Temperature	: Max 40°C, & Max 120°C for lamp socket, Min 5°C
Fixture Colour	: Black
Construction:	: Steel housing with Electrical powder coated finish
Installation	: Min distance-0.5m from combustible materials &1m from illuminated surface
Accessories	: Atomic Detonator, Atomic Colors, G-Clamp, Half Coupler clamp
Spare Parts	: Max-15 lamp for 200-240V, & Max-7 Lamp 100-120V
Special Instruction	: Vendor should provide suitable Weatherproof enclosure for strobe with glass front meaning unit requires no attendance as mentioned BOQ line item LF-1.02

OPTION-A

APPROVALS : CE
US SAFETY : ANSI/UL 1573
EU SAFETY : EN 60598-1, EN 60598-2-17
EU EMC : EN 50 081-1, EN 50 082-1

Ref:LF-1.03,1.04,1.05,1.06

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

The unit is to be a IP66 rated fixture using tricolor LEDs for superior color mixing directly at the lens. The result is an absence of color shadows and a broad color palette, including stunning whites, subtle pastels and vibrant saturated colors.

Manufacturer : Martin / Clay paky

Features

- Uniform color mixing using powerful tricolor LEDs
- No color separation or shadows
- Easy to control: 64 built-in programs and auto addressing
- Quick installation using IP66 cabling system
- Very Narrow, Narrow, Medium and Wide beam angles

Power using IP66 System

Dynamic Effects

Color mixing: RGB

Red: 0 - 100%

Green: 0 - 100%

Blue: 0 - 100%

Color temperature

control: 2 000 - 10 000 K

continuous mixing

Control and Programming

Color control modes: RGB

(raw and calibrated), HSI

(calibrated) HSIC

(uncalibrated)

Control options: DMX,

stand-alone, synchronized

(master/slave)

DMX channels: 3 or 4

depending on mode

Grouped pixel control

options: 1-, 2- and 4-pixel

modes

DMX address

setting: Application

running on Windows PC

DMX compliance: USITT

DMX512-A

Receiver: RS-485

Firmware update: Serial

upload via DMX link

Optics

OPTION-A

Light source: RGB 3-in-1 LED
Total LED power: 72 W
Beam angle: Very narrow (no diffuser), narrow, medium and wide available
Minimum LED lifetime: 46 000 hours (to >70% luminous output)

Construction

Housing: Aluminum
Finish: Grey
Front cover: Toughened glass
Protection rating: IP66

Installation

Orientation: Any
Vertical aiming: 22° down, 141° up
Horizontal aiming: +/- 90°

Connections

Tripix Power IP66 power input: Hard-wired (terminal block) via cable gland
Fixture-to-fixture power and data: IP66 13-pin DIN cable tail system

Electrical

AC power: 100-240 V nominal, 50/60 Hz (input to Tripix Power IP66)
Power supply unit: Auto-ranging electronic switch-mode
Power output: 48 V DC (output from Tripix Power IP66)
Standby power: <10 W

Thermal

Cooling: Convection
Maximum ambient temperature (Ta max.): Fixtures and Tripix Power IP66 45° C (113° F)
Minimum ambient temperature (Ta min.): -30° C (-22° F)
Maximum surface temperature, steady state, Ta=45° C: Fixtures 65° C (149° F), Tripix

OPTION-A

Power IP66 80° C (176° F)

Approvals



EU safety: EN 60598-1, EN 60598-2-1

LED Safety: IEC 60825-1, IEC 62471

EU EMC: EN 55 015, EN 55 103, EN 61 000-3

US safety: UL 1598

Canadian safety: CAN/CSA C.22.2 No. 250

Power IP66

EU safety: EN 60598-2-6, EN 61347-2-13

EU EMC: EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547

US safety: UL 1012

Canadian safety: CSA C22.2 No.107

Photometric Data

Standard (Without Diffuser)

Efficacy: 19.6 lumens per watt

Half-peak angle: 22°

Total output: 1400 lm

Standard (Narrow Diffuser)

Efficacy: 19.7 lumens per watt

Half-peak angle: 29°

Total output: 1400 lm

Standard (Medium Diffuser)

Efficacy: 21 lumens per watt

Half-peak angle: 78°

Total output: 1500 lm

Ref:LF-1.07, 1.09, 1.10, 1.15

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: Mountings
Manufacturer	: Vendor - Custom
Manufacturer Ref No	: N/A
Requirement	: All mounts are to be constructed from marine grade stainless steel and are to be approved by Rites for colour and for design.

- 1.07 Ground Spike
 - 1.09 Star Floor Mount
 - 1.10 Pole Mount 1.2m
 - 1.15 Small Star Mounts or Bracket Mounts
-

Notes

1. Positions of all transformers/drivers and control equipment to be agreed with Architect/Interior Designer/Exhibit Designer
2. All information is to be checked and verified with the manufacturer by the vendor and T2 Consulting takes no responsibility for any errors in this cut sheet.
3. All Fixtures are to be provided with all mounting requirements (indicated or not in this cut sheet), all control equipment/drivers to ensure 100% operation of the equipment (excluding dimmers) fixture and trim colours are to verified with the Architect/Interior Designer/Exhibit Designer before procurement and any changes to mounting is to be verified with the Lighting Designer/Architect/Interior Designer/Exhibit Designer.
4. LED Fixtures shall all confirm to current EU standards and shall be designed for relevant heat dissipation

Fixture Reference Sheet

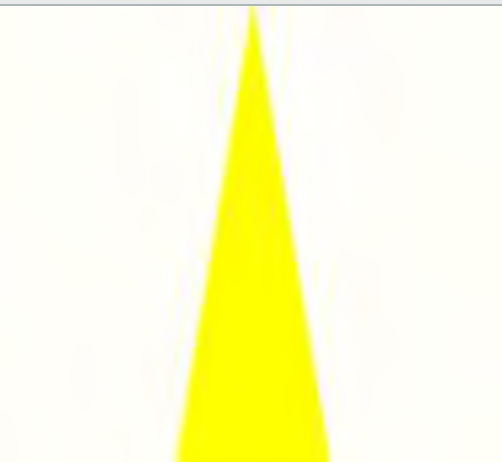
Project: Victoria Memorial Son Et Luminaire

Description	: 36 Deg RGBW 5300 Lumen IP65 Flood Luminaire
Manufacturer	: Martin / Clay Paky
Lamp	: LED Cree MC-E high-power emitters
Colour Temperature	: 2000 – 10,000 K
Control& Programming	: Color control modes: RGB, RGBW, HSI, HSIC Control options: DMX, stand-alone, synchronized (master/slave) DMX channels: 3 or 4 depending on mode DMX address setting: PC with Martin MUM™ software and DABS1™ hardware interface Stand-alone trigger options: Internal timer and/or ambient light level Stand-alone and master/slave programming: PC with Martin MUM™ software and DABS1™ hardware interface 26-bit control (internal): RGB, RGBW, HSI, HSIC Protocol: USITT DMX512-A Receiver: RS-485 Firmware update: Serial upload via DMX link
Connections	: Cable gland & 1.8m cable tail for Power, Cable gland & 1.8m combined input+ output cable tail
Power Consumption	: AC Power-100V-240V nominal, Integrated auto sensing multi range power supply unit,13w Stand by
Temperature	: Max 45°C
Fixture Colour	: Clear anodized, Black or White
Construction:	: Anodized aluminium for Housing & 8mm Mounting Bracket
Installation	: Flat surface at any angle, pedestal or other suitable supportDMX Input Adopter Cable, DMX
Accessories	: Output Diffuser, 3 pin cable type XLR Connector IP 65
Special Instruction	: Vendor Should provide Upright Mount 1.2m as mentioned in BOQ Line item LF-1.10

APPROVALS	: CE US SAFETY : UL 1598 EU SAFETY : EN 60598-1, EN 60598-2-1 EU EMC : EN 55015, EN 55103-1, EN 55103-2, EN 61000-3-2, EN 61000-3-3
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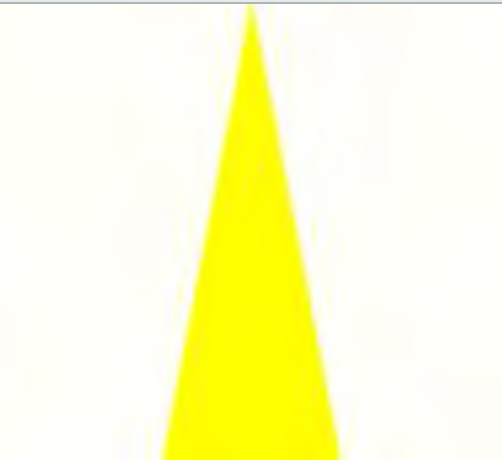
Photometrics

Balanced White 6500K
Standard (Without Diffuser) (19°)

m.	Ø	19°	E (lux)	Efficacy
m. 50%				
5	1.7		1640	41.1 lumens per watt
10	3.3		410	Half-peak diameter
20	6.7		103	0.33 X distance(m)
30	10.0		46	Illuminance
				41000 / distance ² (lux)
50	16.7		16	Total Output
				5600 (lumens)

[IES Data](#) [IES Data 2002](#) [Eulumdat Data](#)


Balanced White 6500K
Standard (Narrow Diffuser) (22°)

m.	Ø	22°	E (lux)	Efficacy
m. 50%				
5	1.9		1080	37.9 lumens per watt
10	3.9		270	Half-peak diameter
20	7.8		68	0.39 X distance(m)
30	11.7		30	Illuminance
				27000 / distance ² (lux)
50	19.4		11	Total Output
				5200 (lumens)

OPTION-A


[IES Data](#) [IES Data 2002](#) [Eulumdat Data](#)

Balanced White 6500K
Standard (Medium Diffuser) (36°)

Ø	36°		E (lux)	Efficacy
m. 50%				36 lumens per watt
5	3.2		440	Half-peak diameter
10	6.5		110	0.65 X distance(m)
20	13.0		28	Illuminance
30	19.5		12	11000 / distance ² (lux)
				Total Output
50	32.5		4	4900 (lumens)

[IES Data](#) [IES Data 2002](#) [Eulumdat Data](#)

Balanced White 6500K
Standard (Wide Diffuser) (65°)

Ø	65°		E (lux)	Efficacy
m. 50%				37.6 lumens per watt
5	6.4		160	Half-peak diameter
10	12.7		40	1.27 X distance(m)
20	25.5		10	Illuminance
30	38.2		4	4000 / distance ² (lux)
				Total Output
50	63.7		2	5100 (lumens)

[IES Data](#) [IES Data 2002](#) [Eulumdat Data](#)

Notes

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2. All Fixtures are to be provided with all mounting requirements (indicated or not in this cut sheet), all control equipment/drivers to ensure 100% operation of the equipment (excluding dimmers) fixture and trim colours are to verified with the Architect/Interior Designer/Exhibit Designer before procurement and any changes to mounting is to be verified with the Lighting Designer/Architect/Interior Designer/Exhibit Designer.
3. LED Fixtures shall all confirm to current EU standards and shall be designed for relevant heat dissipation

Ref:LF-1.11,LF-1.12,LF-1.13,LF-1.14, LF-1.20

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: IP68 LED Uplighter 4 integrated RGBW LED, DMX Controlled, Real White Capable, with full colour calibration across fixtures
Manufacturer	: Martin / Clay Paky
Lamp	: Cree MC-E high-power emitters
Colour Temperature	: 6500k/4000k/2700k
Control& Programming	: Control options: DMX, programmable default scene Color control modes: RGB, RGBW Control modes: Calibrated and raw Setting and addressing: IR remote control unit, RDM-compliant controller Dimming resolution: 14-bit (internal) DMX compliance: USITT DMX512-A RDM compliance: ANSI/ESTA E1.20 Receiver: RS-485 Firmware update: Serial upload via DMX link
Connections	: Cable gland, splitter link 25m hybrid cable which carries both power & data
Power Consumption	: AC Power-100V-240V nominal, all LEDs at zero intensity: 0.42 W per luminaire, System power-20-40VDC
Temperature	: Max 45°C, Min 40°C
Fixture Colour	: Steel Gray
Construction:	: Aluminium Housing with micro-arc oxidation coating, stainless steel protection frame, & 1.5mm stainless steel mounting bracket
Installation	: Minimum distance to illuminated surfaces: 0.1 m Output& 35mm Din rail surface mounting
Accessories	: Mounting Bracket, Splitter link cable
Special Instruction	: Vendor Should provide Custom mounting brackets for this light as mentioned in BOQ line item LF-1.15, Vendor also has to provide Exterior light shield as mentioned in LF-1.20

Photometric Data

2700K Warm White, Narrow

2700K Warm White, Medium

6500K Cold White, Narrow

RGBW, Narrow (All LEDs on)

RGBW, Medium (All LEDs on)

Efficacy: 38.5 lumens per watt Half-peak angle: 22° Total output: 690 lm

OPTION-A

Efficacy: 32.2 lumens per watt Half-peak angle: 34° Total output: 580 lm

Efficacy: 53.8 lumens per watt Half-peak angle: 23° Total output: 970 lm

Efficacy: 37.3 lumens per watt Half-peak angle: 21° Total output: 670 lm

Efficacy: 32.7 lumens per watt Half-peak angle: 35° Total output: 590 lm

APPROVALS

: CE

US SAFETY : UL 1598 , UL 8750

EU SAFETY : EN 60598-1, EN 60598-2-1

EU EMC : EN 55015, EN 55103-1, EN 55103-2, EN 61000-3-2, EN 61000-3-3

Ref:LF-1.16,LF-1.17,LF-1.18,LF-1.19

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: Purpose Built Lighting Controller with built in dual core CPU, 32GB SSD, 4GB RAM, HDMI and VGA Output, Gigabit Arcnet and MAXNet, 3.5" touchscreen, 4 digital encoders, 8 customisable function keys, 4 DMX Ports expandable, control of upto 4096 parameters, 4 Universe Licence, GUI, effects engine, 1000 cues fader assignable, 1000 cues playback control buttons, parallel execution of cue lists, sub master, group master and override functions.
Manufacturer	: Martin / Clay Paky
Hardware	: 3.5" touch screen with 32gb SSD storage device
Software	: Windows 7 embedded os, SSD back up
Control& Programming	: Protocol: DMX512A (RDM), Artnet2 4 DMX universes, expandable to 64 2048 channels, expandable to 32768 No limit to number of DMX channels per fixture Extensive fixture library for all known manufacturers 65000 presets for each group of functions Effect generator for automated programming of complex effects Customizable highlight and lowlight function to identify individual fixtures Relative or absolute programming Fan function for all channels On-the-fly global timing changes Virtual cuelists Macros Wait, follow and link cues HTP, LTP, chase, timecode, submaster and group master playback functionality Individual parameter timings Intuitive patch feature Fixture type cloning All channels with 16-bit resolution
Connections	: 4 x DMX universe outputs with 5-pin locking XLR, VGA, HDMI, RJ-45, 12V DC power supply with 4pin-XLR
Play Back	: Assign a cue, cuelist or effect to any playback fader 100 playback banks, each containing 10 playbacks 100 pages of 100 playbacks activated by touch screen button No limit to cues per cuelist Full 16-bit fading for high-resolution fixtures Individual fade in/fade out times for all playbacks Manual override available at all times Live 0-1000% override of global cue timings Live programmer timing ("Sneak") Cuelists can be executed in tracking or non-tracking mode
Power Consumption	: AC Power-100V-240V nominal, 1.4A of Max Current, 12VDC output
Accessories	: USB Interface Card, Universe Expansion License, USB Midi port internal module
Special Instruction	: IR REMOTE CONTROLLER FOR ASSIGNING CHANNELS AND CONFIGURATION OF LF1-11 SHOULD BE SUPPLIED WITH THE CONTROL CONSOLE – AS PER ITEM NO LF-1-19

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire




Description	: Programming
Manufacturer	: Vendor
Manufacturer Ref No	: N/A
Requirement	: Programming is to be carried out by a certified programmer from the manufacturer of the supplied fixtures and control equipment. Letters from the manufacturer/s are to be provided with the tender bid naming the programmer and certifying from each manufacturer they are fully trained to program this equipment.

Notes

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3. All Fixtures are to be provided with all mounting requirements (indicated or not in this cut sheet), all control equipment/drivers to ensure 100% operation of the equipment (excluding dimmers) fixture and trim colours are to be verified with the Architect/Interior Designer/Exhibit Designer before procurement and any changes to mounting is to be verified with the Lighting Designer/Architect/Interior Designer/Exhibit Designer.
4. LED Fixtures shall all confirm to current EU standards and shall be designed for relevant heat dissipation

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: DMX Splitter/Booster.
Manufacturer	: Martin ? Clay Paky
Data Signal	: DMX: ANSI E1.11 (USITT DMX 512-A) RDM: ANSI E1.20 Electrical standard: EIA-485 Recommended cable type: STP (Shielded Twisted Pair)
Cable Type & Guage	: Shielded Twisted Pair, 22 or 24 AWG
Dimension(DxWxH)	: Approximate 125mmx220mmx45mm
Connections	: Data input: 5-pin XLR male Data throughput (not amplified or branched): 5-pin XLR female Data outputs (optically isolated and amplified): 5 x 5-pin XLR female AC power input: Neutrik PowerCon AC power throughput: Neutrik PowerCon
Power Consumption	: AC Power-100V-240V nominal, Auto ranging electronic switch, max 4w
Temperature	: Max 55°C, Min -35°C
Accessories	: Half coupler clamp, G-Clamp, trigger clamp, 3 pin to 5 pin/5pin to 3 pin XLR male to female adopter, RJ-45 male to female adopter
Special Instruction	:
Approvals	: <div style="text-align: center;">    </div> EU safety: EN 60950-1 EU EMC: EN 55022, EN 55024, EN 55103-1, EN 55103-2 US safety: UL 508 US EMC: FCC Part 15 Class A Canadian safety: CAN/CSA C22.2 No. 14 Canadian EMC: ICES-003 Class A Australia/NZ: C-TICK N4241

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Projection System
Reference No:	P-3.01 & P-3.02
Item Description:	1 CHIP-DLP, WXGA+,8500 ANSI lm, Projector& Lens

General Specification:
This unit shall be 1 CHIP -DLP, WXGA+, 8500lm and shall have the following minimum specification.

Detail Specification:	
Technology	: 1 CHIP -chip DLP
Resolution / Type	: 1280 x 800WXGA / 0.65" DLP
Brightness	: 8500 ANSI Lumens - 8900centre lumens
Contrast / Uniformity	: 2500:1 full ON/OFF
Lamp/Lamp life	: 370 W P-VIP X 2 / 2000 hours STANDARD MODE
Standard inputs	: Computer D-sub 15 pin mini jack x 1 • BNC connector x 1 (composite) • HDMI connector x 2 • DVI-D connector x 1 /RJ-45 x 1 (HDBaseT) • D-sub 9 pin x 1 (RS232c) • RJ-45 x 1 (LAN)• USB type A connector x 1 (Optional Wireless USB or PC-less) • Wired remote control (3.5
Optional inputs	: Optional wireless dongle (USB)
Input signals	: 525i(480i) • 525p(480p) • 625i(576i) • 1125i(1080i@50/60) • 750p(720p@50/60) • 1125p(1080p@50/60)
Pixel clock	: 27 – 150 MHz

OPTION-A

Operating voltage : 200-240 VAC @ 50/60Hz
Minimum Operating Current : 20A @ 200V
Power : 990 W
Warranty : 3 years including parts and labour.

B2: Zoom Lens for the Projectors:

Note: The projector Lens is to be quoted based on the drawings provided and projector throw calculation sheet to be attached for the reference

Acceptable manufacturer: Christie , Barco

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Projection
Reference No: P-3.03
Item Description: Rear Projection Screen

General Specification

This unit shall be a proprietary made rear projection screen which has to be fixed in the place of the existing screen and all necessary repairs of the existing structure and mechanics should also be done.

Detail Specification:

Color : Milky white

Viewing cone : 180 degree

Composition : 100% PVC

Weight : 1 pound per sq yard

Cold Crack : - 12degree Centigrade

Application : Rear Projection

**Acceptable
Manufacturer:** Rosco, ProDisplay

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Projection
Reference No: P-3.04
Item Description: Environmental Enclosure for the Projector IP54

General Specification

This unit shall be a proprietary made IP54 environmental enclosure for the specified projector and custom enclosures will not be accepted..This unit has to be mounted on a mounting structure as per the specified height required as per item no P-3.04

Detail Specification:

Construction: Aluminum, plated and epoxy powder coated for excellent corrosion resistance, stainless steel.

Mounting: Enclosure for installation is to be base down / 2 x stainless steel Unistruts on base.

Security: Heavy duty stainless steel latches, may be padlocked for security.

Access: Projector slides out front or back on 500lb/227kg rated slides

Color : Standard light bronze (Outdoor), White (HUSH). Custom colors to order.

Window Tempered Optical Glass .125"/3mm

Remote Monitoring: Controller with operating system.

Cooling:High-power AC fans changes air every 1-2 seconds when projector lamp is on

Heating:Heating elements maintain minimum operating temperature and prevent condensation (Outdoor)

Cooldown:Fans run for up to 15 minutes after lamp turns off

Protection:Projector power is safely isolated by a 2-pole power relay in the event of overheating.

Power:208VAC or 230VAC, 50/60Hz, 5 amps max (enclosure). Single or split feed wiring for enclosure and projector

Projector

Power Outlet:IEC C19 (8000 series), L6-30 (8200 and up). Rewireable plugs included as appropriate.

Aux Power :IEC C14 Receptacle with rewireable plug for ancillary equipment

Approvals:Americas: ETL and cETL listed to UL 50, 508

International: Low Voltage Directive 2006/95/ EC, Electromagnetic Compatibility Directive 2004/108/EC, EN 60065:2002, EN 60529:2001- 2002, EN 61000-6-3:2007+A1:2011, EN61000-6- 1:2007, EN55015:2006+A2:2009

NEMA Type 3R Enclosure (IP54)

The unit is to come high performance hydrophobic air filters that block dust, sand, oil, moisture and contaminates like salt and chlorine, keeping the interior clean and pristine in any environment.

**Acceptable
Manufacturer:** Tempest

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Projection System
Reference No: P-3.05
Item Description: Dual Channel Video Server

General Specification:

This unit shall be a Dual Channel Video Server and shall have the minimum specification as shown below...

Detail Specification:

- Approx. 20W power consumption at full operation
- Active cooling
- SSD (Solid State Disk), 32 GB
- Mini Display Port. Resolutions up to 2560 x 1600 (WQXGA)
- Processor: AMD Fusion T56N, 1.6 GHz
- RAM: 4 GB
- 3.5 mm stereo audio out
- 3.5 mm stereo audio in. Line-Level
- Two USB ports
- Dual HDMI Output
- Gigabit Ethernet
- Watchout Licence
- Control and interactivity via MIDI (USB), DMX (via ArtNet), TCP/IP

**Acceptable
Manufacturer:** Dataton Watchout

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Projection System
Reference No:	P-3.06
Item Description:	Fibre Optic TX and RX plus Cable

General Specification:

Detail Specification:

Receiver

INPUTS:	1 optical SC connector.
OUTPUTS:	HDMI connector.
BANDWIDTH:	Supports up to 3.5Gbps bandwidth per graphic channel.
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI, using fiber optic communication links and DDC2B.
EXTENSION LIMIT:	1700m (>5570 feet) for 1080p/60Hz.
INSERTION LOSS FROM TRANSMITTER TO RECEIVER:	Must not exceed 10dB.
FIBER-OPTIC CONNECTION:	SC connectors for multimode (OM3) fiber cable (not supplied with the unit).
INDICATOR LEDs:	Video, source, acceptor fiber and on LEDs.
POWER CONSUMPTION:	5V DC, 400mA.
DIMENSIONS:	12cm x 7.95cm x 2.76cm (4.7" x 3.1" x 1.08") W, D, H.
WEIGHT:	0.3kg (0.67lbs) approx. each.
INCLUDED ACCESSORIES:	2 power supplies (5V/2A), 2 bracket installation kits .
OPTIONS:	HDMI/HDMI male to male cable

Transmitter

INPUTS:	HDMI connector.
OUTPUTS:	1 optical connector.
BANDWIDTH:	Supports up to 3.5Gbps bandwidth per graphic channel.
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI using fiber optic communication links and DDC2B.
EXTENSION LIMIT:	1700m (>5570 feet) for 1080p/60Hz.
INSERTION LOSS FROM TRANSMITTER TO RECEIVER:	Must not exceed 10dB.
FIBER-OPTIC CONNECTION:	SC connectors for multimode (OM3) fiber cable (not supplied with the unit).
INDICATOR LEDs:	Video, source, acceptor fiber and on LEDs.
POWER CONSUMPTION:	5V DC, 250mA.
DIMENSIONS:	12cm x 7.95cm x 2.76cm (4.7" x 3.1" x 1.08") W, D, H.
WEIGHT:	0.3kg (0.67lbs) approx. each.
INCLUDED ACCESSORIES:	Power supply, bracket installation kit.

Detail Specification:

- Max. Data Rate - Up to 3.5Gbps.
- Supports 4k x 2k Resolution. - When used with the 670RN (Coming Soon).
- HDTV Compatible.
- HDCP Compliant.
- EDID PassThru - Passes EDID signals between the source and display.
- HDMI Support - Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD, CEC.
- 3D Pass-Through.
- Signal Transmission - Transmits four TMDS video channels as well as one low-speed channel for passing HDCP, EDID and a Hot Plug Detect (HPD) signal over one multimode fiber.
- System Range - 1700m (5570ft).
- Cable - Multimode fiber optic OM3 cable with SC connectors.

Fibre Optic Cable

OM3 Fibre Optic Cable as per manufacturers instruction for run distance

**Acceptable
manufacturer:**

Kramer , Extron

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: S-4.03
Item Description: Ipad

Latest Ipad for use as a touch screen show controller has to be supplied.

Manufacturer : Apple

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: S-4.01
Item Description: Automated Show Controller

General Specification:

This unit shall be Automated Show Controller real time time code and video positrack and shall be full compatible with Watchpax 2 Item No P 3.05.and shall have the following minimum specification.

Detail Specification:

REAR PANEL:

2x USB 2.0 Ports
1x 12 Volt DC Power connector
2x 10/100/1000 Base-T Ethernet Ports
2x RS-232 DB9 Male Serial Ports
4 terminal block relays connectors (24V 1A Max)
4 terminal block inputs connectors (Contact closure input detection, max impedance 10KOhms)
1x DMX Output (5 Pin Female XLR)
1x MIDI Input DIN5 Female & 1x MIDI Output DIN5 Female

DIMENSIONS:

Rack: Apr. 476 (W) x 44.5 (H) x 260 (D) mm
Stand-alone –Apr. 441 (W) x 44.5 (H) 260 (D) mm
Packing: Apr.580 (W) x 145 (H) x 370 (D) mm
Rack size (1U)

Metal with satin black finish

POWER:

Auto-Ranging 100-240 VAC / 50-60Hz 80 Watts

ENVIRONMENTAL:

Operating Temperature: 0°C/32°F to 60°C/140°F
30% to 90% (non condensing)

. Software Specifications ☒

- Drag& Drop Programming
- Multitasking: Several tasks can run simultaneously, 1 task with synchronization feature.
- 1x Timeline for synchronization th
- 1/100 Sec Sync Accuracy
- DevicePositracking (Sync)
- Logical Programming Operators:+, -, *, /, %, ^, =, ==, !=, >, <, >=, <=, |, &,#, ()
- Logical Programming Functions:Hours, Minutes, Seconds, Frames, Day, Day Of The Week As Name, Day Of The Week As Number, Month, Year, Lower Case, Upper Case, Length, Char At, Get Field Of Enum, Get Index Of Enum, Random, Sqrt, Round, Ceil, Floor, Abs, Max, Min, Sin, Asin, Tan, Atan, Cos, Acos, Ln, Log, Exp
- Variables Type: Integer, String, Time, Date, Enum. Unlimited number of variables.
- Real Time program testing
- Drivers Editor
- OpenCap Protocol
- Log Files
- 3xWebPanels (or Manager Panels)

Acceptable Manufacturer : Medialon, AlcornMcBride

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: S-4.02
Item Description: Main Control Computer

General Specification:

This shall be as per the specification from the show control system – Item No S 4.01 and shall come with the relevant Master Control Licence.

Detail Specification:

As per Showcontrol system requirement – to come with Master Control Licence

Acceptable: Dell / HP

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: S-4.04
Item Description: Show Programming

Programming is to be carried out by a certified programmer from the manufacturer of the supplied fixtures and control equipment. Letters from the manufacturer/s are to be provided with the tender bid naming the programmer and certifying from each manufacturer they are fully trained to program this equipment.:

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Audio
Reference No:	A-2.01
Item Description:	High Power 2-Way IP56 Loudspeaker with 1x15"LF 1 x 1.5" HF

General Specification
 The unit shall be a High Power 2-Way All Weather Fibre Glass Body Loudspeaker EN 54- 24 compliant with 1x15"LF, 1 x 1.5" HF and shall have the minimum specification as shown below:

Detail Specification:

Frequency Range (-10 dB)	: 35 Hz – 20 kHz
Frequency Response (±3 dB)	: 55 Hz – 17 kHz
Coverage Pattern	: 120° x 60°, rotatable waveguide
Directivity Factor (Q)	: 7.9
Directivity Index (DI)	: 9 dB
Crossover Frequency	: 1.1 kHz
Long-Term System Power Rating (IEC)	: 600 W (2400 W peak), 100 hrs
Maximum SPL	: 128 dB-SPL cont avg (134 dB peak)
System Sensitivity (1W @ 1m)	: 100 dB
70V/100V Transformer Taps	: 70V: 400W, 200W, 100W, 100V: 400W, 200W 1 x (15 in.) Differential Drive® driver with 75 mm (3 in)
Low Frequency Driver	: dual voice coil
LFD Nominal Impedance	: 8 ohms
LFD Sensitivity (1W @ 1m, within operational band)	: 98 dB SPL
High Frequency Driver	: 38 mm (1.5 in) exit compression driver, 75 mm (3 in) voice coil
HFD Nominal Impedance	: 8 ohms
	: 113 dB SPL
Environmental Specifications	: IP 55C per IEC 529

Acceptable Manufacturer: **JBL, BOSE**

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire

System: Audio

Reference No: A-2.02

Item Description: Mounting Poles for A-2.01

General Specification

This unit shall be a custom made mounting pole at height between 2.5 and 3m. This mount shall be used to support the speaker at the required height. The mount shall provide security and covering for the speaker.

Detail Specification:

The mount shall be made from commercial grade materials, shall be able to withstand the maximum wind velocity in the area of installation, and to be painted with exterior primer and then finished with automotive paint at a colour as per Rites instructions.

The pole shall be between 2.5 – 3m as required to ensure speaker is keep more than 2300 mm above ground level. Speaker is to be mounted with stainless steel hardware to avoid rust and corrosion, Wall terminations of cabling shall be done to IP65 standards. Speaker shall be secured in a manner to ensure theft is not easy and shall be provided with an environmental cover.

The finished mount shall be approved by Rites before manufacturing is recommended and drawings shall be submitted along with any samples as so required by Rites.

Acceptable: Custom Manufactured by vendor

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire

System: Audio

Reference No: A-2.03 & A-2.05

Item Description: Dual 10" Subwoofer

General Specification:

This unit shall be a Dual 10" Weatherised Subwoofer. The unit shall have the minimum specification as shown below.

Detail Specification:

System:

Frequency Range (-10 dB): 42 Hz - 200 Hz

Frequency Response (-3 dB): 48 Hz - 120 Hz

Power Capacity¹: 800 Watts Continuous Program Power

400 Watts Continuous Pink Noise

Nominal Sensitivity²: 95 dB, 1W @ 1m in half-space (2 loading)

Max SPL @ 1m³: 122 dB (in half-space)

Nominal Impedance: 8 Ohms

Minimum Impedance: 7 Ohms at 100 Hz

Transducers:

Low Frequency: 2 x 250 mm (10 in.) dia., 50 mm (2 in.) edge wound ribbon voice coil, Aluminum/Ceramic Composite cone.

Physical:

Enclosure Material: High Impact PolyStyrene (HIPS) w/internal 8 mm polyurethane co-mold

Grille: Thermoset composite coated steel, multi-layer

Overload Protection: SonicGuard™

OPTION - B

Included Accessories: 1 input panel cover, 4 floor standing foot, 4 pc foot receptacle for stacking.

Special Accessories : U-Bracket from speaker manufacturer to mount the speaker as per item no LF A 2.05 has to be supplied.

Stereo/mono high passing network with Satellite outputs

Acceptable: JBL, BOSE

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.04
Item Description: Mounting Enclosure for A-2.03

General Specification

This unit shall be a custom made mounting enclosure for the sub bass to provide environmental protection and shall be raised off the ground by 150mm, shall be provided with drain holes, and shall be made from commercial grade metal and fixtures and have a front cover.

Detail Specification:

The enclosure shall be made from commercial grade materials, shall be minimum 1500mm off the ground level, shall be fitted with drain holes and a front enclosure, and to be painted with exterior primer and then finished with automotive paint at a colour as per Rites instructions.

Speaker is to be mounted with stainless steel hardware to avoid rust and corrosion, All terminations of cabling shall be done to IP65 standards. Speaker shall be secured in a manner to ensure theft is not easy and shall be provided with an environmental cover.

The finished enclosure shall be approved by Rites before manufacturing is recommended and drawings shall be submitted along with any samples as so required by Rites.

Acceptable: Custom Manufactured by vendor

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.06
Item Description: 1200 W @ 4 ohm, 650W @ 8ohm per channel power amplifier

General Specification

The unit shall be a 2 Channel Power amplifier, 1200W @ 4 ohm, 650W @ 8 ohms per channel shall have the minimum specification as shown below. The unit is to be rack mounted and to be supplied with rack ears.

Detail Specification:

Performance

Sensitivity (for full rated power at 4 ohms): 1.4 Vrms

Frequency Response (at 1 watt, 20 Hz to 20 kHz): +0 dB, -1 dB

Signal-to-Noise Ratio (below rated 1kHz power at 8 ohms):
100 dB (A weighted),

Total Harmonic Distortion (THD): < 0.5%

Damping Factor 20 Hz to 1 kHz: > 500

Crosstalk (below rated power): 20 Hz - 1 kHz: > 70 dB

Input Impedance (nominal): 20k ohms balanced, 10k ohms unbalanced

Maximum Input Signal: +22 dBu typical

AC Line Voltage and Frequency Configurations: 100 VAC, 120 VAC, 220-240 VAC 50/60 Hz

AC Line Current (120 VAC amplifier playing):

1/8 power pink noise into 4 ohms per ch): XTi 4002: 10.5A; no more than 38W at idle,

Operating Temperature: 0degC to 40degC at 95% relative

Controls

Level: Two front-panel rotary level controls, one for each channel.

Power Switch: On/Off switch applies AC power to the amplifier.

Sel/Prev/Next Buttons: Three buttons near the LCD screen that are used to access menu items and front panel lockout.

LCD Screen: Backlit liquid crystal display that shows preset and processing status.

Detail Specification:

Integrated Processing

Input EQ: 6 parametric filters per channel with adjustable Q, ± 15 dB boost/cut. Also adjustable high and low shelving filters. This 8-filter EQ section can be bypassed.

Crossover Filters: Highpass and Lowpass per channel. Butterworth 6/12/18/24 dB per octave. Linkwitz-Riley 24/48 dB per Octave Also includes ± 15 dB bandpass gain and

Output EQ: 8 parametric filters per channel with adjustable Q, ± 15 dB boost/cut. This 8-filter EQ section can be bypassed.

Delay: For signal alignment of driver; 50 ms of total delay.

Input/Output Connectors

Input Connectors: XLR, one per channel

Link/Out Connector: Loop-thru signal from input connector for linking another amplifier, one per channel.

Output Connectors: Two Neutrik® Speakon® NL4MP output connectors. Channel-1 Speaker® is wired with Ch. 1 and Ch. 2 outputs for use with optional single 4-conductor Two binding post outputs (in parallel with cable.Speakon® connectors).

HiQnet™ USB Connector: Type B, connects to HiQnet™ network.

Construction

Chassis: Steel

Front Panel: Cast aluminum

Cooling: Proportional speed fan with front-to-rear airflow.

Acceptable: Crown, Bose

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Audio
Reference No:	A-2.07
Item Description:	Digital Audio Processor with 12 mic / line input and 8 audio outputs

General Specification

The unit shall be a Digital Audio Processor with 12 mic / line input and 8 audio outputs and shall have the minimum

Detail Specification:

Analog Inputs: 12 electronically balanced on Phoenix/Combicon removable screw connectors
 Mic/Line Inputs: Nominal gain 0dB, electronically switchable up to +48dB, in 6dB steps
 Input Impedance: 3.5kOhm
 Maximum Input Level: +20dBu with 0dB input gain, +8dBu with 12dB gain
 CMRR: >75dB at 1kHz
 Input Noise (E.I.N.): <-123dBu typical with 150 Ohms source
 Phantom Power: 48V nominal, selectable per input
 A/D Latency: 37/Fs [0.77ms@48k, 0.39ms@96k]

Analog Outputs: 8 electronically balanced on Phoenix/Combicon removable screw connectors
 Maximum Output Level: +19dBu
 Frequency Response: 20Hz to 20kHz(+0.5/-1Db)
 THD: <0.01% (20Hz to 20kHz,+10dBu output)
 Dynamic Range: 108Db typ.(22 Hz to 22kHz unweighted)
 Output Impedance: 40 Ohms balanced and 20 Ohms unbalanced

Power and Dimensions:
 Power Consumption: <55VA
 BTU Rating: <188 BTU/hr
 Dimensions (H x W x D): 45mm x 483mm x 229mm

Control Ports: 12 inputs and 6 outputs
 Control Input Voltage: 0 to 4.5v
 Control Input Impedance: 4.7kΩ to +5V (2-wire mode), >1MΩ (3-wire mode)
 Logic Output Voltage: 0 or +5V unloaded
 Logic Output Impedance: 440Ω
 Logic Output Current: 10mA source, 60mA sink

Proprietary Network link:
 Connectors: 2 x RJ45 Ethernet connectors
 Cable Length: 100m/300ft on Category 5e cable between devices

Front Panel Led Indicators:

Per Input	Signal Present, CLIP, 48V (Input only)
Other:	COM, STAT, ERR, PWR

Power and Dimensions:

Mains Voltage:	100-240V AC, 50/60Hz
Power Consumption:	<55VA
BTU Rating:	<188 BTU/hr
Operating Temp. Range:	5 (41) to 35 (95) degrees C (degrees F)

Acceptable: BSS Audio, Bi Amp, Bose

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.08
Item Description: Wall Mounted Ethernet based controller

General Specification

The unit shall be aWall Mounted Ethernet based controller and shall have the minimum specification as shown below:

Detail Specification:

Control Network:

Connectors: RJ45 Ethernet connector

Maximum Cable Length: 100m/300ft on Category 5 cable

Power and Dimensions:

Power Connector: 2-way Screw Terminal

Power Consumption: 300mA max at 12V

Operating Temperature Range: 0 (32) to 40 (104) degrees C (degrees F)

Dimensions (H x W x D): Approximate 122.96mm x 169.96mm x 50.52mm

The unit shall feature two rotary encoders, one nine-segment meter and five push-buttons. The device can be configured to work in one of three modes of operation:

- Single Mode (One Page)
- Button Mode (Four Pages)
- Encoder Mode (Eight Pages)

RGB LEDs on the unit allow unique colors to be assigned to differed zones, giving visual feedback and a high level of user confidence in adjustments made to remote zones.

The nine-segment meter is fully customizable through software and any valid pattern of LEDs can be displayed. The meter normally shows the program level of the currently selected zone but takes on temporary representation of the gain level as soon as an adjustment is made.

The unit can be programmed to enter a 'Sleep' state after a predetermined delay time. In this state, all LEDs are extinguished apart from the dimly glowing Locate Button. When a control adjustment is made, the device will once again display full visual feedback for the currently selected zone.

A lockout feature can be implemented for controllers situated in public areas. In order to make adjustments to the controller, the operator must first enter a pre-configured 4-digit PIN. This lockout feature can be combined with the sleep feature, allowing the device to automatically enter the locked out state upon entering the sleep state.

The unit shall be available in white or black as two different versions. Custom metal faceplates and overlays are shall also available from third party vendors.

Acceptable: BSS Audio, Bi Amp , Bose

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Audio
Reference No: A-2.09
Item Description: Super Cardioid Dynamic Microphone with Switch

General Specification

The unit shall be a Super Cardioid Dynamic Microphone with Switch and shall have the minimum specification as shown below:

Detailed Specification:

General	Polar Pattern	Super cardioid
	Audio Frequency bandwidth	70 to 20000 Hz
	Sensitivity	2.6 mV/Pa
	Electrical Impedance	600 Ohms
	Recommended Load Impedance	2000 Ohms
Audio Output	Type	Balanced XLR
	Gender	Male
	Contacts	3-pin
Design	Body	Metal
	Finish	dark stage blue

- **The unit shall have a laminated diaphragm** for crisp sound that cuts through every mix
- **High feedback suppression with supercardioid polar pattern** for trouble-free use with on stage monitoring
- **Dual shock mount of microphone capsule** that eliminates any kind of handling noise
- **Integrated pop filter** for elimination of pops and wind noise
- **Spring-steel wire-mesh grille and rugged die-cast housing**

Acceptable: AKG, BEYER DYNAMIC , SENNHEISER

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Audio
Reference No:	A-2.10
Item Description:	Digital Dual Diversity Receiver

General Specification

The unit shall be a Digital Dual Diversity Receiver and shall have the minimum specification as shown below:

Detailed Specification:

Audio	Audio Frequency bandwidth	25 to 20000 Hz
	Signal to Noise	120 dB-A
	THD at 1 kHz	0.05 Prozent
Enhanced	Operating temperature range	-10 to 55 Celsius
	Radio Sensitivity	-98 dBm
Radio	Switching bandwidth	155 MHz
	Simultaneous channels	40
General	Number of selectable frequencies	6160 (selectable in 25kHz steps)
	Frequency Selection	Selectable frequency in 25kHz steps
	Wireless channels within device	-
	Radio Range (Line of Sight)	100m (depending on antenna system)
	Switchable RF Power	yes
	Modulation	Digital FSK
	Encryption	512 bit
	Diversity	Digital Diversity
	Pilot Tone	no
	Transmitter Synchronization	Infrared
Antenna Interface	HiQnet compatible	Yes (via HUB4000 Q)
	Racksize	Full Racksize (19")
	Rackheight	1 RU
Audio Outputs 1	Amount	2
	Type	BNC
	Gender	Female
	Note	Radio input for connection to remote antennas
Audio Outputs 1	Amount	2
	Type	Balanced XLR
	Gender	Male
	Contacts	3-pin
	Note	Balanced audio output

OPTION - B

Audio Outputs 2	Amount	2
	Type	Unbalanced Jack(1/4")
	Gender	Female
	Contacts	3-pin
	Note	Unbalanced audio output
Audio Outputs 3	Amount	1
	Type	Balanced XLR
	Gender	Female
	Contacts	3-pin
	Note	AES/EBU digital audio out for both channels (48kHz)
Audio Outputs 4	Amount	1
	Type	Jack Stereo (1/4")
	Gender	Female
	Contacts	3-pin
	Note	Heaphone audio output
Data Interface	Amount	1
	Contacts	4-pin
	Gender	Female
	Note	Connector for optional HUB4000Q for remote computer control
	Type	RJ 10 data (4P4C)
Powering Interface	Internal Power Supply	yes
	Type	IEC Socket
	Voltage	90 to 240 V
Design	Body	Metall
	Finish	dark blue/silver

Acceptable: **AKG, BEYERDYNAMIC, SENNHEISER**

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Audio
Reference No:	A-2.11
Item Description:	Digital Encrypted Hand Held Wireless Transmitter

General Specification
 The unit shall be a Digital Encrypted Hand Held Wireless Transmitter and shall have the minimum specification as shown below:

Detailed Specification:

Audio	Audio Frequency bandwidth	25 to 20000 Hz
	Signal to Noise	120 dB-A
	THD at 1 kHz	0.05 Prozent
Enhanced	Operating temperature range	-10 to 55 Celsius
Radio	Switching bandwidth	155 MHz
	Simultaneous channels	40
	Number of selectable frequencies	6160 (selectable in 25kHz steps)
	Frequency Selection	Selectable frequency in 25kHz steps
	Wireless channels within device	-
	Radio Range (Line of Sight)	100m (depending on antenna system)
	Switchable RF Power	yes
	Modulation	Digital FSK
	Encryption	512 bit
	Diversity	Digital Diversity
Transmitter	Pilot Tone	no
	Radio Output Power (min/max)	10 to 50 mW
	Microphone head versions	D5
	Interchangeable Microphone Head	no
	Transmitter Synchronization	Infrared
Battery 1	Batterietype	LR6 AA alkaline battery
	Compatible Charging System	CU700
	Number of Batteries	2
	Operating Time	7 h

OPTION - B

Battery 2	Batteriestype	HR 6 AA (NiHM) rechargeable battery
	Number of Batteries	2
	Operating Time	8 h
Design	Body	Metal
	Finish	dark blue

Acceptable: **AKG, BEYERDYNAMIC , SENNHEISER**

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Audio
Reference No:	A-2.12 &A-2.13
Item Description:	Active Omnidirectional Wideband UHF Antenna

General Specification
 The unit shall be aActive Omnidirectional Wideband UHF Antenna and shall have the minimum specification as shown below. The unit must match the specified microphones for fault free operation.

Detailed Specification:

General	Switching bandwidth (from/to)	500 to 865 MHz
	Antenna Gain	21.5 dBi
	Covering Angle	70 Grad
Antenna Output	Amount	1
	Type	BNC
	Gender	Female
	Note	RF output (50 Ohms)
	Recommended Load Impedance	50 Ohms
Powering Interface	Type	BNC
	Voltage	8 to 8 V
Design	Body	Plastic
	Finish	black

A-2.13 – Cables as per manufacturers specifications for Item 2.12

Acceptable: **AKG, BEYERDYNAMIC, SENNHEISER**

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Content
Reference No: C-5.01
Item Description: 30 min Video , Lighting & Audio in English , Hindi & Bengali

30 mins Son Et Luminaire consisting Video , Audio & Lighting in three languages – Hindi, English & Bengali as per the approved basic script by VMH/RITES. The scope of work includes also submission & approval of Basic Script, Dramatized Script, Arranging Voice, Music, Recording, Mixing, Balancing etc.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.01
Item Description: DMX Cabling

DMX cabling has to be done with Cat 6 or Cat 5 cable as per requirement.

Manufacturer : Kramer/Extron/Belden

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.02
Item Description: Audio Cabling

MICROPHONE, PORTABLE, HAND HELD, HIGH FLEX, NOISE CANCELLING) - Star-quad type high flexibility, 4 x AWG 24 stranded copper conductors for equivalent AWG 21 conductor area, braided shield minimum 95% coverage, matte finish PVC outside jacket, 6mm nominal overall diameter.

LOUDSPEAKER CABLE – PVC insulated AWG 18 high strand count copper twisted pair, individually PVC insulated with Black & White jackets, in an overall PVC insulated Jacket, 4.67mm nominal overall diameter.

Manufacturer : Kramer/Belden/Extron

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.03
Item Description: Electrifcal Cabling & Rectification Works

The existing electrical panel and cabling would be used . All rectification of the existing panel including switches , plugs , sockets and connectors and all additional electrical cabling work has to be done as per the satisfaction of the engineer in charge.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.04
Item Description: Video Cabling

75 Ohm Broadband Coaxial Video cable, RG-6, with braided shield for minimum 60% coverage and triple foil shielding for minimum 100% coverage. Acceptable for horizontal cable runs of less than 150'. Sweep Tested: 5 MHz - 1 GHz, Structural Return Loss 20 dB minimum. High Frequency Attenuation performance equal to or better than at 1000MHZ (-21.5dB, 100m), as specified type, in an overall PVC insulated jacket, 6.99mm overall diameter.
Plenum Equivalent:

Manufacturer : Kramer/Belden/Extron

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.05
Item Description: 60 KV UPS

PARAMETER	REQUIRED SPECIFICATIONS
Rating	60 KVA(60 KVA/54 KW). Both KVA and KW ratings need to be maintained
Configuration	60 KVA True On-Line Double Conversion UPS System with provision for paralleling upto 4 units for scalability and redundancy.
Technology	Online, double-conversion topology with DSP (Digital Signal Processing) Technology using IGBT rectifier and IGBT inverter with static bypass switch and maintenance bypass switch.
Input Parameters	
Nominal input voltage(VAC)	380/400/415 VAC three-phase
Input voltage range	-15%, +20% from nominal at 100% load, -50%, +20% from nominal at 50% load
Input Operating frequency	50 Hz (45 to 55 Hz)
Input power factor	0.99 without using filters
Input current distortion	<5% THDi without using filters
Rectifier type	IGBT based only
Isolation	Input isolation Transformer of 80 KVA Rating with each UPS module for providing galvanic isolation between input & output. The

Transformer	isolation transformer should be at the input of the UPS such that the load is galvanically isolated in Bypass mode also. Isolation Transformer (in Delta/Star Configuration with 1:1 ratio) should be external to the UPS and placed inside a suitable enclosure with powder coated paint and provided with cast iron wheels at bottom and hooks for lifting the unit.
Output Parameters	
Nominal output voltage	380/400/415 VAC three- phase
Output voltage regulation	±1 % static
	±5% dynamic at 100% load change with <20 ms response time
Output Frequency	50/60 Hz; ±1 or ±2 Hz selectable, synchronisation to mains, ± 0.05 Hz free-running (single module)
Output power factor	0.9
Overload capacity	125% for 10 minutes, 150% for 60 seconds
Voltage distortion	<2% THD on linear load
	<5% THD on nonlinear load
Overall Efficiency (AC-AC)	94% or better in Double Conversion mode
	98% or better in Eco Mode.
User interface	
LCD display	The UPS control panel shall be a digital front panel display that features a backlit LCD display. The LCD shall display UPS status, metering, battery status, alarm/event queue, active alarms and other necessary parameters.
Events	Should Display the list of Active System Events and a historical log of system events with a detailed time stamped list.
LED indicators	UPS on, On battery, On bypass, Alarm
Interface panel	The UPS shall be equipped with an interface panel which provides

	the followingsignals and communication features
Alarm contact	A dry contact for annunciating a summary alarm shall be provided for customer use.
Standard Communication Ports	2 nos x Mini-Slot, 1 no x Emergency Power Off input (NC or NO), 3 nos x Building Alarm inputs, 1 x RS232 and 1 x USB
Optional Communication Ports	Mini-Slot cards: Web/SNMP, Relay/RS232, Industrial Relay, ModBus
Communications	The UPS shall be equipped with WEB/SNMP communication support as standard. The UPS shall have Power Management feature to provide UPS monitoring, notification, management, and emergency computer shutdown capabilities.
Battery	
Type	Sealed lead-acid batteries Maintenance Free.
Battery charging	Advanced Battery Management (ABM)
DC Voltage	> 450V
Back-up Time	The system must be capable of providing 10-15 minutes of battery back-up time at full load using 12V, Sealed lead-acid Maintenance Free batteries (QUANTA / EXIDE makes only).
Battery Bank Details & VAH Rating	Min VAH = 31200 VAH for 10-15 mins back-up with each UPS module. Battery Bank Details (No. of Batteries, rating of each battery, etc.) to be provided. The vendor has to supply the necessary battery rack and interconnecting cables.
Construction	The UPS should be designed and constructed using multiple Slide Out Power Modules so as to reduce mean-time-to-repair to less than 30 minutes. UPS should have Front Service Access only for easy maintenance.
Cabinet rating	IP20 with standard washable dust filters
Environmental	
Operating temperature	0°C to +40°C

Storage temperature	-25°C to +50°C
Altitude	< 1000 m
Audible noise at 1 metre	65 dB
Humidity	15-95 % RH Non-condensing
Certification	(Documentary evidence to be furnished)
Quality System	ISO 9001 , ISO14001, OHSAS 18001
Markings	CE
Safety	IEC 62040-1
EMC Compliance	IEC 62040-2
Environmental	RoHS
Manufacturer	Eaton, Numeric
Others	<ul style="list-style-type: none"> - All technical specifications should be verifiable through the official website of the UPS manufacturer. - One set of Original printed brochure along with operation/user's manual of the quoted model should be compulsorily enclosed with the technical bid.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.06
Item Description: 42 U Equipment Rack , Wall Plates, Connection Boxes etc

42 U equipment Rack with all accessories, wall plates & connectiuon boxes as per requirement and as per satisfaction of Engineer in Charge.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: I-6.07
Item Description: Installation , testing & commissioning

Installation testing & commissioning of all the equipments specified for the SEL show of the project as a whole as per satisfaction of Engineer in charge.

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: 3000W 5600K High Impact Strobe
Manufacturer	: Martin / Clay Paky
Lamp	: Type: Xenon discharge Approved lamps: MAX-15 Xenon (200-240 V power), MAX-7 Xenon (100-120 V power) Dynamic Effects Variable strobe: 0 - 650 ms ,or 0 - 530 ms Strobe rate: 0 - 25 flashes/second ,0 - 30 flashes/second Blinder effect: Continuous with auto fade Strobe intensity: Blackout - maximum Special effects: Ramp up, ramp down, ramp up-down, random flash, lightning, spikes, blinder, single flash
Control/Programming	: Control options: DMX, stand-alone, multi-fixture chase (with Detonator remote), MC-1 DMX channels: 1, 3, and 4 channel modes Stand-alone control: Via N.O. or N.C. SPST switch Stand-alone options: Selectable flash rate or blinder effect Setting and addressing: DIP switch Protocol: DMX512 Receiver: RS-485
Connections	: Power Connection: 1.5mt cable tail, DMX Data/In:3 pin & 5 pin XLR sockets
Electrical	: AC power (MAX-7 model): 100-120 V nominal, 50/60 Hz AC power (MAX-15 model): 200-240 V nominal, 50/60 Hz Peak current consumption: 33 A Typical current consumption (MAX-15, high power mode): 8 A Main fuse (all AC power voltages): 20 AT (slow blow), 250 V Power supply unit: Auto-ranging electronic switch-mode AC mains power cable: 14 AWG or 2.5mm ²
Temperature	: Max 40°C, & Max 120°C for lamp socket, Min 5°C
Fixture Colour	: Black
Construction:	: Steel housing with Electrical powder coated finish
Installation	: Min distance-0.5m from combustible materials &1m from illuminated surface
Accessories	: Atomic Detonator, Atomic Colors, G-Clamp, Half Coupler clamp
Spare Parts	: Max-15 lamp for 200-240V, & Max-7 Lamp 100-120V
Special Instruction	: Vendor should provide suitable Weatherproof enclosure for strobe with glass front meaning unit requires no attendance as mentioned BOQ line item LF-1.02

OPTION - B

APPROVALS : CE
US SAFETY : ANSI/UL 1573
EU SAFETY : EN 60598-1, EN 60598-2-17
EU EMC : EN 50 081-1, EN 50 082-1

Ref:LF-1.03,1.04,1.05,1.06

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

The unit is to be a IP66 rated fixture using tricolor LEDs for superior color mixing directly at the lens. The result is an absence of color shadows and a broad color palette, including stunning whites, subtle pastels and vibrant saturated colors.

Manufacturer : Martin / Clay paky

Features

- Uniform color mixing using powerful tricolor LEDs
- No color separation or shadows
- Easy to control: 64 built-in programs and auto addressing
- Quick installation using IP66 cabling system
- Very Narrow, Narrow, Medium and Wide beam angles

Power using IP66 System

Dynamic Effects

Color mixing: RGB

Red: 0 - 100%

Green: 0 - 100%

Blue: 0 - 100%

Color temperature control: 2 000 - 10 000

K continuous mixing

Control and Programming

Color control modes: RGB (raw and calibrated), HSI (calibrated) HSIC (uncalibrated)

Control options: DMX, stand-alone, synchronized (master/slave)

DMX channels: 3 or 4 depending on mode

Grouped pixel control options: 1-, 2- and 4-pixel modes

DMX address setting: Application running on Windows PC

DMX compliance: USITT DMX512-A

Receiver: RS-485

Firmware update: Serial upload via DMX link

Optics

Light source: RGB 3-in-1 LED

Total LED power: 72 W

Beam angle: Very narrow (no diffuser), narrow, medium and wide available

Minimum LED lifetime: 46 000 hours (to >70% luminous output)

OPTION - B

Construction

Housing: Aluminum
Finish: Grey
Front cover: Toughened glass
Protection rating: IP66

Installation

Orientation: Any
Vertical aiming: 22° down, 141° up
Horizontal aiming: +/- 90°

Connections

Tripix Power IP66 power input: Hard-wired (terminal block) via cable gland
Fixture-to-fixture power and data: IP66
13-pin DIN cable tail system

Electrical

AC power: 100-240 V nominal, 50/60 Hz
(input to Tripix Power IP66)
Power supply unit: Auto-ranging
electronic switch-mode
Power output: 48 V DC (output from
Tripix Power IP66)
Standby power: <10 W

Thermal

Cooling: Convection
Maximum ambient temperature (Ta
max.): Fixtures and Tripix Power IP66 45°
C (113° F)
Minimum ambient temperature (Ta
min.): -30° C (-22° F)
Maximum surface temperature, steady
state, Ta=45° C: Fixtures 65° C (149° F),
Tripix Power IP66 80° C (176° F)

Approvals



EU safety: EN 60598-1, EN 60598-2-1
LED Safety: IEC 60825-1, IEC 62471
EU EMC: EN 55 015, EN 55 103, EN 61
000-3
US safety: UL 1598
Canadian safety: CAN/CSA C.22.2 No. 250
Power IP66
EU safety: EN 60598-2-6, EN 61347-2-13
EU EMC: EN 55015, EN 61000-3-2, EN
61000-3-3, EN 61547
US safety: UL 1012
Canadian safety: CSA C22.2 No.107

OPTION - B

Photometric Data

Standard (Without Diffuser)

Efficacy: 19.6 lumens per watt

Half-peak angle: 22°

Total output: 1400 lm

Standard (Narrow Diffuser)

Efficacy: 19.7 lumens per watt

Half-peak angle: 29°

Total output: 1400 lm

Standard (Medium Diffuser)

Efficacy: 21 lumens per watt

Half-peak angle: 78°

Total output: 1500 lm

Ref:LF-1.07, 1.09, 1.10, 1.15

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: Mountings
Manufacturer	: Vendor - Custom
Manufacturer Ref No	: N/A
Requirement	: All mounts are to be constructed from marine grade stainless steel and are to be approved by Rites for colour and for design.

- 1.07 Ground Spike
- 1.09 Star Floor Mount
- 1.10 Pole Mount 1.2m
- 1.15 Small Star Mounts or Bracket Mounts

Notes

1. Positions of all transformers/drivers and control equipment to be agreed with Architect/Interior Designer/Exhibit Designer
2. All information is to be checked and verified with the manufacturer by the vendor and T2 Consulting takes no responsibility for any errors in this cut sheet.
3. All Fixtures are to be provided with all mounting requirements (indicated or not in this cut sheet), all control equipment/drivers to ensure 100% operation of the equipment (excluding dimmers) fixture and trim colours are to verified with the Architect/Interior Designer/Exhibit Designer before procurement and any changes to mounting is to be verified with the Lighting Designer/Architect/Interior Designer/Exhibit Designer.
4. LED Fixtures shall all confirm to current EU standards and shall be designed for relevant heat dissipation

Fixture Reference Sheet


Project: Victoria Memorial Son Et Luminaire

Description	: 36 Deg RGBW 5300 Lumen IP65 Flood Luminaire
Manufacturer	: Martin / Clay Paky
Lamp	: LED Cree MC-E high-power emitters
Colour Temperature	: 2000 – 10,000 K
Control& Programming	: Color control modes: RGB, RGBW, HSI, HSIC Control options: DMX, stand-alone, synchronized (master/slave) DMX channels: 3 or 4 depending on mode DMX address setting: PC with Martin MUM™ software and DABS1™ hardware interface Stand-alone trigger options: Internal timer and/or ambient light level Stand-alone and master/slave programming: PC with Martin MUM™ software and DABS1™ hardware interface 26-bit control (internal): RGB, RGBW, HSI, HSIC Protocol: USITT DMX512-A Receiver: RS-485 Firmware update: Serial upload via DMX link
Connections	: Cable gland & 1.8m cable tail for Power, Cable gland & 1.8m combined input+ output cable tail
Power Consumption	: AC Power-100V-240V nominal, Integrated auto sensing multi range power supply unit,13w Stand by
Temperature	: Max 45°C
Fixture Colour	: Clear anodized, Black or White
Construction:	: Anodized aluminium for Housing & 8mm Mounting Bracket
Installation	: Flat surface at any angle, pedestal or other suitable supportDMX Input Adopter Cable, DMX
Accessories	: Output Diffuser, 3 pin cable type XLR Connector IP 65
Special Instruction	: Vendor Should provide Upright Mount 1.2m as mentioned in BOQ Line item LF-1.10

APPROVALS	: CE US SAFETY : UL 1598 EU SAFETY : EN 60598-1, EN 60598-2-1 EU EMC : EN 55015, EN 55103-1, EN 55103-2, EN 61000-3-2, EN 61000-3-3
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Photometrics

Balanced White 6500K
Standard (Without Diffuser) (19°)

m.	Ø	19°	E (lux)	Efficacy	
	50%			41.1 lumens per watt	
5	1.7		1640	Half-peak diameter	
10	3.3		410	0.33 X distance(m)	
20	6.7		103	Illuminance	
30	10.0		46	41000 / distance ² (lux)	
					Total Output
50	16.7			16	5600 (lumens)

[IES Data](#) [IES Data 2002](#) [Eulumdat Data](#)


Balanced White 6500K
Standard (Narrow Diffuser) (22°)

m.	Ø	22°	E (lux)	Efficacy	
	50%			37.9 lumens per watt	
5	1.9		1080	Half-peak diameter	
10	3.9		270	0.39 X distance(m)	
20	7.8		68	Illuminance	
30	11.7		30	27000 / distance ² (lux)	
					Total Output
50	19.4			11	5200 (lumens)

[IES Data](#) [IES Data 2002](#) [Eulumdat Data](#)


OPTION - B

Balanced White 6500K
Standard (Medium Diffuser) (36°)

m.	Ø	36°	E (lux)	Efficacy
50%				36 lumens per watt
5	3.2		440	Half-peak diameter
10	6.5		110	0.65 X distance(m)
20	13.0		28	Illuminance
30	19.5		12	11000 / distance ² (lux)
				Total Output
50	32.5		4	4900 (lumens)

[IES Data](#) [IES Data 2002](#) [Eulumdat Data](#)

Balanced White 6500K
Standard (Wide Diffuser) (65°)

m.	Ø	65°	E (lux)	Efficacy
50%				37.6 lumens per watt
5	6.4		160	Half-peak diameter
10	12.7		40	1.27 X distance(m)
20	25.5		10	Illuminance
30	38.2		4	4000 / distance ² (lux)
				Total Output
50	63.7		2	5100 (lumens)

[IES Data](#) [IES Data 2002](#) [Eulumdat Data](#)

Notes

1. Positions of all transformers/drivers and control equipment to be agreed with Architect/Interior Designer/Exhibit Designer
2. All Fixtures are to be provided with all mounting requirements (indicated or not in this cut sheet), all control equipment/drivers to ensure 100% operation of the equipment (excluding dimmers) fixture and trim colours are to be verified with the Architect/Interior Designer/Exhibit Designer before procurement and any changes to mounting is to be verified with the Lighting Designer/Architect/Interior Designer/Exhibit Designer.
3. LED Fixtures shall all confirm to current EU standards and shall be designed for relevant heat dissipation

Ref:LF-1.11,LF-1.12,LF-1.13,LF-1.14, LF-1.20

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: IP68 LED Uplighter 4 integrated RGBW LED, DMX Controlled, Real White Capable, with full colour calibration across fixtures
Manufacturer	: Martin / Clay Paky
Lamp	: Cree MC-E high-power emitters
Colour Temperature	: 6500k/4000k/2700k
Control& Programming	: Control options: DMX, programmable default scene Color control modes: RGB, RGBW Control modes: Calibrated and raw Setting and addressing: IR remote control unit, RDM-compliant controller Dimming resolution: 14-bit (internal) DMX compliance: USITT DMX512-A RDM compliance: ANSI/ESTA E1.20 Receiver: RS-485 Firmware update: Serial upload via DMX link
Connections	: Cable gland, splitter link 25m hybrid cable which carries both power & data
Power Consumption	: AC Power-100V-240V nominal, all LEDs at zero intensity: 0.42 W per luminaire, System power-20-40VDC
Temperature	: Max 45°C, Min 40°C
Fixture Colour	: Steel Gray
Construction:	: Aluminium Housing with micro-arc oxidation coating, stainless steel protection frame, & 1.5mm stainless steel mounting bracket
Installation	: Minimum distance to illuminated surfaces: 0.1 m Output& 35mm Din rail surface mounting
Accessories	: Mounting Bracket, Splitter link cable
Special Instruction	: Vendor Should provide Custom mounting brackets for this light as mentioned in BOQ line item LF-1.15, Vendor also has to provide Exterior light shield as mentioned in LF-1.20

Photometric Data

2700K Warm White, Narrow

2700K Warm White, Medium

6500K Cold White, Narrow

RGBW, Narrow (All LEDs on)

RGBW, Medium (All LEDs on)

Efficacy: 38.5 lumens per watt Half-peak angle: 22° Total output: 690 lm

OPTION - B

Efficacy: 32.2 lumens per watt Half-peak angle: 34° Total output: 580 lm

Efficacy: 53.8 lumens per watt Half-peak angle: 23° Total output: 970 lm

Efficacy: 37.3 lumens per watt Half-peak angle: 21° Total output: 670 lm

Efficacy: 32.7 lumens per watt Half-peak angle: 35° Total output: 590 lm

APPROVALS

: CE

US SAFETY : UL 1598 , UL 8750

EU SAFETY : EN 60598-1, EN 60598-2-1

EU EMC : EN 55015, EN 55103-1, EN 55103-2, EN 61000-3-2, EN 61000-3-3

Ref:LF-1.16,LF-1.17,LF-1.18,LF-1.19

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: Purpose Built Lighting Controller with built in dual core CPU, 32GB SSD, 4GB RAM, HDMI and VGA Output, Gigabit Arcnet and MAXNet, 3.5" touchscreen, 4 digital encoders, 8 customisable function keys, 4 DMX Ports expandable, control of upto 4096 parameters, 4 Universe Licence, GUI, effects engine, 1000 cues fader assignable, 1000 cues playback control buttons, parallel execution of cue lists, sub master, group master and override functions.
Manufacturer	: Martin / Clay Paky
Hardware	: 3.5" touch screen with 32gb SSD storage device
Software	: Windows 7 embedded os, SSD back up
Control& Programming	: Protocol: DMX512A (RDM), Artnet2 4 DMX universes, expandable to 64 2048 channels, expandable to 32768 No limit to number of DMX channels per fixture Extensive fixture library for all known manufacturers 65000 presets for each group of functions Effect generator for automated programming of complex effects Customizable highlight and lowlight function to identify individual fixtures Relative or absolute programming Fan function for all channels On-the-fly global timing changes Virtual cuelists Macros Wait, follow and link cues HTP, LTP, chase, timecode, submaster and group master playback functionality Individual parameter timings Intuitive patch feature Fixture type cloning All channels with 16-bit resolution
Connections	: 4 x DMX universe outputs with 5-pin locking XLR, VGA, HDMI, RJ-45, 12V DC power supply with 4pin-XLR
Play Back	: Assign a cue, cuelist or effect to any playback fader 100 playback banks, each containing 10 playbacks 100 pages of 100 playbacks activated by touch screen button No limit to cues per cuelist Full 16-bit fading for high-resolution fixtures Individual fade in/fade out times for all playbacks Manual override available at all times Live 0-1000% override of global cue timings Live programmer timing ("Sneak") Cuelists can be executed in tracking or non-tracking mode
Power Consumption	: AC Power-100V-240V nominal, 1.4A of Max Current, 12VDC output
Accessories	: USB Interface Card, Universe Expansion License, USB Midi port internal module
Special Instruction	: IR REMOTE CONTROLLER FOR ASSIGNING CHANNELS AND CONFIGURATION OF LF1-11 SHOULD BE SUPPLIED WITH THE CONTROL CONSOLE – AS PER ITEM NO LF-1-19

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: Programming
Manufacturer	: Vendor
Manufacturer Ref No	: N/A
Requirement	: Programming is to be carried out by a certified programmer from the manufacturer of the supplied fixtures and control equipment. Letters from the manufacturer/s are to be provided with the tender bid naming the programmer and certifying from each manufacturer they are fully trained to program this equipment.

Notes

1. Positions of all transformers/drivers and control equipment to be agreed with Architect/Interior Designer/Exhibit Designer
2. All information is to be checked and verified with the manufacturer by the vendor and T2 Consulting takes no responsibility for any errors in this cut sheet.
3. All Fixtures are to be provided with all mounting requirements (indicated or not in this cut sheet), all control equipment/drivers to ensure 100% operation of the equipment (excluding dimmers) fixture and trim colours are to be verified with the Architect/Interior Designer/Exhibit Designer before procurement and any changes to mounting is to be verified with the Lighting Designer/Architect/Interior Designer/Exhibit Designer.
4. LED Fixtures shall all confirm to current EU standards and shall be designed for relevant heat dissipation

Fixture Reference Sheet

Project: Victoria Memorial Son Et Luminaire

Description	: DMX Splitter/Booster.
Manufacturer	: Martin ? Clay Paky
Data Signal	: DMX: ANSI E1.11 (USITT DMX 512-A) RDM: ANSI E1.20 Electrical standard: EIA-485 Recommended cable type: STP (Shielded Twisted Pair)
Cable Type & Guage	: Shielded Twisted Pair, 22 or 24 AWG
Dimension(DxWxH)	: Approximate 125mmx220mmx45mm
Connections	: Data input: 5-pin XLR male Data throughput (not amplified or branched): 5-pin XLR female Data outputs (optically isolated and amplified): 5 x 5-pin XLR female AC power input: Neutrik PowerCon AC power throughput: Neutrik PowerCon
Power Consumption	: AC Power-100V-240V nominal, Auto ranging electronic switch, max 4w
Temperature	: Max 55°C, Min -35°C
Accessories	: Half coupler clamp, G-Clamp, trigger clamp, 3 pin to 5 pin/5pin to 3 pin XLR male to female adopter, RJ-45 male to female adopter
Special Instruction	:
Approvals	<div style="display: flex; justify-content: center; align-items: center; gap: 10px;">    </div> <p>EU safety: EN 60950-1 EU EMC: EN 55022, EN 55024, EN 55103-1, EN 55103-2 US safety: UL 508 US EMC: FCC Part 15 Class A Canadian safety: CAN/CSA C22.2 No. 14 Canadian EMC: ICES-003 Class A Australia/NZ: C-TICK N4241</p>

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Projection System
Reference No:	P-3.01 & P-3.02
Item Description:	3-DLP, SXGA+, 22000lm, 3.0kW Xenon lamp Projector& Lens

General Specification:
This unit shall be 3-DLP, SXGA+, 22000lm, 3.0kW Xenon lamp Projector with Lens and shall have the following minimum

Detail Specification:	
Technology	: 3-chip DLP
Resolution / Type	: 1400 x 1050SXGA / 0.95" DMD
Brightness	: @,000 ANSI Lumens - 20,000 centre lumens
Contrast / Uniformity	: 1600-2000:1 full field 650:1 ANSI / 90% brightness uniformity
Lamp/Lamp life	: 3.0 KW Xenon Bubble Lamp Module / 750 hours,
Standard inputs	: Dual-link DVI / Dual 3G SD/HD-SDI / Video Decoder
Optional inputs	: Analog Dual-link DVI Dual SD/HD-SDI Video decoder Twin HDMI
Input signals	: HDTV formats VGA through to QXGA (2048 x 1536) Accepts all current HDTV/DTV formats Multi-standard video decoder Horizontal and vertical scaling, all inputs
Pixel clock	: 165 MHz
Scan rates	: Horizontal: 15 to 120 kHz Vertical: 23.97 to 150 Hz
Inputs, control & networking	: RS232 in/out RS422 in Ethernet (10/100) USB device GPIO (RS232 9-pin male connector) Built-in backlit LCD keypad Remote control (with optional wired XLR connection)
Optical System	: Dust Sealed, 3 Chip DMD Light Engine Motorized horizontal and vertical lens offset Built-in light Shutter
B2: Zoom Lens for the Projectors:	
Note: The projector Lens is to be quoted based on the drawings provided and projector throw calculation sheet to be attached for the reference	

Detail Specification:

Accessories	: IR remote / Line cord
Lens Offset	: ±100% Vertical • ±50% Horizontal • (* ±23%V ±13%H) • (** ±70%V ±45%H)
Feature Sets	: Embedded Twist • Embedded image tiling • Intelligent Lens System (ILS) • Advanced block artifact reduction • Networked web interface • User-friendly, intuitive LCD keypad • Advanced loop-through Twin HDMI card • Lamp memory module • User replaceable bulbs • Advanced 10-bit processing • Automatic shut-off and ECO mode • Dust-sealed light engine • SNMP (simple network management protocol) • DHCP (dynamic host configuration protocol) • Liquid cooling • Setup lights • Hybrid stack
Operating voltage	: 200-240 VAC @ 50/60Hz
Minimum Operating Current	: 20A @ 200V
Power	: 4000W
Heat	: =>13,650 BTU/hr
Operating Environment	Temperature: 40-104°F (5-40°C) • Humidity: 20-80% non-condensing
Approvals	Regulatory Approvals/Markings: Directives (EC) 2011/65/EU (RoHS); 2012/19/EU (WEEE); Regulation (EC) No. 1907/2006 (REACH) • CAN/CSA C22.2 No. 60950-1 • UL 60950-1 • IEC 60950-1 • FCC, Part 15, Subpart B, Class A • EN55022/CISPR22 Class A • EN55024 / CISPR24 • Certifications marks (check with CDS for latest update): cULus (Canada & US), CE (EU), CCC (China), GoST-R (Russia), KC (Korea), PSE (Japan), C-Tick (Australia & New Zealand), South Africa
Minimum Warranty	Three years parts and labor (including light engine)

B2: Zoom Lens for the Projectors:

Note: The projector Lens is to be quoted based on the drawings provided and projector throw calculation sheet to be attached for the reference

Acceptable manufacturer: Christie , Barco

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Projection
Reference No: P-3.03 / P-3.04
Item Description: Environmental Enclosure for the Projector IP54

General Specification

This unit shall be a proprietary made IP54 environmental enclosure for the specified projector and custom enclosures will not be accepted..This unit has to be mounted on a mounting structure as per the specified height required as per item no P-3.03

Acceptable Detail Specification: Tempest Manufacturer:

Construction: Aluminum, plated and epoxy powder coated for excellent corrosion resistance, stainless steel.

Mounting: Enclosure for installation is to be base down / 2 x stainless steel Unistruts on base.

Security: Heavy duty stainless steel latches, may be padlocked for security.

Access: Projector slides out front or back on 500lb/227kg rated slides

Color : Standard light bronze (Outdoor), White (HUSH). Custom colors to order.

Window Tempered Optical Glass .125"/3mm

Remote Monitoring: Controller with operating system.

Cooling:High-power AC fans changes air every 1-2 seconds when projector lamp is on

Heating:Heating elements maintain minimum operating temperature and prevent condensation (Outdoor)

Cooldown:Fans run for up to 15 minutes after lamp turns off

Protection:Projector power is safely isolated by a 2-pole power relay in the event of overheating.

Power:208VAC or 230VAC, 50/60Hz, 5 amps max (enclosure). Single or split feed wiring for enclosure and projector

Projector

Power Outlet:IEC C19 (8000 series), L6-30 (8200 and up). Rewireable plugs included as appropriate.

Aux Power :IEC C14 Receptacle with rewireable plug for ancillary equipment

Approvals:Americas: ETL and cETL listed to UL 50, 508

International: Low Voltage Directive 2006/95/ EC, Electromagnetic Compatibility Directive 2004/108/EC, EN 60065:2002, EN 60529:2001- 2002, EN 61000-6-3:2007+A1:2011, EN61000-6- 1:2007, EN55015:2006+A2:2009

NEMA Type 3R Enclosure (IP54)

The unit is to come high performance hydrophobic air filters that block dust, sand, oil, moisture and contaminates like salt and chlorine, keeping the interior clean and pristine in any environment.

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Projection System
Reference No: P-3.05
Item Description: Dual Channel Video Server

General Specification:

This unit shall be a Dual Channel Video Server and shall have the minimum specification as shown below...

Detail Specification:

- Approx. 20W power consumption at full operation
- Active cooling
- SSD (Solid State Disk), 32 GB
- Mini Display Port. Resolutions up to 2560 x 1600 (WQXGA)
- Processor: AMD Fusion T56N, 1.6 GHz
- RAM: 4 GB
- 3.5 mm stereo audio out
- 3.5 mm stereo audio in. Line-Level
- Two USB ports
- Dual HDMI Output
- Gigabit Ethernet
- Watchout Licence
- Control and interactivity via MIDI (USB), DMX (via ArtNet), TCP/IP

**Acceptable
Manufacturer:** [Dataton Watchout](#)

Equipment Specification Sheet

Project:	Victoria Memorial Son Et Luminaire
System:	Projection System
Reference No:	P-3.06
Item Description:	Fibre Optic TX and RX plus Cable

General Specification:

Detail Specification:

Receiver

INPUTS:	1 optical SC connector.
OUTPUTS:	HDMI connector.
BANDWIDTH:	Supports up to 3.5Gbps bandwidth per graphic channel.
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI, using fiber optic communication links and DDC2B.
EXTENSION LIMIT:	1700m (>5570 feet) for 1080p/60Hz.
INSERTION LOSS FROM TRANSMITTER TO RECEIVER:	Must not exceed 10dB.
FIBER-OPTIC CONNECTION:	SC connectors for multimode (OM3) fiber cable (not supplied with the unit).
INDICATOR LEDs:	Video, source, acceptor fiber and on LEDs.
POWER CONSUMPTION:	5V DC, 400mA.
DIMENSIONS:	12cm x 7.95cm x 2.76cm (4.7" x 3.1" x 1.08") W, D, H.
WEIGHT:	0.3kg (0.67lbs) approx. each.
INCLUDED ACCESSORIES:	2 power supplies (5V/2A), 2 bracket installation kits .
OPTIONS:	HDMI/HDMI male to male cable

Transmitter

INPUTS:	HDMI connector.
OUTPUTS:	1 optical connector.
BANDWIDTH:	Supports up to 3.5Gbps bandwidth per graphic channel.
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI using fiber optic communication links and DDC2B.
EXTENSION LIMIT:	1700m (>5570 feet) for 1080p/60Hz.
INSERTION LOSS FROM TRANSMITTER TO RECEIVER:	Must not exceed 10dB.
FIBER-OPTIC CONNECTION:	SC connectors for multimode (OM3) fiber cable (not supplied with the unit).
INDICATOR LEDs:	Video, source, acceptor fiber and on LEDs.
POWER CONSUMPTION:	5V DC, 250mA.
DIMENSIONS:	12cm x 7.95cm x 2.76cm (4.7" x 3.1" x 1.08") W, D, H.
WEIGHT:	0.3kg (0.67lbs) approx. each.
INCLUDED ACCESSORIES:	Power supply, bracket installation kit.

Detail Specification:

- Max. Data Rate - Up to 3.5Gbps.
- Supports 4k x 2k Resolution. - When used with the 670RN (Coming Soon).
- HDTV Compatible.
- HDCP Compliant.
- EDID PassThru - Passes EDID signals between the source and display.
- HDMI Support - Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD, CEC.
- 3D Pass-Through.
- Signal Transmission - Transmits four TMDS video channels as well as one low-speed channel for passing HDCP, EDID and a Hot Plug Detect (HPD) signal over one multimode fiber.
- System Range - 1700m (5570ft).
- Cable - Multimode fiber optic OM3 cable with SC connectors.

Fibre Optic Cable

OM3 Fibre Optic Cable as per manufacturers instruction for run distance

**Acceptable
manufacturer:**

Kramer , Extron

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: S-4.03
Item Description: Ipad

Latest Ipad for use as a touch screen show controller has to be supplied.

Manufacturer : Apple

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: S-4.01
Item Description: Automated Show Controller

General Specification:

This unit shall be Automated Show Controller real time time code and video positrack and shall be full compatible with Watchpax 2 Item No P 3.05.and shall have the following minimum specification.

Detail Specification:

REAR PANEL:

2x USB 2.0 Ports
1x 12 Volt DC Power connector
2x 10/100/1000 Base-T Ethernet Ports
2x RS-232 DB9 Male Serial Ports
4 terminal block relays connectors (24V 1A Max)
4 terminal block inputs connectors (Contact closure input detection, max impedance 10KOhms)
1x DMX Output (5 Pin Female XLR)
1x MIDI Input DIN5 Female & 1x MIDI Output DIN5 Female

DIMENSIONS:

Rack: Apr. 476 (W) x 44.5 (H) x 260 (D) mm
Stand-alone –Apr. 441 (W) x 44.5 (H) 260 (D) mm
Packing: Apr.580 (W) x 145 (H) x 370 (D) mm
Rack size (1U)
Metal with satin black finish

POWER:

Auto-Ranging 100-240 VAC / 50-60Hz 80 Watts

ENVIRONMENTAL:

Operating Temperature: 0°C/32°F to 60°C/140°F
30% to 90% (non condensing)

. Software Specifications ☒

- Drag& Drop Programming
- Multitasking: Several tasks can run simultaneously, 1 task with synchronization feature.
- 1x Timeline for synchronization th
- 1/100 Sec Sync Accuracy
- DevicePositracking (Sync)
- Logical Programming Operators:+, -, *, /, %, ^, =, ==, !=, >, <, >=, <=, |, &,#, ()
- Logical Programming Functions:Hours, Minutes, Seconds, Frames, Day, Day Of The Week As Name, Day Of The Week As Number, Month, Year, Lower Case, Upper Case, Length, Char At, Get Field Of Enum, Get Index Of Enum, Random, Sqrt, Round, Ceil, Floor, Abs, Max, Min, Sin, Asin, Tan, Atan, Cos, Acos, Ln, Log, Exp
- Variables Type: Integer, String, Time, Date, Enum. Unlimited number of variables.
- Real Time program testing
- Drivers Editor
- OpenCap Protocol
- Log Files
- 3xWebPanels (or Manager Panels)

Acceptable Manufacturer : Medialon, AlcornMcBride

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: S-4.02
Item Description: Main Control Computer

General Specification:

This shall be as per the specification from the show control system – Item No S 4.01 and shall come with the relevant Master Control Licence.

Detail Specification:

As per Showcontrol system requirement – to come with Master Control Licence

Acceptable: Dell / HP

Equipment Specification Sheet

Project: Victoria Memorial Son Et Luminaire
System: Show Control
Reference No: S-4.04
Item Description: Show Programming

Programming is to be carried out by a certified programmer from the manufacturer of the supplied fixtures and control equipment. Letters from the manufacturer/s are to be provided with the tender bid naming the programmer and certifying from each manufacturer they are fully trained to program this equipment.: