Strand Lighting Specification

I. SHOWNET ETHERNET SIGNAL DISTRIBUTION

A. GENERAL

1. The Strand Lighting ShowNet network shall provide data distribution over a TCP/IP ethernet Network. Systems using proprietary formats or formats other than TCP/IP shall not be accepted.
2. Connections shall be made between consoles, computers and SN series nodes over a standard Ethernet distribution systems using 10Base2 or 10/100BaseT wiring or a combination of both. All installations shall conform to established Ethernet wiring practice and installation shall be performed by contractors qualified to do this type of work. All wiring shall be tested for full bandwidth operation to the appropriate IEEE standard.

B. CAPACITIES

1. The Network shall provide DMX routing and patching for up to 18,432 DMX addresses and DMX data may be output in a variety of output formats to any DMX node in the system. DMX input, routing and output shall be specifically supported on the system from multiple sources and locations with up to 99 nodes.
2. The system shall support multiple consoles, computers, file servers, printers with discrete command lines and control. The ShowNet system may support multiple facilities within a complex.
3. System configuration shall be via Strand ShowNet Windows software and permit simple point and click connection between Consoles and Nodes, Consoles and Consoles, and Consoles and File Servers. The software shall permit complete user flexibility allowing the system operator to define DMX data groups, Node Names and console names for easy identification. Each node shall have a specific user selectable IP address. Systems that do not support simple Windows operation shall not be acceptable.
4. All configuration data for each Network device shall be held at the device and system operation shall not require continuous on line operation of the Network configuration software.
5. ShowNet Interface List

The following interfaces shall be provided on each network:

a. Remote Handheld Control
b. Serial Data (Remote Dimmer Supervisor)
c. Multiple Remote Printers
d. Serial Data (Spare)
e. Universal DMX512 Dimmer Mux up to 18,432 outputs (36 standard DMX Universes)
f. Remote Faders and Switches
g. MIDI Input
h. MIDI Through
i. MIDI Output

C. OPERATIONAL FEATURES

1. The video monitor outputs at any video node shall be able to monitor the video output of any Lightpalette console connected to the Ethernet with Networker software. Each Video node shall have discrete dsiplay access to any console and any console display.
2. Each Node shall control up to 2048 DMX addresses, within the confines of an up to a 36 DMX (18,432 DMX addresses) “universe” system. The specific DMX data input or output by the Node shall be freely configurable by the user. Duplicate outputs of DMX lines (DMX splitter) and discrete outputs shall be fully supported.
3. Any number of DMX lines may be configured with any length up to 512 addresses as long as the total does not exceed 18,432. Any range of DMX addresses may be selected for each feed and may be any set of 512 numbers from the total available on the network. Numbers may be selected in any order and the use of “and” plus “thru” commands shall be supported with ShowNet Professional

software. Multiple sources may be combined on any node output and a priority may be assigned to each source. Each DMX output on each node may have its own label and start address for ease of use.

4. DMX ports shall be configurable for either input or output. Multiple DMX signal routing patches and Multiple facilities shall be specifically supported and limited only by the file storage capacity of the computer with ShowNet software installed.
5. The Network shall support Parallel, Remote and Tracking Back up operation of 300 and 500 series control consoles.
6. File transmission, synchronization and access to File Servers using Microsoft NT server software shall be specifically supported.
7. All Network configuration information shall be available as a system printout. Specific printouts shall be available to assist in trhe addressing of DMX devices on the network.

II. SN100 ADVANCED ETHERNET NODE

A. GENERAL

1. The Strand Lighting SN100 network node shall be an intelligent, table top or wall mountable Ethernet node providing lighting services remote from the console when used with Strand ShowNet software.
2. Connections shall be made between consoles and SN100s over standard Ethernet distribution systems using 10Base2 or 10BaseT wiring or a combination of both. Each SN100 shall be equipped with power and network OK LEDs, twin 100mm faders and four display selection keys with LEDs. It shall incorporate a universal 100-120v / 220-240v power supply. It shall be designed and manufactured by a company operating a quality system approved to ISO9001. It shall be CE, UL & cUL listed.

B. PHYSICAL

1. The Node electronics will be mounted in a 12.9” (330mm) W x 6.5” (165mm) D x 2.6 (65mm) ”H enclosure, finished in powder coat grey. The front panel will be silk screened with the product identification details.
2. The weight of the Node shall be 6.8lb (3.1kg).
3. The Node enclosure shall be a Zinc coated steel box construction with flame proof ABS controls.
4. The Node shall have a 100-240V 50/60Hz, auto-sensing Power Supply.
5. The Node shall have a High Density, 3.5” disk drive, for programming and archival storage of node configuration, as well as for software upgrades.
6. SN100 Interface List

The following interfaces shall be provided on each SN100 network node:

a. VGA Output 1
b. VGA Output 2
c. Keyboard (Mini DIN)
d. Remote Handheld Control
e. Serial (Remote Dimmer Supervisor)
f. Parallel Printer Port
g. Serial (Digitizer)
h. Universal DMX512/SMX Dimmer Mux I/O 1
i. Universal DMX512/SMX Dimmer Mux I/O 2
j. Remote Faders and Switches
k. MIDI Input
l. MIDI Through
m. MIDI Output

n. Mains Power Input
o. Ethernet 10BaseT
p. Ethernet 10Base2

C. ELECTRONICS

1. The node processor shall be an Intel 386.
2. Configuration of the Node shall be stored in Static RAM.

D. OPERATIONAL FEATURES

1. The video monitor outputs shall be able to monitor the video output of any 300 or 500 series console connected to an Ethernet network.
2. The Node shall control up to 1024 DMX channels, within the confines of an up to 36 DMX “universe” system. The specific DMX channels input or output by the Node shall be freely configurable by the user.
3. The DMX ports shall be configurable for either input or output.
4. The RS 232 port shall be configurable as an RS 232 or RS 485 data input onto the network to support data transmission, focus remotes or dimmer status reporting.
5. The Node shall be remotely configured by an IBM PC compatible computer, via the network system wiring, or locally, using the disk drive, a keypad, a video monitor and Networker software (supplied with console software package).

E. ENVIRONMENTAL

1. The ambient operating temperature shall be 0° to 40°C (32° to 104°F).
2. The storage temperature shall be -40° to 70°C (-40° to 158°F).
3. The operating humidity shall be 5% - 95% non-condensing.

F. STANDARDS COMPLIANCE

1. EMC emissions to EN50081-1, EN55014; EMC immunity to EN50082-1, IEC1000-2-2; Safety: EN60950, EN60439 Part 1 (also part 12 BS5486); design & build: ISO9000, UL1950.
2. The Node shall be CE, UL & cUL listed.

G. INCLUDED FURNISHINGS

1. Power cord
2. ShowNet Network Configuration Software
   a. Windows based software to configure DMX over Ethernet data distribution systems for use with Networker or stand alone configurations.
   b. Configurations can be saved to disk on PC and down-loaded to nodes when required. PC is not required to run ShowNet.

III. SN102 ADVANCED RACK MOUNT ETHERNET NODE

A. GENERAL

1. The Strand Lighting SN102 network node shall be an intelligent, 19” rack mounted Ethernet node providing lighting services remote from the console when used with Strand Networker software.
2. Connections shall be made between consoles and SN102s over standard Ethernet distribution systems using 10Base2 or 10BaseT wiring or a combination of both. Each SN102 shall be equipped with power and network OK LEDs, and four select keys with LEDs. It shall incorporate a universal 100-

120v / 220-240v power supply. It shall be designed and manufactured by a company operating a quality system approved to ISO9001. It shall be CE UL & cUL listed.

B. PHYSICAL

1. The Node electronics will be mounted in a 19" (483mm) W x 10.2" (260mm) D x 3.5 (88mm, 2U) "H enclosure, finished in powder coat grey. The front panel will be silk screened with the product identification details.
2. The weight of the Node shall be 7.7lb (3.5kg).
3. The Node enclosure shall be a Zinc coated steel box construction with flame proof ABS controls.
4. The Node shall have a 90-264V 50/60Hz, auto-sensing Power Supply.
5. The Node shall have a High Density, 3.5" disk drive, for programming and archival storage of node configuration, as well as for software upgrades.
6. SN102 Interface List

   The following interfaces shall be provided on each SN102 network node:

   a. VGA Output 1
   b. VGA Output 2
   c. Keyboard (Mini DIN)
   d. Remote Handheld Control
   e. Serial (Remote Dimmer Supervisor)
   f. Parallel Printer
   g. Serial (Spare)
   h. Universal DMX512/SMX Dimmer Mux I/O 1
   i. Universal DMX512/SMX Dimmer Mux I/O 2
   j. Remote Faders and Switches
   k. MIDI Input
   l. MIDI Through
   m. MIDI Output
   n. Mains Power Input
   o. Ethernet 10BaseT
   p. Ethernet 10Base2

C. ELECTRONICS

1. The node processor shall be an Intel 386.
2. Configuration of the Node is stored in Static RAM.

D. OPERATIONAL FEATURES

1. The video monitor outputs shall be able to monitor the video output of any 300 or 500 Series console connected to the Ethernet with Networker software.
2. The Node shall control up to 1024 DMX channels, within the confines of an up to 36 DMX "universe" system. The specific DMX channels input or output by the Node shall be freely configurable by the user.
3. The DMX ports shall be configurable for either input or output.
4. The RS 232 port shall be configurable as an RS 232 or RS 485 data input onto the network to support data transmission, focus remotes or dimmer status reporting.
5. The Node shall be remotely configured by an IBM PC compatible computer, via the network system wiring, or locally, using the disk drive, a keypad, a video monitor and Networker software (supplied with console software package).

E. ENVIRONMENTAL

1. The ambient operating temperature shall be 0° to 40°C (32° to 104°F).
2. The storage temperature shall be -40° to 70°C (-40° to 158°F).
3. The operating humidity shall be 5% - 95% non-condensing.

F. STANDARDS COMPLIANCE

1. EMC emissions to EN50081-1, EN55014; EMC immunity to EN50082-1, IEC1000-2-2; Safety: EN60950, EN60439 Part 1 (also part 12 BS5486); design & build: ISO9000, UL1950.
2. The Node shall be CE UL & cUL listed.

G. INCLUDED FURNISHINGS

1. Power cord
2. ShowNet Network Configuration Software
   a. Windows based software to configure DMX over Ethernet data distribution systems for use with Networker or stand alone configurations.
   b. Configurations can be saved to disk on PC and down-loaded to nodes when required. PC is not required to run ShowNet.

IV. SN103 DMX ETHERNET NODE

A. GENERAL

1. The SN103 Node shall be an intelligent, wall mounting, Ethernet node providing DMX and Reporter Dimmer data distribution.
2. Connections shall be made between nodes over standard Ethernet distribution systems using 10BaseT or 100BaseT wiring or a combination of systems. Each Node shall be equipped with power and network OK LEDs, termination switches for each of the XLR connectors, and mimic LEDs to indicate the termination status. It shall incorporate a universal 100-240V power supply. It shall be designed and manufactured by a company operating a quality system approved to ISO9001. It shall be CE UL & cUL listed.

B. PHYSICAL

1. The Node electronics will be mounted in a 8” (203mm) W x 4” (101mm) D x 8 (203mm)”H enclosure, finished in powder coat gray. The front panel will be silk screened with the product identification details.
2. The weight of the Node shall be 7.7lbs (3.5kg).
3. The Node enclosure shall be a Zinc coated steel box construction with flame proof ABS controls.
4. The Node shall have a 100-240V 50/60Hz, auto-sensing Power Supply. Terminals shall also be supplied to allow the node to be supplied with mains line power.
5. The Node shall feature a total of 4 XLR connectors on the front panel. Each XLR connector shall feature a Line termination switch and an LED that indicates when the switch is engaged.
   a. There shall 4 DMX512 (512 dimmers per port, selectable In/Out), 5 pin female XLR connectors standard.
   b. It shall be possible to factory configure the connectors to be male or female and 5 or 6 pin to meet project requirements.
6. The XLR references will be marked on the front panel, but a space will be provided for a self adhesive custom label strip of approximately 7”x0.5”x 0.05”

C. ELECTRONICS

1. The node processor shall be an Intel 386EX.
2. Configuration of the Node is stored in Static RAM.

D. OPERATIONAL FEATURES

1. The Node shall be remotely configured by an IBM PC compatible computer, via the network system wiring.
2. The Node shall control up to 2048 DMX channels, within the confines of an up to 36 DMX "universe" system. The specific DMX channels input or output by the Node shall be freely configurable by the user.
3. All ports may be configured as a DMX input or output. Ports 3 and 4 may also configured as an RS 232 or RS 485 data input onto the network to support data transmission, and dimmer status reporting. Handheld remote operation shall also be available as an option on all nodes.

E. ENVIRONMENTAL

1. The ambient operating temperature shall be 0° to 40°C (32° to 104°F).
2. The storage temperature shall be -40° to 70°C (-40° to 158°F).
3. The operating humidity shall be 5% - 95% non-condensing.

F. STANDARDS COMPLIANCE

1. EMC emissions to EN50081-1, EN55014; EMC immunity to EN50082-1, IEC1000-2-2; Safety: EN60950, EN60439 Part 1 (also part 12 BS5486); design & build: ISO9000, UL1950.
2. The Node shall be CE, UL & cUL listed.

G. INCLUDED FURNISHINGS

1. ShowNet Network Configuration Software
   a. Windows based software to configure DMX over Ethernet data distribution systems for use with Networker or stand alone configurations.
   b. Configurations can be saved to disk on PC and down-loaded to nodes when required. PC is not required to run ShowNet.

V. SN104 DMX ETHERNET NODE

A. GENERAL

1. The SN104 Node shall be an intelligent, wall mounting, Ethernet node providing DMX and Reporter Dimmer data distribution.
2. Connections shall be made between nodes over standard Ethernet distribution systems using 10BaseT or 100BaseTX wiring or a combination of systems. Each Node shall be equipped with power and network OK LEDs, termination switches for each of the XLR connectors, and mimic LEDs to indicate the termination status. It shall incorporate a 48VDC power supply. It shall be designed and manufactured by a company operating a quality system approved to ISO9001. It shall be UL & cUL listed.

B. PHYSICAL

1. The Node electronics will be mounted in a 8” (203mm) W x 4” (101mm) D x 8 (203mm)”H enclosure, finished in powder coat gray. The front panel will be silk screened with the product identification details.
2. The weight of the Node shall be 7.7lbs (3.5kg).
3. The Node enclosure shall be a Zinc coated steel box construction with flame proof ABS controls.
4. The Node shall have a 48V DC power supply.
5. The Node shall feature a total of 4 XLR connectors on the front panel. Each XLR connector shall feature a Line termination switch and an LED that indicates when the switch is engaged.
   a. There shall 4 DMX512 (512 dimmers per port, selectable In/Out), 5 pin female XLR connectors standard.
   b. It shall be possible to factory configure the connectors to be male or female and 5 or 6 pin to meet project requirements.
6. The XLR references will be marked on the front panel, but a space will be provided for a self adhesive custom label strip of approximately 7”x0.5”x 0.05”

C. ELECTRONICS

1. The node processor shall be an Intel 386EX.
2. Configuration of the Node is stored in Static RAM.

D. OPERATIONAL FEATURES

1. The Node shall be remotely configured by an IBM PC compatible computer, via the network system wiring.
2. The Node shall control up to 2048 DMX channels, within the confines of an up to 36 DMX “universe” system. The specific DMX channels input or output by the Node shall be freely configurable by the user.
3. All ports may be configured as a DMX input or output. Ports 3 and 4 may also configured as an RS 232 or RS 485 data input onto the network to support data transmission,and dimmer status reporting. Handheld remote operation shall also be available as an option on all nodes.

E. ENVIRONMENTAL

1. The ambient operating temperature shall be 0° to 40°C (32° to 104°F).
2. The storage temperature shall be -40° to 70°C (-40° to 158°F).
3. The operating humidity shall be 5% - 95% non-condensing.

F. STANDARDS COMPLIANCE

1. EMC emissions to EN50081-1, EN55014; EMC immunity to EN50082-1, IEC1000-2-2; Safety: EN60950, EN60439 Part 1 (also part 12 BS5486); design & build: ISO9000, UL1950.
2. The Node shall be CE UL & cUL listed.

G. INCLUDED FURNISHINGS

1. ShowNet Network Configuration Software
   a. Windows based software to configure DMX over Ethernet data distribution systems for use with Networker or stand alone configurations.
   b. Configurations can be saved to disk on PC and down-loaded to nodes when required. PC is not required to run ShowNet.