

LightSwarm Audio and Lighting Controller

LS-A16P400

ADVANCE INFORMATION



LS-D64P400 shown. LS-A16P400 is similar in appearance

The LS-A16P400 is an audio and lighting control system designed to control LED lighting and provide audio playback in architectural models, exhibitions displays, signage, and any environment requiring multiple channels of independently controlled lighting combined with audio output.

The **LS-A16P400** is both a stand-alone or networked controller able to manage combinations of audio, lighting and other events in response to the closing of a contact, or by receiving a command from an external device.

Contact triggering devices can include push button switches, motion sensors, footpad detectors, pressure sensors, temperature sensors, and other detection devices. Therefore light and audio effects can be triggered by touch, motion, and environmental factors such as temperature.

16 channels are available that can be configured either as contact inputs or as outputs. When configured as outputs, the first 10 channels can also provide variable brightness control.

The device features a high quality MP3 player with an on-board stereo amplifier. Up to 256 audio tracks can be played in response to the input stimuli mentioned previously. Random playback and other audio functions are configurable.

- Plays up to 256 audio tracks on command.
- Up to 16 output channels
- Up to 16 input channels for push-button inputs or detecting contact closures.
- User programmable to allow contact closures to commence timed events and sequences.
- Multiple modules can be daisy-chained together with other devices that support the LightSwarm protocol.
- On-board bus interface and USB interface.
- Industrially designed for mounting inside models and displays.
- Modules can be remotely controlled and distributed around large display suites.
- Can also be controlled from touch screens, handheld keypads, and other devices.

An Event Management System (EMS) is included to allow these stimuli to trigger a complex set of events that includes timed audio and lighting sequences, and can also trigger events in other control systems on the network. The EMS is user programmable using tools provided with the system.

Examples of actions the controller could perform are:

- Commence a succession of lighting sequences combined with audio playback when foot pressure is detected near an exhibition.
- In response to a button press play a voiceover track, and during the playback various outputs are turned on to highlight features on a model or display.
- Commence an audio and lighting show in response to a keypad command, and also control other LightSwarm devices to add dozens of additional lighting channels.

The **LS-A16P400** is a member of the LightSwarm family of modules. LightSwarm modules share a common communication bus that allows multiple devices to be controlled easily by one or more master stations.

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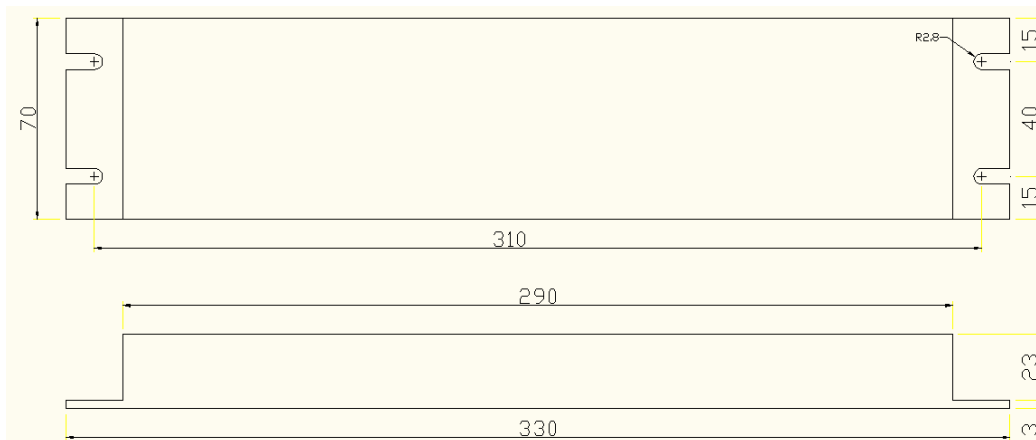
Technical Details

Number of output channels:	Any of the 16 I/O lines can be configured as an output channel
Number of input channels:	Any of the 16 I/O lines can be configured as an input channel
Operating Voltage:	12 volts DC nominal (10 to 14 volts DC)
Maximum output current per channel:	LED: 400 milli-amps at 12 volts DC (4.8 watts) Incandescent: 300 milli-amps at 12 volts DC (3 watts)
Power Consumption (internal electronics):	350mA (sourced from channels 0-7 power input)
Power Configuration:	2 power supply inputs, one for each group of 8 channels
Power Protection:	In-line blade fuse holder supplied.
Pulse Width Modulation:	256 steps, 150 Hz, available on output channels 0 to 9
Fade Control:	Fade up/down to level with 1/100 second steps
Switching:	Low-Side switching (common positive rail)
Audio:	MP3 audio playback (stereo) Audio files are stored on removable USB flash drive Supports flash drives up to 2GB capacity
Audio Amplifier:	Optional 8W+8W stereo amplifier (for 8 ohm speakers)
Dimensions:	(W) 310mm x (H) 70mm x (D) 26mm
Interfaces:	2 x RJ25 LightSwarm bus interfaces 1 x USB Type Mini-B connector for serial interface for commands 1 x USB Type A for USB Flash Drive Plug and socket screw terminals for input/output and audio amp 3.5mm stereo line-out for non-amplified audio output
LightSwarm Bus baud rate:	9600, 38,400 and 128,000 bps
Construction:	Black anodized 3mm mounting plate and fascia.
Indicators:	16 LEDs show status of each channel 4 LEDs for power indication, heartbeat, bus activity, and fault
Number of pseudo-addresses:	TBA

Shipping Contents

Each **LSA16P400** is supplied with removable screw terminal plugs, in-line fuse assemblies, a selection of fuses, and a 300mm LightSwarm bus interface cable.

Mechanical Layout



LightSwarm bus

The LightSwarm bus is a 4 wire interface that multiple LightSwarm modules connect to for communications purposes. A bus will typically have one or more master devices (e.g. a handheld keypad), and one or more slave devices such as a **LS-A16P400** lighting controller.

The bus is physically similar to modular connectors used on telephone systems. The electrical levels are RS485 compliant. The protocol is a propriety protocol designed specifically for architectural and lighting display systems. It is a highly efficient and simple protocol, minimizing the overheads required by master devices. Most programmers familiar with Visual Basic would be able to create kiosk style touch screen controllers that interface to the bus.

Addressing

The **LS-A16P400** occupies 256 addresses within the protocol address range. A DIP switch sets the base addresses. The channel address is calculated by adding the channel number to the base address. For example, if the base address is set to 1024, then the addressable range for a 256 channel module is 1024 to 1279.

Combinations of different types of LightSwarm modules can share the same bus, extending the number of available channels to much higher levels.

LightSwarm Commands

The **LS-A16P400** supports the following LightSwarm protocol commands:

MDP_ON	Set channel on
MDP_OFF	Set channel off
MDP_LEVEL	Set channel level
MDP_FADE	Set channel fade
MDP_PADDSET	Set channel pseudo address
MDP_PADDERASE	Erase channel pseudo address table
MSP_AUDIO	Controls audio playback functions

PRELIMINARY INFORMATION – SUBJECT TO CHANGE