



Hannah Montana Stage

“Quiet on the set, everyone.....” the director announces. A second later, one loud ring of the bell, red light beacons flash outside the stage doors, huge cooling fans slow to a silent speed, “Rolling, and..... Action!” shouts the director on the stage of the Hannah Montana show in Hollywood, California. The actors perform the sketch they’ve rehearsed all week and the studio audience laughs after each gag. When the director shouts “Cut!”, the bell rings twice, red light beacons become dark, and the supply fans ramp up to pump 140 tons of chilled air full speed onto the stage.

Traditional red light controls used in movie making are comprised of hardwired relay logic based systems. As performance sets are reconfigured, the controls often require re-wiring and are difficult to integrate with the mechanical systems that cool the stage. At Tribune Studios in Hollywood, California, a new red light control system has been deployed based on open/ interoperable LONWORKS network technology that includes LONMARK certified control devices from four different manufacturers – Hubbell, Echelon, Yaskawa, and Functional Devices. Each device provides specific red light system control functionality and communication over a free-topology link power LP-10 twisted pair media channel.

When the sound engineer receives instruction from the director that the performance scene is about to commence, he presses one of three buttons on a handheld Hubbell control pendant which then transmits a network variable message to a smart relay device made by Functional Devices that rings the ‘Ready’ bell once. A second ‘Red Light’ button on the pendant sends a network variable to additional Functional Devices wired to red light beacons outside stage entrances. The same network variable is received by an Echelon Lonpoint device which initiates a fan speed network variable sent to Yaskawa variable speed drives on four chilled water air handlers high above the stage floor. When the third ‘All Clear’ button is pressed, a network variable is sent onto the network, which rings the bell twice, shuts off the red-light beacons, and ramps the air handler fans up to a configurable speed level.

An iLON100 internet server provides for web browser based monitoring and control of the system from the studio maintenance offices. Fan speeds during and

after filming are easily adjusted through the web interface according to comfort and sound requirements. Additionally, maintenance technicians can quickly schedule cooling system operation as well as shut down operations when the performance wraps.



Prior to automation, the state of the HVAC plant on stage 5 was such that it had either a 100% on or 0%, with no load or demand control, and obviously drawing much more power than required. Since implementation of the automation system, the plant is cycling on demand, cutting power consumption (based on on/off time of the compressors) by as much as 50%.

Service calls in order to address temperature related discomfort have been reduced dramatically, as any issues can now be handled directly from a work station.

All the electrical gear, as well as the switch gear that controls the stage air conditioning, which historically has had some heat problems due to overloading or inefficient consumption, is now in excellent shape.

Albert Blondeel-Timmerman is the electrical foreman for Tribune Studios who specified an intelligent red light control system during construction of the Hannah Montana set. “Since production companies come and go often here at Tribune, we wanted a system that could be easily reconfigured without wiring changes” Albert commented. “Plus, we wanted a control system that provided low speed air conditioning during performances without creating noise issues. An added benefit was the remote user interface that allows us to monitor stage conditions and quickly respond to client requests.”

“Our operating costs have risen steadily in the past few years,” continues Albert, “mostly due to rising rates and 24-7 operations, so there is no documentation we can provide which clearly illustrates the effect on our

Visit our website for more case studies: www.lonmark.org/connection/case

utility bills. But from 30 years experience, I can tell you that our retrofit program with high efficiency lights, and now our automation program have been the biggest factors in controlling costs and improving client service. Since implementation of the automation system, the plant is cycling on demand, cutting power consumption (based on on/off time of the compressors) by as much as 50%! In addition, we have virtually NO temperature related service calls on a stage where we used to have 4 or 5 every shoot day! We have also been able to use the stage's demand control plant to supplement the aging units on stage 4 (which were always insufficient for the load). This has helped us to avoid the expense of replacement of and additions to those units. We have also saved on labor by being able to effectively troubleshoot the units remotely from the graphic computer interface, so when we go to the rooftop, we already have materials and tools required to effect repairs.

"In building 21, we took existing units and transformed them into as close to a true multi-zone system as you can get with a DX system. This avoided the cost of installing individual units for post production space, which, at about US\$10K per incident times 20 spaces, would have been cost prohibitive. We have essentially created a load sharing condition that allows us to get the maximum efficiency while maintaining client comfort and protecting valuable technical equipment. With the automated alarm system we have been able to address problems and make repairs without the client ever even knowing there was anything wrong, and avoiding costly damage to equipment. With more effective staging and demand control and the installation of static pressure controls we are using the equipment much more efficiently with an operational costs savings estimated to be about 10% to 25%. We have also seen a dramatic reduction in temperature related service calls, which we can now address in a few minutes from our work station", added Albert Blondeel-Timmerman.

Control Devices Included

Hubbell LX Series Switch station – four button
LONMARK certified
SIMLXSW4

Functional Devices LONMARK Relay
LONMARK Certified
RIB2401B-LN

Circon General Purpose Controller
LONMARK Certified
SCC310GPC

Echelon LonPoint
LONMARK Certified
DIO-10

Yaskawa Variable Speed Drive
TM-E7
LONMARK 6010 Functional Profile

Infrastructure Devices

Douglas Lighting Link Power Interface
Model ALC3-2800-750

Echelon i.LON100 Internet Server

Communication Channel

FT-10 Twisted Pair media
Free Topology wiring structure

Network Management Tool

LonMaker Integration Tool

Network Management Platform

LONWORKS Network Services

Human Machine Interface

Internet Explorer 6.0 web page

HMI development Tool

i.LON Vision and Macromedia Contribute

Contact:

Greg Powell
info@enerlon.com



550 Meridian Avenue
San Jose, CA 95126, USA
Tel: +1 408-938-5266
www.lonmark.org