General

Many times there is a need to convert various signal types, buffer them or even provide distribution or switching for these signals. Our new "Linker System" provides a very cost effective means to provide all these functions. Properly configured with the appropriate modules it can be a "drop-in" replacement for many units from APCOM or other companies, but with higher quality, additional capability, features and newer technology in addition to being built in our ISO 9001 factory.

The 3RU high LS1601A provides the system professional with an uncompromising combination of modularity, high performance and high reliability. The unique design provides sixteen module slots where any combination of modules can be installed from the rear of the unit and (depending upon the module type) can also provide front panel indicators, adjustments and test points to the user. Most modules typically have the signal connectors at the rear.

The unit's modules are hot-swap capable and the frame can be populated with redundant (two) power supplies to deliver the ultimate in system reliability for critical applications.

A number of various digital or analog modules are available and can be mixed and matched within the same frame. Each slot is addressable so that the user can monitor or control an individual module independent of another with the optional plug-in C3-LS CPU with Ethernet port. The LXI certified CPU provides the user with web browser control and TCP/IP, SNMP access to remotely monitor and control the system over a 10/100BaseT connection. Power supply, fans and unit health is available remotely as well.

Applications

- Communication installations
- Airborne surveillance systems
- Digital broadcast facilities or production studios
- Protocol or interface convertors
- Signal buffering and re-generation
- Distribution, switching or conversion of signals
- Analog and digital modules available

Features

- Modular rugged .3RU aluminum frame system
- Sixteen module capacity in 3RU unit
- Built-in daisy chain bus for scalable distribution
- Monitored cooling fans
- Sum-bus available across all module slots
- Various signal connectors available
- Redundant monitored hot-swap power supplies
- Optional Ethernet M&C port (10/100) with browser
- International AC power input
- Certified CE EN61010 (LVD)
- LabVIEW drivers available

Front View
(with 5 modules installed)

LS1601A-2016-03

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Front and Rear Features

The LS1601A mainframe has standard 19 inch type front panel with built-in rack mounting features, black anodized equipment handles, and a unique "open window". This unique feature provides a means for the rear installed modules to present additional features to the user directly at the front of the unit such as LED's, test points, adjustments or other features that the LS16 modules contain.

Shown below is the standard LS1601A mainframe unit with two modules installed. Non-populated slots have filler plates installed to complete the configuration. On the previous page, the large "open window" is presented to the user for quick and easy access to various critical functions on various modules.

Also located on the front panel are two status indicators which are operation when the unit is ordered with the optional Ethernet M&C port (C820-LS). Also on the front panel is a health indicators for each of the two power supply positions. These are driven directly from each installed self-monitoring power supply.

The front panel is painted with semi-gloss enamel FED-STD-595B with a standard grey #26440 color and black silk-screening. The panel is 0.125 thick with 0.187 optional. The backside of the front panel has no paint and is plated with a conductive chem-film finish for excellent system grounding.

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Universal Switching Corporation

Unique Features

The "open window" design (front to back) on the LS1601A mainframe can be seen in the photo below. Up to sixteen application modules can be installed at the rear. In addition, one or two self-monitoring power supplies can also be installed. Installing two power supplies (Model PSLS01) provides system power redundancy (shown below).

The LS1601A mainframe is designed to be lightweight as well as rugged. The all aluminum shell construction is augmented by an attractive black texture coat painted enamel finish on the top cover, conductive chem-film plated bottom and baked enamel painted front panel . A 10-32 ground stud is available for additional system grounding if required.

Behind the "open window" feature of the front panel, application modules engage a protected backplane for supplying DC power, a sum-bus, slot addressing as well a daisy-chain bussing scheme. This unique "open window" feature provides a means for the rear installed modules to present additional features to the user directly at the front of the unit such as LED's, test points, adjustments or other features that the LS16 modules contain.

The bussing scheme alows for the capability to pass signals from one module to the next for additional signal distribution and fan-out.

Shown below is the standard LS1601A mainframe unit configured with dual power supplies and the optional M&C CPU assembly, and two modules installed. Filler plates have been installed to complete the unit.

Rear shown with dual supplies installed
and fully populated with sixteen modules

Plug-in Supplies

DC-6GHz Relays

RF-Over Fiber
Single & Dual Channel
(Rx and Tx)

Distribution Amps

Typical plug-in modules include power supplies, coaxial relays, distribution amplifiers, and now RF-Over-Fiber modules.

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Universal
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System LS1601A "Linker"

The Linker System has many possible features and capabilities. Below are some popular modules and options.

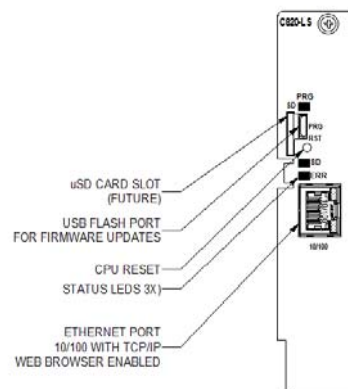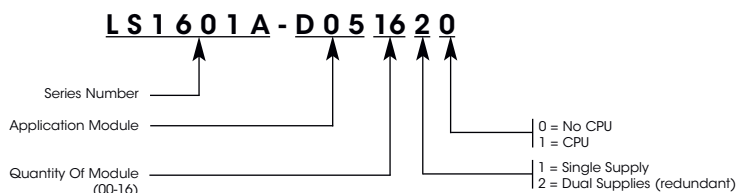**Model Number**   **Description**

- LS1601A   Empty frame without power supplies or M&C
- PSLS01-150   Plug-in power supply with monitoring (150W): up to two in a frame
- C3-LS16   M&C CPU with 10/100 Ethernet and web browser support

Application Modules (contact factory for specials or other configurations)

Model Number   **Description**
- LS16-A07   1x6 analog video distribution amplifier, BNC connectors, 75 ohm impedance, six outputs with individual gain adjustment, DC offset control, wide-band (DC-40MHz min), over voltage detector with set-point adjustment, signal detector

- LS16-D05   1x6 digital distribution & convertor, switchable input impedance, bal/unbal input selection, 3 differential (422) outputs and 3 single-ended outputs, front panel monitor test point

- LS16-D09   Dual 1x2 digital TTL distribution, selectable input impedance, single-ended TTL outputs, front panel monitor test point

- LS16-FR1/2   Single/Dual channel RF-Over-Fiber Rx Module (20MHz-3GHz), SMA, 50 ohm impedance

- LS16-FT1/2   Single/Dual channel RF-Over-Fiber Tx Module (20MHz-3GHz), SMA, 50 ohm impedance

- LS16-S04   Passive (bidirectional) 1x6 relay mux, BNC connectors, 50 ohm impedance, six output ports on the rear, one input port at the rear, input test port on the front (10K ohm in series), user configurable input termination value (50, 75, none).

- LS16-S12-x   Passive (bidirectional) dual 1x2 relay (redundancy switch), BNC/SMA connectors, 50/75 ohm impedance, available terminated or normally open

- LS16-S06-x   Up to four passive (bidirectional) 1x6 relay muxes, SMA connectors, 50 ohm impedance, ports on the rear, DC-18GHz bandwidth, current monitoring.

Model Number Definition

LS 1 6 0 1 A - D 0 5 16 2 0

Series Number

Application Module

Quantity Of Module (00-16)

0 = No CPU
1 = CPU

1 = Single Supply
2 = Dual Supplies (redundant)

C820-LS

uSD CARD SLOT (FUTURE)

USB FLASH PORT FOR FIRMWARE UPDATES

CPU RESET

STATUS LEDS 3X)

ETHERNET PORT 10/100 WITH TCP/IP WEB BROWSER ENABLED

Model LS1601A Specifications

Capacity . . . . .Sixteen application modules
Signal connector location . . .Rear panel (typically)
Module installation . . . . .From the rear
Module types . . . . .Both digital and analog available
Power supply section . . . . . . .Plug-in type, redundant available
Power supply monitoring . . . .Included
Ethernet port . . . . .10/100BaseT optional (C3-LS16)
Status LED's . . . . .Front panel
Front panel type . . . . .Open window)
Configuration memory . . . . .FLASH (C3-LS16 optional)
Memory retention . . . . .User determined (C3-LS16)

Cooling . . . . .Fan assisted
AC power requirements . . . . .90-264VAC, 47-440Hz, 160Watts (max)
Fuse protection . . . . .2A, 5mm (dual)
Weight . . . . .9 lbs
Size . . . . .3.72H x 10.50D x 19.00W (3RU)
Operating temp . . . . .0 to +60C
Non-operating temp . . . .-20 to +85C
Humidity . . . . .0 to 95% (NC @ +25C)
MTBF . . . .>125,000 hours
Warranty . . . . .2 years
Certifications . . . . .CE EN61010