



KA.8



JLCooper Electronics

Serious About Control













20 Years of Innovation



Control, Automation, Synchronization & Interfacing Products

MCS-3800 Media Command Station



As the 1998 Winner of Videography Magazine's "Editors Choice Award", MCS-3000 Series products are the pinnacle of our control station product line. MCS-3800 and other Media Command Station's are being used and supported by AVID, CBS, CNN, Digidesign, Discreet, DPS, Leitch, Editing Technologies, IBM, Incite, Autodesk, MOTU, Merging Technologies, NBC, Newtek, Panasonic, Phillips, Pinnicle, Softimage, Soundscape, 3DV Systems and many others.

MCS-3000 Series – Media Command Stations provide direct control of popular computer–based workstations and hard disk recording systems for audio and video production, post production and other applications.

You can record, edit and mix your projects to perfection, using an automated, moving fader, tactile control surface from JLCooper Electronics, the industries most widely used control surface technology.

Features include touch-sensitive motorized faders, an array of 60 programmable function keys, back lit LCD and LED dual displays, 5 rotary encoders, professional transport controls, a full size numeric keypad and a balanced concentric jog wheel with shuttle ring.

MCS-3800[™], MCS-3400[™] and MCS-3000[™] expand to offer as many as 64 moving faders with over 300 physical function keys and a wide variety of control options. Beautifully sculpted with an optional simulated stone (granite) trim and wrist rest, the MCS-3800 is a solid professionally crafted controller. It's a proven control solution in demanding professional environments.

With 100 locate points and built in SMPTE/EBU and MTC readers, Command Stations provide a coherent universal control of your busy production environment.

MIDI I/O is standard. Two expansion slots let you include interface cards for complete control. Cards include RS-422 P2 for 9-Pin VTR Control or Host Mode, RS-232, GPI, USB, Quad 9-Pin, Quad-MIDI and Ethernet.

As a third generation moving fader controller, the MCS-3000 Series truly advances the state of modular, tactile, virtual control for non-linear editing systems, hard disk recorders and digital mixers. With a variety of expansion options, its uses are limited only by your imagination!

MCS-3000 Series Features

- Adds Tactile Controls to Digital Audio and Video Workstations
- For Professional Music & Video Production and Post Applications
- Provides Access to On–Screen Mixing and DSP Functions
- Built in SMPTE/EBU and MIDI Time Code Reader
- A Variety of Flexible Configuration Options
- Basic JLCooper Electronics CS-10^e Compatibility
- Low Profile and Compact Design with Heavy Duty Construction
- 100mm Motorized Touch Sensitive Moving Faders
- 60 User Programmable Function Keys

- 5 Physical Rotary Encoder Controls
- Concentric Jog Wheel and Shuttle Ring (Optically Encoded)
- 2 x 40 Character Back-lit LCD with Contrast Adjustment
- Full Size Numeric Keypad
- Programmable Fader Touch Sensors
- Sends Various MIDI Messages Including MIDI Machine Control
- 2 Card Slots for Control Options including GPI, RS-422 Master (9-PIN for VTR Control), RS-422 Slave, RS-232 and Ethernet.
- Expandable to 64 Fader Channels Using MCS-3000X
- "W" Models Include Contoured Simulated Granite Wrist Rest

Other MCS-3000 Series Models and Expansion Options

The demands placed on a controller differ widely, depending on the type of editing and the amount of space available. That's why Media Command Stations are designed with a unique, modular approach.

MCS-3000 Series controllers are offered in a variety of flexible configurations. Options can be combined to form a custom configuration for your specific requirements and budget.

MCS-3800 Media Command Station

The MCS-3800[™] is an eight fader console with a full complement of necessary controls. It features touch-sensitive motorized faders, 60 function keys, full size numeric keypad, professional transport controls, LCD and LED displays, MIDI I/O and 2 expansion slots for other optional interfaces. It serves as a hub for an expanded system with a wide variety of optional accessories for custom requirements.

MCS-3800 Physical Specifications	MCS-3800w Physical Specifications
■ 20.15" x 9.75" x 2.00" (W/O Wrist Rest)	■ 22" x 12.5" x 2.00" (W/Wrist Rest)
Weight 15 lbs.	Weight 18 lbs.

MCS-3400 Media Command Station

The MCS-3400[™] is a smaller main console for applications where space is at a premium or fewer than eight faders are required. It features four touch-sensitive, motorized faders and it's smaller size makes it the ideal addition to personal editing suites. It may be fully expanded with a variety of options and it can be used with a many computer-based editing systems. It is otherwise identical to the MCS-3800.

MCS-3400 Physical Specifications ■ 16.5" x 9.75" x 2" (W/O Wrist Rest) Weight 10 lbs.

MCS-3400w Physical Specifications ■ 18" x 12.5" x 2.00" (W/Wrist Rest) Weight 12 lbs.

MCS-3000 Media Command Station

The MCS-3000[™] is the basis of the MCS-3000 Series product family. It is a smaller main console for applications where space is at a premium or no faders are required. MCS-3000 Series controllers are used daily in audio editing, video editing, compositing, broadcast, slo-motion control, animation, virtual reality, live sound reinforcement, lighting control and other specialized applications.

MCS-3000 Physical Specifications 13" x 9.75" x 2 (W/0 Wrist Rest) Weight 8 lbs.

MCS-3000w Physical Specifications ■ 14.5" x 12.5" x 2" (W/Wrist Rest) ■ Weight 10 lbs.

MCS-3000x 8 Channel expander/Controller

The MCS-3000X[™] is a fader expander for the MCS-3000, MCS-3400, and MCS-3800. Alternately, it can be used as a stand alone controller with most MIDI software programs. It features 8 touch-sensitive motorized faders, 32 switches, and built in MIDI I/O. Up to seven MCS-3000X's can be joined to form a console with up to 64 touch sensitive moving faders.

It controls AVID's Media Composer, Film Composer and Xpress, Digidesign's Pro Tools, and most computer based MIDI software including programs from Cakewalk, Emagic, Mark of the Unicorn, Steinberg and others.

MCS-3000x Physical Specifications ■ 9.25" x 9.75" x 2.00" (W/0 Wrist Rest) Weight 8 lbs.

MCS-3000xw Physical Specifications ■ 11" x 11.25" x 2.00" (W/Wrist Rest) Weight 9 lbs.



MCS-3800w



MCS-3400w



MCS-3000w







MCS-ClipShot - Tactil e Pal ette



MCS-ClipShot[™] is the newest addition to the MCS-3000 Series - Media Command Station product family. It's a tactile switch palette with 40 multi-colored 24 x 32 LCD buttons (capable of displaying text and graphics), 20 lighted buttons and a 2 x 40 backlit LCD display.

It can be used as a stand-alone controller, or it can be interfaced with other MCS-3000 Series modules to form a larger console. It connects with an MCS-3000, MCS-3400 or MCS-3800 using a modular telephone cable, and has 2 - MCS-3000 Interface Card Slots for a variety of connections including RS-232, RS-422, USB, Ethernet, Quad MIDI, Quad 422/9Pin & GPI.

MCS-ClipShot provides Instant Video Clip Access or Audio Playback Triggering in broadcast, post production and other professional applications. It's LCD buttons also function as a

```
Physical Specifications

Size - 13" x 10" x 2.5"

Weight - 20 lbs.
```

QWERTY keyboard for your computer, eliminating the need for a traditional keyboard for naming clips.

MCS-ViewPoint - Expander/Controller

MCS-ViewPoint[™] is an industrial-quality, 10.4" LCD TFT/VGA display and touch screen monitor that mounts behind the control section of an MCS-3000, MCS-3400 or MCS-3800. It provides a fast, convenient and integrated way to control virtually any software applications. It is a multi-resolution

display, capable of up to 800 x 600 screen resolution. MCS-ViewPoint eliminates the need for a mouse to control basic software functions and saves valuable desk space.

Physical Specifications	
Size - 10" x 7.75" x	(1.75"
Weight - 4 lbs.	





MCS-Bridge - Channel Display and Pan Option

 $MCS\text{-}Bridge^{\text{TM}} \text{ further expands the physical controls of Media Command Station. It mounts behind the fader section on an MCS-3800 or MCS-3000X. The MCS-Bridge provides a large, back-lit/push-button LCD display for each channel. The unique LCD display/button can show text and graphics, and can change color to indicate track status or other mission critical$

information. Additional controls include 2 push–button, rotary encoders, and a 2–axis joystick for each channel.

Physical Specifications Size - 9.25" x 6.25" x 2.0" Weight - 3 lbs.

MCS-Tracker 3000 - Track Arming Controller

MCS-Tracker[™] provides dedicated track arming buttons, function keys and track status indicators for the MCS-3000 Series. It features 32 track arming buttons, and Dual LED's for each channel provide highly visible confirmation of track status. Function keys provide track grouping, all safe, bank change and three user-definable groups.

(The MCS-Tracker is also available as an MCS-Pro Series low profile package that operates as a stand alone MIDI/ MMC version. See Page 10 for more information.)

Physical Specifications Size - 11.5" x 8.0" x 2.5" Weight - 6 lbs.





MCS-Panner

 Physical Specifications

 Size - 6.25" x 11.25" x 2.5"

 Weight - 3 lbs.

Three Axis Joystick Controller

The MCS-Panner[™] is a high-quality, 3-axis joystick mechanism with five rotary encoders and 10 switches, that controls surround panning for digital audio mixers and workstations. You can join it to an MCS-3000, MCS-3400 or MCS-3800 to form a larger console or or you can use it by itself as a stand alone Surround Panning Controller using the optional MCS-Panner MIDI Adapter. MCS-Panner interfaces with a variety of digital mixing consoles to control surround features via the optional MCS Panner MIDI Adapter. In addition, MCS-Panner also sends MIDI Controllers, which your mixer can "map" to control a variety of other features.

MCS-Orbiter

 Physical Specifications

 Size - 6.25" x 11.25" x 2.5"

 Weight - 3 lbs.

Touch-Sensitive - Motorized Joystick Control I er

MCS-Orbiter[™] is a Motorized Joystick Controller for the MCS-3000 Series. It features a high-quality professional controller that is both motorized and touch sensitive, making it the essential controller for surround mixing, animation and other applications. The joystick allows you to precisely input position-related automation moves. Like motorized faders, it dynamically tracks previously written moves. Touch-sensitivity lets you perform "takeover" edits; you can grab the joystick at any time to enter new positional information. The MCS-Orbiter features 5 rotary encoders and 9 function keys. It operates as a stand-alone controller, or may be joined to other MCS-3000 Series products to form a larger console.





MCS-Wiper - transition Controller

MCS-Wiper[™] controls cuts, dissolves, slo-mo and other transitions in video editing and animation software. It provides a smooth, high quality (Penny & Giles) T-Bar style video fader with five rotary encoders and eight buttons for controlling on screen functions in your editing software. It can be attached to a MCS-3000, MCS-3400 or MCS-3800 to form a larger console.

Physical Specifications

Size - 6.25" x 11.25" x 2.5"
Weight - 3 lbs.

MCS-3000 Series Interface Cards	
MCS 3000 Series USB Interface Card This plug in card option for the MCS-3000 Series – Media Command Station allows connection to computers via USB. Use our included Driver and Application software to map the MCS-3000 functions to on-screen key and mouse equivalents for even more control.	
MCS-3000 Series RS-232 Interface Card The addition of this plug in card for the MCS-3000 Series lets you configure your Media Command Station for direct computer control. Simply plug the interface card into one of the slots in a MCS-3000, MCS-3400, or MCS-3800 and you're in control. Baud rate is adjustable.	
MCS 3000 Series 9-Pin/RS-422 Interface Card This card provides direct 9-Pin control of professional VTR's and DDR's, or it can be used to interface your Command Station directly to a serial port on your computer. Commands from a host computer can be passed through the MCS and be directed to the individual machines.	
MCS 3000 Series Quad 422 Card This card allows connection of up four professional VTR's or DDR's for control of transport, track arming, locates and other functions Commands from a host computer can be passed through and directed to individual machines. With the addition of the Quad 422 Card, the MCS is not only a remote for your NLE or broadcast system, but also an interface for multi-machine control.	
MCS 3000 Series CPI Interface Card This plug in card for the MCS 3000 Series – Media Command Station interfaces to any device that needs a General Purpose Interface (switch closure) connection. It provides eight CPI Outputs and one GPI input. Simply install the interface card into a slot in the MCS 3000, MCS 3400, or MCS 3800.	
MCS-3000 Series Quad MIDI Card This card adds additional MIDI Inputs and Outputs to the MCS-3000 Series. The MCS, with the Quad MIDI Card installed, has four separate MIDI Ins and Outs. This facilitates connection to multi- port MIDI interfaces and reduces the MIDI bandwidth per port for improved overall efficiency.	æ
MCS-3000 Series Elbernet Interface Card This new interface card provides a direct 10baseT ethernet connection for controlling network based applications or situations where a long cable run is required. It simplifies the connection to your computer or LAN, and keeps the clutter of cables on your desktop to a minimum.	



ES-450 Universal Jog/shuttleremote

The ES-450 - Universal Jog/Shuttle Remote makes the operation of professional video recorders fast and easy.

Controls Most Professional VTR's and DDR's

The ES-450 is a fully functional 9-Pin/P2 Universal Jog/ Shuttle Remote Controller for VTR's or DDR's.

It's completely compatible with most professional machines including most BVW, UVW and other decks.

The remote is designed for fast and easy editing. It incorporates a keyboard layout which minimizes key strokes, a Jog/Shuttle Wheel for convenient picture search operations, a back-lit LCD Time Code display for easy and accurate editing and much more.

The ES-450 is available with a 9-Pin/RS-422 serial connector.

It can be connected to various machines, such as the VO-9850 series U-matics and other 9-pin equipped VTR's and DDR's from Sony, Panasonic, JVC and others.

Tactile Editing Functions

Functionality is at your fingertips with clearly labeled buttons and a natural-feeling key arrangement that helps you work quickly. The ES-450's functions are laid out for fast and intuitive operation without having to tediously scroll through menus to get to often accessed features.

Access to Forward Play, Reverse Play, Rewind, Fast Forward, Still/Stop, Shuttle Select, Frame +, Frame-, Mark In, Mark Out and Eject are arranged in an array around the wheel in easy reach. Record controls include Crash/Full, Assemble, Insert Video, A1, A2, A3 and A4 modes.

The Numeric Keypad provides easy entry of "search to time" locate operations.

Now there is an alternative to large, cumbersome and costly remotes that consume your valuable desk space. ES-450 is the first choice for professionals in control.

Audio Editing

The ES-450 provides an audio split function, which allows the audio edit in-point to be set differently from the video edit inpoint. The ES-450 can effectively edit sound or music as well as it does video.

ES-450 Physical Specifications Size - 6.5" x 10.5" x 3.5" Weight - 4 lbs.

ES-450 Universal Jog/Shuttle Features

- Professional Quality Compact Remote Control
- Sony Jog/Shuttle Mechanism
- High-Quality, Tactile Transport Keys
- Function Keys Provide Direct Access to Frequently Used Editing Features Including Shuttle Select, Frame +, Frame-, Mark In, Mark Out, Eject and Others
- Back-Lit LCD Time-Code Display
- RS-422/9-Pin Interface
- Numeric Keypad for Time Code Entry
- Durable All Metal Construction

MCS2 Media Control Station²

Media Control Station² is the ultimate compact remote. It features large buttons for Record, Play, Stop, Fast Forward, Rewind and other editing functions. A precision optically encoded jog/shuttle wheel lets you jog or shuttle effortlessly with frame accuracy.

MCS² software, included with the Mac and RS-232 versions, lets you use and customize presets for controlling software from Adobe, AVID, Media 100, Macromedia and many others.

Four versions are available for controlling 9-Pin/RS-422 compatible Video Tape Recorders, computer based audio and video editing systems, hard disk recorders and more.



MCS² Physical Specifications Size - 8.5" x 3.25" x 1.5" Weight - 2 lbs.



MCS² Features

- Professional Quality Compact Controller
- Provides Remote Transport Control
- Remotely Controls up to 20 Different Functions
- Durable All Metal Construction
- Available Models (Specify When Ordering) MCS² Mac (ADB) with Software for Mac OS. MCS² MIDI with MIDI Machine Control. MCS² 9-Pin for VTR Control. MCS² RS-232 w/Software for Windows 98/NT.



MCS² RS-422/9-Pin Version

Media Control Station² 9Pin features professional transport buttons, a precision optically encoded jog wheel and jog/shuttle control button. Shift and Option modifier keys let the MCS² send more than 20 different control messages including RTZ, Video, Insert, Reverse Shuttle at Play Speed, Audio Track Arming and more. MCS² 9Pin is our compact, low-cost RS-422/P2 compatible universal VTRor DDR jog/shuttle remote.

MCS² MIDI/MMC Version

Media Control Station² MIDI/MMC features transport buttons, a precision optically encoded jog wheel and jog/shuttle control button. Shift and Option modifier keys let the MCS send more than 20 different MIDI Machine Control (and General Purpose Controller) Messages, including Track Arming.

MCS² sends MMC messages for controlling a variety of compatible hard disk recorders and computer based editing systems. Use it with recorders from Akai, Fostex, Mackie Roland, Tascam, and others.

MCS² RS-232 Version

Media Control Station² RS-232 features professional transport buttons a precision, optically encoded jog wheel and jog/shuttle control button. Shift and Option modifier keys let the MCS² send more than 20 different control messages. Supplied software is compatible with Windows 98 and NT and can be used with any editing software program. It's our compact, low-cost jog/shuttle remote for Windows compatible applications.

MCS² ADB Version

Media Control Station² ADB features professional transport buttons, a precision optically encoded jog wheel and jog/shuttle control button. Modifier keys let the MCS² send more than 20 different control messages.

MCS² software (included) lets you use and customize supplied keysets for controlling any editing software program. Keysets are included for QuickTime compatible applications including Adobe Premiere, Apple Final Cut Pro, Media 100 and others.

MCS3-Media Control Station³

Media Control Station³ is a central component of our MCS-Pro Series.

It features professional transport buttons for Record, Play, Stop, Fast Forward and Rewind. It has 18 physical buttons for a variety of editing functions and the new V/Stick Navigation Control.

A precision, optically encoded jog wheel with a concentric shuttle ring lets you control audio or video effortlessly and with frame accuracy.

MCS³ Features

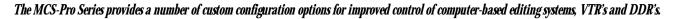
- Professional Remote Control for VTR's, MIDI, Audio, Video and Multimedia Software
- Provides Remote Transport Control
- Balanced, Optical Jog Wheel with Shuttle Ring
- Remotely Controls up to 24 Different Functions
- Permits Remote Track Arming
- RTZ and Shuttle Back at Play Speed
- Durable All Metal Construction
- Available Models (Specify When Ordering) MCS³ RS-232 with Software for Windows MCS³ USB w/ Software for Windows or Mac MCS³ RS-422/9-Pin for VTR Control MCS³ MIDI with MIDI Machine Control MCS³ ADB with Software for Macintosh MCS³S RS-422/9-Pin w/Sony Jog/Shuttle



Expanded MCS-Pro Series Configuration Examples



MCS³ Physical Specifications Size - 6.5" x 7" x 1.25" Weight - 5 Lbs.





MCS³ USB Version

Media Control Station³ USB version features professional transport buttons, a precision optically encoded jog wheel with a concentric shuttle ring and 18 function keys.

New Version 2 software for MCS³ Supports Mac OSX, Windows 98 and Windows 2000. It lets you use and customize supplied keysets for controlling Quicktime compatible software including Adobe (Premiere 6), Apple (Final Cut Pro 2), Media 100 and others. MCS³ works with any software program.

MCS³ RS-232 Version

Media Control Station³ RS-232 Version features professional transport buttons, a precision optically encoded jog wheel with a concentric shuttle ring and 18 function keys. Supplied software is compatible with Windows 98 and NT and can be used with any editing software program. MCS³ is directly supported by Discreet, Incite, Philips and other systems.

MCS³ RS-422/9-Pin Version

Media Control Station³ RS-422/9Pin version features professional transport buttons, a precision optically encoded jog wheel with a concentric shuttle ring and 18 function keys. It's a 9-Pin/P2 compatible universal VTRor DDR jog/shuttle remote with Sony BVU 800/900 emulation. It couples to MCS-Locator to provide a full function controller, capable of controlling up to 4 professional video decks.

MCS³ MIDI/MMC Version

Media Control Station³ MIDI/MMC version features professional transport buttons, a precision optically encoded jog wheel with a concentric shuttle ring and 18 function keys.

It sends MIDI Machine Control messages for controlling a variety of compatible hard disk recorders and computer based editing systems. Use it with recorders from Akai, Fostex, Mackie, Roland, Tascam, and others. It can be coupled with FaderMaster Pro, FM4/60, FM 4/100 or MCS-ProTracker to form a compact custom MIDI console.

MCS³ ADB Version

Media Control Station³ features professional transport buttons, a precision optically encoded jog wheel with a concentric shuttle ring and 18 function keys.

MCS³ software (included) lets you use and customize supplied keysets for controlling Quicktime compatible software including Adobe Premiere, Apple Final Cut Pro, Media 100 and others. MCS³ works with any software program.

MCS3s RS-422/9-Pin Version

MCS3s - with Sony Jog/Shuttle Mechanism

Features the familiar push-push jog/shuttle controller. Push wheel once for Jog mode. Push wheel again for shuttle mode. In shuttle mode, it features a detent "click" at play speed. Available in a RS-422/9-Pin version for controlling AVID Xpress, Symphony, Media Composer and Newscutter, or professional P2 compatible VTRs and hard-disk based VTR emulators.



MCS-Locator Video Cue Controller

This low profile machine controller has the ability to quickly cue up to four VTR's or DDR's via RS-422/9-Pin. Typical applications include Start, Stop and Cueing of video tape recorders and digital disk recorders. MCS-Locator features a full size numeric keypad for inputting locate points and a large 7 segment LED time–code display. It can be physically joined with MCS³ and other MCS-Pro Series Controllers.



With expertise in both automation hardware design and software development, JLCooper Electronics is a leader in quality mixing automation technology. A straight ahead user-interface makes our products extremely easy to learn and use.

FaderMaster 4/60



FaderMaster 4/60 is our new, low–cost MCS-Pro Series (low profile) Automation Controller. It features 4 - 60mm motorized faders, bank shift buttons, function keys and transport controls.

It's available in MIDI, RS-232, RS-422 and USB versions. FM 4/60 can used as a stand-alone device or may be physically coupled with MCS3, MCS-Tracker, MCS-Locator, FaderMaster Pro of multiple FM 4/60 units to form a larger console. The MIDI version can be used with most MIDI software programs to automate levels, effects and more.

FaderMaster 4/60 Features

- Controls MIDI, Audio, Video and Multimedia Software
- Select, Solo, Mute, Transport Controls and Other Functions
- Durable All Metal Construction
- Available Models (Specify When Ordering) Fadermaster 4/60 MIDI/MMC Fadermaster 4/60 RS-232 Fadermaster 4/60 RS-422 Fadermaster 4/60 USB

 FM 4/60 Physical Specifications
 Size - 6.5" x 8.5" x 1.25"

 Weight - 3 Lbs.
 Version 1000 - 1

FaderMaster 4/100



FaderMaster 4/100 is our newest, low–cost MCS-Pro Series (deep profile) Automation Controller. It features 4-100mm touch-sensitive, motorized faders, bank shift buttons and function keys.

It's available in MIDI, RS-232, RS-422 and USB versions. FM 4/100 can used as a stand-alone device or it may be physically coupled with the MCS³S (with Sony Jog/shuttle) for use with editing software including AVID Symphony, Composer, Xpress, NewsCutter and others. The MIDI version emulates the MCS-3000x and can be used with most MIDI software programs to automate levels and other features.

FaderMaster 4/100 Features

- Controls MIDI, Audio, Video and Multimedia Software
- Select, Solo, Mute and Other Functions
- Durable All Metal Construction
- Available Models (Specify When Ordering) Fadermaster 4/100 MIDI Fadermaster 4/100 RS-232 Fadermaster 4/100 RS-422 Fadermaster 4/100 USB

FM 4/100 Physical Specifications Size - 6.5" x 8.5" x 3" Weight - 5 Lbs.

10

FaderMaster Professional - MIDI Automation Controller

Works with AVID Symphony, Composer, Xpress, NewsCutter and Fast Silver! FaderMaster Professional[™] is engineered for the audio or video professional involved with automation or digital audio recording. You can easily control, mix and edit with MIDI sequencers, hard disk recorders, MIDI-controlled audio mixers, synths, samplers, and signal processors and computer based video editing systems from AVID Technology and more.

Professional Automated Mixdown System

FaderMaster Pro – MIDI Automation Controller provides the hands-on, tactile control you've been missing from your system. It features highquality 100mm long-throw faders. These smooth tracking faders give you precision control of your audio mix.

> FaderMaster Pro eliminates the aggravation encountered when using a keyboard or mouse to tediously mix or edit the volume of multiple tracks, just one-at-a-time. And it is fully programmable, for controlling volume, panning, EQ, digital effects, and many other parameters.

And if eight faders and buttons are not enough, multiple FaderMaster Pro units can be linked to form a larger console.

FaderMaster Pro has 20 programmable banks for storing controller configurations, plus, 50 Factory Presets for controlling Synths and Signal Processors.

FaderMaster Professional Features

- Eight Programmable High-Quality 100mm Faders
- Eight Programmable MIDI Buttons
- 1/4" Footswitch and Foot Pedal Inputs
- Internal Grouping, Scaling and End Point Adjustments
- Multiple Units can be Linked Together
- Lithium Battery Backed RAM
- More than 50 Factory Presets
- All Metal Construction
- Optional FMPro Software for Mac
- 12.25" x 6.75" x 1.5"
- Weight 7 lbs.



MCS-ProTracker - Low Profile MIDI Version

The "MCS-Tracker" features 32 track arming buttons and additional function keys. Dual LED's for each channel provide highly visible confirmation of track status. Function keys provide track grouping, all safe, bank change and other functions.

It may be interfaced with most popular digital audio recording devices that support remote track arming via MIDI Machine Control. MCS-Tracker may also be used with a variety of computer-based editing systems and music software programs for track arming and status functions.

MCS-ProTracker Physical Specifications
Size - 6.5" x 8.5" x 1.25"
Weight - 3 Lbs.

10² Control Station 10x Expander

JLCooper's Award Winning Control Station technology is being used industry wide in television and radio broadcast, recording, video post, and multimedia production. JLCooper CS-10² Control Stations are used and supported by Autodesk, Digigram, Digidesign, Merging Technologies, Soundscape, Steinberg and many others.

CS-10² Control Station

The CS-10² Professional Control Station[™] is the definitive control surface for Digidesign, Digigram, SoundScape, Steinberg and most other professional digital audio editing systems and software.

Musicians, video & film professionals, audio post and broadcast facilities love the CS-10²'s easy-to-use controls.

It provides complete transport, automation and digital signal processing functions without tedious mouse and key commands.

With large, tactile buttons for Record, Play, Stop, Forward, Rewind and other frequently used editing functions, you can concentrate on your project, not on your computer.

The optically encoded jog/shuttle wheel provides precise positioning and effortless scrub editing.

CS-10² Features

- Professional Tape Recorder Style Controls
- Six Rotary Knobs (Potentiometers)
- Eight 100mm Long Throw Faders
- Footswitch Input for Hands-free Operation
- Null LED Indicators, Digital LED Display
- Optically-Encoded Jog/Shuttle Wheel
- Jet Black Color, Ergonomic Design
- Full 1 Year Warranty
 Optional CS-10x for up to 64 faders
- CS-10² Size 17.5" x 7.5" x 1.4"
- Weight 13 Lbs.
- CS-10x Size 8.75" x 7.5" x 1.4"
- Weight 5 Lbs.
- Available Models (Specify When Ordering) $CS-10^2 MIDI$ CS-10² RS-232 CS-10x MIDI CS-10x RS-232



CS-10X Control Station Expander

The CS-10XTM is an expander for the CS-10² that can be attached to provide additional controls. Use of up to 7 expanders are supported by the CS-10². Digidesign's Pro Tools 4 now supports the use of three CS-10X units plus the CS-10² for a total of 32 physical faders.

MLA-1 and MLA-10 MIDI Line Amplifiers

The need to run MIDI signals over long distance is essential for use in recording facilities, theatres, arenas, churches, schools, cruise ships, casinos, nighclubs and other venues using simple twisted pair wiring. Touring professionals also rely on JLCooper MIDI Line Amplifiers to carry MIDI signals long distances over standard audio snakes.

MLA-10 MIDI Line Amplifier



JLCooper Electronics extends the distance of MIDI with MLA-1 and MLA-10 MIDI Line Amplifiers. They let you effectively extend MIDI cable length using twisted pair wire or a standard audio snake.

MLA-1 and MLA-10 are specifically designed for sending MIDI data over long distances with the capability to send information in excess of 1000 feet.

Ideal for touring systems or permanent installations, MLA's can be used in schools, recording and production facilities, boardrooms, live performances, convention centers, churches, theaters, stadiums, amusement parks and more.

When to Use a MIDI Line Amplifier

MIDI (Musical Instrument Digital Interface) is an increasingly important consideration for school installations, recording facilitates, stadiums, arenas, hotels, amusement parks, or other facilities where MIDI messages are required to be sent a long distance, or to multiple locations.

However, the MIDI standard only permits a maximum cable run of less than 50 feet. The innovative MLA-1 and MLA-10 MIDI Line Amplifiers overcome this limitation.

Each MLA unit features 8 MIDI lines configured as 4 inputs and 4 outputs. The MLA's convert the MIDI signal into a balanced high speed digital protocol that can travel over common twisted pair wire. The signal is converted back to MIDI through another MLA at the other end of the cable run.

MLA's are ideal for permanent installations or anywhere a longer MIDI cable run is required.

The amplifiers can be easily networked to multiple locations such as from the master control room to a series of separate MIDI rooms in a recording studio, broadcast facility or educational lab. This allows a facility to decentralize the location of the MIDI devices in a MIDI system.

MLA-1

The MLA-1 can be wall panel mounted or used with a separate MIDI jack panel. This facilitates greater flexiblity for installations where MLA-1 units can be in every required room.

MLA-1 can be powered by an MLA-10 or used alone with a separate power supply. Its compact size allows it to be mounted on or inside a wall or panel.



MLA-10

The MLA-10 is designed to fit into a standard single 19" rack space. It features 4 MIDI input connectors, 4 MIDI output connectors, individual MIDI activity LEDs and can be used as a central amplifier to power MLA-1's throughout an installation.

MLA-10 MIDI Line Amplifier Features

• 4 MIDI Input connectors

"Best in Show Winner – 91st AES"

- 4 MIDI Output connectors
- Detachable terminal strip connectors
- MIDI activity LEDs
- MIDI cable runs over 1000'
- Uses common twisted pair wire
- Multiple units may be networked
- Self powered
- Low power consumption
- Can supply power to multiple MLA-1's
- Front panel power switch
- Single 19" rack unit brushed aluminum finish
- Heavy duty rack enclosure
- Dimensions 19" x 1.75" x 3.87"
- Weight 3.25 lbs

MLA-1 MIDI Line Amplifier Features

- 4 MIDI Inputs
- 4 MIDI Outputs
- Panel mount version
- All barrier strip connections
- MIDI cable runs over 1000'
- Uses common twisted pair wire
- Multiple units may be networked
- Can be used in pairs or in combination with MLA-10's
- Dimensions 6.6" x 6.2" x 0.85"
- Weight 2 lbs.

JLC ooper was one of the developers of the MIDI Time Code Standard. In 1987 we designed and manufactured the world's first synchronizer that supported MTC. We continue to offer the most reliable and innovative solutions to solve the complex synchronization challenges in today's studio and post environments.

dataSYNC² ADAT/MIDI SYNCHRONIZER

"A brilliant addition for the ADAT... a gotta-have-it" -Roger Nichols, EQ

JLCooper improves on the successful dataSYNC with dataSYNC^{2TM}, the ADAT MIDI SMPTE synchronizer.

The dataSYNC² connects right to your Alesis ADAT and provides SMPTE and MIDI Time Code to drive sequencers and digital audio workstations without wasting a valuable tape track for time code.

As a standard function, it also includes the ability to send MIDI Clock with Song Position Pointer for hardware sequencers, workstation keyboards and drum machines. Complete variable tempo and meter data is sent without the restrictions of other products.

dataSYNC² features automatic sample rate detection and supports 44.1 and 48k.

PPS-2 SYNCHRONIZER



Now with bi-directional MIDI communication to the ADAT, you can use MMC to control ADAT's transport, track enable and locate functions from your computer.

A merging MIDI input lets you record new MIDI tracks while sync'ed to ADAT sample clock.

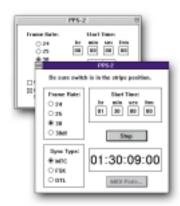
dataSYNC² Features

- Sends MTC, SMPTE, MIDI Clock with SPP
- No Wasted Tracks for Sync
- Easily Accessible Front Panel Controls
- Battery Backed Memory Stores Tempo/Meter Data
- Initiate System Exclusive Dump from Front Panel
- Merging MIDI Input for Added Flexibility
- Two 9-Pin Sync Cables Included
- 8.5" x 4.7" x 1.6" Weight 3 lbs.

JLCooper's PPS-2TM is ideal for anyone who owns a sequencer, drum machine, workstation or hard disk recording system, and needs to sync to tape.

PPS-2 offers the advantages of several synchronizers in one versatile package. It reads and generates SMPTE time code and converts SMPTE into MIDI Time Code or Direct Time Lock. It also reads and generates JLCooper's "Smart FSK" sync and converts it into MIDI Clock with Song Position Pointer. Jam Sync/Regeneration, Flywheeling, Auto-Merge and a low price make the PPS-2 the best choice for an affordable synchronizer.

Optional PPS-2 remote software lets you set SMPTE frame rate and start time when striping.



PPS-2 Features

Easy to Use

- SMPTE and FSK Modes
- SMPTE Jam Sync/Regeneration
- 1 MIDI In with Auto Merge and 1 MIDI Out
- SMPTE Stripe can be Started at any Time
- SMPTE 24, 25, 30 & 30 Drop Rates Supported
- Plus Option for MTC to SMPTE Conversion
- Optional Software for Macintosh and Windows
- 4.25" x 4.7" x 1.6" Weight 3 lbs.



PPS-2 Plus Option

The revolutionary PPS-2 Plus enhancement adds the ability to read MIDI Time Code (MTC) from any source and convert it into SMPTE time code.

This option is user-installed and lets your hard disk recorder or computer based digital workstation control machine synchronizers, automation systems and other devices requiring SMPTE Time Code. Unique and Innovative MIDI applications are a hallmark of JLCooper Electronics. New products for audio/video interfacing and control allow you to streamline the way you work and enhance the way your existing products function together:

MMC/9PIN+ MIDI Machine Control to 9-Pin Converter

MMC/9PIN+ is an innovative device integrating the world of MIDI to the world of professional video. It allows computer-based sequencers, audio mixing consoles and digital editing systems to control 422/P2 compatible video tape recorders (VTRs) and disk based recorders. Audio editors, film and video composers can control both a VTR and workstation at the same time.

MMC/9PIN+ translates MMC transport functions, locate points, shuttle and track arming messages into corresponding RS-422 (Sony 9 Pin/P-2) commands. BVU-800/900 emulation is supported. By referencing 9-Pin sync with video, it outputs SMPTE and MTC without wasting an audio track.

9PIN/MMC 9-Pin to MIDI Machine Control Converter

JLCooper's new 9Pin/MMC connects popular hard disk recorders including Tascam MX-2424, Mackie HDR24/96, Roland VS Series, Fostex and most computer-based audio editing systems to a standard video edit controller or switcher, for automated audio-follows-video control.

9Pin/MMC Interface interprets standard RS-422/P2 protocol messages and converts them to corresponding MIDI Machine Control (MMC) messages. This allows most hard disk audio recorders and computer based editing systems to be controlled by video editing systems that were originally intended to control professional Video Tape Recorders and DDRs.

Supported functions include play, stop, fast forward, rewind, record, locates, track arming, time code frame rate, program change, track record, set locate in/out points, pre-roll, post-roll and other functions.

DAFV² Digital Audio Follows Video Interface

DAFV² connects popular digital audio mixers including the Ramsa WR-DA7, Tascam TM-D8000, Yamaha 02R and Mackie D8B to a video edit controller or switcher, for automated audio-follows-video applications.

DAFV² adds the essential interface which is missing from most popular digital audio mixers, the ability to respond to ESAM and Grass Valley GVG protocols.

Commands from the edit controller are converted to allow your mixer to automatically perform audio transitions, cuts and dissolves in perfect sync with video. Start and Stop Transition, Set Rate, Set Program and Preset Crosspoint and Set Fader Level Commands are supported.

Your edit controller's EDL (Edit Decision List) lets you specify the in and out points and the type of edit. The DAFV² automatically detects commands from the edit controller, determines which protocol is being sent and configures itself to receive either GVG or ESAM 2 protocols.



MMC/9PIN Features

- Converts MMC Transport Functions, Autolocates, Track Arming and Shuttle Commands to 9-Pin (Sony BVU-800/900 Emulation)
- Allows remote control of VTRs from any PC
- Size 8.5" x 4.7" x 1.75" Weight 3 lbs.



9PIN/MMC Features

 Interfaces Hard Disk Recorders like Tascam, Mackie, Roland, Fostex and Computers-based Systems with most Video Edit Controllers

- Supports GVG, ESAM2, MIDI, MMC Protocols
- Size 8.5" x 4.7" x 1.75" Weight 3 lbs.



DAFV Features

 Interfaces Digital Mixers like Ramsa WR-DA7, Tascam TM-D8000, Yamaha 02R, 03D, 01V and Mackie D8B with Video Edit Controllers

- Supports GVG and ESAM2 Protocols
- Size 8.5" x 4.7" x 1.75" Weight 3 lbs.

Imagine This On Your Yamaha O2R



VDESK

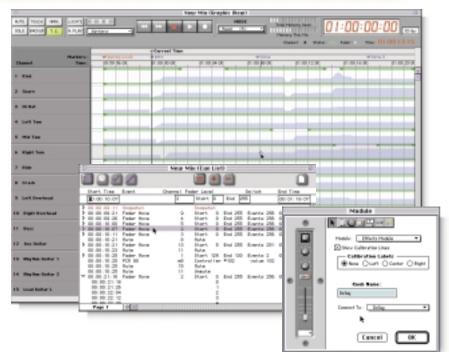
Advanced Automation Software for the Yamaha 02R

Music, video and film professionals, audio post production and broadcast facilities can now employ the most sophisticated mixing software ever developed.

V/DESK for the 02R[™] provides timecode-synchronized, dynamic recording and playback of all 02R functions.

Feature innovations like Off-Line Editing and Graphic Editing inspire your imagination and let you visualize and edit your mix like never before.

And...V/DESK's stunning screen graphics and intuitive user interface are second to none.





V/DESK For the Yamaha 02R Software Features

- Dynamic and Snapshot Automation of All 02R Parameters
- Intuitive Software Features Accurate Moving Fader Color Graphics
- 10 Custom User Defined Namable Console Screens
- User Definable, On-Screen Knobs, Labels & Switches
- 15 SoftGroups & GrandMaster Fader Color Coded for Easy I.D.
- Group Members Move With Master
- SoftTouch[™] Write Fader Moves Instantly without Pressing a Button
- Auto Punch In and Out for Seamless Editing of Fader Moves
- Trim Mode Permits Relative Mix Edits
- Time Saving Trim Until End Feature
- Plug-In Type Modules can Easily be Created and Added
- Capture "Markers" in Real Time. Markers can be Individually Named
- Capture "Snapshots" in Real Time. Snapshots can be Named
- Solo Mode Isolates any Number of Channels
- Auto Transition Between Snapshots
- Dynamic Memory Meters Display Available Memory
- Auto Backup Automatically Saves any Number of Mixes to Disk
- On-Screen Display of Timecode Frame Rate
- High Speed RS-422 Interface
- Integrated Control of Two 02R Consoles
- Assignable Automated On-Screen Surround Panner
- Multiple Preference Files for each Engineer or Project Type
- Single Key Access to Frequently Used Items
- OMS Compatible
- Assignable, Namable 02R Faders can Automate MIDI Parameters
- Real Time MIDI Recording
- Large Screen Support 1024 x 768 Resolution
- Power PC Native for Faster Operation

V/DESK Graphic Editing Features

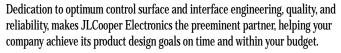
- Freely Draw Fader Levels
- Simple Free Hand or Straight Line Editing
- Cut, Copy, Paste, Clear Moves
- Moving Time Line with Markers
- Movable Current Time Indicator
- Create/Edit Markers in the Time Line
- Fader Curves Smoothly Scroll in Real Time
- Graphic Indication of Channel On Status
- Reposition Snapshots in the Time Line

V/DESK Cue List Features

- Powerful Cue List EDL Style Editing for Precision Control of Mix
- Create/Move/Crop/Smooth/Scale/Offset Fader Moves
- Interpolate Moves, During Scale and Stretch Editing Operations
- Event Triangles expand to reveal Microscope View of Fader Moves
- View Filter Displays Specific Channels, Range of Time, Type of Event
- Ability to Create Fades Off-Line by Typing the Start and End Times
- Undo and Redo on Editing Operations
- Functional Clipboard, Cut, Copy, Paste and Paste Special
- Revert Command
- Find Command
- Merge Mixes
- Real Time Scrolling Cue List with Time Code
- Convert Markers into Fader Moves, Channel Ons and Snapshots
- Off-Line Editing in dB or Fader Value
- Print Cue List, Markers or Track Sheet
- Ability to Type "Comment" Text that is Saved with the Mix

Success Through Innovation and Partnership





Successfully working in many OEM relationships, JLCooper Electronics develops and manufactures products for companies on the forefront of digital audio, video and multimedia technology.

Companies look to JLCooper Electronics to get new product ideas to market faster and with less burden on already busy R&D staff. Hardware and software products tailored to meet your needs are just the beginning.

JLCooper's range of services include circuit and enclosure design, manufacturing and testing, packaging and documentation. All this from the team consistently chosen by world class manufacturers as the best in the business.













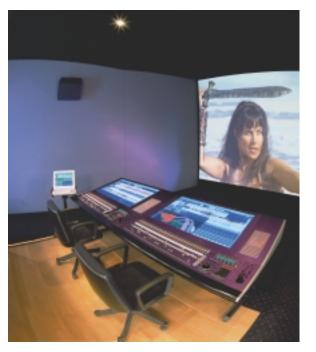












The JLCooper Story

JLCooper Electronics is a pioneer in the development of professional products. Our solid reputation for design innovation is a testimony to the quality, reliability and performance of every product we make.

JLCooper's success can be attributed to our remarkable versatility. We understand the pressures involved in creating new products and we can help you define your objectives and achieve them on time.

We also offer a complete line of control, synchronization, automation and interfacing products for the professional audio, video and multimedia markets. Our products are sold through dealers and distributors worldwide.

SERIOUS ABOUT CONTROL

JLCooper's MCS-3800 - Media Command Station™ is a compact remote controller featuring touch-sensitive, motorized faders. It provides the features professionals need, and compatibility with Cuebase VST, Digital Performer, Nuendo, Pro Tools, Pyramix, Merging Technologies, Soundscape, and Waveframe and others.

Videography magazine liked it so much that they chose the MCS-3800[™] for their "Editors Choice Award" in 1998. This third generation design has continued to evolve into a world class product ever since.

Features include touch-sensitive motorized faders, an array of 60 function keys, back lit LCD and LED dual displays, 5 detented rotary encoders, professional transport controls, a full size numeric keypad, and our balanced, concentric, opticallyencoded jog wheel with shuttle ring.

MCS-3000 Series[™] products are designed with a modular approach. This lets you customize the controller for your specific needs and budget. Optional RS-422/9PIN, RS-232, GPI, USB, and Ethernet interface cards and others allow extended control.



Custom controllers can easily be configured for any application. No other control product offers the flexibility, compatibility or proven reliability of the MCS-3000 Series.



The new MCS-Bridge[™] further expands the physical controls and provides a large, backlit/push-button LCD display for each channel. 2 push-button, rotary encoders, and a 2-axis joystick are added to each fader channel.



MCS-Tracker[™] provides 32 dedicated track arming buttons and track status indicators for the MCS-3000 Series. Function keys provide track grouping, all safe, bank change, grouping and other functions.

MCS-3000X[™] provides additional physical faders or can be used as a stand alone controller with systems including Avid, Pro Tools, most MIDI sequencers and audio editing systems.



MCS-Panner[™] controls 5.1 surround panning on computer based editing systems, and may also be used as a stand alone "MIDI Joystick" (using an optional adapter) with most digital mixing consoles.

MCS-Orbiter[™] is a touch-sensitive, motorized Joystick and is the essential controller for professional 5.1 surround mixing. This professional-quality joystick dynamically tracks previously written moves.



MCS-3800W - Media Command Station Configured with MCS-Panner and MCS-Bridge

Can't wait to get your hands on your own MCS-3000 Series Media Command Stations? Contact JLCooper Electronics today to get serious about controlling your system.

General Features

- Provides Fast Access to On-Screen Mixing and DSP Functions
- Attractive, Low Profile, Compact Design, Quality Construction Professional and Solid-VTR Style Jog Wheel and Shuttle Ring
- •
- Full Size Numeric Keypad 2 Card Slots for Additional Control Options including... RS-422 Master (P-2 Compatible 9-PIN for VTR Control), RS-422 Slave, RS-232, USB (For Computer Control), and GPI. •
- Expandable to 40 Fader Channels Using MCS-3000X
- •
- Optional Contoured Simulated Stone Wrist Rest Physical Specs MCS-3800 Size 20.15" x 9.75" x 2.00"



Control, Automation, Synchronization, & Interfacing Products WWW.JLCOOPER.COM

To order on-line, connect to http://www.jlcooper.com. Use this form to mail or fax your order.

Software and other products can be ordered directly from JLCooper by either phone, mail, fax or on-line. Contact us with your credit card information or mail check or money order to JLCooper Electronics, Attn: Order Dept., 142 Arena Street, El Segundo, CA 90245. California residents please add 8% sales tax. For American Express, MasterCard and Visa orders, **please call 310-322-9990.** For your added convenience, credit card orders may also be faxed. Our FAX number is 310-335-0110. Sorry, we cannot process COD shipments.

				_	<u> </u>	_
	nor	Coftwara	and	Accessory	Ordor	Eorm
JLUUU	NCI	JUILWAIC	anu		UIUCI	

Form of Payment: ❑ Check	🖵 Visa	American Express	JĘ	OOPER ELECTRON
Money Order	☐ MasterCard	-		
our Name:				
our Address:				
City:		State: ZIP:	Phone:	()
redit Card Number	•		Expira	tion Date:
5		oducts (Specify)		Sub-Total
			φιι	
	C117 Standard 9	v DC Power Supply	\$14.95	
P/N# PSD P/N# PSA	C117 Standard 9	v AC Power Supply	\$14.95	
P/N# PSD P/N# PSA CS-1 3.0	C117 Standard 9 Update for Macir		\$14.95 \$59.95	
P/N# PSD P/N# PSA CS-1 3.0 FaderMas	C117 Standard 9 Update for Macir ster Pro Remote S	v AC Power Supply	\$14.95 \$59.95 \$49.95	
P/N# PSD P/N# PSA CS-1 3.0 FaderMas Media Cc PPS-2 Rer	C117 Standard 9 Update for Macir ster Pro Remote So ontrol Station 3.0 mote Software for	v AC Power Supply ntosh oftware for Macintosh Update r Macintosh	\$14.95 \$59.95 \$49.95 \$39.95 \$14.95	
P/N# PSD P/N# PSA CS-1 3.0 FaderMas Media Cc PPS-2 Rer PPS-2 Rer	C117 Standard 9 Update for Macir ster Pro Remote So ontrol Station 3.0 note Software for note Software for	v AC Power Supply htosh oftware for Macintosh Update r Macintosh r Windows	\$14.95 \$59.95 \$49.95 \$39.95 \$14.95 \$14.95	
P/N# PSD P/N# PSA CS-1 3.0 FaderMas Media Co PPS-2 Rer PPS-2 Plu	C117 Standard 9 Update for Macir ster Pro Remote So ontrol Station 3.0 mote Software for mote Software for s Option	v AC Power Supply ntosh oftware for Macintosh Update r Macintosh r Windows	<pre>\$14.95 \$59.95 \$49.95 \$39.95 \$14.95 \$14.95 \$14.95 \$14.95 \$49.95</pre>	
P/N# PSD P/N# PSA CS-1 3.0 FaderMas Media Co PPS-2 Rer PPS-2 Plu	C117 Standard 9 Update for Macir ster Pro Remote So ontrol Station 3.0 mote Software for mote Software for s Option	v AC Power Supply ntosh oftware for Macintosh Update r Macintosh r Windows amaha 02r Digital Mixer	<pre>\$14.95 \$59.95 \$49.95 \$39.95 \$14.95 \$14.95 \$14.95 \$49.95 \$49.95 \$49.95</pre>	
P/N# PSD P/N# PSA CS-1 3.0 FaderMas Media Co PPS-2 Rer PPS-2 Plu	C117 Standard 9 Update for Macir ster Pro Remote So ontrol Station 3.0 mote Software for mote Software for s Option	v AC Power Supply ntosh oftware for Macintosh Update r Macintosh r Windows	 \$14.95 \$59.95 \$49.95 \$39.95 \$14.95 \$14.95 \$14.95 \$49.95 \$49.95 \$499.95 \$ales Tax 	

CS-10² Control Station, CS-10X, dataSYNC2, DAFV², ES-450, FaderMaster Professional, FaderMaster 4/60, FaderMaster 4/100, MCS² Media Control Station, MCS³ Media Control Station, MCS38, MCS-Locator, MCS-3000 Series, Media Command Station, MCS-ClipShot, MCS-3400, MCS-3400, MCS-3000, MCS-3000X, MCS-Orbiter, MCS-Panner, MCS-ViewPoint, MCS-Wiper, MCS-Bridge, MCS-ProTracker, MCS-Tracker 3000, MLA-1, MLA-10, MMC/9PIN+, 9Pin/MMC, PPS-2, and V/DESK are trademarks of JLCooper Electronics.

JLCooper Electronics • 142 Arena Street • El Segundo, CA 90245 • 🖉 310-322-9990 • 📠 310-335-0110 • www.jlcooper.com

©2001 JLCooper Incorporated. All Rights Reserved.

All other brand and product names are trademarks of their respective holders. Prices and Specifications subject to change without notice.