Media Control Station³
MIDI Version

JLCooper ELECTRONICS

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Introduction

The JLCooper Media Control Station^3 is a remote control for machines that support MIDI Machine Control (MMC) protocol.

The MCS^3 controls modular digital multitracks, and hard disk-based recorders.

The MCS^3 can also operate in certain applications as a control station "input device" for computer-based editing systems.

The MCS^3 features a smooth, weighted and optically encoded jog shuttle wheel with concentric shuttle ring, and transport and function keys.

This manual relates to the features and operation of the MCS^3 as an MMC controller. If the MCS^3 is used as an input device to a computer-based system, follow the instructions included with the system.

Please take a moment to send in your product registration card, so we can notify you in the future about any new products or updates as they become available.

Connecting the MCS^3

Connect the supplied external power supply to the power jack on the MCS^3's captive cable.

In case a replacement supply is used, see to it that it has the same rating as the original supply: The power supply's output is rated at 9 volts DC, 500 mA, with a center positive 2.1 mm plug.

Connect the MCS^3 's MIDI cables:
The connector labeled "To MIDI In" connects to the MIDI Input of the machine your are controlling.

The connector labeled "To MIDI Out" connects to the MIDI Output of the machine you are controlling.

Features and Operation

Transport Functions

The Transports control Rewind, Fast Forward, Stop, Play, and Record. Pause is enabled by pressing the button marked W7.

The Record button is interlocked with the Play button. To enable Record, you must hold down one and push the other.

Record only operates if tracks have been enabled ("armed") first. (See Track Enabling below.)

To Record, first arm tracks. Then press and release Play, and allow the machine to come up to speed.

Then press Play again and hold it down. While holding down Play, press Record.

Then release both switches.

While in Record mode, the pressing of the Play button send a Record Exit command, dropping the controlled unit out the record state.

V-Stick Functions

The "V/Stick" is located to the upper right of the jog/shuttle control. It is a soft, four position switch.

The switch is activated by applying pressure either left, right, toward you, or away from you. (It is not necessary to press down or rotate the control.) It performs the following functions:

- V-Stick Down = Reverse 2x Speed
- V-Stick Up = Forward 2x Speed
- V-Stick Left = Reverse 1x Speed
- V-Stick Right = Forward 1x Speed

Jog Mode

The center wheel is for Jog mode. In Jog mode, playback speed and direction is proportional to the speed and direction that the wheel is rotated.

Rotate the wheel clockwise for forward playback.

Rotate the wheel counter clockwise for reverse playback.

In Jog mode, continuously rotating the wheel results in 1X play speed, either forward or backward.

To stop, simply stop turning the wheel.

Shuttle Mode

The outer ring is for Shuttle mode. In Shuttle mode, playback speed is related to the extent of rotation away from the starting position of the wheel.

Rotate the ring clockwise for forward shuttle.
Rotate the ring counter clockwise for reverse shuttle.

The program continues to shuttle until the ring is returned to its center position. Alternately, simply press Stop.

Shuttle LEDs

Normally, on power up, the shuttle ring LEDs will not light until the shuttle ring is centered.

After that, the shuttle ring LEDs will light depending upon the direction of rotation from center. Both LEDs are on when the ring is centered.

Locate Functions

The MCS^3 may be "taught" locations either on the fly (program is playing) or while stationary (program is stopped.)

Locates are stored by pressing and holding the Record button, and while holding the Record button, press W1 thru W6.

A location request will be sent, and the response stored within the MCS^3 . This will be remembered until power is removed from the MCS^3 .

The MCS^3 stores six locate points:
- W1 Locate 1
- W2 Locate 2
- W3 Locate 3
- W4 Locate 4
- W5 Locate 5
- W6 Locate 6

Track Arming

Function Keys F1 - F4 can be used to arm tracks 1 - 4, and Function Keys F1 - F4 can be used to arm tracks 5 - 8.

Track Number Shifting

Function Keys F5 & F6 act as track number "shift buttons".

For example,
F1 through F4 toggle the track arming state of tracks 1 - 4.

Press and release F6:
F1 through F4 now toggle the track arming state of tracks 5 - 8.

Press and release F5:
F1 through F4 now toggle the track arming state of tracks 1 - 4 again.

Be aware that the MCS^3 has no knowledge of any track enabling done on the front panel of the VTR machine itself. Nor does it know the status of the machine when the MCS^3 is first powered on. The MCS^3 powers-up operating under the assumption that all tracks are not enabled.

Technical Information

MCS^3 Protocol
Wherever possible, this protocol shares the same protocol used by the MCS^2 MIDI version. Both MMC and sysex commands are sent for most keys. However, a Host (computer) may disable one or the other of these messages as described below.

Message Mode Command
The host can force the MCS^3 to only send one type of MIDI message by sending:

F0h   15h   10h   02h   vv   F7h, where:
vv= 01h for MMC Only
vv= 02h for Sysex Only
vv= 03h for both

Com Port Testing/ Identification
A simple inquiry message may be sent to the MCS^3 to test for communications and identification.

Host sends: F0h 15h 10h 03h F7h
MCS^3 responds: F0h 15h 10h 04h F7h

Record LED
When first powered up, the MCS^3 internally controls the Record LED. However, if the Host sends any Record LED message, the unit will switch to external LED control to avoid any internal/external control conflicts.

A Record LED message is a Sysex string as follows:

F0h 15h 10h 01h vv F7h, where:

vv=00h for LED Off
vv=01h for LED On
vv=02h for LED Blink

Sysex Messages

Sysex MIDI message are in the form: F0h 15h 10h nn vv F7h where nn= 00h for switches, =01 for Jog Wheel, and =02 for Shuttle Ring.

vv is either the button number/status, jog wheel count, or shuttle position, as appropriate.

Jog count is in form of 2's Complement with bit 6 as sign bit and bit 7=0. The number sent represents the number of wheel counts accumulated since the last transmission (Relative position count) much like the operation of a mouse.

The resolution is approximately 200 counts per revolution, and transmissions are sent at approximately 10 msec intervals while the wheel is turned.

For the shuttle ring, vv is an absolute 2's complimentary position indication sent whenever there is a change to the position. The range is about ±12.

For switches, vv is a combination of switch number and pressed/released status. Bit 6 = 1 for depressions and = 0 for releases. Following is the low 5 bit values for the switches:

Switch	Value	Switch	Value
Rewind	07h	V-Stick Down	08h
Fast Forward	06h	V-Stick Up	09h
Stop	05h	V-Stick Left	0Ah
Play	04h	V-Stick Right	0Bh
Record	00h		
W1	12h	F1	0Eh
W2	13h	F2	0Dh
W3	14h	F3	0Ch
W4	15h	F4	11h
W5	16h	F5	0Fh
W6	17h	F6	10h
W7	18h		

MIDI Machine Control (MMC)

All message are machine id of 7Fh (All Machines). Tally replies are not needed for LED operation, but are needed for "Taught Locates" operation.

Control	Sends	Control	Sends
Rewind	Rewind	V-Stick Down	Reverse 2x Speed
Fast Forward	Fast Forward	V-Stick Up	Forward 2x Speed
Stop	Stop	V-Stick Left	Reverse 1x Speed
Play	Play	V-Stick Right	Forward 1x Speed
Record	Record***		
W1	Locate 1*	F1	Track 1/5 **
W2	Locate 2	F2	Track 2/6
W3	Locate 3	F3	Track 3/7
W4	Locate 4	F4	Track 4/8
W5	Locate 5	F5	Shift to 1st 4 tracks
W6	Locate6	F6	Shift to 2nd 4 tracks
W7	Pause		

*Locates: When first powered up, the MCS^3 sends General Purpose "GP" type locates, that is, it recalls locates already stored within controlled device, GP0 thru GP5. The MCS^3 may be "taught" locations either on the fly or stationary by pressing and holding the Record button, then pressing W1 thru W6. A location request will be sent, and the response stored within the MCS^3. This will be remembered until power is removed.

**Track Arming: Access to 8 tracks is attained by using buttons F5 & F6 as shift buttons. Press F5, then F1 thru F4 control tracks 1 thru 4, press F6, and then F1 thru F4 control tracks 5 thru 8.

*** The Record button is interlocked with the Play button. To go to Record, you must hold down one and push the other. While in Record, pressing Play sends a RECORD EXIT strobe, dropping the controlled unit out of the record state.

Specifications
Dimensions: .... 6.5" X 7" X 1.25"
Shipping Weight .... 3.7 lbs.

Care and Service
If properly cared for, your MCS^3 should provide years of trouble-free performance. Avoid dropping the MCS^3, or hard banging on the keys. Please refer to the really fine print following for detailed warranty and service information.

JLCooper Electronics Limited Factory Warranty

JLCooper Electronics ("JLCooper") warrants this product to be free of defects in materials or workmanship for a period of 12 months from the date of purchase.

This warranty is non-transferable and the benefits apply to the original owner. Proof of purchase in the form of an itemized sales receipt is required for warranty coverage.

To receive service under this warranty, customers in the United States should contact the JLCooper factory at (310) 322-9990 and talk to a service technician. If necessary, a Return Authorization number may be issued.

For our customers outside the United States, it is recommended that you first contact your Dealer or Distributor, since they may offer their own service or support policy.

If local support is not obtainable, please send a FAX to JLCooper's Service Department at (310) 335-0110, with a detailed description of the service required.

Upon issuance of return authorization, the product should be properly packed and shipped to Service Department, JLCooper Electronics, 142 Arena St., El Segundo, CA 90245.

Please include the following: copy of the sales receipt, your name and address (no P.O. Boxes, please), a brief description of the problem, and any other related items discussed with the service department and considered necessary to evaluate the product or effect a repair. The return authorization number must be clearly written on the outside of the package.

JLCooper will, without charge for parts or labor, either repair or replace the defective part(s). Shipping costs are not covered by this warranty.

JLCooper's normal repair turn around time at the factory is approximately 15 business days, from receipt of product to shipping. Your actual turn around time will include return shipping.

Actual turn around time will vary depending upon many factors including the repeatability of the customer's reported complaint, the availability of parts required for repair, the availability of related products needed to evaluate the product if necessary.

Priority services are available. These should be discussed with the service technician at the time the return authorization is issued.

This warranty provides only the benefits specified and does not cover defects or repairs needed as result of acts beyond the control of JLCooper including but not limited to: abuse, damage by accident/negligence, modification, alteration, improper use, unauthorized servicing, tampering, or failure to operate in accordance with the procedures outlined in the owner's manual; nor for acts of God such as flooding, lightning, tornadoes, etc.

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