MCS3-SP-RS422

Compact Jog/Shuttle Controller

Users Manual

JLCooper Electronics

MCS3-SP-RS422 User's Manual, Second Edition (November 15, 2005)
Part Number 932099

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Introduction

Thank you for purchasing the MCS3-SP. The JLCooper MCS3-SP Media Control Station is a remote control device for use with Avid Symphony running on Meridien hardware or, other computer based applications specifically written to support the MCS3-SP.

The MCS3-SP may be used for controlling professional video tape recorders (VTRs), digital disk recorders (DDRs), and other RS-422 devices that support the Sony 9 Pin/P2 protocol.

The MCS3-SP features a professional jog shuttle mechanism, high duribility transport buttons and function keys. As shipped from the factory, the MCS3-SP is normally configured and "ready to use" as a controller for computer based applications such as Avid Symphony. When the MCS3-SP is intended to be used as a VTR or DDR controller, it can easily be reconfigured in the field. Instructions for doing this are provided later in this manual.

This manual primarily relates to the features and operation of the MCS3-SP as a 9 Pin/P2 controller. If the MCS3-SP is used as a control device for a computer based application, follow the instructions included with your software.

Please take a moment to register your MCS3-SP so we can notify you in the future about any updates as they become available. You can register your MCS3-SP at the following web site:

http://jlcooper.com/pages/onlinereg.html

Installation

Configuring the MCS3-SP

The MCS3-SP can operate in either of two modes, as a computer controller, meant to be attached to a computer based application such as Avid Symphony, or as a stand-alone deck controller for machines that respond to the Sony protocol for 9 pin decks.

As shipped from the factory, the MCS3-SP is configured to connect to a host computer to control a software based application. The MCS3-SP is easily reconfigured as a deck controller. To do so, a 5/64" Allen wrench (supplied) and a small flatblade screwdriver are the only tools necessary.

1. Remove the four screws from the top panel.

2. Carefully slide the cable strain relief from its slot on the unit bottom chassis.

3. On the small circuit board, remove the 8-pin IC which is inserted into U3 “To Host” and move it to the “To Mach” socket. Make sure the orientation of the IC is preserved.

4. Take the shorting jumper that is stored on one pin of JB1 and place it so it shorts both pins of JB1.

5. Carefully re-insert the strain relief, dress the inside section of cable away from the sensitive Jog Wheel assembly, and re-insert the four screws.

Connecting the MCS3-SP to a Deck

Connect the supplied external power supply to the power jack on the MCS3-SP captive cable. In case a replacement supply ever is used, the power supply should be rated at 9 to 12 volts DC, 500 mA, with a center positive 2.1 mm plug. The JLCooper part number is 651026.

Next, connect MCS3-SP 9 Pin cable to the 9 Pin remote input of the machine that you are controlling. In some cases, you may need use the supplied gender changer to connect the MCS3-SP to existing wiring.

Connecting the MCS3-SP to a Computer

Connect the supplied external power supply to the power jack on the MCS3-SP captive cable. In case a replacement supply ever is used, the power supply should be rated at 9 to 12 volts DC, 500 mA, with a center positive 2.1 mm plug. The JLCooper part number is 651026.

Next, connect MCS3-SP 9 Pin cable to the 9 Pin remote input of the computer system that you are controlling. In some cases, the computer may have an RS-422 card installed (this is NOT the standard serial or com port found on most computers) or you may need to use an external RS-232 to RS-422 converter (such as the Rosetta Stone Interface Adapter from Addenda). You may need to use the supplied gender changer.

Using the MCS3-SP

Using the MCS3-SP with a deck

Transport Functions

The transport buttons control Rewind, Fast Forward, Stop, Play, and Record. Pressing the button marked W7 causes the MCS3-SP to send a pause command. The Record button is interlocked with the Play button. To send a Record Strobe to the deck, hold down play and press record. Record only operates if tracks have been enabled ("armed") first. (See Track Enabling below.)

To send the Record Strobe message:

1. Arm tracks or press Assemble.
2. Press and release Play.
3. Allow the machine to come up to speed or 'servo lock'.
4. Press and hold Play.
5. Press Record.
6. Release Play and Record.

Note: While in Record mode, pressing the Play button will cause the MCS3-SP to send a Record Exit command.

Jog and Shuttle Functions

The MCS3-SP has a professional jog/shuttle mechanism that incorporates the Jog and Shuttle into a single knob. To change between Jog and Shuttle operation, press the wheel. When in its upper position, it behaves as a shuttle control. As a shuttle control, the knob has center detent and rotation stops. Pressing on the wheel changes it into a Jog control, with no rotation stops or detent.

Jog Mode

In Jog mode, the 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 the tape, simply stop turning the wheel.

Shuttle Mode

In Shuttle mode, playback speed is relative to the rotation of the wheel from the center detent. Rotate the ring clockwise for forward shuttle. Rotate the ring counter clockwise for reverse shuttle. The deck will continue to shuttle until the ring is returned to its center position or the deck reaches the end of tape. Alternately, you can simply press Stop.

Shuttle LEDs

The two arrow LEDs above the Jog/Shuttle knob will indicate the status of the Jog/Shuttle knob. This is detailed in the table below:

Shuttle Forward	▶
Shuttle Reverse	◀
Shuttle Pause	◀ ▶
Jog	◀ ▶

Table 1

Note: After power up, the shuttle ring LEDs will not light until the shuttle ring is centered, this is normal.

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	V Stick Left = Reverse 1x
V Stick Up = Forward 2x	V Stick Right = Forward 1x

Locate Functions

The MCS3-SP can capture and store timecode locations for later recall. It can do this either on the fly (program is playing) or while stationary (program is stopped). Locates are captured and stored by holding the Record button and pressing W1 thru W6. A timecode request will be sent, and the responding timecode will be stored within the MCS3-SP. Because the MCS3-SP does not have nonvolitile ot battery backed memory, the locate points will be stored until power is removed from the MCS3-SP. The MCS3-SP can store up to six locate points:

W1 = Locate 1	W3 = Locate 3	W5 = Locate 5
W2 = Locate 2	W4 = Locate 4	W6 = Locate 6

Stored Locate Points are recalled by pressing the W1-W6 buttons. After power up, all locate points are initialized to 00:00:00:00. Pressing a locate button without first storing a locate point will cause the deck to go to 00:00:00:00. The W7 button sends a pause command.

Note: Locate Points are not retained when the MCS3-SP is turned off

Track Arming

The MCS3-SP sends the appropriate commands for track arming analog and digital machines. When the unit is powered on, it defaults to track arming the audio tracks. The MCS3-SP can also arm Insert Video, Assemble and Timecode as well.

The buttons marked F5 & F6 change the function of the F1-F4 buttons. After power up or pressing F5, buttons F1, F2, F3 and F4 are used to arm audio tracks 1 - 4. Pressing F6 configures buttons F1, F2, F3 and F4 to arm the video and timecode tracks or select assemble recording.

To change modes:
Press F5 = Audio 1 – 4 arming
Press F6 = Video, Assemble and Timecode

After powerup OR pressing F5:	After pressing F6:
F1 - Digital Audio 1 + Audio 1	F1 - Video
F2 - Digital Audio 2 + Audio 2	F2 - Assemble
F3 - Digital Audio 3	F3 - no function
F4 - Digital Audio 4	F4 - Timecode

The MCS3-SP does not query the deck for machine status. Due to this, the MCS3-SP 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 MCS3-SP is first powered on. The MCS3-SP powers up operating under the assumption that all tracks are unselected.

Using the MCS3-SP with a host

In some applications, the MCS3-SP may be used with a computer based application. In this case, please consult the user documentation for details about connecting and using the MCS3-SP with your application.

Technical Information

Specifications

Dimensions:

6.5” x 7” x 3"
165.10 mm x 177.80 mm x 76.20 mm

Weight:

1.81 Kg.
4 lbs.

Power:

9 volts DC at 100mA

Care and Service

If properly cared for, your MCS3-SP should provide years of trouble-free performance. Avoid dropping the MCS3-SP, or hard banging on the keys. Clean with a soft cloth dampened with window cleaner. Do not allow liquids to get inside the unit.

There are no user-serviceable parts in the MCS3-SP. Please refer to the really fine print following for detailed warranty and service information.

Avid Switch Protocol Event Code Table

W3	1
F2	2
F4	3
F5	4
F6	5
F3	6
W4	7
F1	8

Fast Forward	9
Stop	10
Play	11
Record	12
W1	14
W2	15
Rewind	16
W5	17

W6	18
Down	19
Right	20
Up	21
W7	22
Left	23

MCS3-SP Pinout

The following table details the pinout of the MS3-SP in machine mode and in host modes.

	U3 position	
	"To Host"	"To Mach"
1	Ground	Ground
2	Transmit A	Receive A
3	Receive B	Transmit B
4	Ground	Ground
5	not used	not used
6	not used	not used
7	Transmit B	Receive B
8	Receive A	Transmit A
9	not used	not used

Note: These signals are at the connector at the end of the cable.

Machine Mode Commands

The following table details the implementation of the 9 pin/P2 protocol in the MCS3-SP.

Stop	20 00 20
Play	20 01 21
Record	20 65 85
Fast Forward	20 10 30
Rewind	20 20 40
W1-W6	24 31 ff ss mm hh cs
W7	21 12 00 33
F1 (A1 + DA1) F1 (Video) Deselect	42 30 41 01 B4 42 30 50 00 C2 42 30 00 00 72
F2 (A2 + DA2) F2 (Assemble) Deselect	42 30 42 02 B6 42 30 20 00 92 42 30 00 00 72
F3 (DA3) Deselect	42 30 40 04 B6 42 30 00 00 72
F4 (DA4) F4 (Timecode) Deselect	42 30 40 08 BA 42 30 44 00 B6 42 30 00 00 72
F5	No message
F6	No message
Up	21 13 4A 7E
Down	21 23 4A 8E
Left	21 23 40 84
Right	21 13 40 74
Jog Forward Jog Reverse Jog Still	21 11 nn cs 21 21 nn cs 21 11 00 32
Shuttle Forward	21 13 nn cs
Shuttle Reverse	21 23 nn cs

Note:

ff	=	*Frames in BCD*
ss	=	*Seconds in BCD*
mm	=	*Minutes in BCD*
hh	=	*Hours in BCD*
nn	=	*Variable speed*
cs	=	*Checksum*

Specifications

Electrical:

Operating voltage	100 – 240 Volts AC, 50 – 60 Hz, 0.45 Amps maximum
Signal Interface	RS-422A 2 meter attached cable 9 pin D-Subminiature male 2.1mm coaxial power connector

Environmental:

Operating Temperature	+10°C to +40°C
Storage Temperature	+0°C to +50°C
Operating Humidity	20% to 80% (noncondensing)
Storage Humidity	10% to 90% (noncondensing)

Physical:

Unit Dimensions	34mm L x 32mm W x 28.4mm H / 8½" L x 6½" W x 3" H
Shipping Dimensions	39.7mm L x 33.7mm W x 32mm H / 14¼" L x 8¼" W x 6½" H
Unit Weight	1.36kg. / 3.00lbs.
Shipping Weight	2.56kg. / 5.65lbs.

Compliance:

WEEE Compliant	
IEC	EN-55013, EN-55020 following the provisions of 89 / 336 / EEC, EMC Directive.
PSE	JET 1362 - 61010 - 2008 - 2
UL	Listed E202402

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 only 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 +1 310 335 0110 with a detailed description of the service required. Upon issuance of return authorization, the product should be packed in the original shipping materials and shipped prepaid and insured to: Service Department, JLCooper Electronics, 142 Arena Street, 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 at its option, without charge for parts or labor, either repair or replace the defective part(s) or unit. 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 at additional cost. 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, damage from using incorrect power supply, modification, alteration, improper use, unauthorized servicing, tampering, or failure to operate in accordance with the procedures outlined in the owner's manual; nor for natural or man-made events such as, but not limited to flooding, lightning, tornadoes, earthquake, fire, civil unrest, war, terrorism, etc.

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