# ES-450 J2 RS-422

## *Two Channel Jog/Shuttle Remote*



## *Users Manual*

*August 24, 2018*

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# Introduction

The JLCooper ES-450J2 RS-422 is a remote control for VTRs and other machines that support Sony 9 Pin "P2" protocol.

The ES-450J2 controls professional analogue and digital VTRs, modular digital multitrack and disk-based VTR emulators.

The ES-450J2 features a smooth, weighted and optically encoded jog shuttle wheel with concentric shuttle ring, and transport and function keys.

## ES-450J2 Features

The ES-450J2 allows the following control of your video recorder:

- Play
- Reverse Play
- Pause*
- Stop
- Record
- Jog Forward/Reverse
- Shuttle Forward/Reverse
- Rewind and Fast Forward
- Frame Advance
- Jump to Next/Previous Clip*
- Jump Ahead/Back 10 seconds*
- One touch instant recall
- Goto Manual Location

*\* Depends on the recorder detected by the ES-450J2.*

# Connecting The ES-450J2

Connecting the ES-450J2 in your system is rather straightforward and easy. Simply connect a 9 pin D-Subminiature cable from each recorder to the ES-450J2.  Connect the power supply to the power connector on the rear of the unit.

# Using Your ES-450J2

## Selecting Recorders To Control

The ES-450J2 has 2 control ports.  This allows the ES-450J2 to control up to 2 recorders.

After the ES-450J2 is powered on, the unit defaults to controlling the recorder connected to Port 1.

### Enabling Ports For Control

To control a recorder on a different port, simply tap the **Select Channel** button and tap the buttons labelled 1 or 2.  Tapping these buttons allow you to enable or disable commands being sent to these ports.  When the button is illuminated, commands will be sent on that port.  Conversely, when the button is not illuminated, commands will not be sent on that port.  The image at right show the recorders connected to ports 1 and 2 are enabled to be controlled.

*Note: The ES-450J2 does not use the buttons labelled 3 and 4.*

### Enabling Ports For Tally

To select the recorder that is used for Tally (timecode and status), press and hold the Tally button and tap a button labelled 1, or 2.  The ES-450J2 will use the recorder connected to that port for the timecode shown on the ES-450J2 display and the Record status shown on the Record LED.  The ES-450J2 also uses use the recorder connected to that port for timecode based functions such as Frame Advance, Jump Ahead/Back 10 seconds and setting One Touch Instant Recall locations.

*Note: The ES-450J2 does not use the buttons labelled 3 and 4.*

## Identifying Your Recorder

As soon as the ES-450J2 is powered up, the controller continuously asks the recorder for its Device ID.  The ES-450J2 uses this response to adjust its behavior to specific recorders.

The ES-450J2 also uses this Device ID to determine the frame rate of the recorder.  This is used for the Frame+1/Frame-1 function.

The ES-450J2 currently has specific functionality for the following recorders:

- Blackmagic Design HyperDeck Studio Series
- Aja Ki Pro Series
- Fast Forward Video Recorders
- VideoDevices PIX Series
- Datavideo HDR-60/70
- Sony XDCAM Series
- Atomos Shogun Studio

If the recorder responds with any other Device ID, the unit controls the recorder as a generic Sony Betacam (BVW-75) recorder.


## Timecode Display

The ES-450J2 continuously asks the recorder selected for tally for its position.  The ES-450J2 will display the recorders position in the Timecode display on the controller.


Nondrop frame timecode is indicated without a period before the timecode as shown in the screenshot at right.

`TC= 01:26:43:15`

`TC=.01:26:43:15`
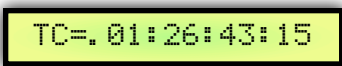
Drop frame timecode is indicated with a period before the timecode as shown in the screenshot at left.

# Using The ES-450J2

### F-PLAY

Pressing the F-PLAY button causes the ES-450J2 to send the Play command.

### RECORD

Pressing the SHIFT + F-Play button causes the ES-450J2 to send the Record command.  This also known as Crash Record.  When the recorder enters the record mode, the recorder will respond accordingly and the ES-450J2 will illuminate the Record indicator.  Conversely, when the recorder exits the record mode, the recorder will respond accordingly and the ES-450J2 will extinguish the Record indicator.

*Note: Only the recorder selected for tally is used to illuminate the Record indicator.*

When the recorder is in Record mode, pressing the STOP button causes the ES-450J2 to command the recorder to stop recording.

### R-PLAY

Pressing the R-PLAY button causes the ES-450J2 to send the Variable Reverse 1x command.

### F-FWD, REWIND

Pressing the F-FWD/Rewind buttons causes the ES-450J2 to send the Fast Forward and Rewind commands respectively.

### STOP

Pressing the STOP button causes the ES-450J2 to stop the playback of video.  If the recorder is in Record mode, the ES-450J2 commands the recorder to stop recording.

For the Atomos Shogun Studio, ES-450J2 sends the Stop command.

For all other recorders, ES-450J2 sends the Shuttle Forward 0x command. This is also known as Pause or Still.

### FRAME+1, FRAME-1

Pressing the Frame+1/Frame-1 buttons cause the ES-450J2 to retrieve the current timecode from the recorder selected for tally, adds or subtracts one frame from the timecode and commands the recorder to goto that new position.

## CLIP/10 SEC+, CLIP/10 SEC-

For the Ki Pro, Sony XDCAM and VideoDevices PIX Series recorders, pressing the Clip/10 Sec+ button causes the ES-450J2 to command the recorder to load the next clip.  Pressing the Clip/10 Sec- button causes the ES-450J2 to command the recorder to load the previous clip.

For all other recorders, pressing these buttons causes the ES-450J2 to retrieve the current timecode from the recorder selected for tally, adds or subtracts ten seconds from the timecode and commands the recorder to goto that new position.

### 2/4/8/16X+, 2/4/8/16X-

Pressing the 2/4/8/16x+, 2/4/8/16x- buttons cause the ES-450J2 to send the Shuttle Forward or Reverse 2x command.  Subsequent presses cause the ES-450J2 to increase the speed to 4x, 8x and 16x.

### JOG WHEEL

Turning the center Jog wheel causes the recorder to play video slowly (slower than play speed).  Turning the Jog wheel clockwise causes the video to move forward.  Conversely, turning the Jog wheel counterclockwise causes the video to move backwards.  The Jog wheel has a range of forward 1/2x play speed to reverse 1/2x play speed.

When the Jog wheel ceases moving, the ES-450J pauses the video playback.  The ES-450J also retrieves the current timecode from the recorder selected for tally and commands all the selected recorders to goto that new position.  This allows all the selected recorders to pause at the same location.

As the Jog wheel is turned, the direction indicators above the Jog wheel will illuminate based on the direction that the Jog wheel is being turned.  Turning the Jog wheel clockwise causes the right facing direction indicator to illuminate.  Conversely, turning the Jog wheel counterclockwise causes the left facing direction indicator to illuminate.  When the Jog wheel ceases moving, both direction indicators are extinguished.

## SHUTTLE RING

Turning the outer Shuttle ring causes the recorder to play video quickly (faster than play speed). Turning the Shuttle ring clockwise from the center detent position causes the video to move forward. Conversely, turning the Shuttle ring counterclockwise from the center detent position causes the video to move backwards. The Shuttle ring has a range of forward 10x play speed to reverse 10x play speed.

When the Shuttle ring is moved to the center detent, the ES-450J pauses the video playback. The ES-450J also retrieves the current timecode from the recorder selected for tally and commands all the selected recorders to goto that new position. This allows all the selected recorders to pause at the same location.

As the Shuttle ring is turned, the direction indicators above the Shuttle ring will illuminate based on the direction that the Shuttle ring is being turned. Turning the Shuttle ring clockwise causes the right facing direction indicator to illuminate. Conversely, turning the Shuttle ring counterclockwise causes the left facing direction indicator to illuminate. When the Shuttle ring is brought to the center detent, both direction indicators are illuminated.

*Note: The ES-450J2 uses the center detent position to calibrate the Shuttle ring. If the ES-450J2 is powered up with the Shuttle ring out of the center detent position, the Shuttle ring may not work as expected.*

## ON/OFF

This button allows the Jog wheel and Shuttle ring to be enabled or disabled. Tap the button once to disable the Jog wheel and Shuttle ring. Tap the button again to enable the Jog wheel and Shuttle ring.

**GOTO**

The ES-450J2 has the ability to cue the recorder to any arbitrary location that is valid for the recorder.  The ES-450J2 has two ways to cue the recorder.

- • Manual Timecode Entry
- • One Touch Preset and Recall

**Manual Timecode Entry**

The Manual Timecode Entry method allows you to manually enter a timecode and have the ES-450J2 command the recorder(s) to go to that location.

To use the Manual Timecode Entry method, simply perform the following:

1. Press the GOTO button.

   `Goto   :   :   :`

2. Enter the desired timecode using the blue numbered buttons.

   `Goto 02:15:37:16`

   *Note: Any leading zeros do not need to be entered.*

3. To compete the locate operation, press the ENTER button.  The ES-450J2 will command the recorder(s) to go to that location.

   `Goto Locate`

## One Touch Preset And Recall

The One Touch Preset and Recall method allows you to store a location and later recall that location.  When the location is recalled, the ES-450J2 will command the recorder(s) to go to that location.  Up to 7 locations can be stored.  Locations can be stored regardless of the mode that the recorder is in.  Locations will be remembered even after the ES-450J2 is powered off.

### *Storing a Preset Location*

To store a location for later recall, press and hold the SHIFT button, then tap one of the location buttons (LOC1 - LOC7).

`Store Locate #5`

### *Recalling a Preset Location*

To recall a location, press the GOTO button, then tap one of the location buttons (LOC1 - LOC7).

`Goto Locate #5`

# Technical Information

## Pinout

The pinout of the 9 pin D Subminiature connectors is shown in the following table.

| | ES-450J2 | Direction | Recorder |
|---|---|---|---|
| 1 | Ground | | Ground |
| 2 | Receive A (-) | ← | Transmit A (-) |
| 3 | Transmit B (+) | → | Receive B (+) |
| 4 | Ground | | Ground |
| 5 | Not used | | Not used |
| 6 | Ground | | Ground |
| 7 | Receive B (+) | ← | Transmit B (+) |
| 8 | Transmit A (-) | → | Receive A (-) |
| 9 | Ground | | Ground |

**Pinout of 9 Pin D-Subminiature Connectors**
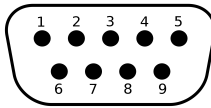


**Pin Identification of 9 Pin D-Subminiature Connectors**

# Command Reference

The table below lists the various command messages that the ES-450J2 sends to the recorder.  The specific messages may vary based on the actual recorder detected.

| Function | Command |
|---|---|
| STOP | 21 13 00 |
| F-PLAY | 20 01 |
| R-PLAY | 21 22 40 |
| F-FWD | 20 10 |
| REWIND | 20 20 |
| RECORD | 20 02 |
| FRAME+/-1 | 24 31 <ff> <ss> <mm> <hh> |
| +/-10 SECONDS | 24 31 <ff> <ss> <mm> <hh> |
| +2/4/8/16X | 21 13 <speed> |
| -2/4/8/16X | 21 23 <speed> |
| JOG FORWARD | 21 11 <speed> |
| JOG REVERSE | 21 21 <speed> |
| SHUTTLE FORWARD | 21 13 <speed> |
| SHUTTLE REVERSE | 21 23 <speed> |
| GOTO | 24 31 <ff> <ss> <mm> <hh> |
| TIMECODE REQUEST | 61 0C 03 |
| STATUS REQUEST | 61 20 11 |
| DEVICE ID REQUEST | 00 11 |

**Function Commands**

# Replacement Parts

If replacement parts are needed, you can order them directly from JLCooper Electronics.

You can contact us at the following email address:

service@jlcooper.com

You can also contact us at the following phone number:

+1-310-322-9990

**Power Supply**

The ES-450J2 uses a power supply that is rated at 9-12 volts DC at 500mA. The connector is a locking barrel connector that is 12mm long, has a outer diameter of 5.5mm and center diameter of 2.1 mm.  Connector is positive polarity.

12mm

5.5mm outside
2.1mm inside
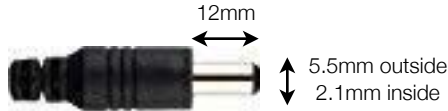
If you you need to order a replacement, you can order it directly from us. The JLCooper part number is 561026-4.


# Care And Service

If properly cared for, your ES-450J2 should provide years of trouble-free performance. While the ES-450J2 is built in a rugged metal enclosure, please avoid dropping the ES-450J2 or hard banging on the keys.

Clean with a soft cloth dampened with window cleaner.  Do not allow liquids or foreign matter to get inside the unit.

There are no user-serviceable parts in the ES-450J2.  Please refer to the really fine print following for detailed warranty and service information.

# JLCooper Electronics Limited 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. Carriage, insurance, customs duties, impounds, tariffs, taxes, surcharges, brokerage fees and other 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, failure to operate in accordance with the procedures outlined in this owner's manual; nor does it cover damage from accident, negligence, using incorrect power supply, modification, alteration, improper use, unauthorized servicing, tampering, ingress of foreign matter; nor for damage from natural or man-made events such as, but not limited to flooding, lightning, electrostatic discharge, tornadoes, earthquake, fire, civil unrest, war, terrorism, etc.*

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