

24 Channel Demultiplexer

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Introduction

Strand Lighting 24 Channel Demultiplexers are used as part of an MX, ACTION 24 channel or ACTION 48 channel installation. They make possible the control of analogue dimmers built to a wide range of input standards.

The Demultiplexers are delivered suitable for connection to Strand Lighting dimmers (OFF at 0V, FULL at –10V), but can be converted at the time of installation to drive dimmers accepting the following analogue inputs: OFF at 0V, FULL at –5V, –12V, +5V, +10V or +12V.

Each Demultiplexer can drive 24 dimmer inputs, so an ACTION 24 installation requires a single Demultiplexer, while ACTION 48 requires two. An MX installation may use either one or two Demultiplexers.

Two versions of the Demultiplexer are available; always use the product code for reference:

Product Code 0460100

2-wire Multiplex Standard D54 version, wired for 240V supply.

Product Code 0460101

4-wire Multiplex Standard AMX192 version, wired for 120V supply.

DELIVERY INSPECTION

Check the goods received for possible damage and for content against the following lists. Advise Strand Lighting or their agents in the event of any deficiency.

Two Wire – 240V Model

24 Channel Demultiplexer, Product Code 0460100.

Mains Lead, 2 metre, European colour code.

Demultiplex cable, 0.5 metre, 2 wire standard.

Installation Leaflet.

Four Wire – 120V Model

24 Channel Demultiplexer, Product Code 0460101.

Mains Lead, 2 metre, North American colour code.

Demultiplex cable, 0.5 metre, 4 wire standard.

Installation Leaflet.

Dimmer Drive Conversion

WARNING!

Hazardous voltages are present inside a Demultiplexer when it is connected to a mains supply. Always disconnect from the supply before opening the unit for installation or maintenance. The unit must be installed by qualified personnel.

Supplied as suitable for driving Strand Lighting dimmers, the Demultiplexer output may be altered by the Agent or other suitably qualified person as follows: Remove the 4 screws securing the cover to the base, and lift off the cover. Take care not to strain the earth bond.

SW2 ADJUST

Using a flat bladed screwdriver, set PCB mounted rotary switch SW2 to give the desired output according to the following table.

SW2 Position	+ve Output	-ve Output
0	+5V	—
1	+10V	-5V
2	+10V	-5V
3	—	-10V
4	—	—
5	+12V	—
6	+12V	—
7	—	-12V
8	+5V	—
9	+10V	-5V

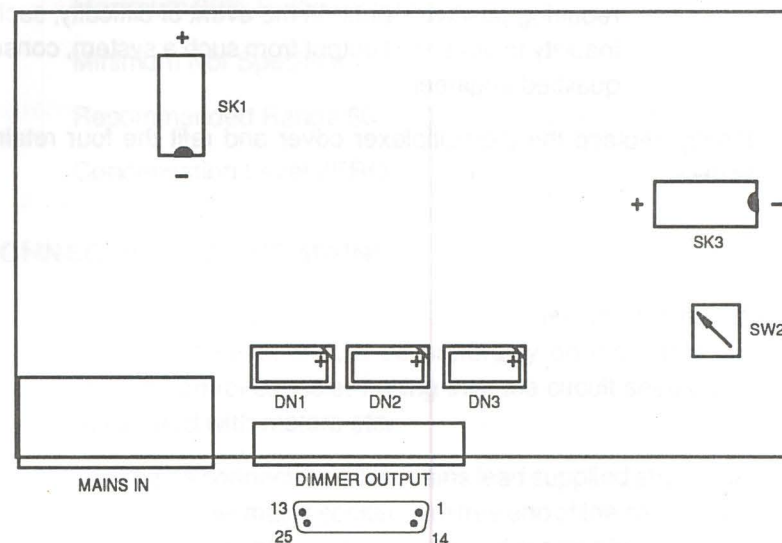
SK1, 3 CIRCUIT LINKS

The DIL (Dual In Line) Headers, inserted into SK1 and SK3 on the PCB, make circuit links which determine the polarity of the Demultiplexer output. Withdrawal, rotation through 180 degrees and re-insertion of these headers are steps in the reversal of the output polarity.

To reverse these headers, grasp each in turn between thumb and forefinger and lift from its socket. Turn through 180 degrees and re-insert, taking care not to bend the pins.

Each header has an indentation in the moulding at one end, which is adjacent to a + or - symbol on the silk screen of the PCB. Set the header indents next to the + mark for a positive Demultiplexer output.

Set the header indents next to the - mark for a negative output.



Location on PCB of Components to be Adjusted

Diode Networks DN1, 2, 3

The last step in resetting the Demultiplexer output is the re-orientation of the diode networks DN1,2,3. These have a + symbol at one corner.

The + mark may be set adjacent to the corner marker on the silk screened outline of the socket on the PCB, or at the diagonally opposite corner.

To reverse the polarity of output, remove the diode networks from their sockets, if necessary, freeing them with the flat blade of an instrument screwdriver. Lift free, rotate through 180 degrees and reinsert. For a negative output, set the + mark of each network adjacent to its socket corner marker. For a positive output, set the + mark of each network diagonally opposite to its socket marker.

Note 1: In the event of damage to a component pin in the above procedures, straighten the pin carefully and reinsert the component.

Note 2: It may be necessary to change resistor networks RN1,2,3 for values of 1K ohm for dimmers of low input impedance requiring positive inputs. In the event of difficulty, such as inability to obtain full output from such a system, consult a qualified engineer.

Finally, replace the Demultiplexer cover and refit the four retaining screws.

Installation

This section should be read in conjunction with the MX Operational Handbook or ACTION Operators Handbook Sections 2 and 4.

OPERATING CONDITIONS

Temperature

Maximum 35° C. Minimum 0° C.

Recommended Range 15 – 25° C.

Humidity

Maximum 90% Relative Humidity

Minimum Not Specified

Recommended Range 60 – 70% Relative Humidity

Condensation Level ZERO

CONNECTION TO THE MAINS

Locate the Demultiplexer(s) on a flat surface within 2 metres of a mains outlet. The outlet should be preferably on the same circuit as the lighting control console. Failing this, the circuit should be noise free, not shared with motors etc.

The mains connector on the mains lead supplied should be inserted in the front panel mains socket. The free end of the cable should be fitted, wherever possible, with a 3 pin fused mains plug.

The cable wires are coloured either in the European colour code:

Brown	Live line
Blue	Neutral line
Green/Yellow	Earth line

or in the North American colour code:

Black	Live line
White	Neutral line
Green	Earth line

Fit the plug to the cable taking care that the wires have correct lengths, so that in the event of extreme strain, the earth wire will be the last to break. Make the cable clamp secure so that there is no strain on the individual wires.

WARNING!

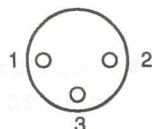
Ensure that the electrical installation of the whole system is carried out by a qualified person. IT IS ESSENTIAL THAT EARTH IS AT THE SAME POTENTIAL AT ALL POINTS IN THE SYSTEM.

CONNECTION TO CONSOLE

The Demultiplexers should be connected to the console using the cable supplied with the console, optional extender cables, or a cable made up according to the figure below. Connection at the Demultiplexer is via the front panel connector.

D54 – 3 pin XLR (male shown)

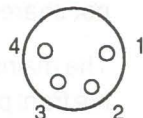
1. Signal Ground
2. No Connection
3. Dimmer Signal



Screened microphone cable,
< 300 pF/m, nominal Z = 75W

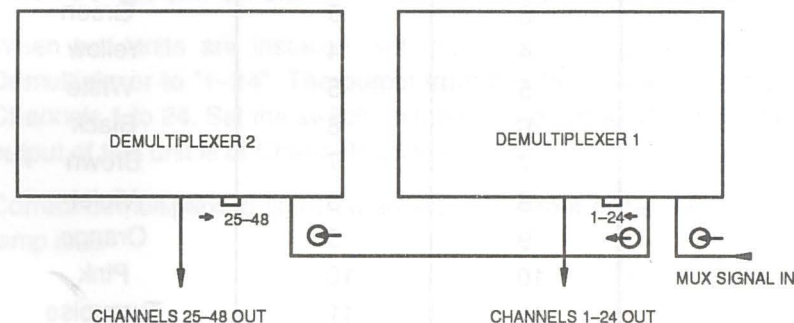
AMX192 – 4 pin XLR (female shown)

1. Signal Ground
2. Data clock +
3. Analogue Level
4. Data Clock –



'Belden' type cable
no. 9156

Where an ACTION 48 is being installed, or an MX with two Demultiplexers, the two units are linked with the 0.5 metre cable supplied, as shown in the drawing.



Connection of Two Demultiplexers

CONNECTION TO DIMMERS

Connection to dimmers of the demultiplexed analogue output is via the 25 way D connector on the Demultiplexer front panel. Each connector has 24 channel signals and a common line (Technical earth).

Strand Lighting dimmers, such as ACT3, ACT6 and Tempus, have Bleecon connectors.

Cable, 25 pin D to 4 x 6 way Bleecon, Product Code 0460110, is available from Strand Lighting. This cable can connect to 4 Tempus, or 4 ACT6, or 4 pairs of ACT3 dimmers, or combination of these.

Dimmers with other input connectors, or other combinations of units may require special cables and/or distribution boxes to be made. Suitable cable, 25 way lead 7/0.2 mm., Product Code 35 606 00, and connectors can be obtained from Strand Lighting; wiring details are given below.

Dimmer	Pin	Colour
1	1	Red
2	2	Blue
3	3	Green
4	4	Yellow
5	5	White
6	6	Black
7	7	Brown
8	8	Violet
9	9	Orange
10	10	Pink
11	11	Turquoise
12	12	Grey
13	13	Red/Blue
14	14	Green/Red
15	15	Yellow/Red
16	16	White/Red
17	17	Red/Black
18	18	Red/Brown
19	19	Yellow/Blue
20	20	White/Blue
21	21	Blue/Black
22	22	Orange/Blue
23	23	Yellow/Green
24	24	White/Green
Common	25	Orange/Green

Operation

The Demultiplexer is powered up on connection to the mains supply.

When a single unit is installed, set the front panel switch to "1-24".

When two units are installed, set the front panel switch of one Demultiplexer to "1-24". The output from this Demultiplexer is then Channels 1 to 24. Set the switch on the second unit to "25- 48". The output of this unit is of Channels 25 to 48.

Correct demultiplexing is indicated when the front panel "MUX OK" lamp is lit.

Servicing

No routine servicing is recommended, save a periodic examination for damage to the Demultiplexer(s), cables and connectors. Servicing should be undertaken only by a Strand Lighting approved agent. For information regarding any of our products, contact the nearest Strand Lighting Office or agent, quoting the product and its seven-digit order code as a reference. A list of appointed Service Agents is available, on request, from the address on the last page.