
DEMUX 48

Operators Guide

Third issue - October 1994

Zero 88 Lighting Ltd. reserves the right to make changes to the equipment described in this manual without prior notice.

This equipment is designed for professional stage lighting control, and is unsuitable for any other purpose. It should be used by, or under the supervision of, appropriately qualified or trained persons only. E&OE

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Introduction

The DMX output from a lighting desk will normally be connected, via a DMX cable, to one or more demultiplexers, which in turn are connected to the dimmers. A DMX cable carries control signals for 512 dimmer channels. The Demux 48 will decode any sequential group of 48 channels out of the 512.

Demux 48 Features:

- A separate dimmer law for each output channel
- A programmable Backup Memory (used if DMX transmission fails)
- Option to recall the Backup Memory at power on
- Built in channel testing facilities
- Automatic Display check on turn on

Cables for DMX Transmission

The maximum cable length between a desk and the Demux 48 will depend on several factors including:

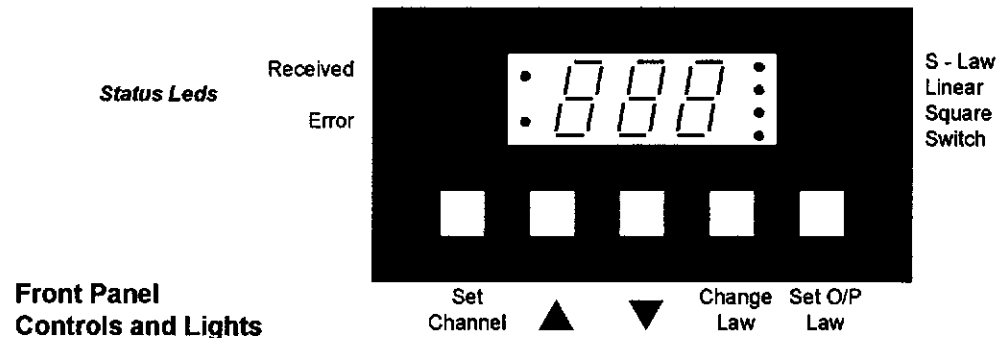
- Type of cable used
- Number of demultiplexers connected in the line
- Electrical environment

Zero 88 recommend that shielded twisted pair approved for RS422/485 (e.g. Belden 9841, Belden 9501 or Alpha 5271) is used.

Communication over a hundred metres should normally be possible without problem, however for longer cable runs, it may be necessary to fit a DMX Termination Plug (Stock No 269) to the last Demux 48 in order to ensure completely error free data transmission.

Substitution of microphone, or other types of cable may be possible, but data transmission errors are more likely, particularly over long distances.

Demux 48 Operation



Status Led Operation

- Received led only 'On':
Error free DMX data (Normal Operation)
- Received & Error leds both 'On':
Some DMX data has been received with errors
- Error led only 'On':
All the DMX data that has been received has errors.
- Both Leds 'Off':
No DMX Data is being received

Programming the Demux 48

The Start Channel:

The start channel address determines which group of 48 channels the Demux 48 will decode. For example: if the start address is 105, the Demux 48 will decode channels 105, 106, 107....., 152, 153.

To Program the Start Channel

- 1 Press and hold the SET CHANNEL button
- 2 Select the required start channel by using the up and down buttons
- 3 The start channel is programmed when the SET CHANNEL button is released

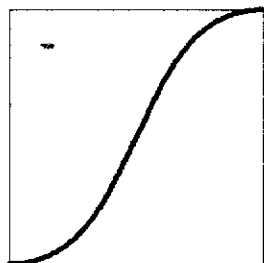
Note: This multiple button push avoids the possibility of the start channel being changed accidentally, e.g. if the front panel was accidentally knocked.

Selecting the Output Law

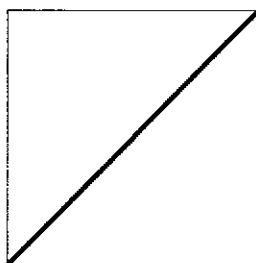
The user can select one of four output laws for each Demux 48 output channel. The output laws determine the relationship between the control voltage received into the Demux 48 and the power output supplied to a lamp (assuming the dimmer follows a normal S-law).

- S Law: Standard output; matches that of similar analogue controlled dimmers
- Linear Law: Gives a linear fade, suitable for most live or theatrical performances
- Square Law: For use with video cameras
- Switch: Power from the dimmer switches from 0 to full when the input reaches 25%

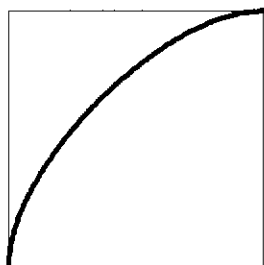
S - Law



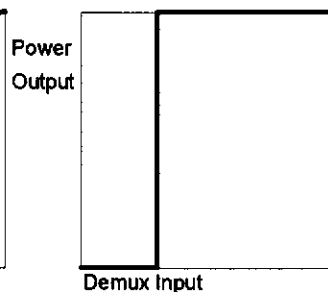
Linear



Square



Switch



Programming an Output Law

- 1 Press and hold the SET O/P LAW button
- 2 Select the output channel for which the law is to be changed using the up and down buttons. See note.
- 3 Select the required law for that channel using the CHANGE LAW button. The law selected is shown by a led on the right hand side of the display.
- 4 The law is programmed when the SET O/P LAW button is released.

Note: The output channel is displayed as rack and channel number e.g. "1 1" is rack 1, channel 1, and "3 5" is rack 3, channel 5. This can be changed to a simple 1,2,3...48 display if preferred. While holding the SET O/P LAW button, press the SET CHANNEL button to switch between the two display modes.

Advanced Programming

The Advanced Programming mode permits:

- Programming the Backup Memory.
- Programming the Demux 48 to recall the Backup Memory at power on.
- Use of the individual channel test facilities.
- Resetting the Demux 48 (i.e.. clearing of all user programmed data)

Backup Memory

In the unlikely event of DMX transmission failure the Demux 48 outputs will gently crossfade to the backup memory (if it has been programmed). The Demux will automatically fade back to normal output as soon as DMX transmission restarts.

With no backup memory programmed the Demux 48 will continue to output the current scene in the event of DMX transmission failure.

Selecting Advanced Programming Mode:

Press and hold SET CHANNEL, then press SET O/P LAW, and CHANGE LAW buttons simultaneously. The display will flash '00'.

Programming the Backup Memory

- 1 Select Advanced Programming Mode.
- 2 Select option '60' using the up and down buttons.
- 3 Set the output levels required on the desk.
- 4 Press the CHANGE LAW button to program these levels as the backup memory (The four leds on the right of the display will flash on to show that programming was successful).
- 5 Pressing SET CHANNEL returns the Demux to normal operation.

Clearing the Backup Memory

- 1 Select Advanced Programming Mode.
- 2 Select option '50' using the up and down buttons.
- 3 Press the CHANGE LAW button to clear the backup memory. All four leds flash on.
- 4 Pressing SET CHANNEL returns the Demux to normal operation.

Recalling the Backup Memory at Power On

The Demux 48 can be programmed to output the Backup Memory from the moment it is powered up. This feature could be used, for example, on a display stand, where a single scene is programmed once, the desk removed, and the Demux 48 left to reproduce the scene by itself, even after it has been turned off and back on again.

Programming the Demux 48 so that the Backup Memory is recalled at turn on

- 1 Program the Backup Memory as normal
- 2 Select advanced programming mode
- 3 Select option '70' using the up and down buttons
- 4 Press the CHANGE LAW button to switch recall on; the four 'law' leds will come on. Pressing CHANGE LAW again will switch recall off
- 5 Pressing SET CHANNEL returns the Demux to normal operation

Individual Channel Test

The Demux 48 can be used as an aid to fault finding in any installation. Each channel can be tested directly from the Demux 48, thereby helping to isolate the fault.

Example - To test channel 4

- 1 Select Advanced Memory programming.
- 2 Select '4' using the up and down buttons
- 3 Pressing CHANGE LAW will cause channel 4 to ramp repeatedly from zero to full over a few seconds. *Note: The ramp output will be modified by the output law selected for the channel under test. The top two leds on the right hand of the display show that the ramp test is in operation.*

modified by the output law selected for the channel under test. The top two leds on the right hand of the display show that the ramp test is in operation.

- 4 Pressing CHANGE LAW again will apply a sine wave output to channel 4, shown by the bottom two leds on the right hand side of the display.
- 5 Pressing up, down, or returning to normal operation by pressing SET CHANNEL will stop the test.

Resetting the Demux 48

To clear all memories and reset the Demux 48 to start channel 001, and all outputs to S-law.

- 1 Select Advanced Memory programming
- 2 Select '99' using the up and down buttons
- 3 Press CHANGE LAW to reset the Demux 48
- 4 Pressing SET CHANNEL returns the Demux to normal operation

Technical Specification

Data reception conforms to USITT DMX 512 1990 standard and earlier.

Power supply

200 to 260 volts ac. Fuse: 250mA T
 100 to 130 volts ac. Fuse: 100mA T
 50 or 60 Hz (fused internally)

Physical Dimensions

443 x 177 x 240 mm
 17.5 x 7 x 9.5 inches
 Weight : 5Kg (10 lb.).

Analogue Outputs

0 to +5V, 0 to +10V or 0 to +15V.
 internally selectable

Options: Two Zero 88 Negative Output Kits (Stock No 00-291-00) can be fitted internally to give 0 to -5V, 0 to -10V or 0 to -15V outputs in two blocks of 24 channels.

Standard: Eight 8 pin locking DIN output sockets.

Optional: Two Socapex Output Kits (Zero 88 Stock No 00-294-00)

Input Connections

- XLR 5
- Pin 1: 0v (Signal Common)
 - Pin 2: 1-(Dimmer drive complement)
 - Pin 3: 1+(Dimmer drive true)
 - Pin 4: 2-(extra Dimmer drive complement)
 - Pin 5: 2+(extra Dimmer drive true)

Output Connector Wiring

Pin	Rack 1	Rack 2	Rack 3	Rack 4	Rack 5	Rack 6	Rack 7	Rack 8
1	Ch 1	Ch 7	Ch 13	Ch 19	Ch 25	Ch 31	Ch 37	Ch 43
2	Ch 2	Ch 8	Ch 14	Ch 20	Ch 26	Ch 32	Ch 38	Ch 44
3	Ch 3	Ch 9	Ch 15	Ch 21	Ch 27	Ch 33	Ch 39	Ch 45
4	Ch 4	Ch 10	Ch 16	Ch 22	Ch 28	Ch 34	Ch 40	Ch 46
5	Ch 5	Ch 11	Ch 17	Ch 23	Ch 29	Ch 35	Ch 41	Ch 47
6	Ch 6	Ch 12	Ch 18	Ch 24	Ch 30	Ch 36	Ch 42	Ch 48
7	Unused ...							
8	Common / 0 volt ...							