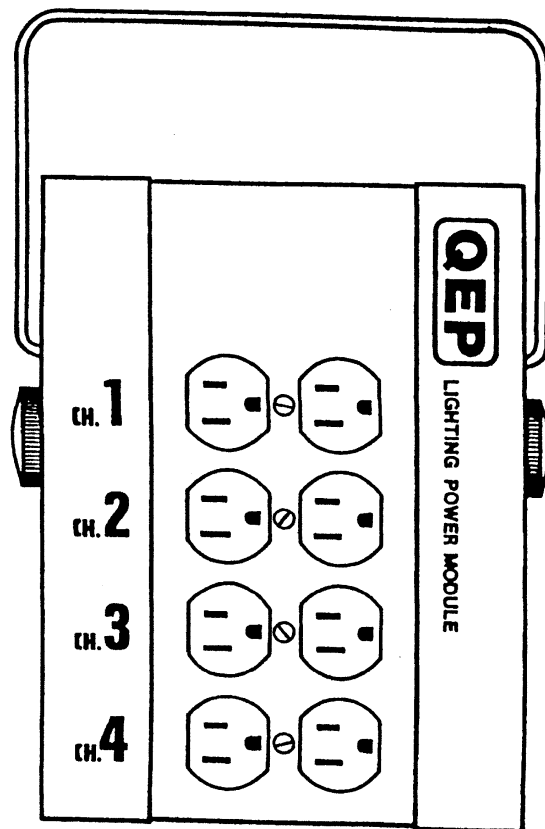


INSTRUCTION MANUAL FOR THE
QEP (QUADULAR II EXPANDABLE)
DIMMER PACK



(1)

QEP (Quadular II Expandable Power Module)

The QEP is a four channel rig mountable dimmer pack capable of distributing up to 2400W of power to common lighting instruments. Each QEP carries a 12VDC power supply, timing circuitry and optical isolation between the power and control circuits. In addition, it houses power fuses, control fusing, power input and output receptacles a minimum intensity trimmer and a control input connector. It was designed to provide adequate heat dissipation for its power rating and also to be rugged and easy to set up and handle. The use of Y cords (QEYP) provides expansion capabilities, where the corresponding channels of two QEP's are governed by the same control signals. (See page 3 - Paralleling QEP's)

INPUT POWER

Though each QEP is capable of handling 2400 watts, the total rating is ultimately determined by the input connector power rating. Two input power connectors of different ratings are available with the QEP, a NEMA 5-15P rated at 15 amps or 1800 watts and a NEMA 5-20P rated at 20 amps or 2400 watts. The 15 amp connector limits the total QEP rating to 1800 watts. The individual channel rating is still 600 watts.

The input connector configurations are illustrated below:



NEMA 5-15
15 amps
1800 watts max.



NEMA 5-20
20 amps
2400 watts max.

OUTPUT POWER

Please note that there is one dual output receptacle per channel in the QEP and that the 600 watt rating is the combined rating per receptacle, not individual outlet. Hence, two 300 watt instruments can be plugged into one duplex since their combined wattage is not greater than 600 watts.

OUTPUT POWER FUSING

Output overload protection is achieved by use of one 5 amp AGC fuse per channel. The fuseholders are located on the sides of the QEP. They are designed to blow in the event of an overload, i.e., more than 600 watts plugged into one channel. Short circuited instruments, when plugged into a QEP, will blow a fuse and may also damage a triac. So, make sure your lamp cords aren't frayed or loose. If an output power fuse blows, that channel will become inoperable.

CONTROL FUSING AND TRIMMER

Each QEP has a PCB board mounted on the inside of the back panel. Located on this board are the control fuse and the minimum intensity trimmer. The control fuse used is a 1 amp AGC. If this fuse blows, it is an indication of a short circuit in the control circuit. The most likely cause would be the control cables. Contact the factory or your dealer for assistance.

The trimmer is factory set and should need no adjustment. If, however, when trimming the system from the DZN a noticeable difference in trim between power modules exists, then an adjustment to one of the QEP trimmers would be required. An access hole is provided in the back panel of the QEP through which a plastic wand may be used to make the adjustment. Turning the wand counter-clockwise increases the intensity, clockwise decreases the intensity. Unless properly instructed, this adjustment should be made by the dealer or factory.

CONTROL CABLES

The purpose of the control cables is to supply 12VDC power to the DZN control module and to conduct control signals back to the QEP. The snake material is a 6 conductor 22 AWG with a vinyl jacket. The male control connector is a Cinch Jones P-306-CCT or Beau P-3306-CCT. The female connector is a Cinch Jones S-306-CCT or Beau S-3306-CCT.

When coiling and uncoiling the control cables, be sure to turn out all the kinks and severe twists that may develop. Do not try to remove them by pulling as this causes undue strain. It is a good practice to inspect the cables carefully each time they are used.

SET UP AND OPERATION

The QEP can be mounted directly on the light rigging by bolting or by use of optional pipe mounting clamps (PMC). The lights can be plugged directly into the duplex outlets in the QEP. Remember, each channel provides a two outlet duplex receptacle. The 600 watt rating is per receptacle, not per single outlet. Plugging more than 600 watts into one duplex will blow a power output fuse.

NOTE: Heat build up is a major cause of triac failure. Care should be taken not to mount the power modules directly against or above a hot lighting instrument. Always mount them with the fins in the vertical plane. Do not restrict airflow around them. Do not put tape on the fins.

After mounting the QEP and connecting the lighting instruments, the power cord should be connected to the QEP. The power connections should be made to the QEP before connecting the control cables.

When making the control connections, the master blackout switch on the DZN should be in the Off position and the trimmer should be turned completely counter-clockwise. The control cabling should be routed in a manner as to avoid heavily traveled areas, preferably being taped or otherwise secured.

POWER CONSIDERATIONS

The available "house" current must be considered when using the QEP. Most 120VAC circuits have either 15 or 20 amp circuit breakers. A 15 amp breaker can provide 1800 watts and a 20 amp breaker, 2400 watts. These ratings are sufficient to power one fully loaded QEP of either the 15 amp or 20 amp versions, respectively. No other power may be tapped off this breaker. To calculate your current requirements use this formula: $\text{Current} = \text{Watts}/120 \text{ Volts}$. Thus, if you are using only 1200 watts on one QEP that equals 10 amps, which means you could run twice this load off of one 20 amp house circuit breaker. If you don't want to be playing in the dark, check the house breakers beforehand and don't exceed it.

PARALLELING QEPs

Paralleling power modules is achieved through the use of Y cords (QEYP). Two Cinch Jones P-306-CCT and one S-306-CCT connectors must be used for the Y cord with 22AWG or greater 6 conductor control cables. The Beau equivalent connectors may also be used. These Y cords may be obtained through your dealer. Never power or operate the system with a dangling or unattached control connector.

The corresponding channels of the two paralleled QEP's will then be governed by the same control signals of the DZN.

1000W PER CHANNEL MODIFICATION

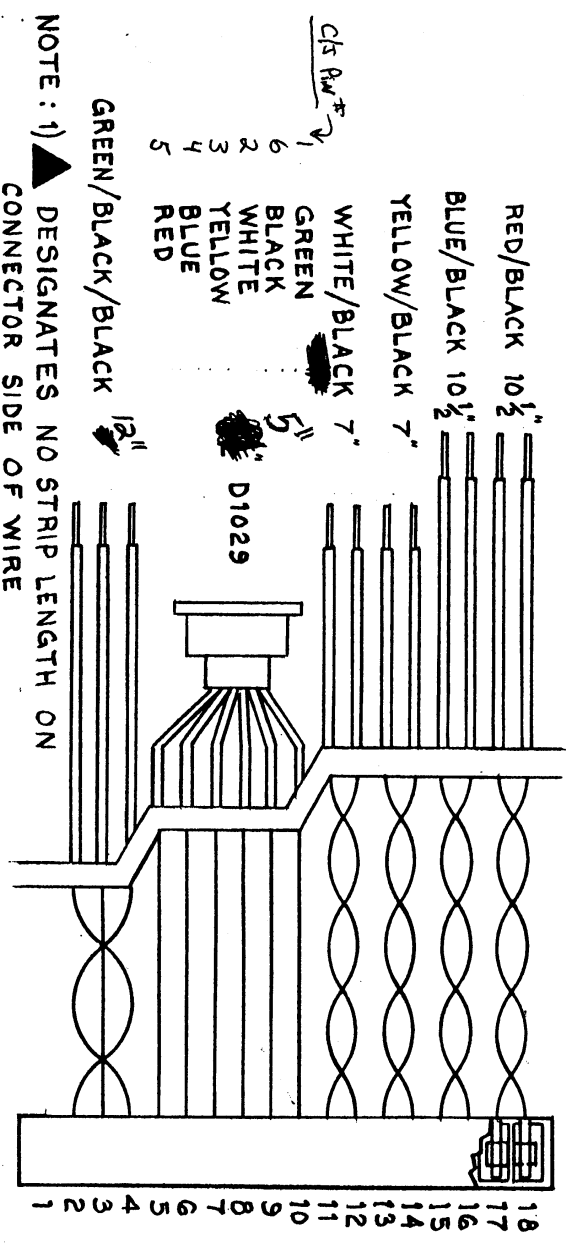
The power fusing of the QEP can be modified for applications which require the use of 1000W lighting instruments. The 12 amp rating of the four triacs mounted to the heat sinks of the QEP is sufficient to handle a 1000W instrument with the following limitations: Due to power input capacity being 1800W or 2400W total (depending on whether the power pack has a 15 or 20 amp power input connector) no more than two channels per power pack can be run with 1000W instruments. Also, due to the dual heat sink design of the QEP, only one odd numbered and one even numbered channel should be run at 1000W (i.e., channels 1 or 3 and 2 or 4, but not 1 and 3 or 2 and 4) for evenly distributed heat dissipation. Also, the 5 amp AGC overload fuse will have to be replaced with 10 amp AGC fuses on the particular channels being used.

Each of the two heat sinks was designed to dissipate half the maximum wattage of 2400W or 1200W each. Therefore, should channel #1 be running at 1000W, channel #3 may be run at 200W. The same limitation holds for channels #2 and #4. Do not exceed this 1200W per heat sink limitation.

A 1000W/channel system may thus be built by paralleling 2 QEP's off each control cable and running only 2 channels (#1 and 2 on one QEP, and #3 and 4 on the other) on each QEP.

SERVICE AND LIMITED WARRANTY

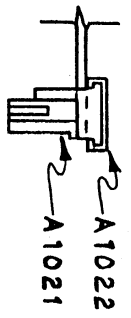
The QEP was designed to provide years of trouble free service. Performance, portability, and economy were prime considerations during its development, but reliability was of equal importance. For parts and service requirements on the QEP, your dealer or the factory should be contacted. Upon properly completing and returning the enclosed limited warranty card, we confidently extend the following warranty:



NOTE: 1) ▲ DESIGNATES NO STRIP LENGTH ON CONNECTOR SIDE OF WIRE

K 24, 9, 8, 0	9	6	R 24, 21, 8, 0	18	N/C
W 24, 9, 8, 0	8	2	K 24, 21, 8, 0	17	N/C
Y 24, 9, 8, 0	7	3	L 24, 21, 8, 0	16	N/C
L 24, 9, 8, 0	6	4	K 24, 21, 8, 0	15	N/C
R 24, 9, 8, 0	5	5	Y 24, 14, 8, 0	14	N/C
G 24, 14, 8, 0	4	N/C	K 24, 14, 8, 0	13	N/C
K 24, 14, 8, 0	3	N/C	W 24, 14, 8, 0	12	N/C
K 24, 14, 8, 0	2	N/C	K 24, 14, 8, 0	11	N/C
N/C	1	N/C	G 24, 9, 8, 0	10	1

CONTROL HARNESS FOR QEP-15/20



DRAWN BY: K. SCHREIBER
 DATE: 9-6-84
 CK'D:
 DR. NO.: SD 2176