



# **Precision Projection Systems**

## **Laser Components Catalog**

**2001**

**PRECISION PROJECTION SYSTEMS**  
17508 STUDEBAKER ROAD  
CERRITOS, CALIFORNIA 90703

562 865-8552 TEL  
562 924-7133 FAX  
email: [info@ppsfx.com](mailto:info@ppsfx.com)  
<http://www.ppsfx.com>

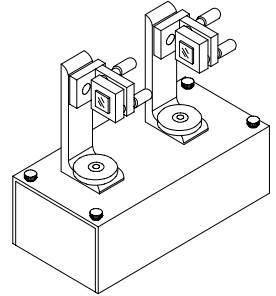
## LASER LIGHT SHOW PRODUCTS - PROJECTION ACCESSORIES

### ITEM

### DESCRIPTION

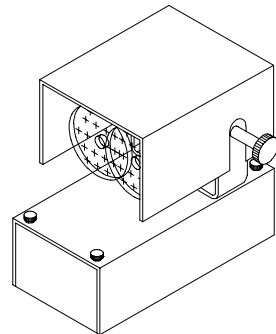
#### **TBD-2**

The Table Beam Director outputs two laser beams each at half the power of the input beam. Two L-brackets, each supporting an adjustable mirror mount, swivel for coarse azimuth adjustment. The adjustable mirror mounts pivot to set coarse altitude. Fine tuning is via the mirror mount knobs. The unit mounts to PPS standard show tables, or any breadboard with a 1" sq. 1/4-20 hole pattern.



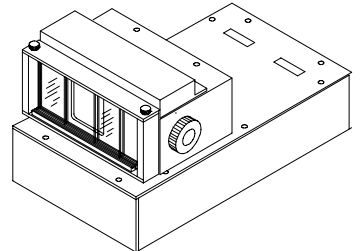
#### **TLM-1**

The Table Lumia Module can produce a large variety of lumia (nebulous swirling cloud) effects. The unit features two low speed dc motors with individual speed controls. Various effects are produced by changing the effects wheels and adjusting the motor speeds. An integrated dichroic array can be included to break out the primary colors of a white laser beam. The unit mounts to PPS standard show tables, or any breadboard with a 1" sq. 1/4-20 hole pattern.



#### **TGS-1**

The Table Galvanometer Scanner module encloses an X,Y scanner pair in a pan and tilt housing. Standard units feature galvo blanking and Dichroic color selection. Optional configurations include Polychromatic color and blanking and Quad post scan effect glass capability. The unit mounts to PPS standard show tables, or any breadboard with a 1" sq. 1/4-20 hole pattern.



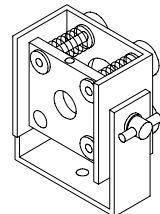
## LASER LIGHT SHOW PRODUCTS - REMOTE EFFECTS ACCESSORIES

### ITEM

### DESCRIPTION

#### **BD-2**

The Beam Director-2 is a compact 2-axis optical positioner with a 2" x 2" surface dimension and a .625" diameter mounting hole with set screw. It can be used as a small bounce mirror when a mirror accessory is attached, or can accommodate a .625" diameter output coupler for use as a fiber optic coupled beam director. An integral mounting yoke provides coarse position adjustment, with a 2 axis thumbscrew adjustable tilt plate for fine positioning.



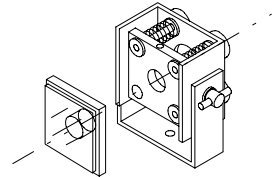
## LASER LIGHT SHOW PRODUCTS - REMOTE EFFECTS ACCESSORIES

### ITEM

### DESCRIPTION

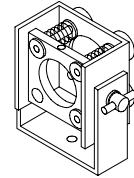
#### **SM-2**

The Stage Mirror-2 is a 2 inch mirror accessory for the BD-2. The unit is inserted into the BD-2 and secured with a set screw.



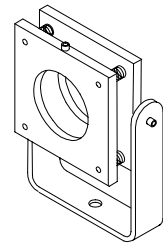
#### **BD-2M**

The Beam Director-2M is a 2 axis mount for adjustable positioning of 1.25" diameter fiber output couplers such as the PPS Medium Output Coupler. An integral mounting yoke provides coarse position adjustment, with a 2 axis thumbscrew adjustable tilt plate for fine positioning.



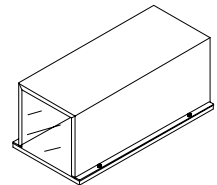
#### **BD-4**

The Beam Director-4 is a 2 axis mount for adjustable positioning of 2.25" diameter fiber output couplers such as the PPS Large Output Coupler. An integral mounting yoke provides coarse position adjustment, with a 2 axis thumbscrew adjustable tilt plate for fine positioning.



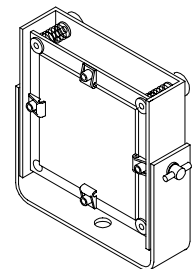
#### **WRC-4**

The Weather Resistant Cover is an enclosure for the BD-4 / Large Output Coupler combination. Consisting of a baseplate, and a screw mounted cover incorporating an anti-reflection coated window, the WRC-4 will provide protection in temperate to moderate outdoor conditions.



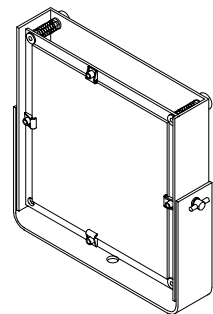
#### **SM-4**

The 4 inch Stage Mirror is a 4"x 4" laser stage mirror for producing beam displays when used with a moderate to high-powered laser projection system. The unit features a first surface glass mirror, a yoke mount for coarse positioning and vertical and horizontal fine adjustment thumb screws. The backing plate is recessed to provide protection for the glass during use and handling.



#### **SM-8**

The 8 inch Stage Mirror is a 8"x 8" laser stage mirror for producing beam displays when used with a moderate to high-powered laser projection system. The unit features a first surface glass mirror, a yoke mount for coarse positioning and vertical and horizontal fine adjustment thumb screws. The backing plate is recessed to provide protection for the glass during use and handling.



## LASER LIGHT SHOW PRODUCTS - REMOTE EFFECTS ACCESSORIES

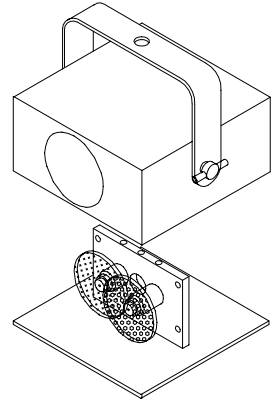
All remote effects accessories are designed for use in conjunction with the PPS fiber optic coupling system. Laser light is delivered to the modules via fiber optic cable and a fiber optic output coupler. The various remote modules feature anodized aluminum enclosures and adjustable mounting yokes.

### ITEM

### DESCRIPTION

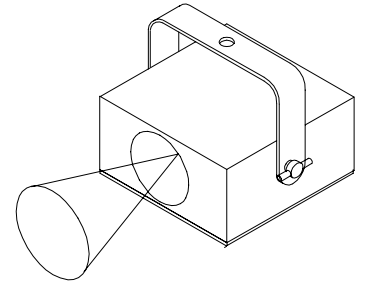
#### **RLM-1**

The Remote Lumia Module can produce a wide variety of lumia (nebulous swirling cloud) effects. The unit features two low speed dc motors with individual speed controls. Various effects are produced by changing the effect wheels and adjusting the motor speeds. The unit is available in two power configurations 120VAC (**RLM-1L**) and 12VDC. (**RLM-1DC**). A selection of effect wheels is available from PPS. Diffraction grating wheels can also be used.



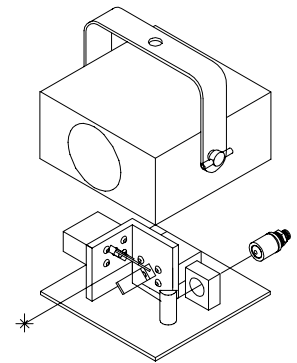
#### **RCS-1**

The Remote Cone Scanner module projects a circle which appears as a hollow cone when a medium or high powered laser beam illuminates aerial smoke or mist. The module contains a motor which rotates an angled mirror at a 60hz rate. The angle of the rotating mirror can be adjusted to set the size of the cone. Two configurations are available. The **RCS-1** is a non-safeguarded module. The **RCS-1C** incorporates a scanning safeguard function, that uses an internal beam shutter to terminate output if the motor falls below a preset rate of rotation.. A tach pulse option can be included and used to synchronize color modulation.



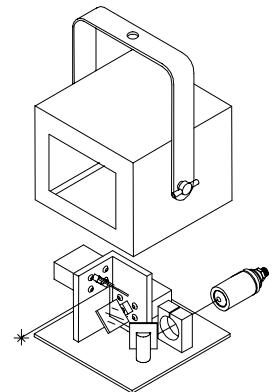
#### **RLS-1**

The Remote Low Speed module produces X-Y scanning effects in front or rear projection applications. Designed to accommodate the PPS 5/8" diameter Compact or Scanning Output couplers, the unit includes a pair of low speed open loop galvanometer scanners. RLS-1 units are usually connected via light gauge wiring to two drive channels of a PPS Bipolar Driver Card located in the main projection system.



#### **RMS**

The Remote Medium Scanner produces X-Y scanning effects in aerial projection applications. Designed to accommodate the PPS 1.25" diameter Medium Output Coupler, the unit includes a pair of low speed open loop galvanometer scanners. RMS units are usually connected via light gauge wiring to two drive channels of a PPS Bipolar Driver Card located in the main projection system.



## OPTICAL COMPONENTS - FIBER OPTICS

### ITEM

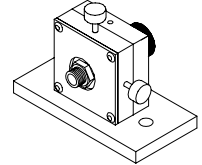
### DESCRIPTION

#### **CFS-CCS**

The Fiber Optic Coupler Set consists of a CFS-CIC input coupler and a CFS-COC output coupler. The fiber input coupler accepts laser light and directs it into the fiber optic cable. The cable conducts the energy to the output coupler, which recovers the beam.

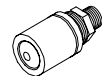
#### **CFS-CIC**

The Connectorized Input Coupler accepts laser light and directs it into a fiber optic cable. The input coupler will focus light into all three sizes ( 50u, 100u, & 200u ) of PPS fiber optic cable.



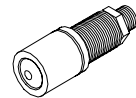
#### **CFS-COC**

The Compact Output Coupler is .625" in diameter and produces a 3-4 mrad divergence with a 100 micron cable.



#### **CFS-SOC**

The Scanning Output Coupler is .625" in diameter and produces a 2-2.5 mrad. divergence with a 100 micron cable.



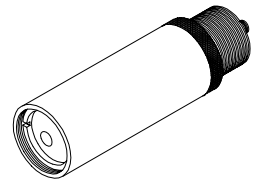
#### **CFS-MOC**

The Medium Output Coupler is 1.25" in diameter and produces a 1-1.5 mrad. divergence with a 100 micron cable.



#### **CFS-LOC**

The Large Output Coupler is 2.5" in diameter and produces a .5 mrad. divergence with a 100 micron cable.



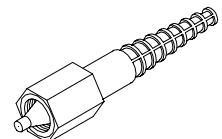
#### **CFS-SPL**

The Splice Bushing provides the interface from the connectorized fiber to the various input and output couplers. It is available as a repair or replacement part.



#### **CFC-4XXX**

The CFC series Fiber Optic Connectors are available in three fiber sizes. The CFC-4125 is for 50 micron fiber, the CFC-4140 is for 100 micron fiber and the CFC-41240 is for 200 micron fiber.



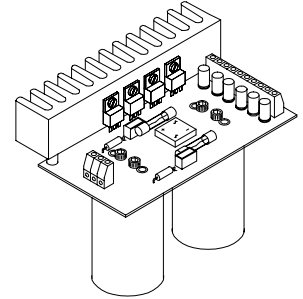
## ELECTRONICS - SYSTEM SUB-ASSEMBLIES

### ITEM

### DESCRIPTION

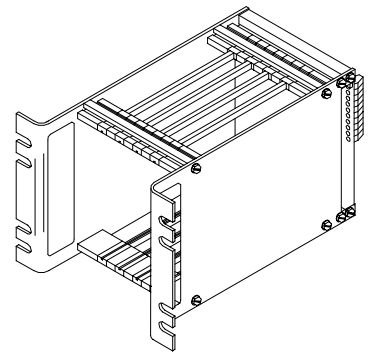
#### **PSBD**

The Power Supply Board is a compact circuit card which includes all circuitry necessary to provide power to most of the electronic elements used in PPS projection systems. The circuit features 5 ampere capacity of unregulated +/- 28 volt outputs, and 1 ampere maximum on each of +/- 15 volt and +/- 5 volt regulated outputs. Fuses on the board protect against overload on the main outputs, and against damage due to component failure on the board itself. AC input from an appropriate transformer is applied via a three position screw terminal strip. The output is taken from a ten position screw terminal strip.



#### **CCA-4**

The four slot Card Cage Assembly incorporates the PPS 72 pin card edge socket. The assembly accepts power from a ten position screw terminal header, identical to the PSBD output terminal. The cage is used in conjunction with PPS driver boards and is easily wired using standard 16 conductor ribbon cable and crimp on connectors.

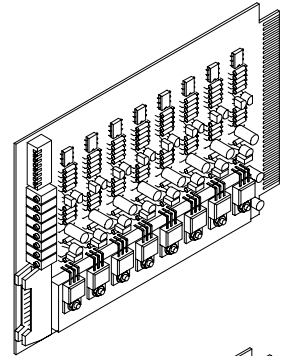


#### **CCA-8 & CCA-16**

The CCA-8 and the CCA-16 have all the features of the CCA-4 with the added capacity to accommodate eight and sixteen circuit cards respectively.

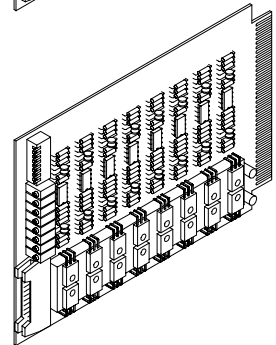
#### **UPD-8**

The Unipolar Driver Card contains eight identical unipolar TTL driver channels on a single plug-in circuit card. The card features fully opto-isolated inputs, a drive level adjustment and a test switch for each channel. Component values may be varied to provide an adjustable slope for driving mechanical actuating devices. The card may be used to drive solenoids, DC motors, or linear mechanical actuators such as General Scanning GM-20. The card may be adapted to input signal voltages of from 5 to 50 volts.



#### **BPD-8**

The Bipolar Driver card contains eight identical bipolar linear driver channels on a single plug-in circuit card. The card features, an individual gain adjustment and a test switch for each channel. A test voltage trimmer matches the test switch signal amplitude and polarity to the desired input signal. Component values may be varied to accommodate various input signal levels. The bipolar driver is available for +/- 15V or +/- 28V power supplies. The card is pin compatible with the PPS unipolar driver card, using the same card edge power and input pins. The card uses identical output connections, making upgrades very simple.



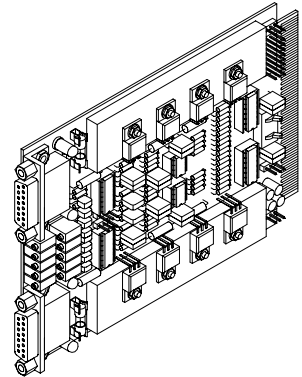
## ELECTRONICS - SYSTEM SUB-ASSEMBLIES

### ITEM

### DESCRIPTION

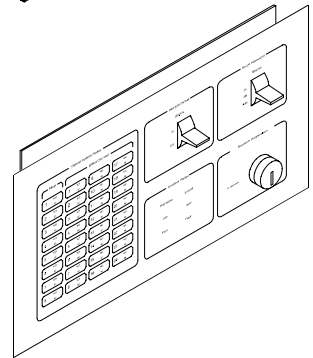
#### **DGDR**

The Dual Galvo Driver board is a two channel servo-amplifier especially designed to drive General Scanning®. Model G120-138 D and DT galvanometer scanners. The 4.5" by 6.5" board features two channels, each with a linear MOSFET output stage, AGC regulation, and optional temperature regulation for the DT version scanners. Input to the drive channels may be selected from any of 8 input signals, and the selected input signals may be inverted by an onboard switch. The card may be installed directly into a standard PPS drive electronics card cage, or operated as a stand-alone board.



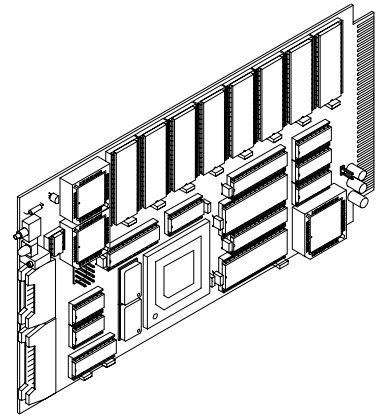
#### **MSCB**

The Main System Control Board contains all of the main control electronics for the system, including the master keyswitch, the master shutter controls, the interlock and interlock defeat circuits, the system interlock status monitors, and the indicator banks which display the status of the projector optical system. The module consists of a printed overlay panel, a metal sub panel, and the printed circuit control board itself.



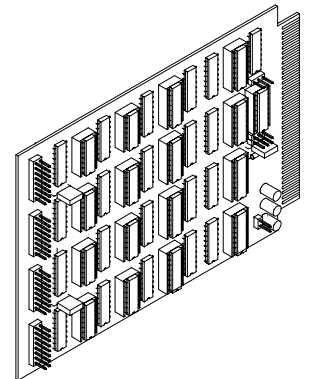
#### **APRC**

The Animation Processor Card is a microprocessor circuit card designed for development and display of scanned graphics and animation in stand-alone applications. The card features a high speed 32 bit microprocessor, support for 1 megabyte of program development RAM, and either 1 or 4 megabytes of display EPROM memory. An 8 bit opto-isolated hardware control input port, 8 separate 12 bit DAC output channels, and an RS-232 serial interface port are included. The APRC card fits in a standard Precision Projection card cage, and measures 4.5 inches high and 8.5 inches long.



#### **BPDC**

The Bipolar Decoder Card is a projector control accessory card designed to be mounted in the PPS system card cage. The card decodes an 8-bit parallel digital input (Typically sourced from PPS LaserCAD software) into 32 bipolar digital outputs to direct the various optical control functions of a mid to large scale projection system. The Bipolar Decoder is compatible with all PPS driver cards. Use of the card can substantially reduce the complexity of system control wiring.



## OPTICAL COMPONENTS - GALVOS, & MOUNTS

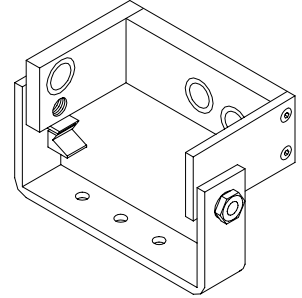
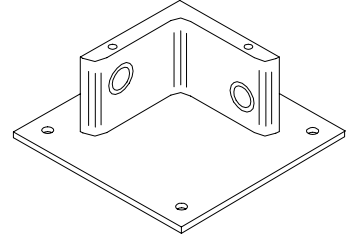
### ITEM

### DESCRIPTION

#### **G-120 Accessories**

The General Scanning® G-120 is a high speed closed loop rotary galvanometer for X-Y Graphic scanning applications. In addition to stocking the G-120 and its variations, PPS also stocks the following G-120 Accessories:

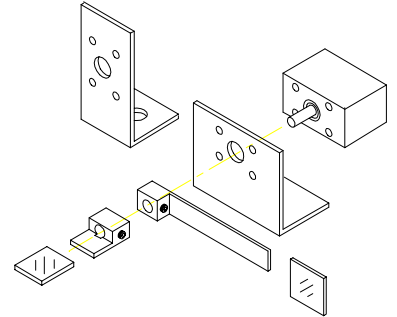
XY-MNT	Two scanner mount for X-Y applications.
XYZ-MNT	Three scanner mount with retro reflective galvo blanking.
MT10	Scanner Mirror Mount ( Not Shown).



#### **GM-20 Accessories**

The General Scanning® GM-20 is an open loop rotary galvanometer used for a variety of low speed scanning and beam selection functions. PPS stock accessories for the GM-20 include:

GM20-MNTH	Horizontal Mounting Bracket.
GM20-MNTV	Vertical Mounting Bracket.
GM20-ARM	Actuator Mirror Arm or Shutter Blade.
GM20-XYMT	Two scanner mount for X-Y scanning (Not Shown).
GM20-MM	Mirror mount for scanning applications.



#### **MM-1 Accessories**

The Newport® MM-1 is a 1" x 1" precision adjustable mirror mount that is the best means of accurately and repeatedly directing a laser beam. In addition to stocking both the original Newport and "Clone" units, PPS also stocks the following MM-1 accessories:

MM1-ANG	L-Bracket angle mount for MM-1 at 1" or 2" beam height.
MM1-BLK	Offset block that mounts MM-1 to MM1-ANG.
MM1-45BLK	Longer Offset Block for MM-1 when used with 45 degree mirror mounts.
MM1-45B	45 Degree blind mount, for 100% mirrors, mounts to MM-1 with setscrew.
MM1-45C	45 Degree clear mount for dichroics or beamsplitters, mounts as above.
MM1-CUBE	Mount for Polarizing Cube to MM-1, mounts as above.

