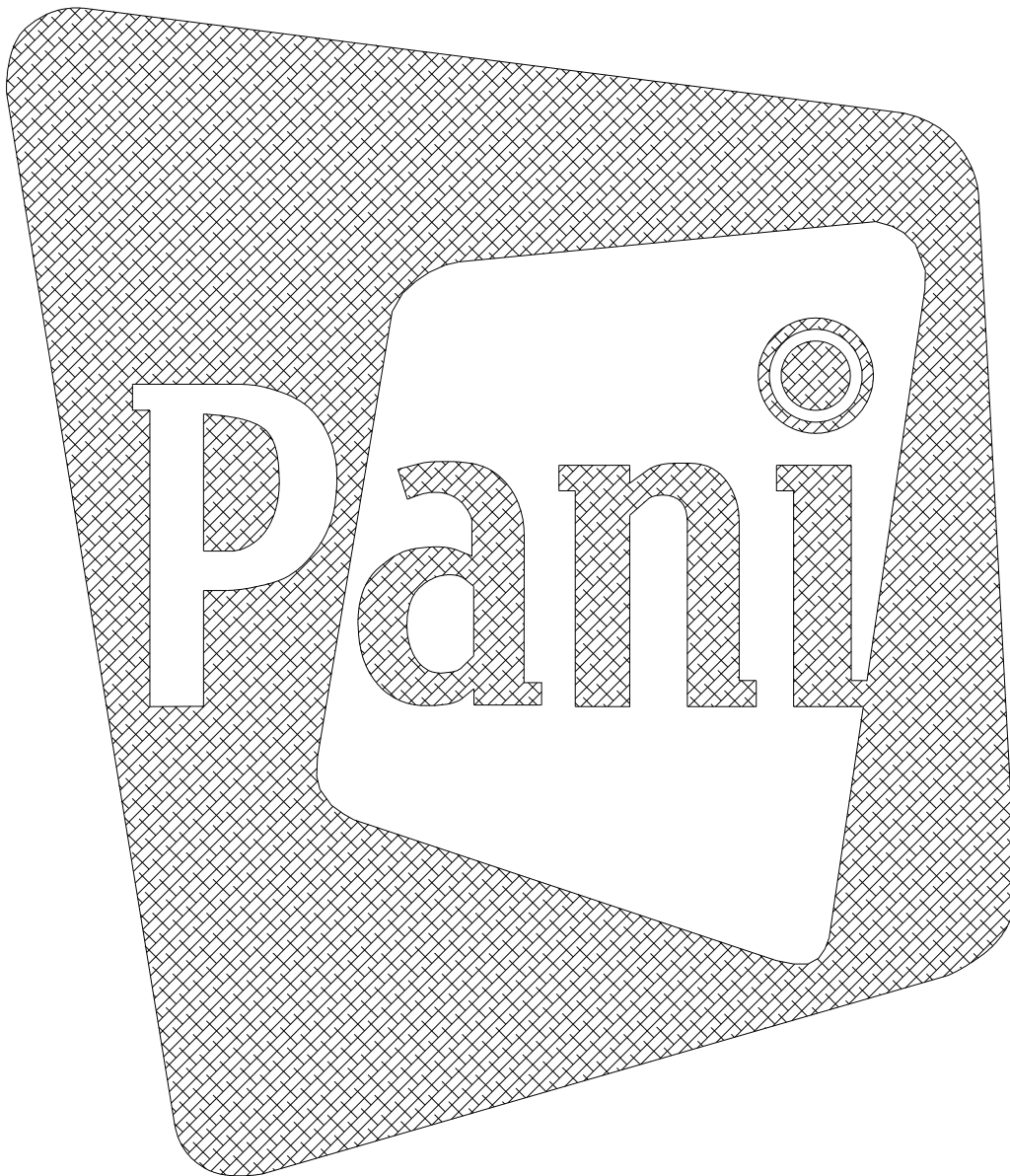


# Operation Manual

# AMD 32

Automatic Slidechanger  
Random Access



Order Code:

12511

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## INTRODUCTION

The **AMD-32 Automatic Slidechanger** has the capacity of 32 film or double glass slides in the standard PANI 18 x 18 cm (7" x 7") format. The slides are placed in an interchangeable cassette box that allows for quick slide loading and easy transport. The AMD-32 is compatible with all 18cm projectors in the PANI line including the BP1.2, BP2.5 Compact, BP2500, BP4 Compact, BP6 Gold.

Four control modes are provided to allow easy integration into any show control configuration:

- RS 232 control via UMC, a custom Macintosh control program. All changer functions and Dimming Shutter control are easily programmed. UMC cues may be triggered via SMPTE, DMX512, Switch Closure and simple GO button.
- DMX512 control from any lighting desk. Simple "Next Slide" mode or Random Access mode are available. Each changer requires 3 DMX dimmers. See the section on DMX control for more information.
- Remote Control via a 3 pin XLR connector has 2 modes of operation: Dry Switch closure or +10VDC input. Both methods control Forward, Reverse and Reset functions.
- Local control at the slidechanger is provided by momentary Forward and Reverse pushbuttons.

The AMD-32 has 4 user selectable slide change speeds:

1. Quiet                5 seconds between slides.
2. Slow                4 seconds between slides.
3. Medium             3 seconds between slides.
4. Fast                 2 seconds between slides.

Reset time from slide 32 to slide 1 is 22 seconds.

Dual mains voltage selection, 100-130 / 200-240 VAC 50/60 Hz, is provided on the AMD-32. Mains power is via standard "computer" IEC 320 power cables.

## **THE SLIDE CASSETTE**

The AMD-32 slide cassette holds up to 32 slides in special aluminum carriers. It has a locking door to allow easy access to the slides when the cassette is mounted to the changer.

**Please Note:** It is recommended that the slide cassette be in the RESET position when changing slides through the cassette box door. This will prevent you from accidentally placing a slide in the “active” slide position, which will then cause a slide jam when the active slide is moved out of the gate.

The handle-like **Slide Retainer** is not a handle. It is there to keep the slides from falling out of the cassette when it is off the changer. Simply flip the retainer in front of the slides and tighten the knobs on either side of the box. **Please remember to flip the retainer completely around to the top of the cassette box before placing the cassette on the changer.**

**To install the slide cassette** onto the AMD-32, be sure the cassette platform is in the RESET position. ⇒ The platform will move to Reset when you power up the unit. Flip the slide retainer around to the top of the box, then lower the box onto the cassette platform. There are tabs on the bottom of the box to help guide the box and keep it in alignment. When the cassette is seated, secure it to the platform with the two locking clips. The slide access door must be closed during normal operation of the AMD-32.

**To remove the slide cassette,** send the cassette to the RESET position. ⇒ If you are at the changer, press the Forward and Reverse buttons together to send the cassette to Reset. Release the locking clips and lift the cassette box off the platform. Flip the slide retainer around in front of the slides and tighten the knobs.

## **Special Slide Carriers**

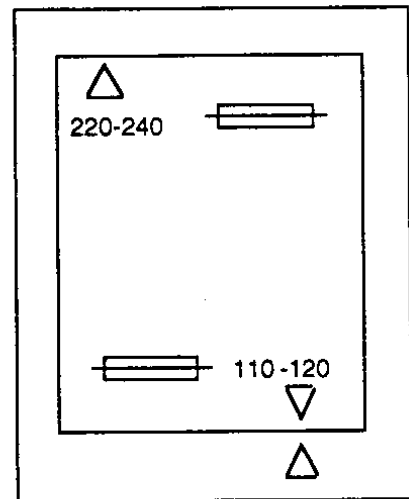
PANI film holders or double glass slides are placed into special square carriers for use in the AMD-32. The carriers are made of four extruded aluminum channels fastened together with special Allen socket screws.

To insert a slide into a carrier, use a 3 / 32" Allen key to remove one side of the carrier. Insert the slide into the carrier and reattach the carrier side piece. Be sure each Allen screw has the supplied washer installed. The washer is required for proper operation of the slide changer. A carrier without washers **will jam** the changer. Lay the assembled carrier on a flat surface to check that the carrier is flat. Check that all four carrier screws are tight. The carriers get placed into the cassette with the screw heads oriented to the top and bottom of the cassette.

### DUAL VOLTAGE SELECTION

The AMD-32 can be powered from either 100 - 120 VAC or 200 - 240 VAC. To the right is a detail of the unit's power inlet. The inner box is the fuse holder.

To select the desired voltage pull out the fuse holder with a small screwdriver or fingernail and align the arrow under the voltage with the arrow on the power inlet. ⇒ The arrow on the inlet is black and hard to see. The desired voltage should be pointing away from the power cord.



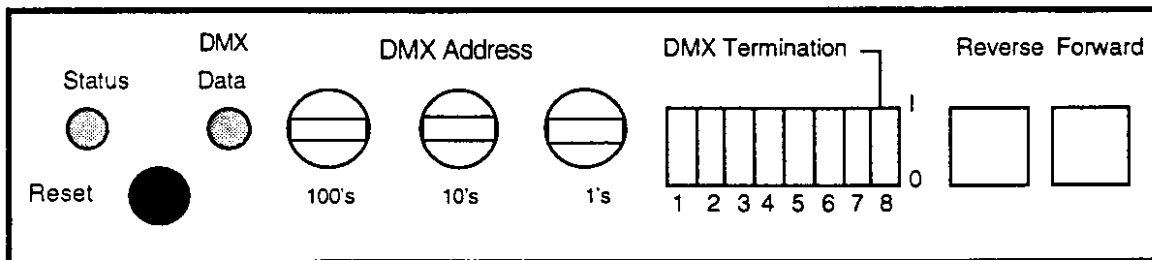
Set for 110 VAC

The power inlet uses a standard IEC 320 C13 connector. This is the one used on just about every computer, monitor and such. If the cable is lost or damaged, a replacement is readily available from a local computer or electronics store.

**Fuse Size:** The AMD-32 uses 5 x 20 mm time lag fuses.  
For 120 VAC - 1 amp, 250 V fuse.  
For 220 VAC - 1/2 amp, 250 V fuse.

CONTROL CONFIGURATION

AMD-32 Control Panel



Slide Select Speed - Sw# 1, 2

The AMD-32 has four slide select speeds. Switches 1 & 2 of the 8 position DIP switch are used to set the desired speed. Push the top of the switch in for ON (1) or the bottom of the switch in for OFF (0). You may change the slide select speed at any time. The new speed will take effect at the next slide cycle.

Switch 1	Switch 2	Speed	Time between Slides
OFF	OFF	FAST	2 SECONDS
OFF	ON	MEDIUM	3 SECONDS
ON	OFF	SLOW	4 SECONDS
ON	ON	QUIET	5 SECONDS

Self Test Mode - Sw# 3, 4, 5

Switches 3, 4, & 5 are used to set the self test mode. These switches should be set ON to select the Multi - cycle Slide test. When you enter self test mode, the changer will cycle through the 32 slides three times then stop.  
 ⇒ To enter self test mode: Press and hold the Forward and Reverse buttons for a few seconds until the Status LED starts to blink rapidly. To exit self test mode: Press the Forward and Reverse buttons together briefly or press the recessed RESET button.

### Data Rate Select - Sw# 6

Switch 6 must be in the ON position

### DMX512 Control Mode - Sw# 7

Switch 7 selects the way DMX512 controls the AMD-32. See the section on DMX512 control for more information.

- ON Simple "Next Slide" Mode.
- OFF Random Access Mode.

### DMX512 Termination - Sw # 8

When using the AMD-32 in DMX512 control mode, the last physical slidechanger on the DMX control cable must have switch 8 ON. Only the last unit needs to be terminated. If there are multiple units with switch 8 ON, the DMX data will be degraded and may not function properly. The same may happen if the data line is NOT terminated at the last unit. Each control run from a DMX splitter is considered independent and the last unit on each run needs to be terminated.

## AMD-32 CONTROL OPTIONS

### LOCAL CONTROL

Two momentary pushbuttons, Forward & Reverse, are provided for local control at the slidechanger. The changer will move one slide in the selected direction with each press of the button. If you press and hold one of the buttons, the cassette will quickly slew in that direction, but not load a slide until you release the button. This allows you fast access to all slides in the cassette.

When you briefly press both buttons simultaneously, the cassette will move to the RESET position. It is best to go to reset when you want to change slides through the cassette door. You MUST go to reset to remove the slide cassette.

## REMOTE CONTROL

There are two methods of remote control via the 3 pin Male XLR. One is Switch Closure mode. The other is +10 VDC Analog input.

Connector Pin out
1 = Common
2 = Forward
3 = Reverse

### Switch Closure Mode

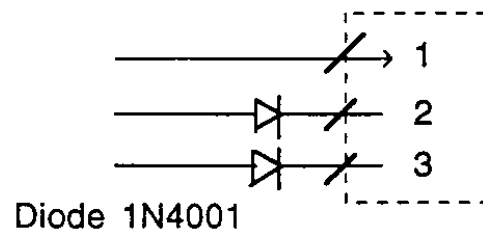
The AMD-32 may be controlled by a simple 2 button, momentary switch box or from an AV controller switched output.

Closing common to forward or reverse will cause the changer to get the next slide in the selected direction. Closing both forward and reverse to common simultaneously for more than 1 second will send the cassette to the RESET position.

### +10 VDC Analog Control

Using this method, the slidechanger responds the same as switch closure mode. When 10 VDC is applied between common and forward or reverse, the changer will move one slide in that direction. Reset is sent if both channels are sent 10VDC for more than 1 second.

If the slidechanger initiates a move when control moves from 0 to 10 and 10 to 0, diodes should to be placed in line to the forward and reverse pins of the 3 pin XLR F.



⇒ In both Remote Control modes you must wait for the current command to be finished before sending the next. While the changer is an motion, new commands are ignored.



## **DMX512 CONTROL OPTIONS**

There are two DMX512 control modes; Simple “Next Slide” mode and Random Access mode. In “Next Slide” mode you can select the next slide in sequence in either direction. You may also send the slide cassette to the reset position. Random Access mode lets you go to any slide in any order. You must remember that it takes more time to go from slide 2 to 25 than it does from slide 2 to 3.

**Please note:** In Random Access mode it is not possible to send the slide cassette to the reset position from the control console, you have to do it at the slide changer control panel.

- Each slidechanger will use 3 sequential DMX channels. The first channel is selected by the 3 rotary address switches on the control panel. If the switches are set to 0 1 0, the three channels are 10, 11, 12.
- Multiple units are connected in a daisy chain from device to device.
- The last unit in the chain must be terminated - Switch **8 ON**.
- The last unit on each control run from a distribution amplifier must be terminated.
- DMX512 move commands cannot be “stacked” up. The changer will ignore subsequent commands while it is moving. The current command must be finished before sending the next move cue.

### **Simple “Next Slide” Mode**

- Set configuration switch **7 ON** to put the AMD-32 in “Next Slide” mode.
- Set the DMX address on the three rotary switches.  
If the address is 0 0 1, the channel assignment is:
  - Channel 1 Forward
  - Channel 2 Reverse
  - Channel 3 Dimming Shutter Level
- When the forward or reverse channels are brought above 70%, the AMD-32 will execute the corresponding move.
- The channel must be brought to 0 before the next move can be executed.

- While the changer is in motion, all new move requests are ignored. Make note of the slide cycle time to be sure commands are not issued while the changer is moving.
- When both forward and reverse channels are brought to 100% for more than 1 second, the AMD-32 will send the cassette to the RESET position.

### **DMX - Random Access Control**

- Set configuration switch **7 OFF** to set the changer to Random Access Mode.
- Set the DMX address on the three rotary switches.

If the address is: 1 0 0, the channel assignment is:

Channel 100	Slide Select
Channel 101	GO
Channel 102	Dimming Shutter Level

A random access slide move works as follows:

1. Set the Slide Select channel to the level for the desired slide. (See the table called "DMX512 Slide Levels" on page 11.)
2. Wait at least half a second, then set the GO channel to 100%.
  - The GO channel must be brought to 0 before the next command can be issued.
  - As previously noted, the slidechanger must have completed the current move before the next command can be sent.

In Random Access mode, a Next Slide command can be sent with the following sequence:

- Set the Slide Select channel to 0.
- Set the GO channel to 100%.

A combination of the Next Slide and Random Access move, help make complex DMX cueing easier.

**Sample DMX Cue Sequence**

AMD-32 slide cassette at Reset position.

Cue 1 GO channel to 100% Select slide 1

Link with .5 second delay to:

Cue 1.1 GO channel to 0

Cue 2 Dimming Shutter to desired level

Cue 3 Dimming Shutter to 0

Link with .5 second delay to:

Cue 4 Slide Select channel to 32% for slide 10.

Link with .5 second delay to:

Cue 5 GO channel to 100%.

Cue 6 Dimming Shutter to level.

**DMX512 SLIDE SELECT LEVELS FOR AMD-32**

These levels have been verified on the following DMX512 consoles:

Expression, Expression II X, Obsession, MicroVision, LP90.

<u>Slide Number</u>	<u>DMX Level</u>
1	3
2	7
3	10
4	13
5	16
6	19
7	22
8	25
9	29
10	32
11	35
12	38
13	41
14	44
15	47
16	50

<u>Slide Number</u>	<u>DMX Level</u>
17	54
18	57
19	60
20	63
21	66
22	69
23	72
24	76
25	79
26	82
27	85
28	88
29	91
30	94
31	98
32	100

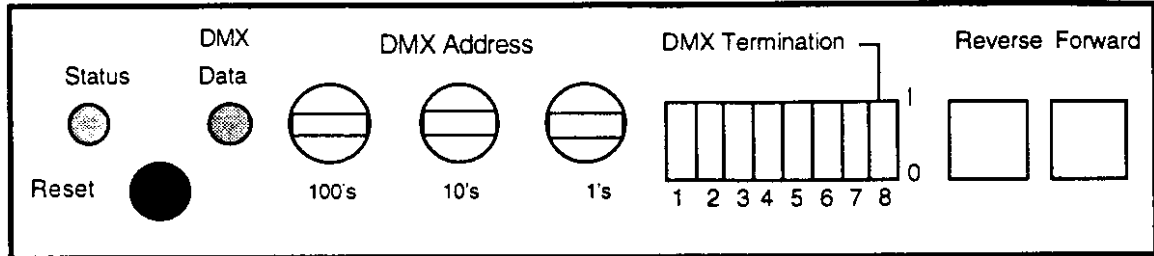
**Note:** In consoles other than those listed above, check the channel levels for correct slide selection and adjust as required.

## **RS 232 CONTROL - UMC**

The AMD-32 can be controlled with the Universal Media Controller. This is a custom Macintosh program designed to control all of the Production Arts / PANI image handling products. Any combination of slidechangers and image scrollers, up to 12 devices, may be controlled together. UMC controls all projector functions. The program gives the user visual status of what image the changer is in and the level of the dimming shutter as well as status messages like " Not Responding", "On Line", "Working", "Cassette Jam".

- Each slidechanger gets a run of 7 pin XLR control cable from the UMC controller.
- Choose a Slide Select Speed (Switches 1 & 2).
- Configuration switch # 6 must be ON.
- See the "UMC User's Guide" for programming information.

## AMD-32 Control Panel



### BUTTONS AND INDICATORS

#### Forward and Reverse buttons

- One press changes the slide in the selected direction.
- Press both buttons briefly to send slide cassette to Reset position.
- Press both buttons for more than 1 second to enter Self Test mode.

#### 8 Position Configuration Switch

##### **Switch 1 & 2 - Slide Select Speed**

Switch 1	Switch 2	Speed	Time between Slides
OFF	OFF	FAST	2 SECONDS
OFF	ON	MEDIUM	3 SECONDS
ON	OFF	SLOW	4 SECONDS
ON	ON	QUIET	5 SECONDS

**Switch 3, 4, 5 - Self Test Mode - Set to ON position.**

**Switch 6 - Baud Rate Select - Must be in the ON position.**

#### **Switch 7 - DMX512 Control Mode**

- ON Simple "Next Slide" Mode
- OFF Random Access Mode

#### **Switch 8 - DMX Termination**

- ON Termination ON
- OFF Termination OFF

**DMX Address Rotary Switches**

Use these switches to set the starting DMX channel address for the unit.

**Reset Button** - Pressing the RESET button causes a hardware reset of the AMD-32, just as if the unit were powered down and up.

**Status LED**

- Flashing GREEN..... Unit OK
- Intermittent Flashing RED = Error condition
  - 1 Flash Grabber arm stall
  - 2 Flashes Cassette drive stall
  - 3 Flashes Limit switch error
  - 4 Flashes Cassette timeout error
  - 5 Flashes Grabber timeout error

The status LED will briefly flash RED when it receives a UMC command.

**Data LED**

- Steady RED.....No Data present
- Steady GREEN.....DMX512 Data present
- Flashing GREEN / RED.....RS 232 / UMC Data present

## CONNECTOR PIN OUT CHART

Remote Control            3 pin Male XLR

- 1 - Common
- 2 - Forward
- 3 - Reverse

Dimming Shutter Output        3 pin Female XLR

- 1 - N/C
- 2 - Common
- 3 - +10 VDC

DMX512 INPUT 5 pin Male XLR / DMX512 Pass Thru 5 pin Female XLR

- 1 - Common
- 2 - Data -
- 3 - Data +
- 4 - B Data -
- 5 - B Data +

RS 232    7 pin Male XLR

- 1 - Data Carrier Detect (DCD)            output
- 2 - Transmit (Tx)                            output
- 3 - Receive (Rx)                             input
- 4 - Clear to Send (CTS)                   input
- 5 - Request to Send (RTS)                output
- 6 - N/C
- 7 - Signal Common

## TROUBLESHOOTING TIPS

Most slidechanger problems are caused by slide carrier problems. If the unit jams, turn the changer off and clear the problem slide. You can spin the cassette lead screw and move the slide grabber arm by hand when the power is OFF. Remove the slide carrier and inspect it. Look for.....

- Loose Allen head screws.
- Be sure all four screws have the spacer washer under them.
- Lay the carrier on a flat surface and be sure it is not twisted.
- Inspect the slide frame. Check that all the screws are in place around it. If some are missing, look in the bottom guide track for the missing screws.

Unit jams at slide 1. This usually indicates a cassette reset problem. Please call PAL for instructions on adjusting the cassette reset position.

## MAINTENANCE

The frequency of maintenance depends on the operating environment. If upon inspection, there is a great accumulation of dirt and dust, cleaning should occur more often.

- Clean the outside of the unit with a soft cloth and mild detergent.
- Inspect lower slide guide rail. Clean with a “Q-tip” or soft cloth and mild detergent.
- Remove slides from cassette and clean plastic guide blocks with a soft cloth and mild detergent.
- Check that all four screws on the slide carriers are tight.
- With the power off, open the two electronics enclosures and blow out any debris with clean air from a can. Do not use “shop air” as there may be water or oil in the air line.
- Check that connectors to the cards are seated properly, and that the card mounting screws are tight
- The cassette lead (drive) screw has a light coat of #2 grease on it. If there is a large build up of dust and dirt the screw will need to be cleaned:
  - Use WD-40 and a soft cloth to thoroughly clean the lead screw. Wipe off as much of the WD-40 as possible.
  - Place a small amount of #2 grease on two places along the screw and run the cassette back and forth a couple of times.
- The Grabber arm lead screw uses a self lubricating plastic drive nut. A very small amount of light machine oil may be required periodically.



## AMD-32 SPECIFICATIONS

**Projector Compatibility:** BP1.2, BP2, BP2.5, BP2500, BP4 Compact, BP6 Gold.

**Slide Format:** 18 x 18 cm ( 7" x 7" )

**Slide Capacity:** 32 Slides of film or double glass in special slide carriers.

**Slide Cassette:** Removable for quick change and transport. Holds 32 slides in special carriers.

**Slide select speeds:** 4 switch selectable speeds:

Quiet	5 seconds between slides.
Slow	4 seconds between slides.
Medium	3 seconds between slides.
Fast	2 seconds between slides.

**Slide position accuracy:** Within 0.6mm ( .025" ) of true horizontal centerline.

**Maximum angle of operation:**  $\pm 50^\circ$  from horizontal.

**Local Control:** Via pushbuttons on unit. Forward / Reverse / Reset functions.

**Remote Control:** Via 3 pin XLR connector. 0 - 10 VDC or Dry Switch Closure.  
Forward / Reverse / Reset functions.

**DMX512 Control:** Simple "Next Slide" mode or Random Access slide selection. Address selection via 3 rotary switches.

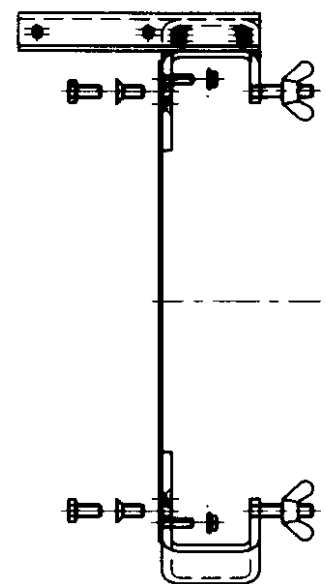
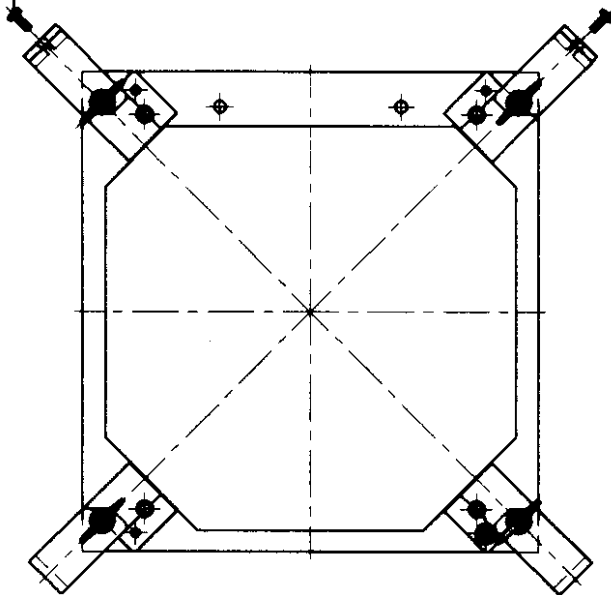
**RS 232 Control:** Via Universal Media Controller (UMC), a custom Macintosh control program.

**Power requirements:** 200 - 240 VAC @ 0.5 amp or  
100 - 130 VAC @ 1 amp, 50/60Hz

**Size:** Overall - 15" H x 20" W x 36" L (381 mm x 508 mm x 914 mm)

**Weight:** 68 lb. (31kgs)

Linsenschraube mit Kreuzschlitz M5x12 für Befestigung  
der Verlängerung bei BP4/HMI und BP6 Gold  
Oval-head screw cross recess M5x12 for attachment  
of the extension concerning the BP4/HMI and the BP6 Gold

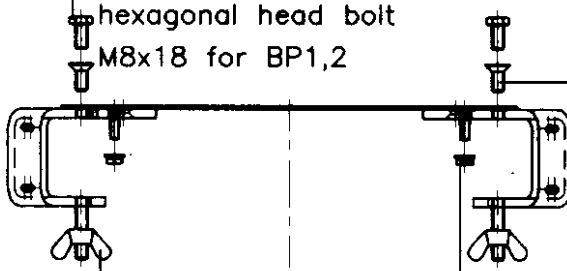


Sechskantschr. m. i6kt. M8x16 für BP1,2

hexagonal head bolt  
M8x18 for BP1,2

Senkschraube m. i6kt. M8x18  
für Compact Serie

flat-head screw with hex socket M8x18  
for Compact series



Sechskantmutter mit Flansch M6  
für AMD15/32 und AS100 Befestigung  
hex nut with flange M6  
for AMD15/32 and AS100 attachment

Flügelmutter M8 für Befestigung des Zubehörs  
butterfly nut M8 for attachment for the accessories

Index	Beschreibung			Datum	Name
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Alle Rechte gemäß DIN 34 ausdrücklich vorbehalten Weitergabe und Verwertung des Inhaltes auch in Teilen ist ohne schriftl. Zustimmung verboten				AMD15/AMD32 Montagehinweis mounting remark	56-09-04

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