

PSU-2Plus Instructions for Use (Software Version PSU-2.82T)

WARNING! To prevent fire or shock hazard, do not expose the unit to rain or moisture. To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only. Do not block ventilation openings.

Connecting

1. Connect the PSU touch screen monitor with the monitor cable to the 18-pin Lemo connector of the PSU main unit.
2. Connect the video signal from the camera(s) to the BNC input CAM A and CAM B.
For automatic recording use Vantage Lector® at the camera. The Box will transmit the camera speed through the BNC cable – patent pending.
3. Connect sound to AUDIO IN, ext. loudspeakers to the AUDIO OUT and additional monitors to one of the VIDEO OUT sockets.
4. Plug the power cable into the 230 VOLTS mains power socket.

Starting the PSU

Press the POWER button. The loading process takes 120 seconds (green LED on the monitor). The built-in heater starts to warm up the mains power unit after connecting the PSU to the 230 VOLTS mains power socket at temperatures below 10 °C.

Input Selector

To display different sources you can use the four input buttons CAM A, CAM B, CAM A+B and DISC. CAM A+B will show both video images side by side. DISC will show the already recorded takes. The selected source will be indicated on the upper right corner of the screen. By pressing the DISC button for one second you can additionally select different levels on the disc. HIDDEN TAKES directs you to all hidden takes (gray displays - see hiding takes). SHORT TAKES directs you to all takes shorter than the selected time (green displays - see user settings). To return to the standard disc level (blue displays) press DISC. The HAWK button will switch the PSU monitor into anamorphic mode to view anamorphic squeezed shots.

Video-out Selector

By using this selector you can view the image on additional monitors. The video signal will be switched to both of the VIDEO OUT sockets which are delivering the identical signal. The AUDIO OUT socket will be switched on at the same time. Select a source by pressing the appropriate button (AUTO, CAM A, CAM B, CAM A + B, DISC). The AUTO function automatically switches the picture that is shown on the PSU touch screen to the VIDEO OUT sockets. A test-generator is available to calibrate additional monitors as well as the PSU touch screen. A 1000 Hz –20 dB test tone is switched to the AUDIO OUT socket if the test-generator is switched on.

Time-Display & Take-Info

The Time-Display shows the running time of the selected take. Press the Time-Display to switch to reverse mode (counting backwards). The Take-Info is displayed right below the Time-Display. It shows recording date, recording time, shooting time and screen time (the screen time differs from the recording time, if a playback speed higher or lower than 25 fps is selected). The compression rate of the selected take is shown as well. By pressing these two lines the Take-Info will switch to System-Info. System-Info will show number of recorded takes, number of hidden takes, number of short takes, free disc capacity in hours/minutes, total shooting time, total screen time as well as visible screen time. The visible screen time is the total screen time of all takes which are not hidden. If you want to play out all these takes to an external video recorder, this time informs you how long it will take. Below these two lines you can see the capacity LED which informs you about the free disc capacity.

Please check for sufficient free capacity before recording!

Recording Shots

Press REC to start recording the screened shot. Use the STOP button to stop the recording. The takes will be numbered chronological beginning with take 1. Press REC for one second during a recording to stop and hide / delete the recording instantly.

Recording Shots with Lector® (can be configured in the User-Settings)

To use these functions your camera(s) have to be equipped with a Vantage Lector® System. The right green LED inside the CAM A and CAM B buttons will show a proper reception of the prevailing Lector® signal. This shows that the PSU will record automatically. By starting the camera the PSU will record the video input as well as the speed information of one or both cameras (the LED turns into red flashing). The takes will be numbered chronologically beginning with take 1. The recording will be stopped automatically when the camera is switched off. You can stop the automatic recording manually at any time by pressing the STOP button for more than 1 second. The next take will be again recorded automatically.

This function works with: Arricam ST & LT, Arriflex 535, 535B, 435, 235, 35-3, Arriflex 416 and 16SR3, Moviecam Compact & SL. Other cameras on request.

Playback Shots

To playback a shot press PLAY. The PSU will show the shot as it was recorded from the video assist (25 fps). To play the shot reverse press REV. To navigate within the shot use the SLOW buttons or the NAVIGATOR. To play the complete disc press PLAY or REV twice, the PSU will switch to continuous mode (take after take). PAUSE will stop the playback similar to "stop" on a video recorder. The position within the take will be captured for continuing at the same point later. The STOP button will stop the playback and "rewind" the take. To loop the take press PLAY for about 1 second, the take will be constantly repeated in a loop. The PSU is able to play shots which are recorded at the moment. Select the CAM A or CAM B and press PLAY (immediate playback).

Playback Shots recorded with Lector®

For shots recorded with Lector® a yellow ORIGINAL CAMERA SPEED (OCS) button will appear under the Fps-Display automatically. To playback this shot press PLAY. The PSU will show the shot in its original speed as it would be projected after developing the negative (if the camera was ramped during the shot to high speed, the final slow motion will be shown automatically). To deactivate this function press OCS. The PSU will playback the shot at 25 fps now. Press OCS again to return to the original speed (the original recorded speed of a take will always be captured for future use).

Change Playback Speed

To change the playback speed of a take use +/- under the Fps-Display. By pressing the Fps-Display a numeric keyboard will appear allowing a faster input of playback speeds**. At speeds higher than 25 fps, the PSU will interpolate the additional frames to simulate a smooth high speed playback. To allow manual playback speed changing of takes which have been recorded with original camera speed deactivate the OSC function by pressing this button or the +/- buttons. The Playback speed range is 0.1 fps to 1250 fps.

** The first three buttons are soft keys for frequently used camera speeds - press one of the soft keys longer than one second to enter the edit mode to preset individual camera speeds.

Ramping (speed change within a take)

To enter a ramp press RAMP and select the points within the take where the speed should change with the PLAY and SLOW buttons or with the NAVIGATOR. Press SET. The point will be stored and listed. By pressing on these listed points you can select them and change the camera speed by using +/- buttons or move this point by using the SLOW (or PLAY) button. The graphic ramp simulation will help you to program the required ramp. After putting all points and speeds together press APPLY to activate the ramp. The PSU will be ready for playback. If the ramp is already calculated you can press EDIT to adjust it again. By pressing DELETE you can delete the marked point within the ramp. By pressing DELETE for 2 seconds you are deleting the entire ramp.

Selecting Takes

Use the SKIP buttons, the Take-Display will show the take number. Press the Take-Display and the PSU will show all recorded takes as icons (the takes are marked with different colors similar to the different cameras. Original takes are marked with a yellow OCS label which stands for "original camera speed"). Press on one of these icons to select a take directly. If there are more than one full page of takes recorded, use the button NEXT PAGE. You can also enter the take number directly to select the take. By pressing one of the WEEKDAY buttons you can select a specific shooting day. All shots which have been recorded during this day will be highlighted to help you to find the right shot. In order to indicate important takes press longer than 2 seconds on one of these icons to mark it as a Favorite Take. It will be highlighted by a yellow frame. Press FAVORITES ONLY to filter for those takes.

Hiding Takes

This feature will help to "clean" the PSU without deleting any take. Press the Take-Display. Press HIDE/RECOVER. To hide a take press its icon. Press it again to recover it. The buttons HIDE ALL, SHOW ALL, INVERT SELECTION, SELECTED DAY will assist.

Deleting Takes

Press DELETE to get the Delete-Menu.

To delete a certain take press DELETE TAKE while this take is selected. After entering the security code for single-deleting the take will be deleted entirely.

To delete more than one takes press DELETE MORE TAKES. You can select the takes in the take-menu. Press a WEEKDAY button and then SELECTED DAY to delete a specific day entirely. After entering the security code for multi-deleting all selected takes will be deleted. You can stop the deleting process by pressing STOP DISC DELETION to save takes which are not yet deleted. (The system will start to delete at the lowest take number).

To delete the entire DISC press DELETE DISC. After entering the security code for disc-deleting the DISC will be deleted entirely. All hidden takes, short takes, cuts, MPEGs and MPEG-lists will be deleted as well. You can stop the deleting process by pressing STOP DISC DELETION to save takes which are not yet deleted. (The system will start to delete at the lowest take number).

To delete the hidden takes or the short takes press DISC for one second and then select the specific disc level (HIDDEN TAKES or SHORT TAKES). The delete-function now only works for this level and is not affecting any takes at the main level.

Take Notes *(has to be activated in the User-Settings)*

Press NOTES longer than one second to display a keyboard for typing individual messages per take. Five soft keys can be preset with individual expressions (three are preset already but can be edited again). Press one of the soft keys longer than one second to enter the edit mode. Press the green √-button to mark good takes. In the Take-Menu (Icon-Mode) good takes can be separated from the rest by pressing the √-button in that menu.

Scene Numbering *(has to be activated in the User-Settings)*

Press the Take-Display, press NEW SCENE NO and mark all takes which should get the original scene/take number. Enter the scene number and press OK, the take numbers will be generated automatically but they can also be entered manually. The PSU will always mark a new take correctly (e.g. Scene 123A/5 followed by Scene 123A/6). If a different scene is recorded enter the new scene number as described above. You can also enter scene numbers for takes which are in recording by pressing the icons of those takes while they are recorded. The scene number of the next take to be recorded can be set in advance by pressing the button NEXT RECORDING. Press this button longer than one second to delete a preset scene number if required.

Action Master *(has to be activated in the User-Settings)*

Press IN and OUT during recording or playback to set action marks. At future playback the take will be played between this marks only. You can overwrite the points at any time by pressing the appropriate button again at the desired position of the take. Auto Trimming is setting both marks automatically. The "trim off time" can be preset between 0,5 and 7 seconds. The Time-Display shows the running time between both marks.

Multiple Frame Print *(has to be activated in the User-Settings)*

Press + or – on the green Multiple-Frame-Button to set printing rates of the single frame (e.g. 5x to print every frame 5 times and therefore to extend the sequence accordingly). Change the camera speed with the regular + or – buttons. (Lector® supported).

Overlay

By pressing the OVERLAY button the Overlay-Menu will be displayed. There are two ways of doing overlays: overlay of two running layers (e.g. CAM A and CAM B or CAM A and DISC) or overlay of one running layer and up to three frozen images. The Overlay-Indicator in the upper right corner of the screen informs you about an active overlay. The slider allows you to adjust (fade) both levels with each other. Overlay can be combined with CHROMA KEYING.

Running (two running layers)

Select one source (CAM A or B or DISC) and press set. Combine it with another source by pressing the appropriate button (you can combine CAM A and CAM B or CAM A and DISC or CAM B and DISC). If you intend to use the picture settings to adjust the images when overlaying use different camera inputs for the layers (e.g. LIVE CAM A and DISC CAM B) otherwise the settings will affect both layers.

Freeze (a running layer on top of up to three frozen images – or up to three frozen images on top of a running layer)

Select a single frame from one of the camera inputs or from the disc and press SET to store it (you can store up to three frames). Before you capture them they can be zoomed, flipped, color corrected etc.. Press SWAP LAYERS to select the position of the freeze (foreground or background) in comparison to the running layer. Press DESIGN FREEZE to erase parts of the layers in order to make the lower or middle layer visible. To erase use your finger and select one of the different tools (rectangle or circles). Press SWAP to apply one erased section on another image. Each frozen image can be switched on and off. Select the running source by pressing CAM A or B or DISC to complete the overlay.

The Freeze-Images can be downloaded to a computer (Digital Interface, Overlay folder, 1 - 3_freeze) - or up to three images can be uploaded into PSU from a separate source. Read HELP.htm on main directory available thru Digital Interface.

Picture Settings

Press SETTINGS and select PICTURE. In the PICTURE SETTINGS menu you can select the following functions for both camera inputs individually: Chroma Keying, Mirror X or Y, Image Adjustments (Brightness, Contrast, Gamma, Color Correction, Black & White, Inverse) Zoom & Mask feature, Ground Glass Markings (Format Markings, Remove Center Cross).

Chroma Key

Use the COLOR slider to select the color which you want to remove. Opening up the COLOR RANGE will remove similar colors around. Adjust the INTENSITY to select more or less saturations from these colors. Depending on the quality of your blue/green screen images you have to select more or less colors to get a good result.

Image Adjustments ► Brightness / Contrast

Adjust brightness, contrast and gamma as needed. Use ON / OFF to compare the result with the original.

Image Adjustments ► Color Correction

Change the colors of the video images as desired. Use ON / OFF to compare the result with the original.

Mask / Zoom – Move & Rotate

You can mask the frame. Open the Mask-Menu and press the LCD screen where the mask should begin. Move your finger to the lower corner of the opposite side. The mask will appear and can be adjusted exactly. OK safes the mask. MASK ON/OFF removes the mask from the screen or puts it back again. The Zoom/Move/Rotate-Function works similar. You can zoom-in or zoom-out (press minus), move the image or rotate it in 0.5° steps. All this functions are switchable for PSU touch screen and / or video out signals.

Ground Glass Markings ► Format Markings

Set different aspect ratio aligned to the ground glass in use. Move the blue cross exactly on top of the ground glass center cross. Move the blue vertical bar exactly to the outer right line of the ground glass. Press the button of the desired aspect ratio. You can set one or more markings at one time. Design the style of the different markings by pressing its button for more than one second. Combine Mask/Zoom/Move/Rotate functions with format marking by pressing MASK ON and / or ZOOM ON for more than one sec.

Ground Glass Markings ► Center Cross

You can erase the center cross. Align the red markings to the center cross in the picture and adjust it to the minimum size. Some ground glasses have dots in the center which can be removed by pressing the DOT button. Press OK to activate the function.

Audio Settings & Fan Control

Press SETTINGS and select AUDIO. If an audio signal is lined up to the PSU it will be recorded automatically. Audio playback will be available at 18 to 32 fps only. Press VARIABLE SOUND SPEED to playback the soundtrack at any speed. The AUDIO SETTINGS menu allows to adjust the volume of the headphones. For sync sound recording you can activate the fan-control-function by pressing FAN CONTROL. This reduces the noise emission during recording to a minimum. After recording the FAN CONTROL needs a cool-down-phase of some seconds to become available again. The Fan-Control-Display will show the remaining waiting time in seconds. The MANUAL FAN-OFF switch allows to switch the PSU to silent-mode without recording a take. AUTO PLAYBACK MUTE reduces the monitoring level of the soundtrack of any playback during a shot in order not to disturb the sound recording. The damping level can be selected between –3dB and –60dB (Audio OFF).

Press SETTINGS for 2 seconds to reach the Picture-Settings-Reset-Menu. Press RESET to delete all possible Picture Settings and to switch the Overlay-Function off or press CANCEL to leave the menu without resetting.

User Settings

Press SETTINGS and select USER. The following functions are available:

Lector-Recording presets all parameters for automatic recording. Press SWITCH to trigger an automatic switch to the recording channel at the start of any recording. With KEEP the PSU will not automatically switch to the recording channel. AUTO starts and stops a recording automatically when the camera starts and stops. SEMI-AUTOMATIC displays a message informing about one or two running cameras (only if the take(s) is/are longer than the time limit which is preset in the Short-Take-Menu). Press REC at any time while the message is displayed to record the entire take(s) with an automatic stop at the end of the shot(s). Press NO RECORDING to avoid a recording of one or both channels. The viewing time of the Manual-Lector-Message can be preset. MANUAL deactivates any automatic or semi-automatic mode. The recordings have to be started and stopped by hand. However the Lector-Signal (camera speed) will be still recorded for every take. OFF deactivates the Lector-sensibility of the PSU – no recording, no frame rates will be captured. BEEP triggers a start tone when the camera is switched on. REDUCED CAMERA SPEED enables to record with the Arriflex 435 Advanced/Extreme at speeds below 1 fps. (0.1 – 150 fps). FOOTAGE COUNTER presets the film stock management for both camera inputs.

Take-Notes allows to store comments per recorded take. Activate this function and select the viewing time (MAN, 0.5 – 30 seconds, PERMANENTLY). Generally take notes are not shown on the video out signals. By pressing the TAKE NOTES VISIBLE AT VIDEO-OUT button the notes are visible on attached monitors as well.

Scene Numbering allows to label the individual takes as they are labeled in the script.

Action Master allows to set in- and out-marks to concentrate on action.

Tool-Tips provide On-Screen-Help for the PSU-2. Select language (German, English, French or Spanish) and your skill level. View individual tips by pressing SKIP in this menu. Press on a tooltip to remove it from the screen, press the area again to read the last displayed tooltip once more.

Multiple-Frame-Print simulates a printing of the same frame several times while the camera speed can be reduced (e.g. cam speed 4 fps, printing ratio 6x to reach 24 fps or 8x for 32 fps post speed).

Screen-Unlock allows you to set the code for unlocking the PSU. A new code should be written down in your notes to avoid access problems when the code has been forgotten. The pre-set code is 5555.

Clean-Screen makes it easy to clean the LCD screen of the PSU. As long as you are cleaning the monitor it will stay dark to assist you. Do not use alcohol or acetone!

Compression & Backup The recording compression can be selected between 1:1 and 1:10. Recording with 1:1 can be used for shots with professional broadcast video cameras. 1:5 and 1:10 is perfect for images coming from video assist systems like the Arri IVS. MPEG SAFETY BACKUP converts each take into a separate mpeg file for additional safety.

Interpolation allows to switch off the interpolation used for high speed playback. The playback without interpolation is not as smooth as the standard setting and only uses the original frames.

Short-Takes allows to select the minimum time (duration) of the takes which have to be recorded. This means if you select e.g. 4 seconds every take shorter than 4 seconds will not be shown. This feature is ideal to avoid automatic (Lector® controlled) recording of gate checks etc. If you select 0.0 seconds all takes will be shown again. You can not lose any take since the PSU is recording all of them. This function only controls whether short takes are shown or not. It can be selected at any time. Take numbers will disappear and will return when the short-takes-function is switched back to 0.0.

Temperature Display displays the max. temperature out of several PSU sensors constantly on the touch screen (standard working temperature range 55 - 85° C).

Channel-Indicator allows to switch the channel indicator off individual for the PSU touch screen and the VIDEO OUT socket. CAM C + CAM D are needed when working with three or four cameras and two PSU systems on the set. You can switch the second PSU to the CAM C + CAM D. It will label both video streams accordingly.

Camera-Input adapts the PSU inputs to the used video standard (PAL or NTSC) and to the camera system (film or video).

Date-&-Time allows to enter the correct date and time information. These data will be recorded with every shot.

Footage Counter *(has to be activated in the User-Settings ► Lector Recording)*

The Footage Counter informs about the use of film stock. This function requires a Lector® system per camera. Press FOOTAGE COUNTER in the Lector Menu. Set the film format which is used (16, 35 4-perf, 3-perf or 2-perf), set METERS or FEET. One or two displays on top of the STOP button show the left film stock per magazine. Press SET (on the right side of the Footage-Counter-Display) and preset the loaded amount of film (122m, 305m or manually any short end). If the camera is running the counter will display the remaining film negative. A possible warning will show up if there is not enough film stock left to shoot the previous scene again. Press CALCULATOR to calculate screening times for different film formats and various camera speeds (this function is a pure calculator and has no influence on any PSU operation).

Full Screen

Press FULL SCREEN to enlarge the video picture(s). A reduced number of functions (PLAY, PAUSE, etc.) is still available as well as all displays (TAKE, TIME, FPS). Press FULL SCREEN again to get back to the standard mode.

Lock Screen & Quitting the PSU

To lock the screen press EXIT and then LOCK SCREEN for one second. To get access again press EXIT and enter the code for unlocking. The pre-set code is 5555. To shut down the PSU press EXIT and then SHUTDOWN for 3 seconds.

WARNING! Do not disconnect the PSU from mains power as long as the unit is running! Before any disconnecting the shutdown process has to be fully completed!

For technical data see backside of PSU-2Pus Editing Instructions.

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