

QSP-841Z

Owner's Manual

and

Operating Instructions

Instructions for basic operation and installation

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*For Serial numbers 143500 and greater for EIA
For Serial numbers 153500 and greater for CCIR*



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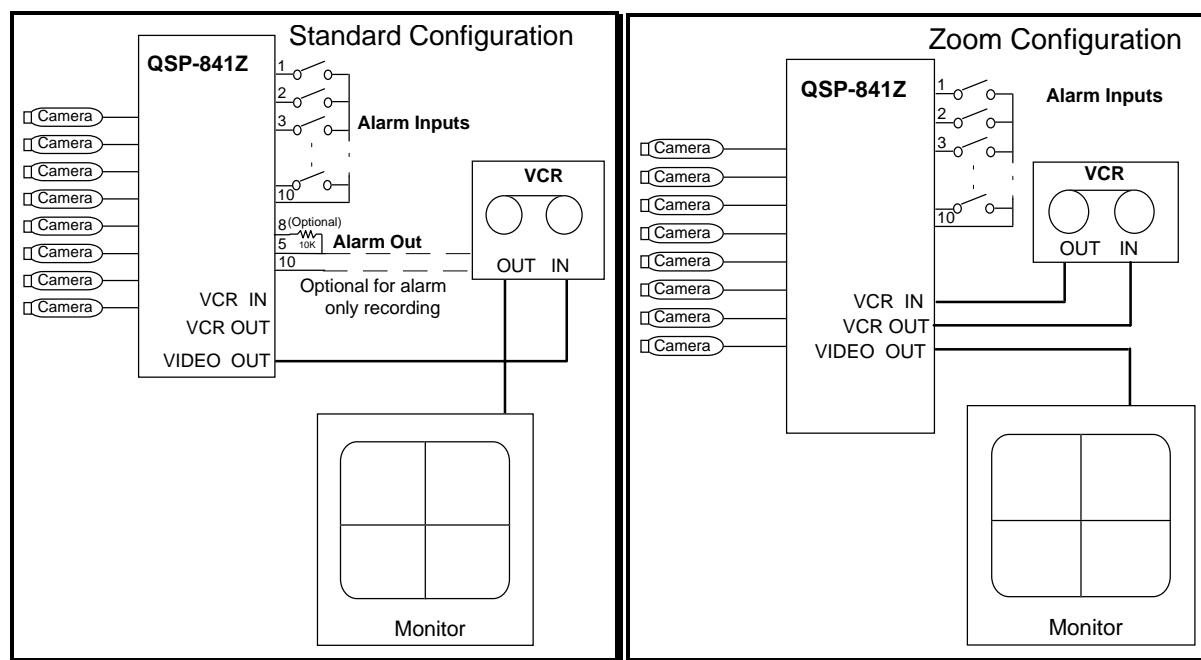
INTRODUCTION

Thank you for purchasing our QuadraSplit™ 841Z (QSP-841Z). This instruction manual will cover installation and describe in simple step-by-step detail the features of this product.

FEATURE SUMMARY

- Black and white dual page quad in quarter frame rate
- Individual full screen call up (real time)
- Variable dwell setting
- VCR interface with zoom on playback
- Roll free full frame camera sequencing
- 8 Bit (256 gray scale) video
- No special camera sync required
- Auto leveling on all inputs (AGC)
- Alarming
- Loop through
- EIA and CCIR supported (EIA and EIA/CCIR versions)

INSTALLATION



Equipment Interconnection

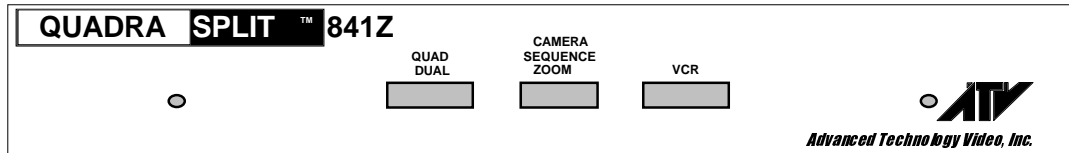
EQUIPMENT REQUIREMENTS

The QSP-841Z is designed to be compatible with all EIA and CCIR compatible equipment. Two versions of the product are available to make best use of these two standards. The EIA version (indicated by serial numbers 14....) will only be compatible with EIA installations. The CCIR version (indicated by serial numbers 15....) will be compatible with both EIA and CCIR installations. For installations requiring a mixture of CCIR and EIA cameras, it is recommended that the CCIR version QSP-841Z be used, with a CCIR camera on input #1. The remaining camera inputs can take either EIA or CCIR cameras.

The QSP-841Z will accept 2:1 interlace cameras in either a "line-locked" or "free running" (internal reference) modes. ATV does not recommend "Random Interlace" cameras.

To use the VCR playback “zoom” feature, refer to the “Zoom Configuration” diagram above. This configuration provides access to the VCR playback “zoom” feature. The VCR playback “zoom” feature enlarges a single quadrant of the display during playback to full screen. This allows the viewing of a single camera from a quad display recording. Because the VCR playback “zoom” is an enlargement of a smaller picture, the resulting full screen display will be of lower resolution. It is reasonable to expect some loss of detail and picture jitter in VCR playback “zoom” mode, especially in slow motion and still frame playback (refer to Field/Frame Mode Selection on page 6).

BASIC OPERATIONS



QUAD/DUAL

Each press of this button switches the QSP-841Z to the next quad mode of operation. At power-up the QSP-841Z is in dual page quad mode. Successive presses of this button will cause the QSP-841Z to switch to page 1 (Cameras 1 through 4), then to page 2 (Cameras 5 through 8) and then back to dual page quad mode. If the QSP-841Z previously happens to be in a full frame camera or sequencing mode, pressing this button will return the unit to the dual page quad mode.

CAMERA/SEQUENCE/ZOOM

Any short press of this button (less than two seconds) will switch the QSP-841Z to the next full frame camera. If the unit is already in the quad mode, the first press will switch the unit to camera #1. If this button is pressed for longer than two seconds, the QSP-841Z will switch to full frame sequencing. If the QSP-841Z is taking its video input from the VCR, this button is used to switch between a full frame view of the VCR output and “ZOOM” view of each of the four VCR quadrants.

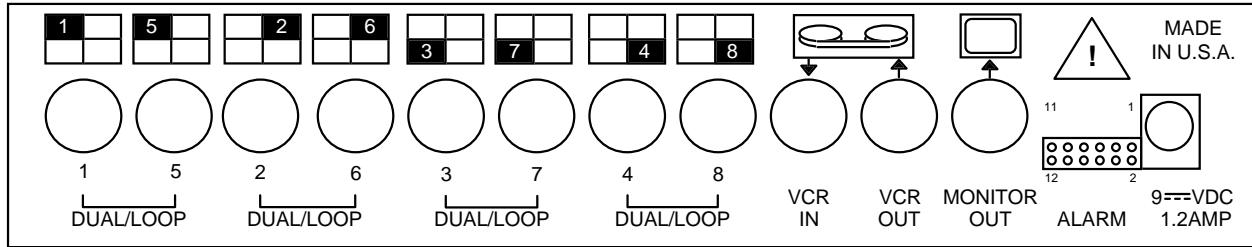
VCR

When installed in the Standard Configuration, the VCR button is disabled. When in the Zoom Configuration, pressing this button will switch the video source input back and forth from the cameras to the VCR which will be indicated by the rightmost indicator (an amber LED). If the indicator is on, the video input is from the VCR.

BACK PANEL CONNECTIONS

There are eleven BNC connectors on the back of the QSP-841Z. Eight of these are for the camera inputs, one for a VCR input, one for a VCR output, and one for an output which can be connected to a monitor and/or VCR input. Cameras 1 through 4 are displayed on the first page of the output quad format, and Cameras 5 through 8 are display on the second page.

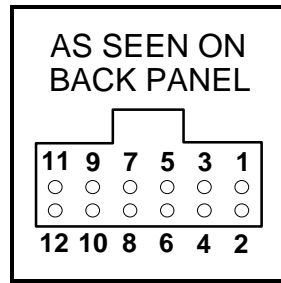
Looping is normally disabled as a factory default configuration. If enabled (see section on input options), each pair of BNC connectors shown below can only support one camera input where loop through is used. For example, if only camera 1 - 5 looping is enabled, then the QSP-841Z can accept input from cameras 1, 2, 3, 4, 6, 7 and 8. Since camera 5 is then an output (to send camera 1 signal to another piece of equipment), page 1 of the quad format will contain cameras 1 - 4 and page 2 of the quad format will contain cameras 1, 6, 7 & 8. Any camera being “looped” through will be repeated in quad pages 1 and 2.



The power connector is for a 9 Volt DC power adapter rated at 1.2 Amps. It is **NOT** recommend that any adapter other than the one shipped with the QSP-841Z be used.

The alarm connector has the following "Pin-out":

1. Alarm input #1
2. Alarm input #2
3. Alarm input #3
4. Alarm input #4
5. Alarm output
6. Alarm input #5
7. Alarm input #6
8. +5V through 100 ohm resistor
9. Alarm input #7
10. Ground through 100 ohm resistor
11. Freeze input
12. Alarm input #8

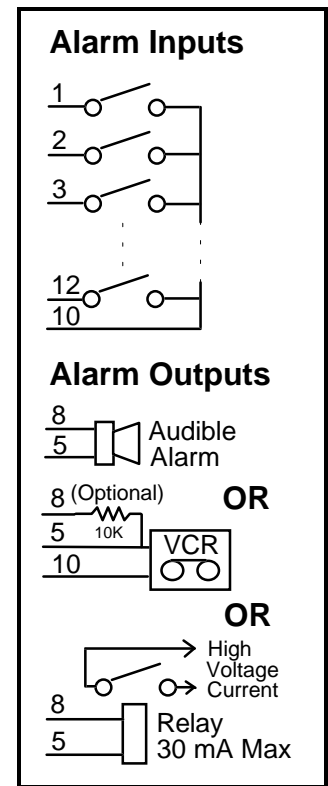


The factory default alarm contact option is "normally open" (see following section on alarm contact options). A contact closure on any alarm input (which "grounds" that input by connecting it to the alarm connector ground pin) puts the QSP-841Z in an "alarm" state. In this state, the unit will switch to a full screen view of the camera associated with that alarm input. If more than one alarm input is activated, then the QSP-841Z will sequence between each "alarmed" camera at the normal dwell rate. The alarm output will be activated when there is an alarm input. An alarm condition exists until the alarm input is deactivated.

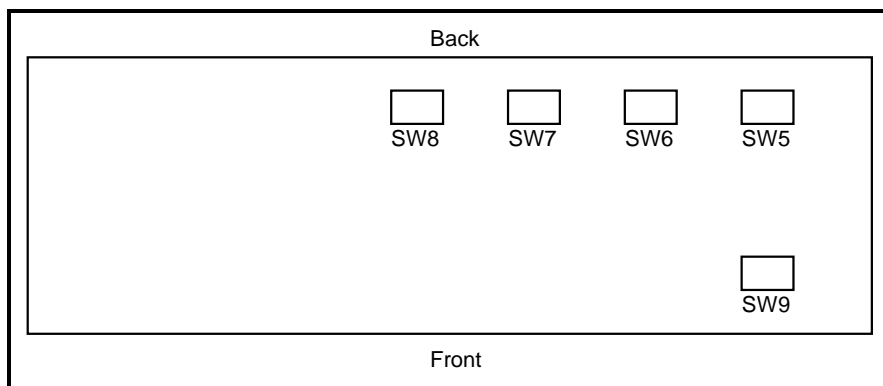
The alarm output is limited to 30 mA of current and an external relay should be used to drive any high powered or high voltage device. An external resistor pull-up is required for some systems when the alarm out is deactivated. The pull up resistor (10K ohm typically) may be connected to the +5 Volt pin or some other higher voltage not to exceed +25 Volts (sometimes used in +12 Volt systems). The "off" or "open circuit" voltage on the alarm output should not exceed +25 Volts to avoid damaging the alarm output.

The +5 Volt and ground pins are connected through an internal 100 ohm resistor for short circuit protection. This limits the current to about 50 mA if the +5 Volt supply is shorted to ground. If the +5 Volt supply is used with the alarm output to drive an external load (as shown above) the internal resistor and the load should produce less than 30 mA current to prevent damaging the alarm output.

The "Freeze" input pin will halt all picture input processing which will effectively "freeze" the present image on the quad output. Activating this pin is similar to an alarm input which merely requires "grounding" to be active.



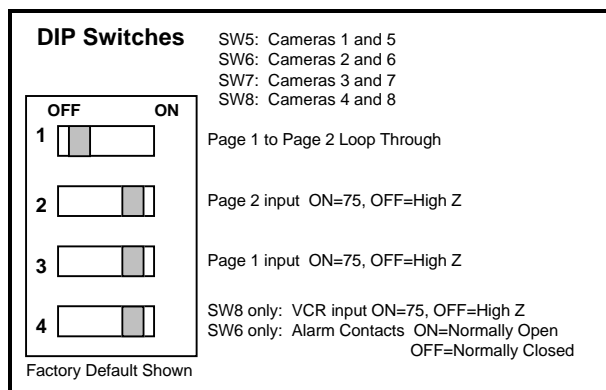
OPTIONS



The QSP-841Z input option DIP switches are located in the rear of the unit and the sequence dwell setting DIP switch is located toward the front right hand corner. These are accessed by removing the top cover.

INPUT OPTIONS

The first three DIP switch positions of switches SW5 through SW8 affect the camera input conditions. The last switch position on switches SW5 and SW7 are not used. The last position on SW6 is an alarm contact option (described in a following section). The last position of SW8 controls the input termination for the VCR input.

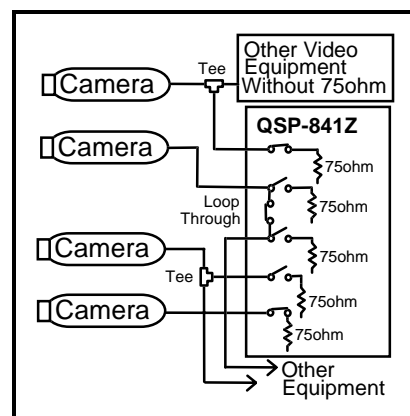


LOOP THROUGH

The Page 1 to Page 2 loop through (DIP switch position #1), connects together the input BNC connectors of the affected cameras (see above diagram) when switched to the "ON" position. The factory default for this switch is "OFF". In this "OFF" position, the affected cameras are independent and each has its own input termination resistor (see next section). If switched to the "ON" position at least ONE of the input termination resistors (DIP switch position 2 or 3) should be disabled. If the VCR, Monitor or whatever is on the other end of the loop has a 75 ohm load, BOTH termination resistors in the QSP-841Z should be switched to the "OFF" position.

INPUT TERMINATION

DIP switch positions 2 and 3 affect the camera input termination resistor for the page 2 camera and page 1 cameras respectively. Additionally DIP switch position 4 of SW8 serves the same purpose on the VCR input. For proper operation a termination resistor of 75 ohms should be on the last piece of video equipment which is connected to a given camera. For a simple system where cameras are brought directly into the QSP-841Z the termination resistors are always enabled (factory default). When connecting a camera to more than one piece of equipment, or if "loop through" is used, termination resistors should be removed such that only one is loading each camera.



ALARM CONTACTS

Position 4 on DIP switch SW6 only affects whether the alarm inputs are active when the contacts are closed (switch position is ON) or open (switch position is OFF). In either case, the assumption is that the alarm contacts connect together the ground pin and the alarm input pin associated with a particular camera. For "normally open" type contacts, position 4 on SW6 should be ON. For "normally closed" type contacts, position 4 on SW6 should be OFF. The QSP-841Z assumes that all of the alarm inputs are of the same type. Selecting an incompatible combination of contact type and option setting will result in the QSP-841Z being in a continuous "alarm" condition which is indicated by the unit to seemingly be stuck in full frame sequencing mode, and generating a continuous alarm output state. Note that if less than eight alarms are used and position 4 on SW6 is OFF, the unused alarm inputs must be connected to ground (pin 10).

DWELL OPTIONS

The QSP-841Z dwell time is set by SW9 and affects the amount of time between camera changes. The dwell setting is set to a factory default of 4 seconds but is adjustable in 4 sec steps from 4 to 16 seconds.

The dwell time affects:

1. The dual quad paging dwell time.
2. Full frame sequencing dwell time.
3. Alarm full frame sequencing dwell time
(When more than one simultaneous alarm input).

Field/Frame Mode Selection

Switch positions #1 and #2 on SW9 control how video field information is handled. We have preset them to defaults that should work with most systems, but there is a very large variation in the behavior of VCRs and you may have to experiment with the settings that work best for your installation.

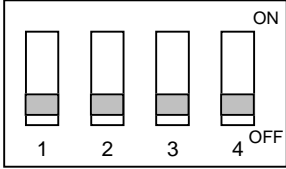
Some VCRs (in certain modes) and cameras will fail to generate correct field information that can be decoded by the QSP-841Z. A camera or VCR of this type may cause the Quad picture to jump up and down by one line or generate intermittent picture refreshing. In VCR recording and playback, the field decoding problem can cause line reversals and "motion artifacts" when playing back a recording of a 525 line frame (625 for CCIR).

Most time-lapse VCRs on the market are "field recorders" and if frame recording is desired (for better line resolution), the recommendation is to use "real-time" 24 hour recorders where the tape is always in motion. Motion artifacts can be eliminated by the use of shuttered cameras with a shutter speed set to 30 frames per second (25 frames per second for CCIR). Non-real-time VCRs should use field mode recording which is the factory default setting.

Field Mode (SW9:Position #2 = OFF)

This switch option sets the unit to display on its output only one field of video which is repeated twice per frame. This same field is used during playback for both full screen and quadrant zoom. In a few cases when the VCR is in playback but "paused", the picture will jump (vibrate) by one line. Setting SW9:Position #1 to ON usually compensates for this. For most other cases SW9:Position #1 should be OFF.

SW9: Dwell Time Setting
Field/Frame Mode Selection



(Factory Default Shown)

Field/Frame	Dwell Time
----	OFF OFF 4 Seconds
----	OFF ON 8 Seconds
----	ON OFF 12 Seconds
----	ON ON 16 Seconds
OFF OFF	Field Mode Toggle
ON OFF	Field Mode Single
OFF ON	Frame Mode Force Odd
ON ON	Frame Mode Force Even

FRAME MODE (SW9:POSITION #2 = ON)

In frame mode each independent field which makes up a frame will get displayed for monitoring or recording. In a system **without** a VCR, **frame** is the recommended mode of operation since it has twice the line resolution as field mode. When used **with** a VCR, **field** mode is recommended. During VCR playback, most VCR's will generate intermittent field information in non-linear time lapse mode. Some VCRs tend to play back more odd fields than even and other VCRs tend to playback more even fields than odd. SW9 position 1 should be set to whatever position works best for that particular VCR.

SPECIFICATIONS

PHYSICAL

Dimensions:	H: 1-7/8" x W: 8-1/2" x D: 5-7/8" H: 48 mm x W: 216 mm x D: 150 mm
Weight:	3.125 lbs./1.42 Kg. (Main Unit) 1.25 lbs./0.80 Kg. (Power Supply)
Operating Temp:	32° - 104°F (0° - 40°C)

VIDEO

Signal Format:	EIA/CCIR Compatible Monochrome EIA: 525 Lines, 60 Fields / Sec. CCIR: 625 Lines, 50 Fields / Sec.
Camera Inputs:	0.6 to 1.2V p-p, 75 Ohm Termination
Camera Sync:	No Special Sync Required
Monitor Output:	1.0V p-p into 75 Ohm Termination
VCR Output:	1.0V p-p into 75 Ohm Termination
Digital Memory:	512 x 512 (256 Gray Scale Level) EIA 1024 x 512 (256 Gray Scale Level) CCIR

ELECTRICAL

Power:	9V DC @ 1.2 Amp Power Supply Included
Safety:	UL Listed and CSA Certified (CCIR Units are VDE Approved)
EMI:	FCC Part 15, Class A

CONNECTORS

Video In/Loop Through:	BNC, 1 per Camera, 75 Ohm or HI-Z Selectable Termination
Monitor Output:	BNC
VCR Output and Input:	BNC
Alarm Connector:	Dual Row 6 Pin Crimp Connector (0.10" centers, 12 pins total)

CONTROLS

Quad/Dual:	Return to quad display or switch quad page
Camera/Sequence/ Zoom:	Select display camera, initiate camera sequencing, and when in VCR mode select zoom function and quadrant
VCR:	Select VCR playback or normal Quad display mode

WARRANTY INFORMATION

Thank you for purchasing this Advanced Technology Video, Inc., hereinafter "ATV", product. We have manufactured this product in accordance with high quality standards and when it is used in the manner intended, it has a **limited warranty against defects in material and workmanship for a period of five (5) years from the date of shipment from ATV**. During the warranty period ATV's entire liability and your exclusive remedy shall be, at ATV's option, upon receipt of proof of purchase, repair or replacement of products that prove to be defective. Repair of a defective product is contingent upon availability of replacement parts from their manufacturer. Should ATV be unable to obtain replacement parts, ATV will, at its option, pro rate the value of the defective product and offer this amount toward the purchase of any new ATV product.

For warranty service or repair, this product must be returned to a service facility designated by ATV. Within the United States, you must obtain a return authorization (RMA) number by calling (888) 288-7644. Outside of the United States, contact your sales representative or the ATV factory at 425-885-7000 (email: tech@atvideo.com). For ATV factory service after obtaining an RMA number, send the product, shipping charges and applicable duties and taxes paid, with a copy of your sales receipt or other proof of purchase and date of purchase to the ATV factory address.

LIMITATION OF WARRANTY

This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, accident, misuse, neglect, voltage fluctuations, lightning, water damage (or other acts of God), faulty installation or adjustment of controls, interfacing with non-standard or custom equipment, or improper maintenance.

EXCEPT AS HEREIN EXPRESSLY SET FORTH AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, ATV OR ANY OF ITS EMPLOYEES SHALL NOT, UNDER ANY CIRCUMSTANCES, BE RESPONSIBLE FOR ANY DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, DAMAGE TO THE EQUIPMENT. ATV MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, AND NON-INFRINGEMENT. REMOVAL OR ALTERATION OF THE SERIAL NUMBER WILL VOID THIS WARRANTY.

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. Operations of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his expense.