QSP-441

Owner's Manual

and

Operating Instructions

Instructions for basic operation and installation

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Advanced Technology Video, Inc.

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INTRODUCTION

Thank you for purchasing our QuadraSplit™ 441 (QSP-441). This instruction manual will cover installation and describe in simple step-by-step detail the features of this product.

FEATURE SUMMARY

- Black and white quad in quarter frame rate
- Individual full screen call up (real time)
- Full screen roll-free sequencing (real time)
- Variable dwell setting
- 8 Bit (256 gray scale) video
- No special camera sync required
- Auto leveling on all inputs (AGC)
- Programmable alarming
- Freeze mode through alarm connector
- EIA and CCIR supported (EIA and EIA/CCIR versions)
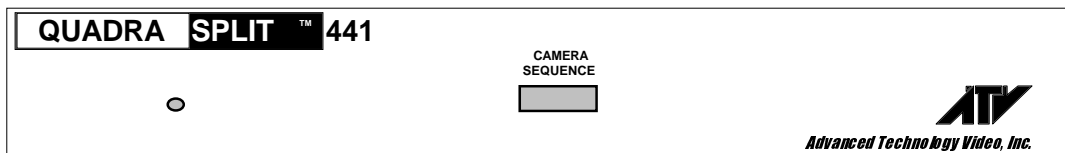
EQUIPMENT INTERCONNECTION
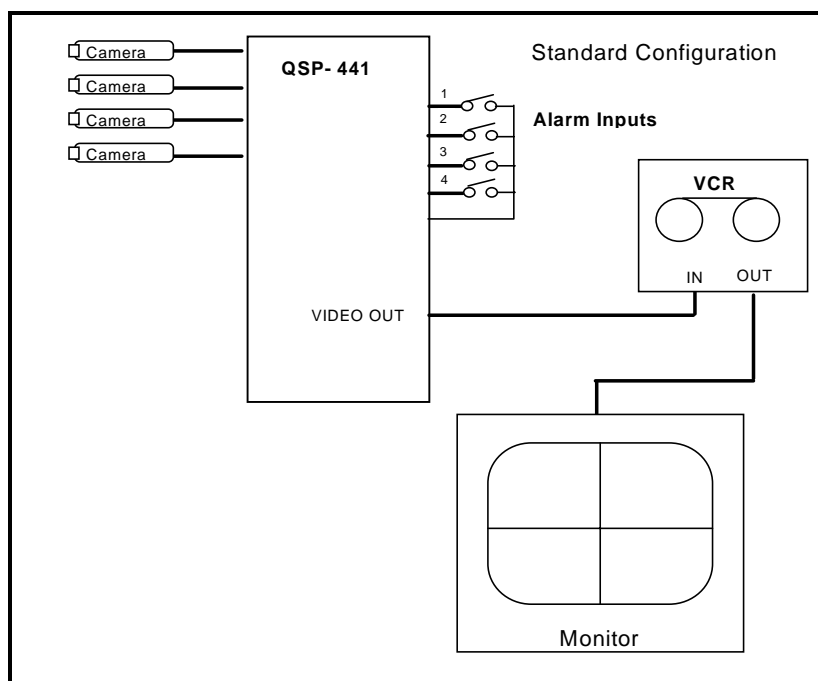
EQUIPMENT REQUIREMENTS

The QSP-441 is designed to be compatible with all EIA (North America) and CCIR (European) compatible equipment. Two versions of the product are available to make best use of these two standards. The EIA version (indicated by serial numbers 25....) will only be compatible with EIA installations. The CCIR version (indicated by serial numbers 26....) 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-441 be used, with a CCIR camera on input #1. The remaining camera inputs can take either EIA or CCIR cameras.

The QSP-441 will accept 2:1 interlace cameras in either a "line-locked" or "free running" (internal reference) modes. ATV does not recommend "Random Interlace" cameras.

BASIC OPERATION

```
┌──────────────────────────────────────────────────────────────────────┐
│  QUADRA  SPLIT ™ 441                                                   │
│                                    CAMERA                              │
│                                    SEQUENCE                            │
│              ○                      ▭                        ATV       │
│                                                  Advanced Technology Video, Inc. │
└──────────────────────────────────────────────────────────────────────┘
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FRONT PANEL OPERATION

Camera/Sequence: Pushing this button (for less than 1 second) will cause the QSP-441 to switch from QUAD MODE to FULL SCREEN MANUAL. Each press of the button (for less than 1 second) will cause the QSP-441 to cycle to the next alive camera until the last alive camera is reached. The next press of the button will cause the QSP-441 to return to QUAD MODE. Pressing and holding this button for greater than 1 second will put the QSP-441 in FULL SCREEN SEQUENCING MODE. To exit FULL SCREEN SEQUENCING MODE and return to QUAD MODE, press this button for less than 1 second.

BACK PANEL CONNECTIONS

There are five BNC connectors on the back of the QSP-441. Four of these BNC connectors are for the camera inputs. One BNC connector is provided for an output to a monitor. Cameras 1 through 4 connectors are labeled with their display position in the quad mode display.
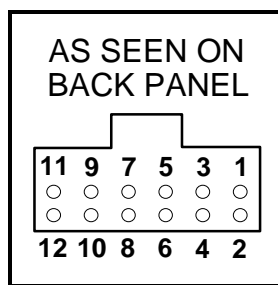
Each camera input of the QSP-441 has an optional 75 ohm termination resistor. The termination within the QSP-441 is enabled as a factory default (see page 5 for instructions).
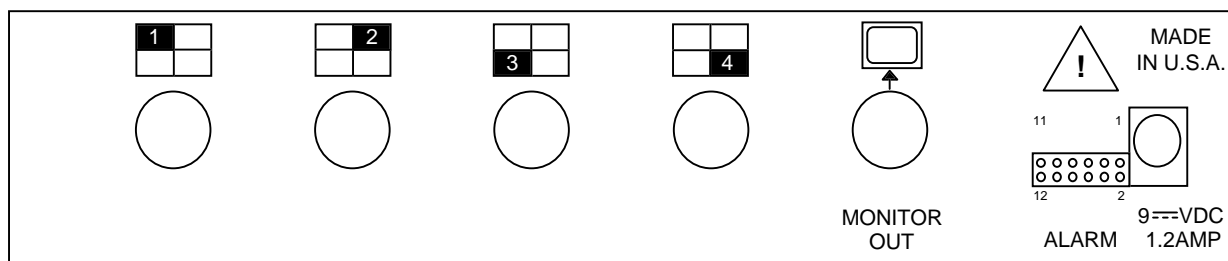
The power connector is for a 9 Volt DC power adapter rated at 1.2 Amps. It is **NOT** recommended that any adapter other than the one shipped with the QSP-441 be used.

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. Not used
7. Not used
8. +5V Through 100 ohm resistor
9. Not used
10. Ground through 100 ohm resistor
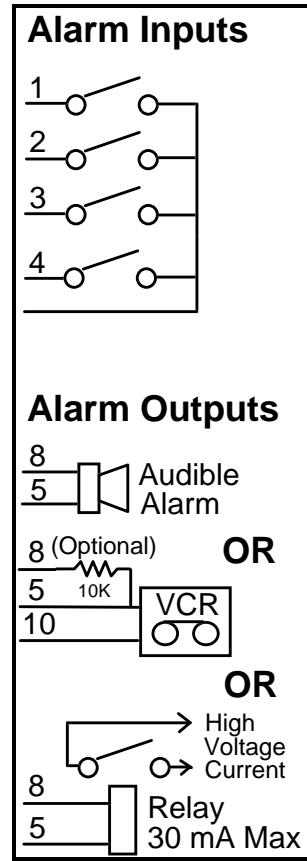11. Freeze input
12. Not used

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┌──────────────────────┐
│                      │
│  AS SEEN ON          │
│  BACK PANEL          │
│                      │
│  11 9 7 5 3 1        │
│  ○  ○ ○ ○ ○ ○        │
│  ○  ○ ○ ○ ○ ○        │
│  12 10 8 6 4 2       │
└──────────────────────┘
```

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-441 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-441 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.
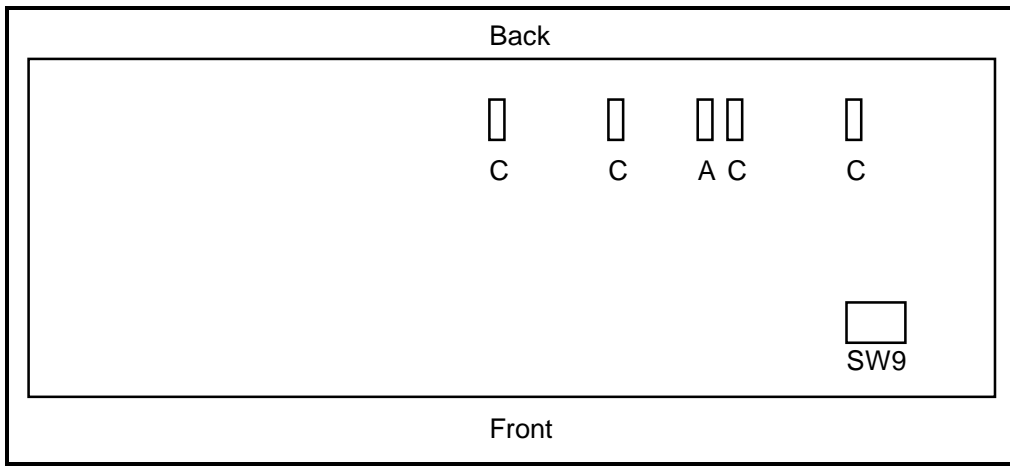
The alarm output is limited to 30 mA of current and an external relay should be used to drive any high powered or high voltage device. An external resistor pull-up is required for some systems when the alarm out is deactivated. The pull up resistor (10K ohm typically) may be connected to the +5 Volt 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 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.

Alarm Inputs

1

2

3

4

Alarm Outputs

8
5 Audible Alarm

8 (Optional)   **OR**
5   10K   VCR
10

OR

High Voltage Current

8
5   Relay
30 mA Max

OPTIONS

Back

C   C   A C   C

SW9

Front

The QSP-441 input option shunts 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 TERMINATION

The "C" jumpers affect the camera input termination resistor. When the jumper is installed a 75 Ohm termination is connected to the respective camera. 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-441, the termination resistors are always enabled (factory default). When connecting a camera to more than one piece of equipment, individual terminating resistor jumpers should be removed and the termination should be made at the monitor(s).
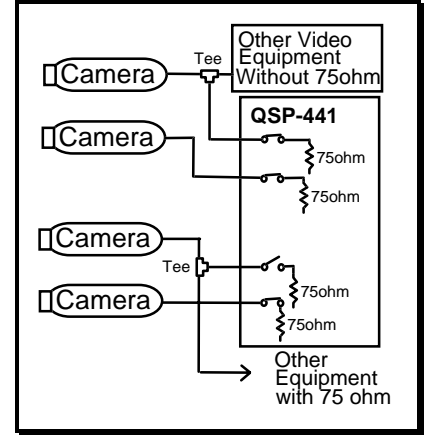
ALARM CONTACTS

The "A" jumper affects whether the alarm inputs are active when the contacts are closed (jumper installed - factory default) or open (jumper not installed). 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, the "A" jumper should be installed. For "normally closed" type contacts, the "A" jumper should not be installed. The QSP-441 assumes that all the alarm inputs are of the same type. Selecting an incompatible combination of contact type and option setting will result in the QSP-441 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. Please note that if less than four alarm inputs are used and "A" jumper is not installed, the remaining alarm inputs must be grounded (Tied to pin 10).

DWELL OPTIONS

The QSP-441 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 second steps from 4 to 16 seconds.

The dwell time affects:

1. Full frame sequencing dwell time.

2. Alarm full frame sequencing dwell time (when more than one simultaneous alarm input).

Note that SW9-2 must be left in the "ON" position.

**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	----	----	N/A
ON	OFF	----	----	N/A
OFF	ON	----	----	Must be on
ON	ON	----	----	N/A

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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
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:	BNC, 1 Per Camera, 75 Ohm or HI-Z Selectable Termination
Monitor Output:	BNC
Alarm Connector:	Dual Row 6 Pin Crimp Connector (0.10" Centers, 12 Pins Total)

CONTROLS

Camera/Sequence:	Select camera to display or return to quad mode. Push and hold >=1 seconds will initiate full screen camera sequencing.

LIMITED WARRANTY STATEMENT

Advanced Technology Video, Inc. will, upon receipt of proof of purchase, repair or replace, at its option, in the event of a manufacturing defect, all parts and labor up to two (2) years from original purchase date. This warranty covers normal use and does not cover damage which occurs in shipment or failure which results from alteration, accident, misuse, neglect, faulty installation or adjustment of controls or improper maintenance. Except as herein expressly set forth, Advanced Technology Video, Inc. shall not, under any circumstances, be responsible for any direct, indirect, incidental or consequential damages, including, but not limited to, damage to the equipment. For warranty service you must obtain a return authorization number by calling (425) 885-7000 and send the product, postage paid, with a copy of your sales receipt or other proof of purchase and date of purchase to the factory address. If you have any questions about the service of your ATV product, please call the factory at (425) 885-7000.

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.