

TSVA-OPT
SHUTTER CONTROL

**INSTALLATION &
OPERATION MANUAL**

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NOTE: Information and data in this manual are subject to periodic amendments, revisions and additions. Please consult factory for the most current information and revision.



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**REFER TO THE TSVA SCREEN DISPLAYS
FOR THE ASSOCIATED FUNCTIONS DESCRIBED
IN THIS MANUAL.**

INPUT POWER : 100-240VAC, 1.6A, 50/60Hz.

OUTPUT TO SOLENOIDS: 24 VDC

PNEUMATIC REQUIREMENTS: 80 - 100 psi dry compressed air.

Inlet: 1/4"OD female "PUSH ON" CONNECTOR, (1/4"OD nylon, teflon or poly tubing)

Shutter connections: 5/32"OD female "PUSH ON", (5/32"OD nylon, teflon or poly tubing)

OTHER: Ambient operating temperature: 5 - 45 C

Dimensions: 19"L x 7"W x 5"D. Note: Add 2" to D to accommodate the shutter control cable connector.

Dimensions solenoid block: 2"H x 4"W x 4"D. Add 2" to D to accommodate the shutter control cable connector.

EQUIPMENT CONTENTS:

- (1) TSVA-OPT , Rack Mountable Touch Screen Control Panel System.
- (1) 4- zone (or optional 8,12,16 zone) pneumatic solenoid block
- (1) Input power cable, 6', 120VAC.
- (1) 25 pin sub-D, M/F, 15' shutter control cable.
- (1) 1/4"OD "PUSH ON" plug(s).
- (2) 5/32"OD "PUSH ON" plug(s).

II. TSVA SYSTEM SETUP

***The system should be installed so that there is adequate air-flow around it.
The system should be installed in a non-corrosive environment.***

1. Install the TSVA-OPT system in a 19" rack cabinet.
2. Mount the pneumatic solenoid block within 25' of the TSVA system.
3. Connect the air supply to the solenoid block at either of the two 1/4" "P" ports.
Plug the other port "P" using the orange 1/4"OD plug. Note: DO NOT plug port "R".
DO NOT apply air until step 6.

TO USE THE PUSH ON CONNECTIONS:

Push the tubing into the connection until it is completely seated.

To remove: Shut off air and purge pressure. Push the outer ring of the connector in and pull out the tubing at the same time.

4. Connect 5/32" OD tubing to your pneumatic shutter ports.
Port "A" is ON when the solenoid is activated.
Port "B" is ON when the solenoid is not activated.
NOTE: Port "B" must be plugged if only using the corresponding port "A".
5. Connect the 25 pin shutter control cable. The male end attaches to OUTPUT TO SOLENOIDS terminal block at the TSVA. The female end attaches to the solenoid block.
6. Apply air to solenoid input. Verify there are no air leaks.
7. Plug in the input power for the TSVA. The system will power up and the touch screen will be active.

III. OPERATING THE TSVA SYSTEM

The TSVA-OPT SHUTTER CONTROL SYSTEM is designed to automatically control pneumatic sputter gun shutters. You can enter data for multiple shutters to program automatic shutter sequencing. In manual mode you can also use the touch screen to control individual shutters, gas valves, and other pneumatic devices.

The main screen of the TSVA shows four touch buttons: PROGRAM CONFIG, CREATE LAYERS, RUN PROGRAM and MANUAL VALVE. Each button will access a different screen.

Use the RET button to exit a screen.

*Each screen has an on-line **HELP** button which shows the instructions needed to use that screen.*
(Note: When saving, entering, or loading data be sure to hold the button for >1 second).

A. Program configuration. There are three levels of PROGRAM configuration.

1. (10) PROGRAMS with up to 24 LAYERS in each program.
2. (5) PROGRAMS with up to 49 LAYERS in each program.
3. (2) PROGRAMS with up to 124 LAYERS in each program.

These levels are accessed in the **PROGRAM CONFIG** screen. Use the PGM CONFIG # arrows to select the desired program configuration number. Press ENTER to save the configuration.

IMPORTANT: It is recommended to pick the level that best suits your needs because, when the program level is changed, all the previously stored layer data will be erased.

*Use the on-line **HELP** button to view instructions on how to configure a program.*

A.1 System configuration.

The **SYSTEM CONFIG** button is located on the PROGRAM CONFIG screen.

Once you enter the system config screen you must choose which remote mode you wish to operate the TSVA with. This will determine the remote operation mode when you press the LOC/REM button from the Manual Valves Control screen.(see section D.)

Choose to select the ACTIVE SHUTTERS and SEQUENCE control or select COMPUTER.

Use the RET button to exit. Contact AJA with questions concerning COMPUTER control.

III. OPERATING THE TSVA SYSTEM continued.

B. Creating layers.

Layer programming is accessed in the **CREATE LAYERS** screen.

The data for up to six shutters can be saved in a layer. A single layer or multiple layers can be assembled into a PROGRAM. Multiple layers allow you to run unique sequences or you can repeat the same sequence over and over. Use the PGM SEL arrows to select which program number you will use to create and save the layer sequences.

Programs are made up of layers which contain the shutter sequence information. Layer programming consists of entry fields where you can enter the values associated with the shutter DELAY and shutter OPEN time up to 9999 seconds. Use the LAYER SEL arrows to select a Layer number. After entering in the DLY SEC and OPEN SEC for the desired shutter be sure to SAVE each layer. To view a different layer you must press the LOAD button.

*Use the on-line **HELP** button to view full instructions to create and save a layer and a program.*

C. Running a program.

The LOC/REM button on the Manual Valves Control screen must be set for REM(remote) operation. Also, the SYSTEM CONFIG must be set for SEQUENCER operation. Running a program is accessed in the **RUN PROGRAM** screen. Use the PGM SEL arrows to select the desired program number then press the RUN PROGRAM button.

The TSVA logic runs a program by executing the shutter data values saved in each layer of the program in sequential order. Therefore, each layer of your program is run until the final shutter time has ended then the next layer is run and so on.

When a program is running then RUNNING PROGRAM will be displayed. Also, the LAYER NUMBER, PROCESS TIME, LAYER TIME and shutter state(OPEN/CLOSED) is displayed.

When the last layer has run, the TSVA logic ends the program, closes all shutters and displays PROGRAM COMPLETE.

Use the ABORT PROGRAM button to stop running a program and close all the shutters.

*Use the on-line **HELP** button to view instructions on how to run a program.*

D. Manual operation.

Manual valve operation is accessed from the **MANUAL VALVE CONTROL** screen.

Touch the LOC/REM button and set it for LOC(local) operation.

Touch a shutter button(or other device button) to activate it manually. It will remain active and it will flash until the button is pushed again. Note: When the TSVA is in REM sequential mode the shutter buttons will not operate manually. However, the other device buttons will operate.