

# FILM-TECH

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## 9700 Interlock Module Instructions

The Kelmar 9700 is an add on Interlock control module for use with Kelmar Series IV, and other Kelmar, XeTRON, and Christie Automation systems that do not have built in Sync I/L capability. The 9700 provides simple 2-wire interface between interlocked Units that may be selected via a Kelmar Sync I/L Buss Selector. The 9700 permits older style automation units to be connected and interlocked with new systems where additional Auditoriums are added to a complex.

The 9700 is housed in an attractive wall or console mount enclosure with dimensions of 6" Wide x 9-1/2" High x 4" Deep. The 9700 mounts on the wall adjacent to the Automation or on the console. The 9700 is ALL Low-voltage and is powered from the host Automation.

### **INSTALLATION**

Mount the 9700 on the wall to the side of the Automation. Connect to the Automation cabinet or to the Projection Room wireduct with 1 - 3/4" conduit. The 9700 connects to the Automation with 10 or 11 wires (depending on Automation System). Connection between interlocked units is 2 wires. Use 18 GA. wires for all interface. Refer to the interface schedule for the connection to the Automation.

### **SPECIAL CIRCUIT**

Terminal 13 is noted as "Special Circuit". This is a normally closed (N.C.) Circuit to Ground. This special circuit is to be used for Automations that have a push-button show end mode selector; XeTRON Maxi-7, 7x, 7111-B, or Christie AM-5. This circuit is connected to the Automation to insure that the Inter. Mode is locked out during Interlock operation.

### **CUE CIRCUIT**

The 9700 uses the Inboard Cue for show start function. This cue is routed through the 9700 and functions as a start cycle cue during Interlock show start and reverts back to normal function for the end of the show sequence. The 9700 is therefore connected in Series with the Inboard Cue. The INBOARD CUE connects to terminal 5 and is returned to the Automation via, terminal 6 or 7.

### **C.O. CLOSE LOGIC**

Terminal 8 provides a ground output to activate the C.O. relay of the Automation to close the changeover prior to show start. ***This terminal must NOT connect to the Changeover dowser.***

## **HOLD CIRCUITS**

The 9700 requires 2 Normally Closed (N.C.) hold circuits to ground.

**Hold 1** [Terminal 9] is Automation Cam Timer switch #2 and provides logic to the 9700 for show start. The cams are numbered from the Timer motor. Cam #1 is next to the motor. It will be necessary to connect this terminal directly to the wire (NOT THE GREEN WIRE) connected to cam #2 of the Automation timer. Provide a new wire with a .187 terminal on the cam timer and connect it to the wire from the 9700 and the harness wire of the Automation.

**Hold 2** [Terminal 10] is the Interlock Hold Circuit and should be a terminal on the automation. There are a few older Maxi-8 Automation systems that do not have an Interlock Hold circuit. These may be modified to add this function.

## **REMOTE RUN LIGHT**

The 9700 provides a 12 VAC output at show start [Terminal 11], this is connected to the Remote Run Light circuit of the Automation to operate the Projector Motor and Lamp during Interlock show start. All Automation systems have a terminal designated "Remote Run Light".

## **FAILSAFE**

The 9700 Parallels the failsafe circuit [Terminal 12] during Interlock operation. Connect this to the terminal designated Failsafe. During 9700 operation the failsafe of the Automation is connected to the Failsafe Bus [Terminal 16] so that a Failsafe on 1 Automation will shut down ALL Interlocked Automations.

## **START BUS**

The 9700 Start Bus [Terminal 15] is to be connected between Interlocked automations so that starting the show at one Automation, starts the Interlocked automation as well. This terminal can be connected to a Kelmar Sync I/L Selector module so that Interlock flexibility can be achieved. The Sync I/L selector is a 2-circuit bus selector control which switches the Start Bus and the Failsafe Bus for each connected Automation.

## **INTER. MODE FUNCTION**

Most Automation systems provide a Show End Mode selector circuit to provide shut—down as the changeover closes. For Interlock operation, this circuit must be defeated. This will depend on the automation type. If a 1 pole toggle switch is used for this Circuit; change this switch to a DPDT switch. Connect the 12 VAC feed to the 9700 through this switch so that the 12 VAC is provided to the 9700 with the selector in the Run Mode ONLY. The Special Circuit [Terminal 13] may be used to defeat this function on some Automation systems. It is important to provide this operational safety interlock feature so that Interlock operation can function properly. If this feature is not used at the theatre, simply defeat this circuit at the Automation by removing wires from the Inter. Mode Selector switch.

**Verify Automation operation after modification.**

***PHASE NOTE — AUTOMATION SYSTEMS THAT ARE TO BE CONNECTED TOGETHER FOR INTERLOK MUST BE ON THE SAME PHASE.***

Please verify proper phase at the time of installation. Due to the large size and layout of today's Projection Rooms, several power panels and or transformers may be used in the complex to power the Automation Systems. Please verify that using an A.C. Voltmeter, 30-volt scale, phases all Automation systems. **Take readings between the 12 VAC CONSTANT terminal and ground to verify 12 Vac output. Take readings between the 12 VAC CONSTANT terminals of the Automation systems to be interlocked. The reading should be 0, indicating proper phasing. A reading of 24 VAC indicates and out of phase condition that MUST BE CORRECTED for proper operation.** Correct this condition by connecting the 120 Vac feed to the Automation to a power circuit on a different phase.

**TEST**

When All 9700 are connected, test the system prior to operation. Test each 9700-Automation combination separate and then test as a system. Tie up the failsafe arms. Turn on the 9700 Mode switch, the RED LED should come on. Activate the Start switch to the UP position. The Projector Motor and Lamp should come on, After 5 seconds, the Green Failsafe LED should light, activate the Re-start switch Up, the Automation should cycle a show start, after the timer completes cycling, activate a show end cue, the automation should cycle a show end sequence and the Green LED will go out indicating the Failsafe is no longer paralleled to the bus and the Projector can shut down without shutting down the Failsafe Bus. Re-Test as above using the Inboard Cue.

**OPERATION**

For Interlock operation, place an Inboard Cue on the leader of the show, 10.5 feet ahead of the first frame of the show. The balance of the show should have normal "Feature", "Lights Up", and "Show End" Cues.

Thread the film through the Projectors with a film loop accumulator between the Projectors to maintain sufficient tension on the film to insure that the failsafe arms do not drop.

Verify the Mode selector switches are set to the Run Mode. Activate the Start Switch of one of the 9700 Interlock Modules.

**RE-START**

A Re-Start switch is provided in case of a film break during Interlock Operation. Since the Inboard Cue is used to activate the show start cycle of the Automations, a re-start after a film break would not have this cue. In case of a film break, re-thread the film through the system, Activate the start switch and after the Projectors are up to speed, activate the re-start switch at each 9700 Interlock Control Module. Verify Automation "Feature" settings for Auditorium Lights, Format and Audio format. Show will run normally.

## **RELAY SCHEDULE**

There are 5 4PDT-12VAC relays and 1 12VAC time delay relay in the 9700. The relays are designated from the bottom to the top. The bottom relay is K1; the top time delay relay is K6.

### **K1 ON-OFF**

Switches 12 Vac power to the circuits of the 9700. Activated by Mode switch 51.

### **K2 START**

Activated by Start Switch S2 or Start Bus terminal 15.

### **K3 TRANSFER**

Transfers Cue Detector from Normal to Start function, Activated by K2, holds via Hold 1.

### **K4 FAILSAFE**

Connects failsafe terminal 12 to failsafe Bus terminal 16. Activated by Time delay K6, latches via Hold 2.

### **K5 FAULT**

For failsafe during show start, disconnects 12 Vac feed to Terminal 11, latches for constant failsafe, latches via K2.

### **K6 TIME DELAY**

Activates K4 Failsafe parallel relay. Set for 5 seconds. Activates to provide failsafe protection during start sequence.

For information contact:

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Huntington Station, NY 11746  
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### INTERFACE SCHEDULE

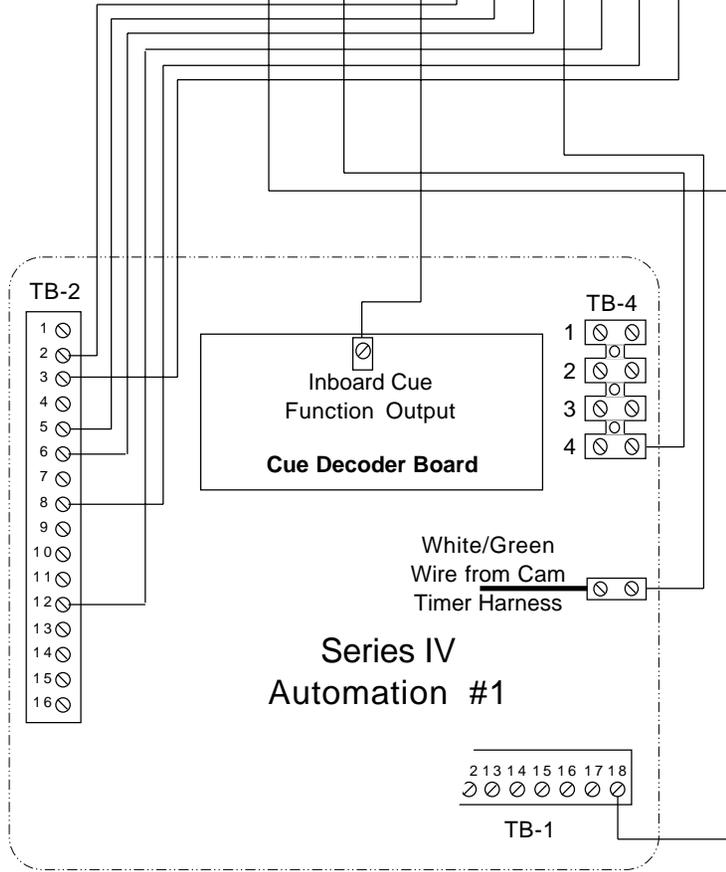
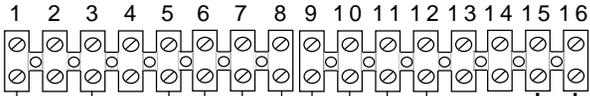
9700 INTERLOCK TERMINAL #	FUNCTION	KELMAR SERIES IV TERMINAL #
1,2	GROUND	TB1-18
3,4	12 VAC	TB5-4*
5	INBOARD CUE IN	INBOARD CUE DET.
6	INBD. CUE NORMAL	TB2-2
7	REMOTE START	TB2-5
8	C.O. CLOSE LOGIC	TB2-6
9	TM-2 HOLD CIRCUIT	WHITE/GREEN WIRE
10	HOLD FOR INTERLOCK	TB2-12
11	REMOTE RUN LIGHT	TB2-8
12	FAILSAFE	TB2-3
13	SPECIAL CIRCUIT	NOT USED
14	NOT USED	
15	START BUSS-INTERFACE	
16	FAILSAFE BUSS-INTERFACE	

**\*SWITCHED VIA MODE SWITCH**

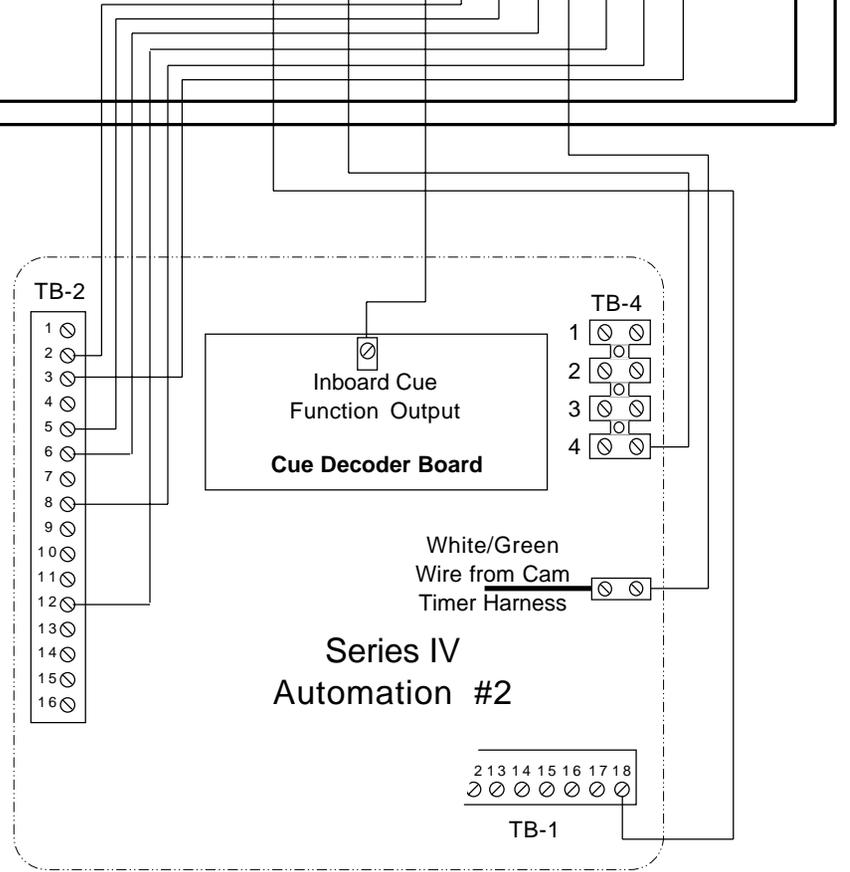
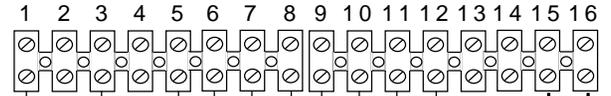
9700 INTERLOK TERMINAL No.	FUNCTION	FILL IN AUTOMATION TERMINAL No,
1,2	GROUND	_____
3,4	12 VAC	_____
5	INBOARD CUE IN	INBOARD CUE DET.
6	INBD. CUE NORMAL	_____
7	REMOTE START	_____
8	C.O, CLOSE LOGIC	_____
9	TM2 HOLD CIRCUIT	_____ WIRE
10	HOLD FOR INTERLOK	_____
11	REMOTE RUN LIGHT	_____
12	FAILSAFE	_____
13	SPECIAL CIRCUIT	_____
14	NOT USED	_____
15	START BUS-INTERFACE	_____
16	FAILSAFE BUS-INTERFACE	_____

**REFER TO INSTRUCTIONS FOR MODE SWITCH CONNECTION**

### Interlock Module #1



### Interlock Module #2



### 9700 I/L Interlock Module Interface Schematic


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 Huntington Station, NY 11746  
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Date:	Scale:	Drawn by:	Rev:	DWG.#
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