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MICROPHONES AND ELECTRONIC COMPONENTS

DATA SHEET

MODEL AMS880

VIDEO SWITCHER INTERFACE

The Shure Model AMS880 is a Video Switcher Interface which expands the Shure Automatic Microphone System (AMS) for use in video teleconferencing applications. The heart of the AMS880 is an 8748 microcomputer which actuates the remote-control input of a commercially available video switcher in response to the action of an automatic microphone mixer such as the Shure AMS4000 or AMS8000. Video cameras covering individual microphones are thereby activated when their microphones are activated, causing the video presentation to smoothly follow the flow of the audio discourse. Three additional options are also available. First, the AMS880 can select a particular video channel (such as a wide-angle camera) after a predetermined period of audio inactivity. Second, the AMS880 contains an "override" option that suspends automatic action and permits external manual switch selection of a particular video channel, such as a graphics camera. Third, a "disable" input is available to suspend all automatic action and allow manual camera selection via switches externally connected in parallel to the AMS880 outputs.

The AMS880 is designed for mounting in a standard 19" equipment rack, or, using supplied feet, on any horizontal surface. The unit is powered by an external power transformer which is Listed by Underwriters Laboratories, Inc.

SPECIFICATIONS

Inputs

Logic Gate Inputs: 8 plus logic ground
Open Circuit Voltage: +5V
Resistance: 1 kilohm
Logic Status: Low = channel gated on
Input Protection: To ±12V

Outputs (FET optically isolated; not connected to input ground)

Off Resistance: Greater than 300 megohms
On Resistance: Less than 200 ohms
Switching Time: Less than 1 msec
Output Closure: Selected output will pulse closed for 250 msec; may (optionally) provide maintained closure

Power

External power transformer: 120 Vac ±10%, 60 Hz, 6W

Temperature Range

Operating: -7° to 57°C (20° to 135°F)
Storage: -18° to 71°C (0° to 160°F)

Dimensions

44.5 mm H x 483 mm W x 127 mm D (1 ¾ in. x 19 in. x 5 in.)

Weight

1.1 kilograms (2.5 lb), including transformer

Supplied Accessories

Adhesive feet for surface mounting; screws and washers for rack mounting; mating output connector (25-pin DB25P type with separate solderable contacts, locking screws and back shell with cable clamp)

INSTALLATION AND OPERATION

Controls, Indicators and Connectors

The front panel of the AMS880 contains a push-button power-on switch and a green power-on indicator. The rear panel contains a 1.2m (4 ft) multiconductor ribbon input cable which consists of eight channel Gate Out logic inputs and a logic ground. Color coding of the ribbon cable is shown in Table 1.

TABLE 1. INPUT CABLE CONNECTIONS

Color	Function	Color	Function
Brown	Gate 1	Blue	Gate 6
Red	Gate 2	Purple	Gate 7
Orange	Gate 3	Gray	Gate 8
Yellow	Gate 4	White	Ground
Green	Gate 5		

The rear panel also contains a connector for the external power transformer, and a 25-socket subminiature D-type output connector (DB-25S type) with locking screw studs for connection to the remote-control input of a video switcher such as the 3M Video Bridging Switcher Model 101. The AMS880 is supplied with a matching 25-pin connector for connection to the video switcher cable. Pin/socket connections for the 25-socket connector are given in Table 2.

TABLE 2. OUTPUT CONNECTOR TERMINALS

Pin	Function	Pin	Function	Pin	Function
1	Output 1	10	N.C.	18	N.C.
2	Output 2	11	Output Common	19	N.C.
3	Output 3	12	N.C.	20	N.C.
4	Output 4	13	N.C.	21	N.C.
5	Output 5	14	Ground	22	N.C.
6	Output 6	15	Ground	23	DISABLE Input
7	Output 7	16	N.C.	24	Ground
8	Output 8	17	N.C.	25	Ground
9	N.C.				

The printed circuit board contains two eight-station DIP switches which provide option selection as follows. Factory preset positions are given in boldface type.

27A8044 (BI)

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TABLE 3. OPTION SWITCH FUNCTIONS

Switch & Station	Function	Switch Position	
		On*	Off*
S2-1	Input Time Delay	**2.5 sec**	1.9 sec
S2-2	Automatic Idle Option	On	**Off**
S2-3	Automatic Idle Time Delay	8.8 sec	**6.2 sec**
S2-4, S2-5, S2-6	Automatic Idle Channel Selection	See Table 4	
S2-7	Rotation Rate	Disabled	**2.7 sec**
S2-8	Output Mode	Maintained	**Pulsed**
S3-1	Override Channel 1	Enabled	**Disabled**
S3-2	Override Channel 2	Enabled	**Disabled**
S3-3	Override Channel 3	Enabled	**Disabled**
S3-4	Override Channel 4	Enabled	**Disabled**
S3-5	Override Channel 5	Enabled	**Disabled**
S3-6	Override Channel 6	Enabled	**Disabled**
S3-7	Override Channel 7	Enabled	**Disabled**
S3-8	Override Channel 8	Enabled	**Disabled**

*Off position is marked OPEN; On position is not marked.

TABLE 4. AUTOMATIC IDLE CHANNEL SELECTION

Channel	Switches S2-6	S2-5	S2-4
1	Off	Off	Off
2	Off	Off	On
3	Off	On	Off
4	Off	On	On
5	On	Off	Off
6	On	Off	On
7	On	On	Off
8	On	On	On

Installation

Install the AMS880 as follows.

1. If any changes from the factory preset options are desired, remove the AMS880 cover and set option switches [S2, S3] for the desired function [see tables 3 and 4 and explanations below]. Replace the cover.
2. Install the AMS880 in a standard 19-inch equipment rack [screws and washers are provided] or on a horizontal surface [protective feet are provided].
3. Fabricate a connecting cable between the video switcher and the AMS880 using the supplied 25-pin DB-25P type connector. Install the cable between the video switcher and the AMS880 output jack.
4. Connect the leads of the multiconductor input cable of the AMS880 to the Gate Out terminals of the AMS mixer following the EIA color coding [brown-Channel 1, red-Channel 2, etc. as shown in Table 1]. Connect the AMS880 white input lead [Ground] to the Channel 8 [AMS8000] or Channel 4 [AMS4000] Logic Ground terminal of the AMS mixer.
5. Connect the external power transformer to the AMS880.
6. Connect the power transformer to a 120 Vac, 60 Hz source.

Operation

With all equipment connected, turn the AMS880 on by depressing the Power switch. If no function options have been changed from their factory settings [using internal switches S2 and S3], a given camera channel will be selected after its AMS mixer channel has been on for 2.5 seconds. This input time delay prevents changing cameras if an AMS mixer channel has been activated by a short sound such as brief paper rustling or chair squeaking. Note that the time delay can be decreased from 2.5 to 1.9 seconds by moving switch S2-1 to the "off" position.

During periods of inactivity, the last camera channel activated will remain on. If two or more AMS mixer channels are active simultaneously, camera channel selection will rotate among those among those channels at a rate of 2.7 seconds per channel. The rotation action can be disabled by moving switch S2-7 to the "on" [non-OPEN] position.

Options

Automatic Idle Option

Internal switches S2-2 through S2-6 are assigned to the automatic idle channel function. When an automatic idle channel has been selected, cessation of activity by the AMS mixer for more than 6.2 seconds will cause the automatic idle channel to be activated. This allows switching to a wide-angle or a graphics camera when no one is talking. Normal action is restored when any input is active for the selected input time delay of 2.5 or 1.9 seconds.

Switch S2-2 turns the automatic idle function on or off. Switch S2-3 chooses the automatic idle time delay of 6.2 or 8.8 seconds. Switches S2-4, S2-5 and S2-6 select, through a binary logic code system [see Table 4], the number of the channel selected for the automatic idle operation.

Override Option

Any or all input channels can be selected to override the automatic channel selection function of the AMS mixer. The selected override inputs will usually be activated by a manual switch closure to ground, rather than an AMS mixer gate output. When S3-1 through S3-8 are enabled [turned on], any override input activated will take precedence over those channels normally activated by the AMS mixer operation. If more than one override option channel is enabled, the first input activated will turn on. Releasing all override input switch closures to ground will restore automatic AMS mixer-controlled action.

Disable Option

An external switch closure from Output Connector pin 23 to pin 25 [Ground] will suspend all automatic action, allowing any parallel-connected [external] switch closures between Output Connector Common [pin 11] and Output Channels [pins 1 through 8] to control the video switcher's action. Releasing the Disable switch closure will immediately restore automatic action.

GUARANTEE

This Shure product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor. This guarantee is in lieu of any and all other guarantees or warranties, express or implied, and there shall be no recovery for any consequential or incidental damages.

SHIPPING INSTRUCTIONS

Carefully repack the unit, insure it, and return it prepaid to:

Shure Brothers Incorporated
Attention: Service Department
222 Hartrey Avenue
Evanston, Illinois 60204

If outside the United States, return the unit to your dealer or Authorized Shure Service Center for repair. The unit will be returned to you prepaid.

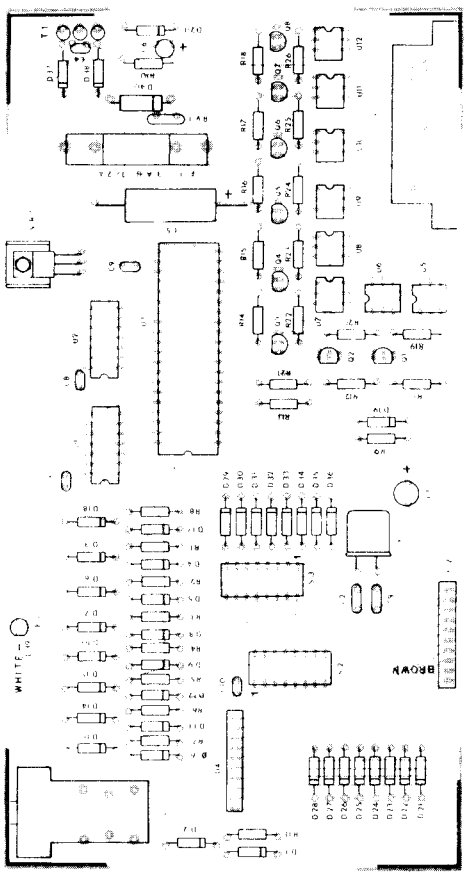
REPLACEMENT PARTS LIST

Parts that are readily available through local electronic parts distributors are not shown on the following list. Their values are shown on the Circuit Diagram.

Reference Designation	Description	Manufacturer & Part Number
C1	Capacitor, Electrolytic, 47μF, 10V	Sprague 503D476F010LA
C5	Capacitor, Electrolytic, 1000 μF, 25V	Sprague 501D108F025QS
C6	Capacitor, Electrolytic, 4.7 μF, 10V	Sprague 199D475X0010BB1
D1-D19, D21-D36	Diode, Silicon Computer, 75 mA, 100V	TI/GE 1N914
D20, D37-D38	Diode, General Purpose Rectifier, 1A, 100V	Motorola 1N4002
D39	Diode, Light-Emitting, Green	Shure 86C8402
D40	Diode, Zener, Overvoltage Transient Suppressor	Motorola MPTE 5
F1	Fuse, 3AG, ½ A, 250V	Littelfuse 312.500
J1	Connector, 25-Socket	AMP 206584-2
Q1-Q8	Transistor, NPN, General Purpose	TI/GE/Motorola 2N3904
RV1	Varistor, Metal Oxide	GE V22ZA1
S1	Switch, Push-Button, Power, SPST	Shure 55A8013, ITT NE15/ F2U103EE/01-003-00
S2-S3	Switch Assembly, Dual In-Line, SPST	Grayhill 76SB08
U1-U2	Integrated Circuit, Schmitt Trigger Inverter	TI SN74LS14N
U3	Integrated Circuit, Microcomputer*	Shure 86A8806; NEC μPD8748*; Intel 8748*
U4	Resistor Network	Bourns 4310R-101-RC1K
U5-U12	Opto-Isolator (Photon-Coupled Bilateral FET)	GE H11F1
U13	Power Transformer, Primary 120 Vac ±10%, 57-63 Hz, Secondary 22 Vac, 16 VA, CT, with cable and connector	Shure 95A8048
VR1	Voltage Regulator, Positive	Motorola MC7805CT
XF1	Fuseholder	Littelfuse 102071
Y1	Crystal, Quartz, 3.579545 MHz, HC-18/W Holder	GTE ECG358

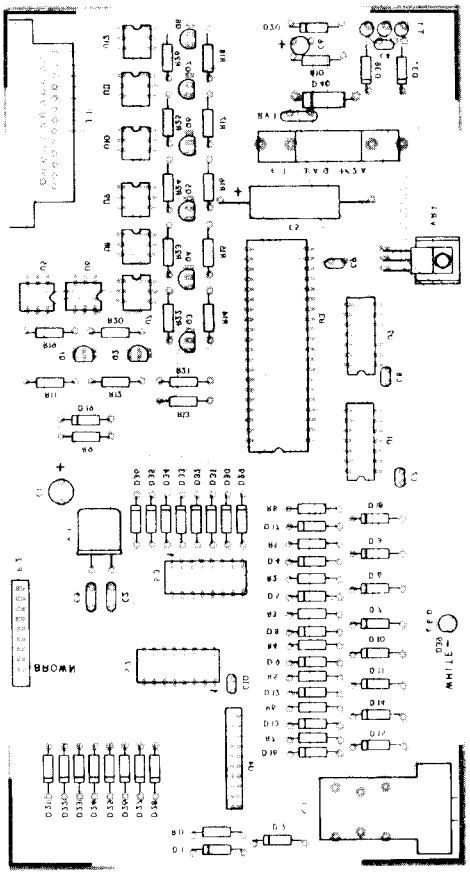
*Programmed with operating code

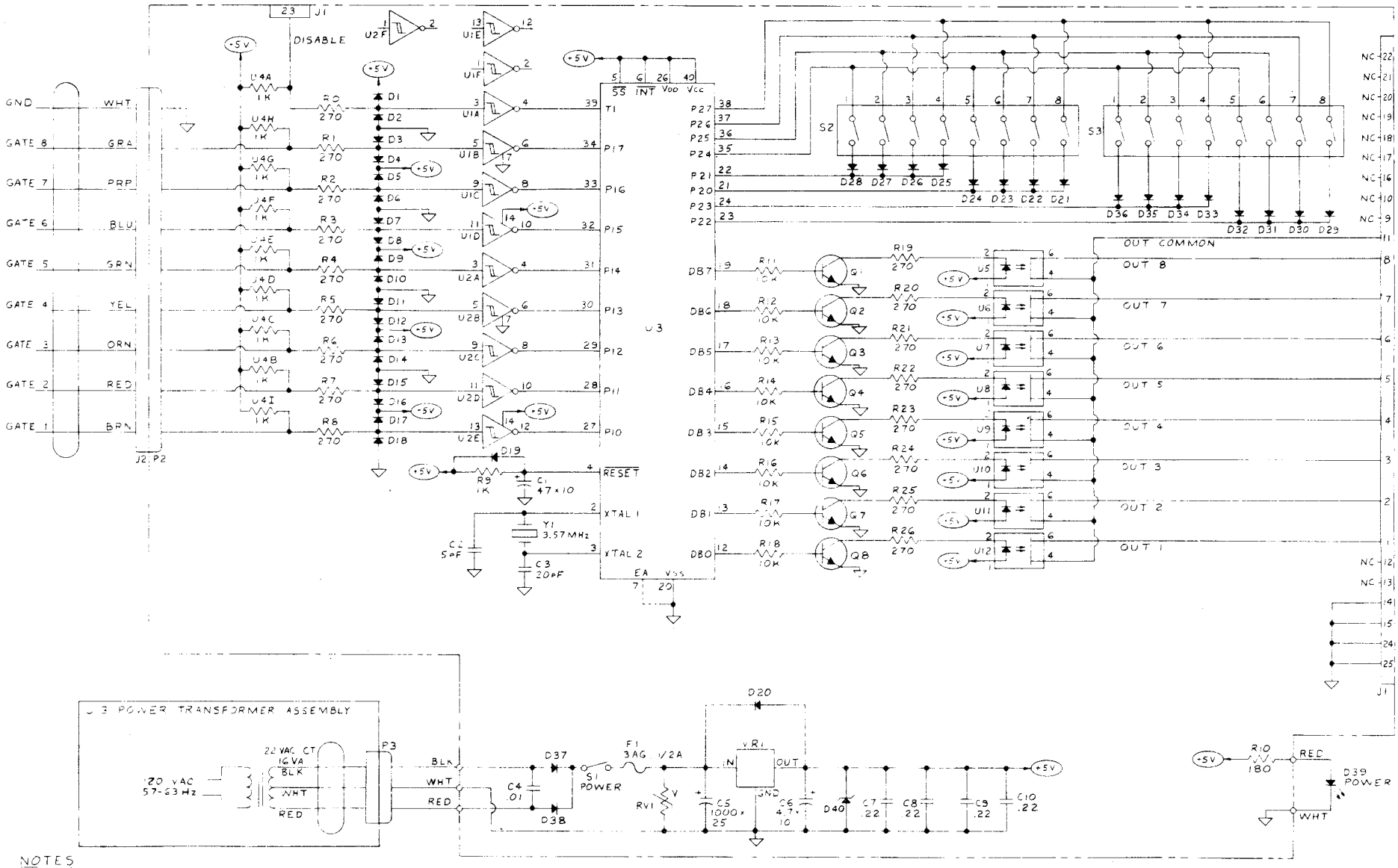
PRINTED CIRCUIT BOARD



COMPONENT SIDE

SOLDER SIDE





NOTES

1. ALL CAPACITORS IN μF AND 50V OR MORE. ELECTROLYTIC CAPACITORS SHOWN IN μF × VOLTS
2. ALL RESISTORS 1/4 W 5% UNLESS OTHERWISE SPECIFIED
3. THE FOLLOWING SYMBOLS DENOTE:
   ◯ D.C. VOLTAGE ⏚ GROUND

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CIRCUIT DIAGRAM

8029-11 1