



**Audio Specialties Group  
Products Division**

**EM-16  
Signaling Interface  
Operators Guide**



# TABLE OF CONTENTS

## SECTION 1:

1.0	Introduction.....	3
1.1	EM-16 Block Diagram.....	3

## SECTION 2:

Operation.....		4
2.1	Front Panel Settings .....	4
2.1.1	Adjusting Threshold.....	4
2.1.2	Indicators.....	4
2.2	Internal Adjustments.....	4
2.2.1	Audio Input level Adjustments .....	4
2.2.2	Delay Settings .....	4
2.6	Front Panel Layout.....	5
2.7	Rear Panel Layout.....	5
2.8	Interior Layout .....	6

## SECTION 3:

Installation.....		7
3.1	Connecting to existing system .....	7
3.1.1	Audio Signals.....	7
3.1.2	Logic Signals .....	7
3.2	Precautions.....	7
3.3	Connector Pin-out Details.....	7
3.3.1	<i>Audio Input/Loop</i> .....	7
3.3.2	<i>Logic Output Connector Style “U”</i> .....	8
3.3.3	<i>Logic Output Connector Style “D25”</i> .....	8

## SECTION 4:

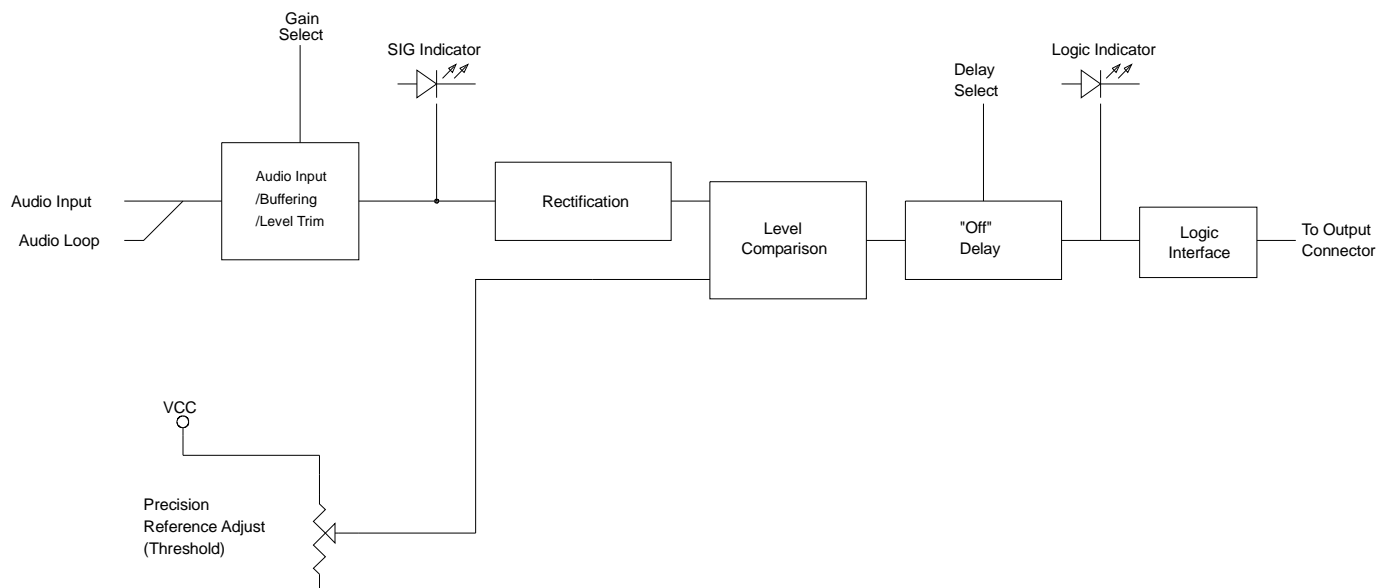
Specifications.....		9
4.1	Electrical .....	9
4.1.1	Audio Operating Level .....	9
4.1.2	Logic Output .....	9
4.2	Mechanical.....	9

## SECTION 1

### 1.0 Introduction

The *ASG Products* EM-16 Signaling Interface provides logic outputs derived from an audio event. Sixteen channels are contained in a 19" 1-RU chassis. Several logic output configurations are available including opto-coupler and several types of voltage sources. User adjustments allow for a wide range of input levels and two separate delay settings.

### 1.1 EM-16 Block Diagram

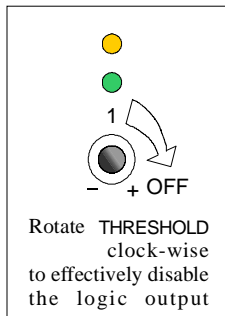


## SECTION 2: Operation

### 2.1 Front Panel Settings

#### 2.1.1 Adjusting Threshold

The front panel threshold adjustment allows the logic output to respond to a wide range of input signal levels. The logic output can be effectively disabled by rotating the threshold fully clockwise. Doing so sets the comparator to a level higher than the maximum audio level available.



#### 2.1.2 Indicators

The AUDIO LEVEL L.E.D. will turn ON indicating an audio presence regardless of the THRESHOLD setting. The LOGIC STATE L.E.D. will turn ON whenever the audio signal reaches a level that equals or surpasses the voltage set by the THRESHOLD adjustment. It will also be ON during the Delay Period.

### 2.2 Internal Adjustments

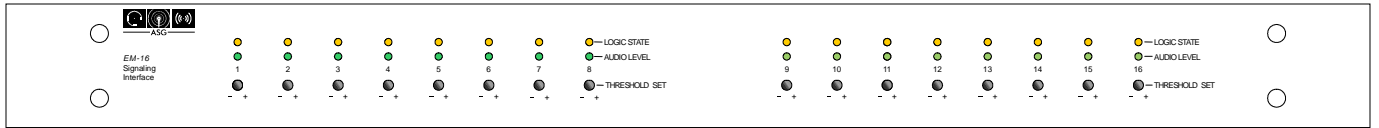
#### 2.2.1 Audio Input level Adjustments

Each Balanced Input Module (BIM) has an input-level-trim-adjustment which is factory set at the 50% position. The range of the adjustment is -24dBu to +10dBu. Located on the BIM carrier PCB is a two position gain jumper which selects either HI or LOW gain for each input channel. The jumpers are factory set for HI gain which adds 13dBu of gain. Input clipping occurs at -10dBu with the trim set to maximum and the gain jumper set to the HI position.

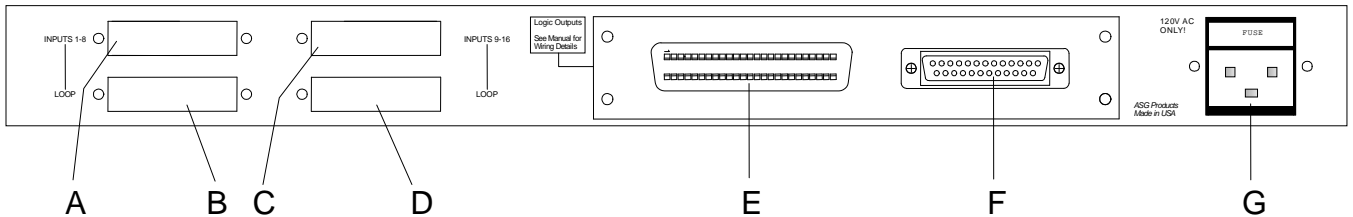
#### 2.2.2 Delay Settings

The delay setting allows the logic output to remain active after the audio event has ended. This allows intermittent or transient level changes to act as continuous states to eliminate chatter on the logic output. The SHORT setting is 3 SEC., the LONG is 25 SEC.

## 2.6 Front Panel Layout

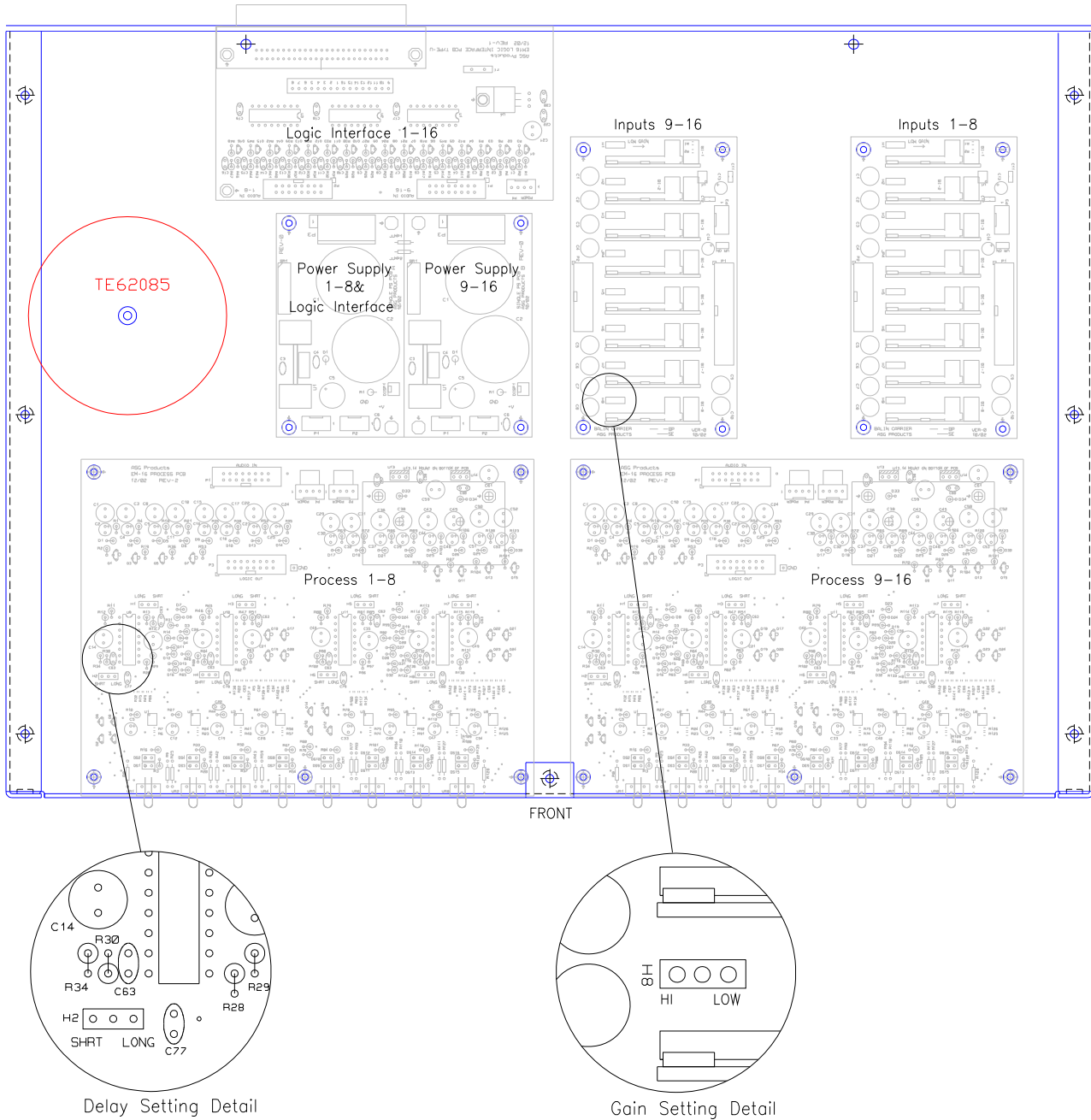


## 2.7 Rear Panel Layout



- A** INPUTS 1-8 Incoming audio signals for inputs 1-8 ( Female DB-25).
- B** LOOP For inputs 1-8 allow a convenient method of connecting the audio signals to your existing facility wiring. (Male DB-25)
- C** INPUTS 9-16 Incoming audio signals for inputs 9-16 (Female DB-25).
- D** LOOP For inputs 9-16 allow a convenient method of connecting the audio signals to your existing facility wiring. (Male DB-25)
- E** Logic outputs. Shown is the standard configuration (Male 50-pin Champ)
- F** Logic outputs. Shown is alternate configuration (Male DB-25)
- G** AC power receptacle. Connect to 120V AC 60Hz only

## 2.8 Interior Layout



## SECTION 3 Installation

### 3.1 Connecting to existing system

#### 3.1.1 Audio Signals

The audio inputs are DC protected to 50V. All inputs are high impedance differential-balanced capable of receiving a wide range of input levels. Each audio connector carries eight balanced inputs with shields. The shields can be ignored if the output end of the sending equipment is tied to ground. In situations which use unshielded-twisted-pair (UTP), shields can be ignored. Either the male or female connector can be used for inputting signals.

#### 3.1.2 Logic Signals

The logic outputs, depending on style, can supply up to 12V DC. All common DC sources are auto-reset fused to protect the internal power supply. If the common output supply were to become shorted to a ground path, all outputs would stop functioning. To restore proper operation, remove the ground-short, no other internal repairs are required.

### 3.2 Precautions

#### *Warning*

Do not expose the *EM-16* to the rain or direct sunlight. AC power is set for 110-120V only. Logic output voltages are fused for protection.

### 3.3 Connector Pin-out Details

#### 3.3.1 Audio Input/Loop

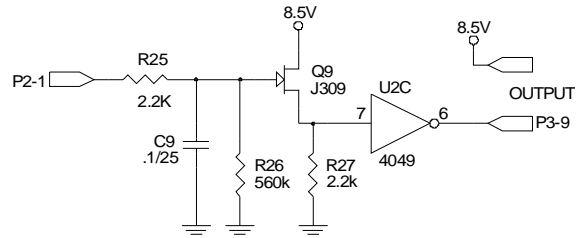
25-Pin D-Sub. Female / Male

1	Input 1/9 LOW
2	Shield
3	Input 2/10 LOW
4	Input 3/11 LOW
5	Shield
6	Input 4/12 LOW
7	Input 5/13 LOW
8	Shield
9	Input 6/14 LOW
10	Input 7/15 LOW
11	Shield
12	Input 8/16 LOW
13	nc
14	Input 1/9 HI
15	Shield
16	Input 2/10 HI
17	Input 3/11 HI
18	Shield
19	Input 4/12 HI
20	Input 5/13 HI
21	Shield
22	Input 6/14 HI
23	Input 7/15 HI
24	Shield
25	Input 8/16 HI

### 3.3.2 Logic Output Connector Style “U”

Style “U” defines both a pin-out and a circuit specification. It is pin-for-pin compatible with the *Telex UIO-256* logic input connector. Each output goes LOW when active. In the OFF state, each output is made high such that the optocoupler in the UIO-256 sees no potential. In the ON state, the selected output goes low, thereby biasing the opto-coupler with the required current. The Common 8.5V DC output is protected by an auto-resetting fuse.

Schematic for the Style “U” output circuitry.



#### 50-Pin Male

9	Output #1
10	Output #2
11	Output #3
12	Output #4
13	Output #5
14	Output #6
15	Output #7
16	Output #8
1	Output #9
2	Output #10
3	Output #11
4	Output #12
5	Output #13
6	Output #14
7	Output #15
8	Output #16
34	Common 8.5V DC
35	Common 8.5V DC
36	Common 8.5V DC
37	Common 8.5V DC
38	Common 8.5V DC
39	Common 8.5V DC
40	Common 8.5V DC
41	Common 8.5V DC
26	Common 8.5V DC
27	Common 8.5V DC
28	Common 8.5V DC
29	Common 8.5V DC
30	Common 8.5V DC
31	Common 8.5V DC
32	Common 8.5V DC
33	Common 8.5V DC

### 3.3.3 Logic Output Connector Style “D25”

Style “D25” is used with multiple circuit topologies.

#### 25-pin D-SUB Male

1	Output #1
2	Output #2
3	Output #3
4	Output #4
5	Output #5
6	Output #6
7	Output #7
8	Output #8
9	Output #9
10	Output #10
11	Output #11
12	Output #12
13	Output #13
14	Output #14
15	Output #15
16	Output #16
17	GND
18	GND
19	GND
20	GND
21	GND
22	8.5V DC
23	8.5V DC
24	8.5V DC
25	8.5V DC



## **SECTION 4**

### **Specifications (rev-A)**

#### **4.1 Electrical**

##### **4.1.1 Audio Operating Level**

Minimum audio signal required to trigger logic state = -7dBu (+- 2dBu)  
(factory default settings, THRESHOLD set for greatest sensitivity)

Lowest possible audio level that will trigger the logic state: = -23dBu  
(all setting set for HI gain, THRESHOLD set for greatest sensitivity)

Maximum input level before clipping = +15dBu  
(all settings set for LOW gain)

##### **4.1.2 Logic Output**

Type-U  
Ground referenced current sinking  
+8.5V DC fused Output

Type-O  
Opto-coupler with open-collector output

Type-OC  
Ground referenced Open-Collector

##### **4.1.3 Power Requirements**

120V AC 60Hz 20Watts

#### **4.2 Mechanical**

##### **4.2.1 Dimensions**

Height: 1.73 inches (40 mm)  
Width: 19 inches EIA Rack Mount  
Depth: 12 inches (304mm)  
Weight: 5.5 pounds (2.5kg)

**Finish:**  
Black anodized chassis  
Front panel is powder-coat charcoal gray.