MODELS 6416 AND 6416-S

BACKUP POWER AMPLIFIER SWITCHING SYSTEMS

GENERAL DESCRIPTION

The 6416 and 6416-S are designed to switch over automatically up to 4 backup power amplifiers for up to 16 main operating power amplifiers. If serial communication is used, one backup dual power amplifier can back up between 1 and 8 main dual operating power amplifiers (16 channels of 6272L/H or 6282L/H). Serial communication is is available only for 6272L/H or 6282L/H Dual Amplifiers.

The 6416-S includes a current sensing module on each speaker output. The 6416 and 6416-S are supplied with rails so that connections which have to be made inside the mainframe can be done from the front.

SETUP PROCEDURE

The setup of the 6416 and 6416-S will depend on the configuration of the power amplifier backup bus structure. The number of main amplifiers each backup power amplifier will serve is chosen at the system level. Both the 6416 and 6416-S have 4 busses. Each bus can service up to 4 main amplifiers. If, for example, between 5 and 8 main amplifiers need to be protected by a single backup amplifier, then 2 backup busses would have to be tied together. This arrangement will accommodate up to 8 main amplifiers. See Table 1 for DIP switch settings.

DIP SWITCH POSITIONS						BUSSES CONNECTED
1	2	3	4	5	6	
OFF	OFF	OFF	OFF	OFF	OFF	None
OFF	OFF	OFF	OFF	OFF	ON	1, 2
OFF	OFF	OFF	OFF	ON	OFF	3, 4
OFF	OFF	OFF	OFF	ON	ON	1, 2 and 3, 4
OFF	OFF	OFF	ON	OFF	OFF	1, 2, 3, 4
OFF	OFF	OFF	ON	OFF	ON	1, 2, 3
OFF	OFF	OFF	ON	ON	OFF	2, 3, 4
OFF	OFF	OFF	ON	ON	ON	*Serial Communication
*Firmware version 1.3 and up (U8)						

Table 1 - DIP Switch Settings
For All Possible Backup Bus Configurations

LOW LEVEL INPUTS

Outputs that would normally be routed to the inputs of power amplifiers are bussed to the low level input connectors on the 6416 or 6416-S. The connectors are located under the top cover, and the wires should be run through the opening in the rear of the main-

frame. The correspondence between low level input numbers and backup busses in listed in Table 2 below.

LOW LEVEL INPUT NUMBERS	BACKUP BUS NUMBER
1 - 4	1
5 - 8	2
9 - 12	3
13 - 16	4

Table 2 - Low Level Inputs vs. Backup Busses

The main power amplifiers are wired to the low level inputs and are configured according to the requirements of the system. See figure 1 for input wiring.

LOW LEVEL BACKUP BUSSES

The backup amplifier inputs are connected to the low level backup busses. These connectors are located on the rear of the mainframe. See figure 1 for wiring information. If more than 4 main amplifiers are to share a backup amplifier, then at least 2 low level busses would have to be connected together. For example, if low level inputs 1 - 8 are to share a backup amplifier, and inputs 9 - 16 are to share another, then busses 1 and 2 would be connected together and busses 3 and 4 would also be connected together. See figure 2 for a wiring diagram of this example.

When serial communication is used between the 6416 and the 6160L/H Mainframe via an RS232 link, refer to figure 5 for wiring the backup dual amplifier in or out of the main amplifier mainframe. Each frame of any number (1 - 8) of main dual amplifiers will have only one backup dual amplifier.

DIP switch SW1 is located on the printed circuit board under the top cover. Figure 6 shows its location. The DIP switch is used to set up the bus configuration in accordance with the system requirements. Table 1 lists the DIP switch settings for all possible backup bus configurations.

HIGH LEVEL CONNECTIONS

The high level connections consist of amplifier output and speaker output connections. The main power amplifier outputs should be wired to the amplifier output terminals and the speaker wires should be connected to the speaker output terminals. These connectors are located under the top cover, and the wires should be run through the opening in the rear of the mainframe. See figure 3 for high level connections.

HIGH LEVEL BACKUP BUSSES

The backup amplifier is connected to the high level backup busses. These connections are located on the rear of the mainframe. See figure 3 for wiring information. If more than 4 main amplifiers are going to share a backup amplifier, then at least 2 high level busses would have to be connected together. For example, if high level inputs 1 - 8 are to share a backup amplifier, and inputs 9 - 16 are to share another, then busses 1 and 2 would be

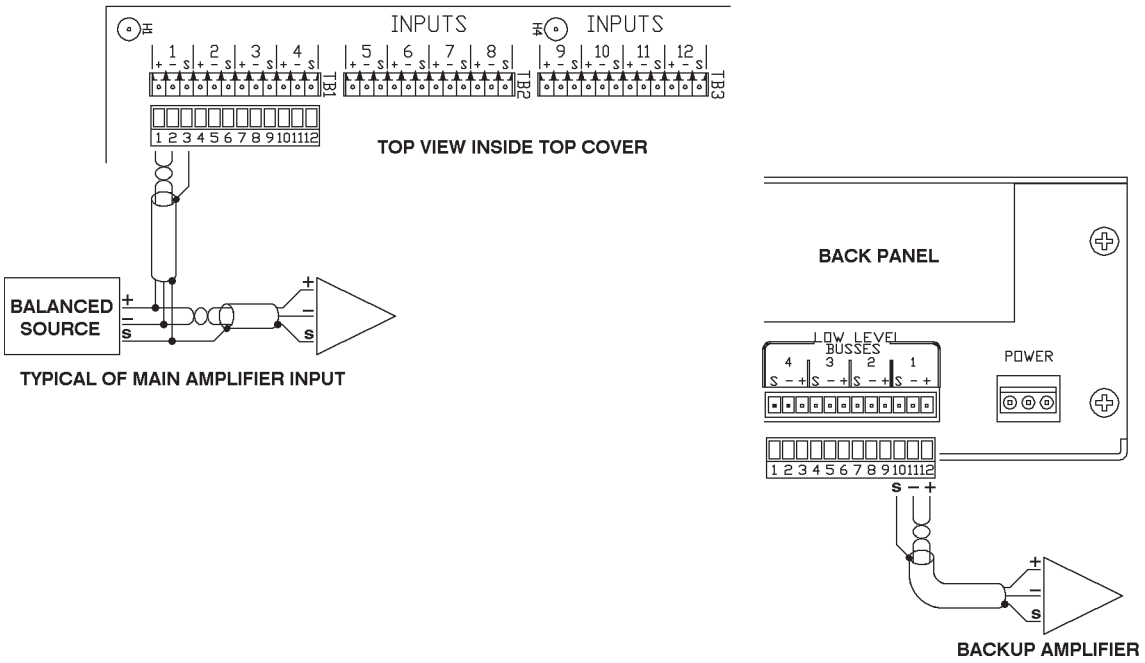

Figure 1 - Typical Low Level Input Connections

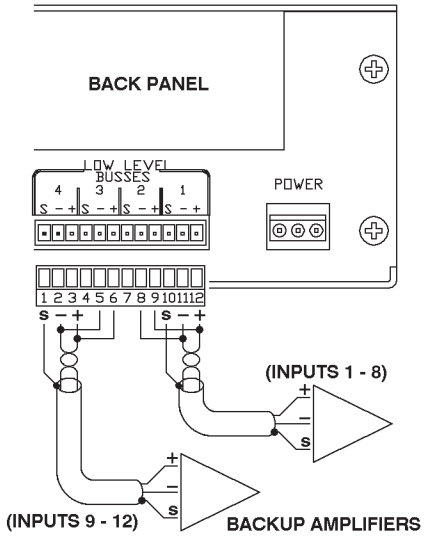

Figure 2 - Low Level Backup Busses Connected Together
Busses 1 & 2 and Busses 3 & 4

connected together as would busses 3 and 4. Refer to figure 4 for wiring diagrams of this example.

When serial communication is used between the 6416 and the 6160L/H Mainframe via an RS232 link, refer to figure 5 for wiring the backup dual amplifier in or out of the main amplifier mainframe. Each frame of any number (1 - 8) of main dual amplifiers will have only one backup dual amplifier.

LOGIC INPUTS

The actual switching of the amplifiers is controlled by Logic Input connections on the rear of the mainframe. There are 16 Logic Input connections, one for each main amplifier that needs to be replaced by a backup amplifier in the event of a failure. In order to activate the switchover, the logic input requires a switch closure to ground. The switch closure to ground can be produced by the power amplifier Logic Output, the 8000 Series Logic Output, or any other switch or relay closure to ground. Refer to figure 7 for wiring information.

CURRENT SENSING OUTPUTS

The 6416-S has 16 current sensing modules built into the chassis. They differentiate the 6416-S from the 6416 and are included for the purpose of monitoring and testing the integrity of the speaker lines when used in conjunction with any IED Monitor/Test System. See figure 8 for wiring information.

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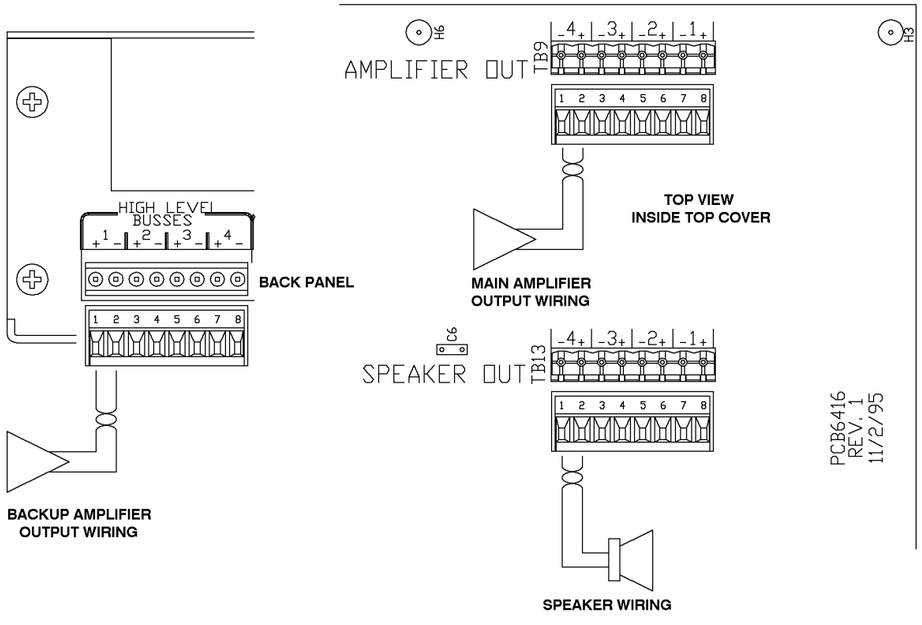

Figure 3 - Typical High Level Connections

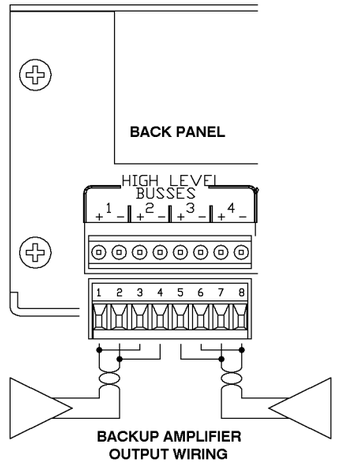

Figure 4 - High Level Backup Busses Connected Together
Busses 1&2 and Busses 3&4

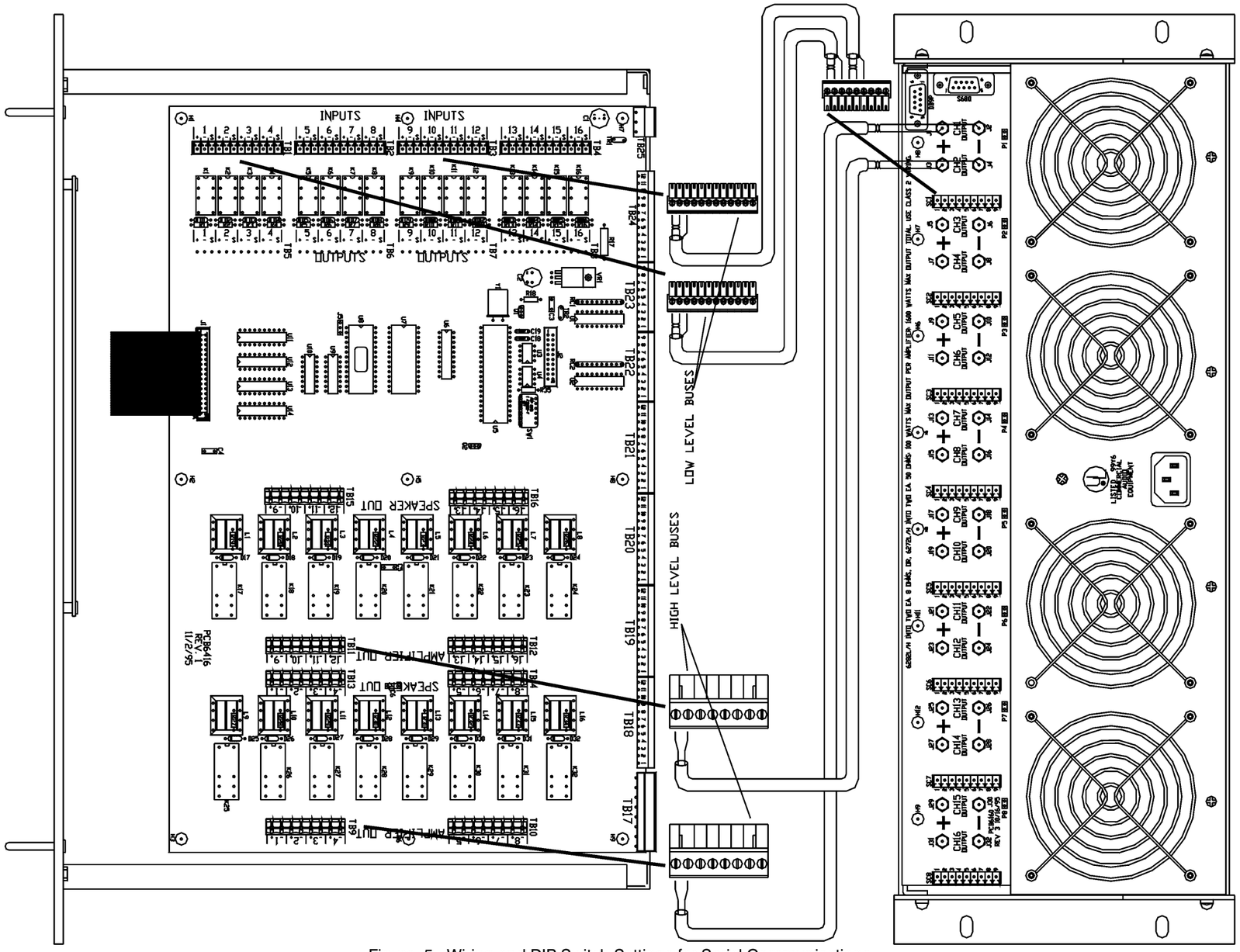

Figure 5 - Wiring and DIP Switch Settings for Serial Communications

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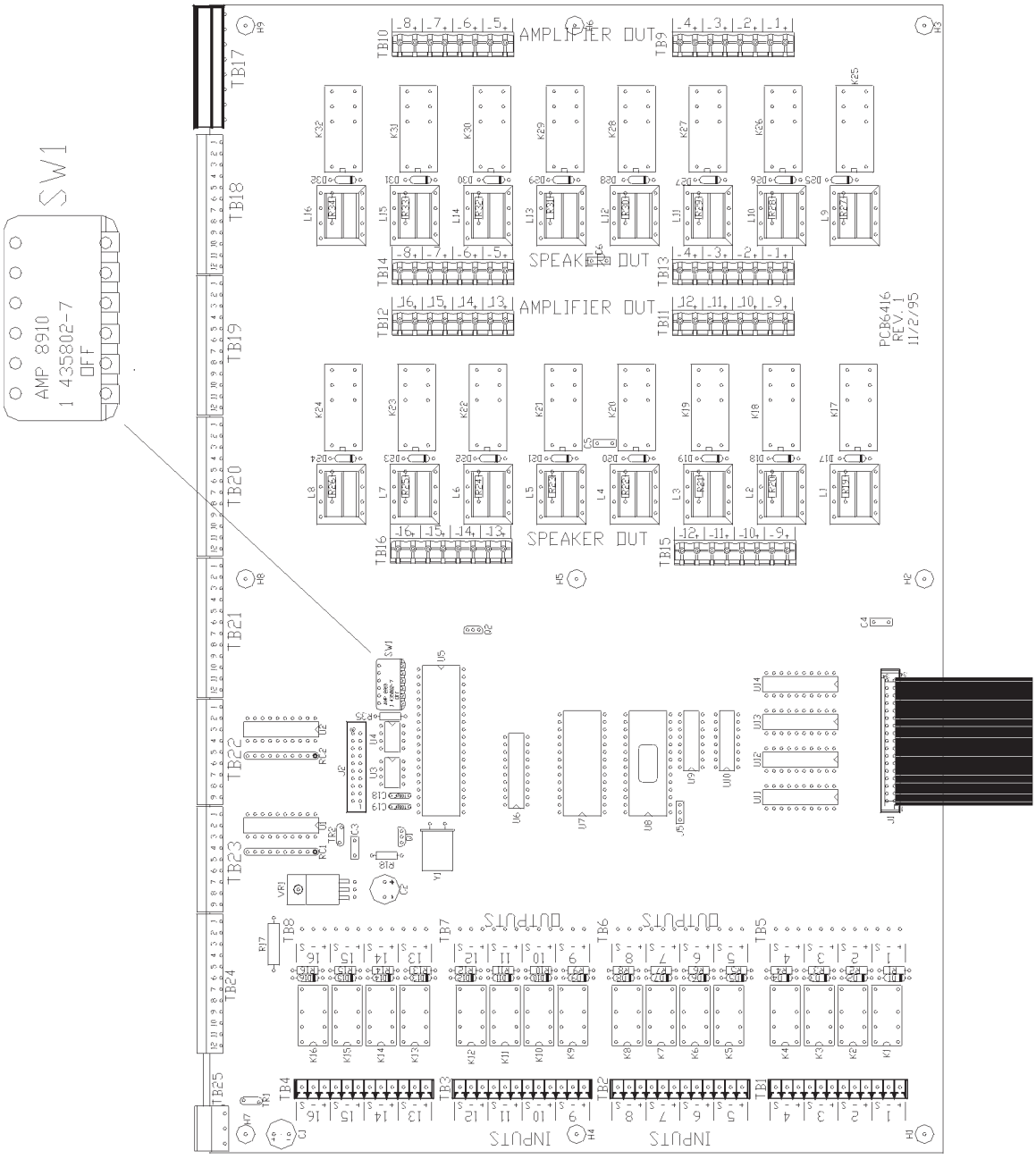

Figure 6 - DIP Switch Location

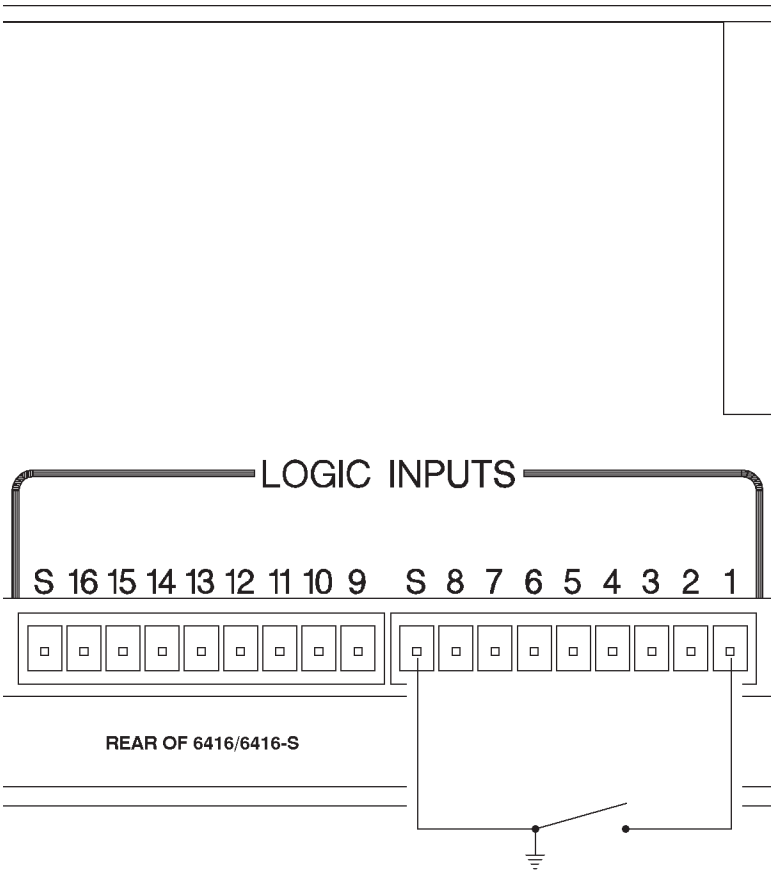

Figure 7 - Logic Inputs

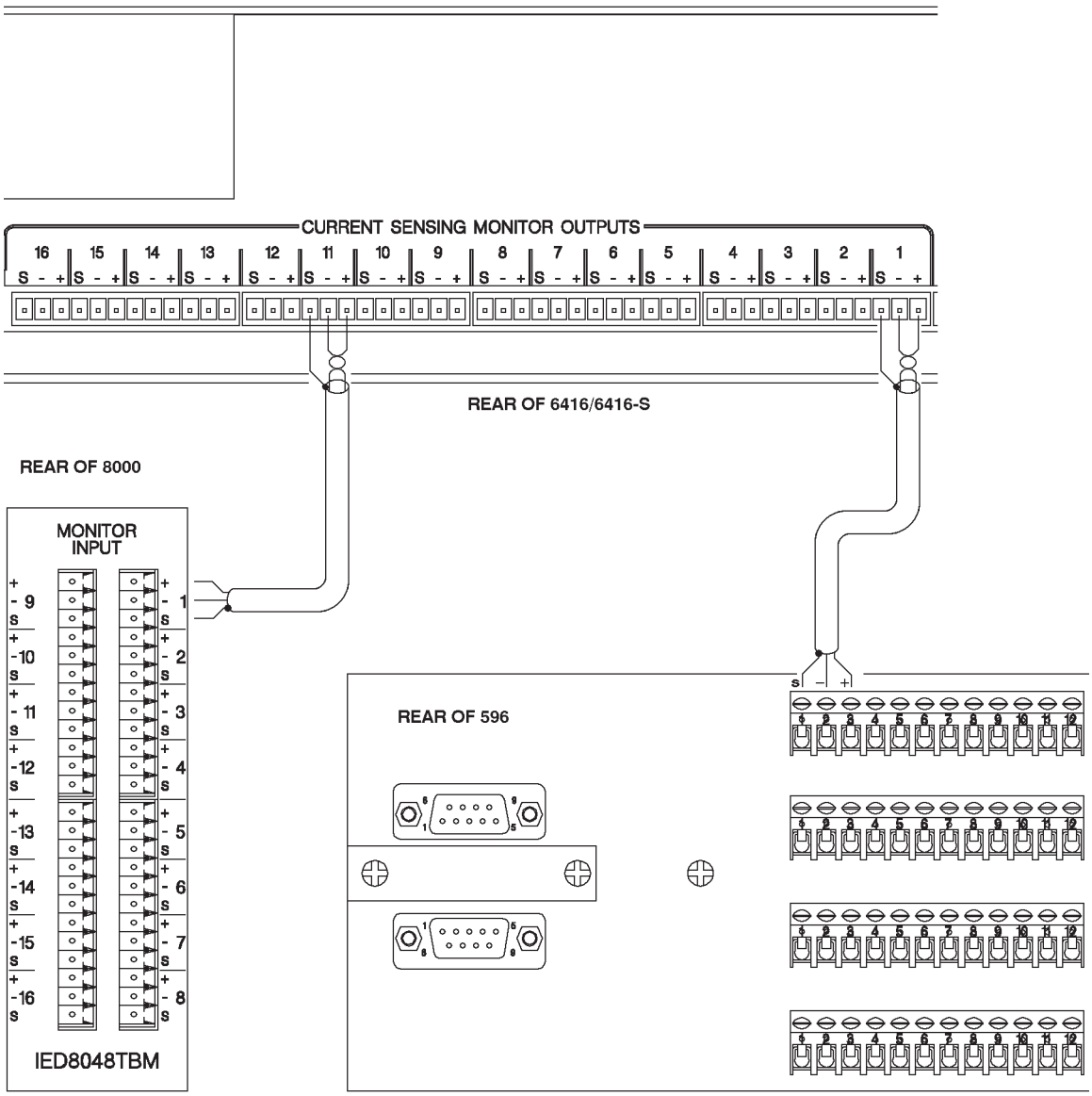

Figure 8 - Connecting to Current Sensing Monitor Outputs

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