RDL®
Radio Design Labs

SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

SourceFlex™ System

System Installation of SAS-SM8 Sonic Mushroom™

System Planning Guide

CE EN55103-1 E1-E5; EN55103-2 E1-E4
Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice.

INTRODUCTION

This system consists of an equipment rack for the audio modules and typically the satellite receivers, interconnection wiring to the tables, and SAS-SM8 Sonic Mushrooms located at each table. Sourceflex control modules (SAS-88 Audio Input Module, SAS-82 Audio Switching Modules and optional SAS-C10 Call Button Monitoring Modules) mount in the rack using RDL RU-RA3 Rack Adapters. Power supplies for the rack equipment are also housed in the rack. A single SAS-88 audio input module is used for the system (The SAS-88 has 8 audio source inputs and a line-level paging input activated by an external contact closure). If the facility is to have zones (different sources available in different parts of the facility), then a separate SAS-88 Audio Input Module is used for each zone. The SAS-88 distributes buffered audio to multiple SAS-82 switching modules. Each SAS-82 supports 2 Sonic Mushrooms. Each SAS-SM8 Sonic Mushroom is installed on a table or on the wall by a table, depending on the mounting bracket chosen. Call buttons may be installed as an option at each SAS-SM8 location.

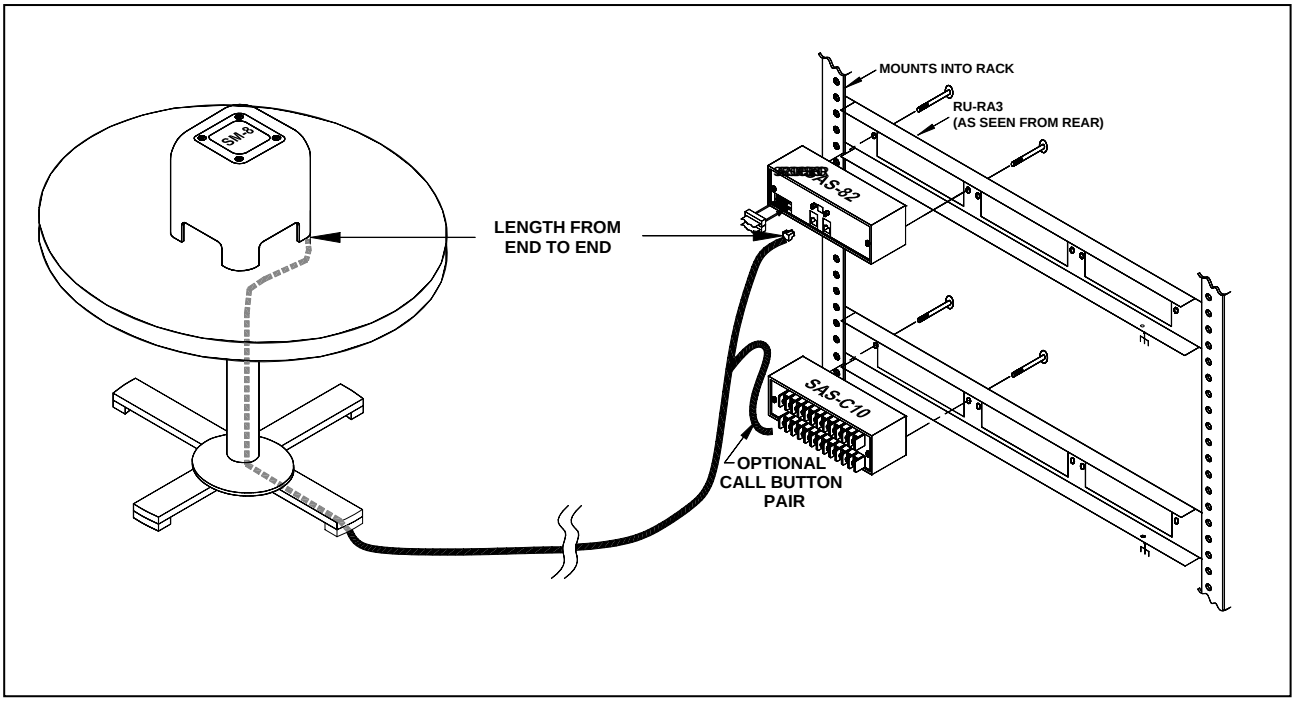
A standard system (without call buttons) requires 6 conductors (3 twisted-pair required for distances greater than 70 feet) from the equipment rack to each SAS-SM8 listening station. If the call button option is installed, 2 additional conductors are required. The additional pair may be run separately from each listening station back to the rack, or included in a 4-pair cable from the rack to each listening station. Note that the call button option pair does not terminate into the SAS-82 switching module. It terminates at the rack into an SAS-C10 Call Button Monitoring Module. The SAS-C10 provides power and monitors 10 remote call buttons located at the listening stations. Because these installations are typically installed using solid-conductor paired cable, it is simple to strip back the insulation and separate out one pair for connection to the call buttons and monitoring modules.

Note: Sourceflex interconnection is made using 6-position RJ11 jacks, which are referred to as RJ12 jacks by some manufacturers.

GENERAL PLANNING

1) Select the location of the equipment rack. The equipment rack must be large enough to hold one SAS-88 Audio Input Module, one SAS-82 Audio Switching Module for every two SAS-SM8 Sonic Mushrooms, and the power supplies for these modules. It is preferred to centrally locate the rack to minimize the length of wire to each Sonic Mushroom. It is advisable to include the fourth pair in all installations to facilitate the installation of call buttons at a later time. If call buttons are to be installed, space is needed for one SAS-C10 for each 10 tables. If the audio sources are satellite receivers in the equipment rack, the audio from the receiver may be wired directly to the SAS-88 inputs. If the audio source is a television located remotely from the rack, the audio from the television should be balanced at the television location using an RDL TX-LC2 Audio Combiner/Unbalanced to Balanced Converter.

2) Determine the maximum wire length from the SAS-82 Switching Module to each SAS-SM8 Sonic Mushroom. Include the total wire length as shown (making allowance for wiring inside the rack). *NOTE: Several manufacturers produce paired solid wire with insulation too large to fit RJ-11 jacks. We recommend checking the cable with the connectors before pulling the cable.*



3) Decide if each SAS-SM8 is to be mounted to a stationary or moveable table. If the table is not to be moved, the wiring can be permanent. If the table may be moved, a retractable-coiled cable is recommended at the table end. *Note: The retractable-coiled cable (Belden 49441 or equivalent) has only 3 pairs, therefore does not support the call button option. If call buttons are used, the table needs to be stationary, or an additional retractable-coiled cable must be used to provide the call button pair. (Retractable-coiled cables used with telephone handsets may not be used in these installations.)*

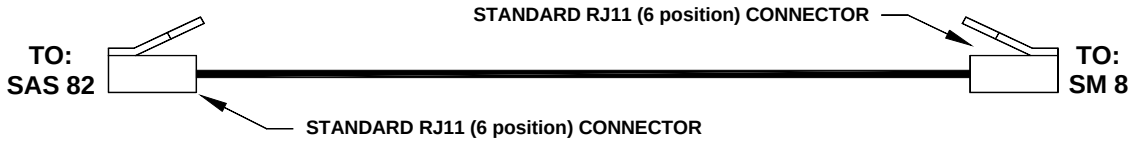
4) Determine the severity of the RF environment. If the installation RF environment is not severe, follow the STANDARD INSTALLATION. If the environment contains severe RF (severe means close to a radio transmitting facility or CE environments defined in EN55103-2) then follow the SEVERE INSTALLATION instruction. Select the wiring type and terminations as shown below. Note: In typical RF environments, the SAS-88 and SAS-82 control modules mount into RDL RU-RA3 Rack Adapters. In severe RF environments, the control modules mount in RDL RU-RA3A Rack Adapters.

WIRE PLANNING

Calculate the wire quantities and terminations based on the desired installation and total wire length.

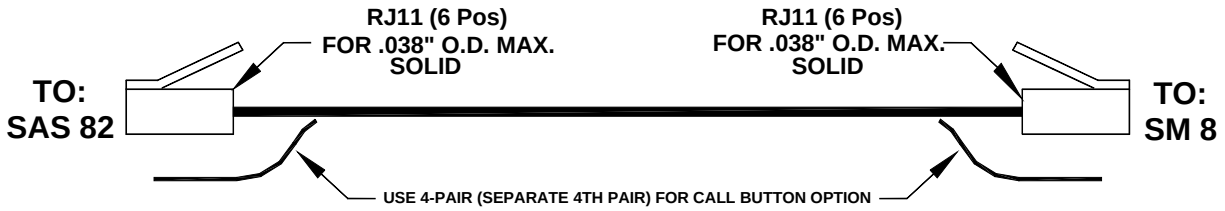
STANDARD INSTALLATION

FIXED TABLE WITHOUT CALL BUTTON
FLAT 6-CONDUCTOR CABLE (28 GAUGE OR HEAVIER)



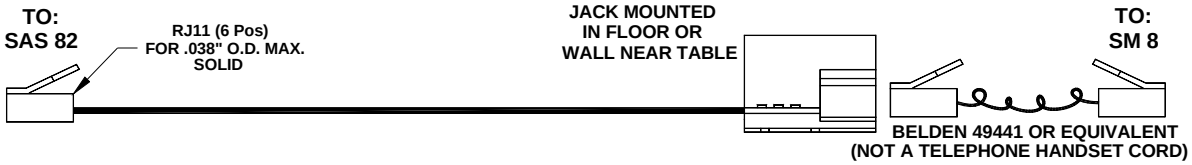
UP TO 70 FT (21m)

FIXED TABLE
3-PAIR, 22 GAUGE SOLID WIRE



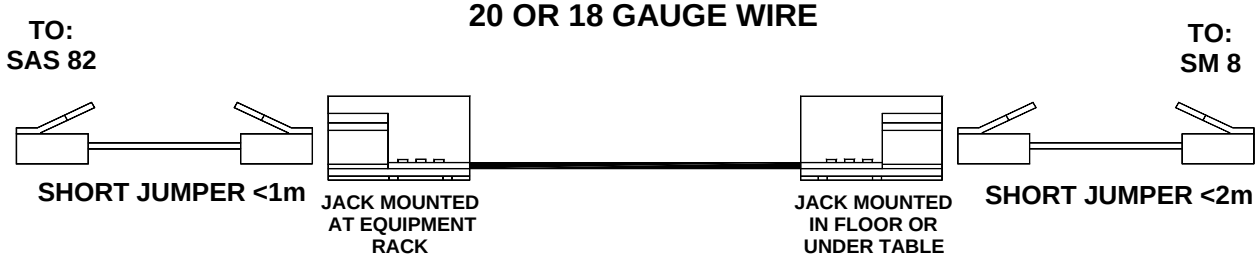
UP TO 225 FT (68.5m)

MOVEABLE TABLE
3-PAIR, 22 GAUGE SOLID WIRE



UP TO 200 FT (61m) plus retractile cord length

LONG DISTANCE
20 OR 18 GAUGE WIRE

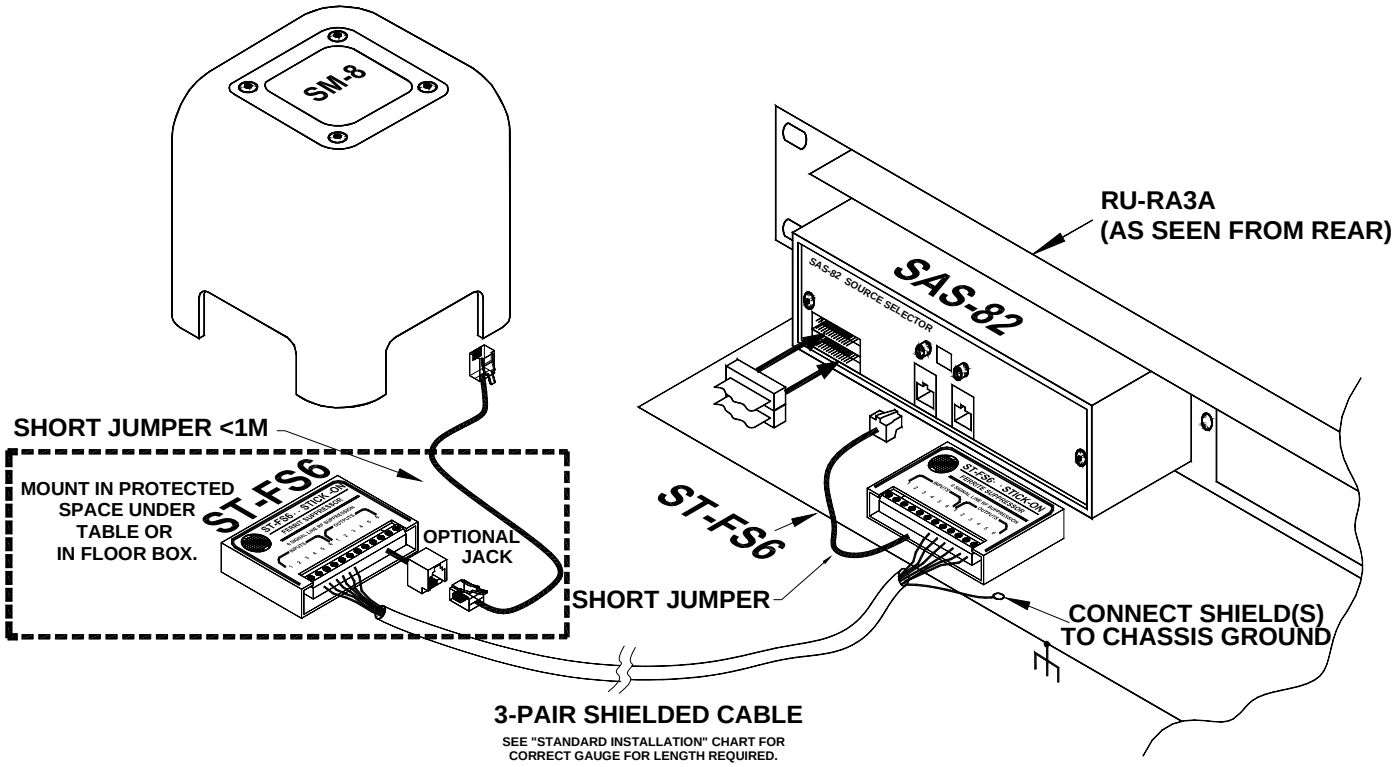


20 GAUGE: **UP TO 325 FT (100m)**

18 GAUGE: **UP TO 500 FT (150m)**

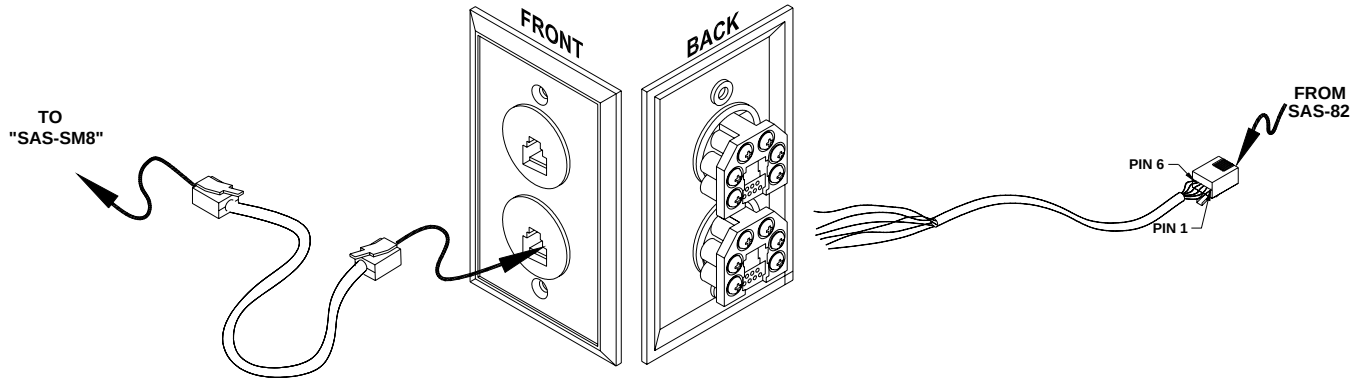
SEVERE INSTALLATION (RF environment)

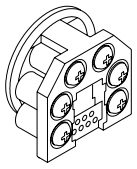
In severe RF environments, shielded wire is recommended. This wire is terminated at each end with an RDL ST-FS6 suppression module. *NOTE: The ST-FS6 is passive and does not require power.* Standard short jumpers connect the SAS-SM8 or SAS-82 to the interconnect cable. The same cable lengths for each wire gauge apply to these installations. Note that in the equipment rack, the SAS-88 and SAS-82 modules mount to an RDL RU-RA3A. This rack adapter provides shield ground terminals and a mounting provision for the ST-FS6 modules.



JACK PREWIRING

It may be desired to prewire various jacks. This is particularly the case when floor or wall-mounted RJ11 6-position jacks are *permanently* installed. Wire color codes may vary depending on the manufacturer and type of wire being used. The following diagrams show the relationship between the wire conductors in the RJ11 plugs and the wiring pin out of the RJ11 wall, floor or surface mount jacks.





TYPICAL JACK WIRE COLOR CODE		YOUR WIRE COLOR CODE	PIN#
WHITE	PAIR		6
BLACK			5
RED	PAIR		4
GREEN			3
YELLOW	PAIR		2
BLUE			1

TO SAS-82

Prior to attaching jacks to all the installed wiring, we recommend verifying wire polarization by installing jacks to one set of wiring and observing proper operation of a single SAS-SM8.

IN THE EVENT OF ANY UNCERTAINTY ABOUT SYSTEM CONFIGURATION OR PREWIRING, CONTACT RDL TECHNICAL SUPPORT

MODULE AND RACK ADAPTER QUANTITY CALCULATION

LINE	STEPS	MODULE	QUANTITY	STEPS	POWER REQUIRED
1	Enter the number of listening stations	SAS-SM8			
2	Enter the number of zones in the facility	SAS-88		Multiply quantity by 100mA	
3	If the CALL BUTTON option is desired, divide number of units on line 1 by 10 and enter it here. (Round any fractions up to the next whole number)	SAS-C10		Multiply quantity by 270mA	
4	Divide the number of units from line 1 by 2 and enter the result here. (Round any fractions up to the next highest whole number)	SAS-82		Multiply quantity by 500mA	
5	Add lines 2, 3 and 4. Enter the result here.				
6	Divide the line 5 total by 3. Enter the result here. (Round fractions to next highest whole number)	RU-RA3*			
7	Add the currents in the power required column and enter the total here.				
8	Multiply the quantity from line 6 by 3, then subtract the quantity from line 5 and enter the difference here	RU-FP1			

* FOR SEVERE (CE) RF INSTALLATIONS, USE RU-RA3A

ADDITIONAL MODULES NEEDED FOR SEVERE (CE) RF INSTALLATIONS

LINE	STEPS	MODULE	QUANTITY	STEPS	POWER REQUIRED
8	Multiply the quantity from line 1 by 2 Enter the result here.	ST-FS6			NONE (PASSIVE)

POWER SUPPLY QUANTITY CALCULATION USING 1000mA LINEAR SUPPLIES

LINE	STEPS	MODULE	QUANTITY
9	Divide the number on line 7 by 1000 and enter it here. (Round any fractions up to the next whole number)	PS-24K	
10**	Divide the quantity from line 9 by 6. Enter the result here. (Round any fractions up to the next highest whole number)	WH1 or 2	

** OPTIONAL ACCESSORIES FOR MOUNTING POWER SUPPLIES IN RACK TO SIDES OF RACK OR TO REAR RACK RAILS

POWER SUPPLY QUANTITY CALCULATION USING 2000mA SWITCHING SUPPLIES

LINE	STEPS	MODULE	QUANTITY
11	Enter the number on line 7 divided by 2000	PS-24U2A	
12***	Enter the number on line 11	RU-PSB1	
13***	Divide the line 11 total by 3. Enter the result here. (Round fractions to next highest whole number)	RU-RA3	
14***	Multiply the quantity from line 13 by 3, then subtract the quantity from line 12 and enter the difference here	RU-FP1	

*** OPTIONAL ACCESSORIES FOR RACK-MOUNTING POWER SUPPLIES

ORDER FROM ONLY ONE OF THESE CHARTS CORRESPONDING TO THE TYPE OF POWER SUPPLY DESIRED. NOTE: THE OUTPUTS OF THE PS-24K MAY BE CONNECTED IN PARALLEL. DO NOT CONNECT THE OUTPUTS OF THE PS-24U2A IN PARALLEL. DO NOT LOAD EACH POWER SUPPLY WITH MORE THAN ITS RATED CURRENT. POWER STRIPS PROVIDED BY INSTALLER.

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