V-Mixing System Split Configurations

Principles and Example Configurations for Personal Mixing System, Multi-Channel Recording and Monitoring Applications

One of the most powerful features inherent in the REAC (Roland Ethernet Audio Communication) protocol is the ability to digitally split audio sources in various ways – simply and without limit. With the M-400 V-Mixer having two REAC ports (A and B), either port can be split resulting in numerous configuration possibilities.

This document outlines some basic principles on how digital splits work within the V-Mixing System and includes a few example configurations. It augments the "REAC Applications and Settings" section of the M-400 Owner's Manual.

Guiding Principles

The V-Mixing System can be digitally split in two ways: 1) REAC A split and 2) REAC B split.

REAC A Split
The REAC A Split is built into the M-400 and is the SPLIT/BACKUP port on the back of the M-400. It can be used as a backup connection[1] in the Redundant System when an S-4000S Digital Snake is connected to REAC A, or for a split connection to another snake head such as an S-0816. You can also use it for multi-channel recording by simply connecting it to the gigabit LAN port on a PC configured with Cakewalk's SONAR REAC Recording System software.

Here are the SPLIT/BACKUP port's governing principles:

- The SPLIT port's first eight (8) channels are always the 8 outputs as assigned in the REAC A OUTPUT patchbay regardless of whether or not there are physical outputs on the REAC A digital snake head. Any mixing channel (1-48), AUX (1-16), MAIN L/R or Matrix (1-8) can be assigned to a REAC A output (1-8).
- The SPLIT port's next 32 channels are a direct copy of whatever is connected to the REAC A snake inputs, followed by any REAC B snake inputs.
- The SPLIT carries a maximum of 40 channels.

The following table indicates what the SPLIT/BACKUP port sees given various digital snake configurations

[1] Page 182, M-400 Owner's Manual (Version 1.5)

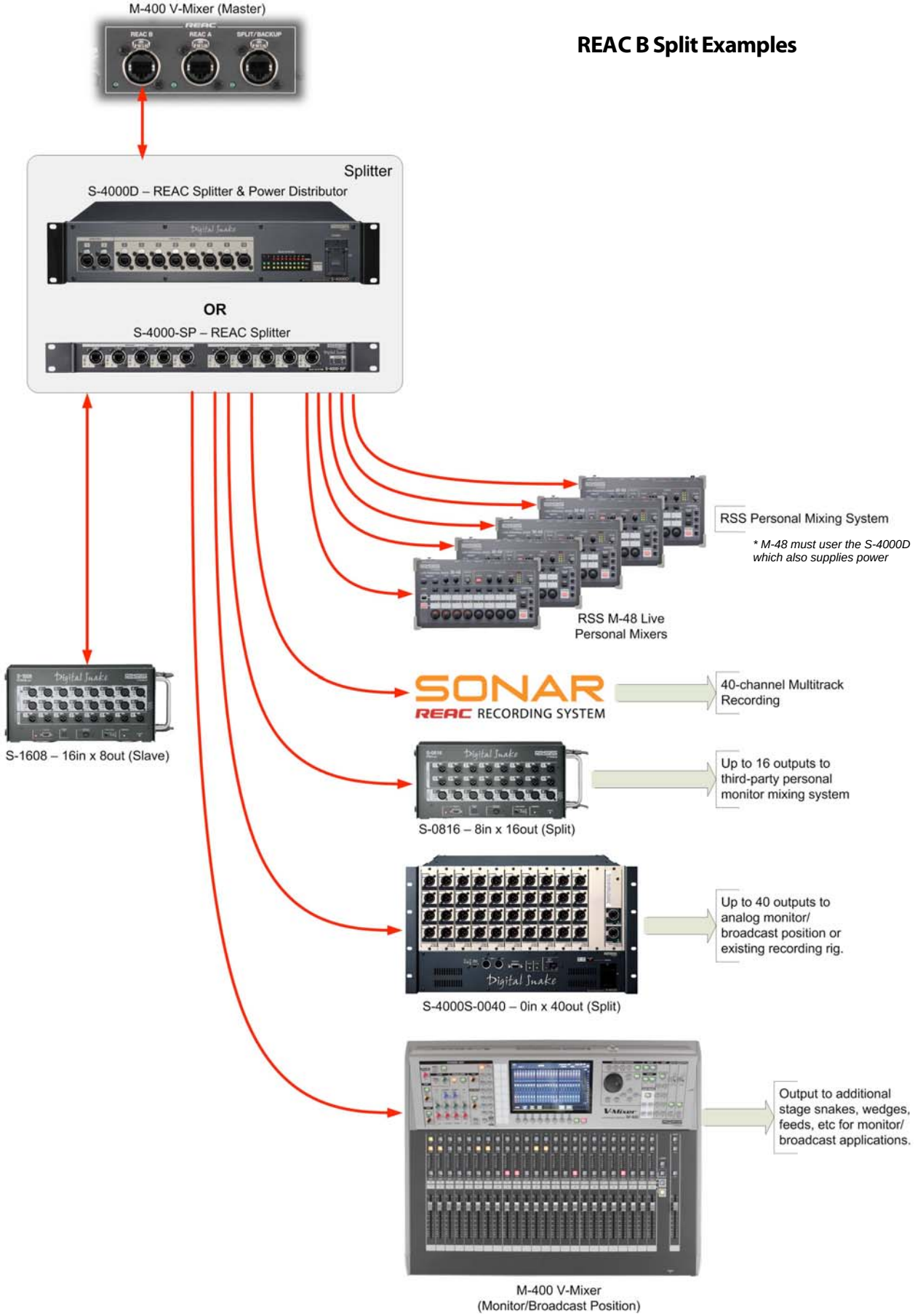
REAC A	REAC B	SPLIT/BACKUP Port Channels	Comments
S-1608		1-8: REAC A patchbay outputs 1-8 9-24: REAC A snake inputs 1-16 25-40: not used	This Basic System is a complete copy of the S-1608 connected to REAC A.
S-1608	S-1608	1-8: REAC A patchbay outputs 1-8 9-24: REAC A snake inputs 1-16 25-40: REAC B snake inputs 1-16	This Standard System is an ideal use of the SPLIT port given 8 fully assignable channels followed by all direct inputs from both REAC A and B snakes.
S-1608	S-4000S-3208	1-8: REAC A patchbay outputs 1-8 9-24: REAC A snake inputs 1-16 25-40: REAC B snake inputs 1-16	As above except that the last 16 inputs of the 3208 will not be seen on the SPLIT port. These can be seen by assigning them to the one of the eight REAC A outputs or by grouping them in and AUX or Matrix.
S-4000S-3208		1-8: REAC A patchbay outputs 1-8 9-40: REAC A snake inputs 1-32	This configuration can run in two different modes: SPLIT or BACKUP. The mode is selected via [SYSTEM] -> [F2 (REAC CONFIG)]. Regardless of the mode, the port sees the same audio. When in BACKUP mode the SPLIT/BACKUP port can not be further split to other destinations via a gigabit switch.
S-4000S-3208	S-1608	1-8: REAC A patchbay outputs 1-8 9-40: REAC A snake inputs 1-32	The 40 channels on the SPLIT port are an exact copy of the 3208. If you need to see some of the inputs on the S-1608, assign them via the REAC A output patchbay and/or group them in an AUX or Matrix.
S-4000S-3208	S-4000S-3208	1-8: REAC A patchbay outputs 1-8 9-40: REAC A snake inputs 1-32	As above, the 40 channels on the SPLIT port are used up by the first 3208. If you need to see some of the inputs on the second 3208, assign them via the REAC A output patchbay and/or group them in an AUX or Matrix.
S-4000S-4000	S-4000S-3208	1-8: REAC A patchbay outputs 1-8 9-40: REAC A snake inputs 1-32	Even though the REAC A snake does not have any output cards, the first 8 channels on the SPLIT port are still assignable via the REAC A output patchbay. In this case, connect an S-0816 to the SPLIT port and augment the 40 REAC inputs with 8 assignable outputs.

REAC B Split

The REAC B port can be split by connecting a Cat5e cable from the REAC B port to a gigabit switch[2] and then connecting the switch to the stage unit and to any other split destination. This allows the 40 outputs, as defined in the REAC B output patchbay, to be seen by whatever device or system is connected to the switch. As the diagram below illustrates, the split can be sent to the RSS Personal Mixing System, SONAR REAC Recording System, an S-1608 that could be used to assign channels to a third-party Personal Mixing System, an M-400 V-Mixer in a monitor position and/or a 40 analog output snake (S-4000S-0040) for connecting to an existing recording rig or an analog monitor/broadcast position.

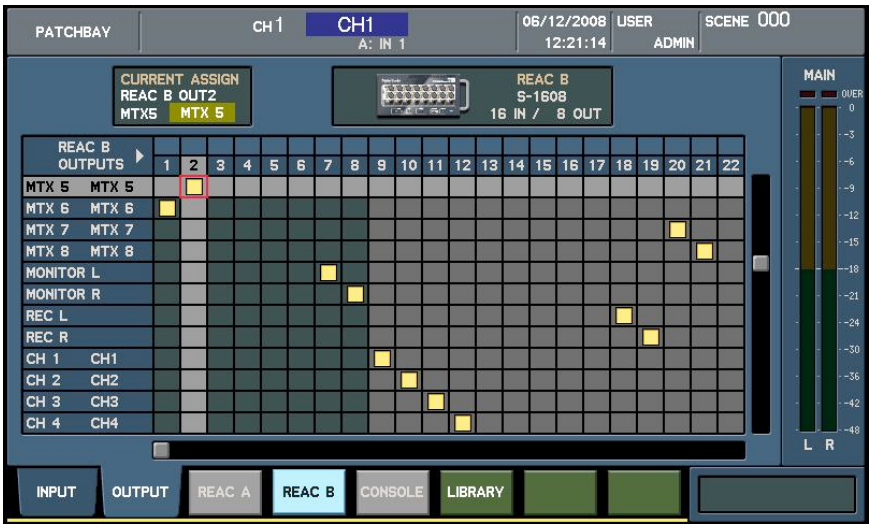
[2] Any gigabit ethernet switch will work as a basic splitter but we recommend either the RSS S-4000D REAC Splitter and Power Distributor (required when using the RSS Personal Mixing System) or for general use, the RSS S-4000-SP REAC Splitter - a rugged, rack-mountable solution with two sets of five Ethercon connectors and redundant power supplies.

REAC B Split Examples



Here are the governing principles when splitting REAC B:

- The REAC B SPLIT allows full assignability of all 40 channels via the REAC B output patchbay. Any mixing channel (1-48), AUX (1-16), MAIN L/R or Matrix (1-8) can be assigned to a REAC B output (1-40).
- The darker grey color in the REAC B output patchbay reflects the outputs that are on the slaved snake connected to REAC B. The outputs beyond the dark grey area are still fully assignable as seen in the example screen shot to the right.
- All split devices connected to the switch share the same output assignments. In other words, all outputs on a digital split see the same audio.



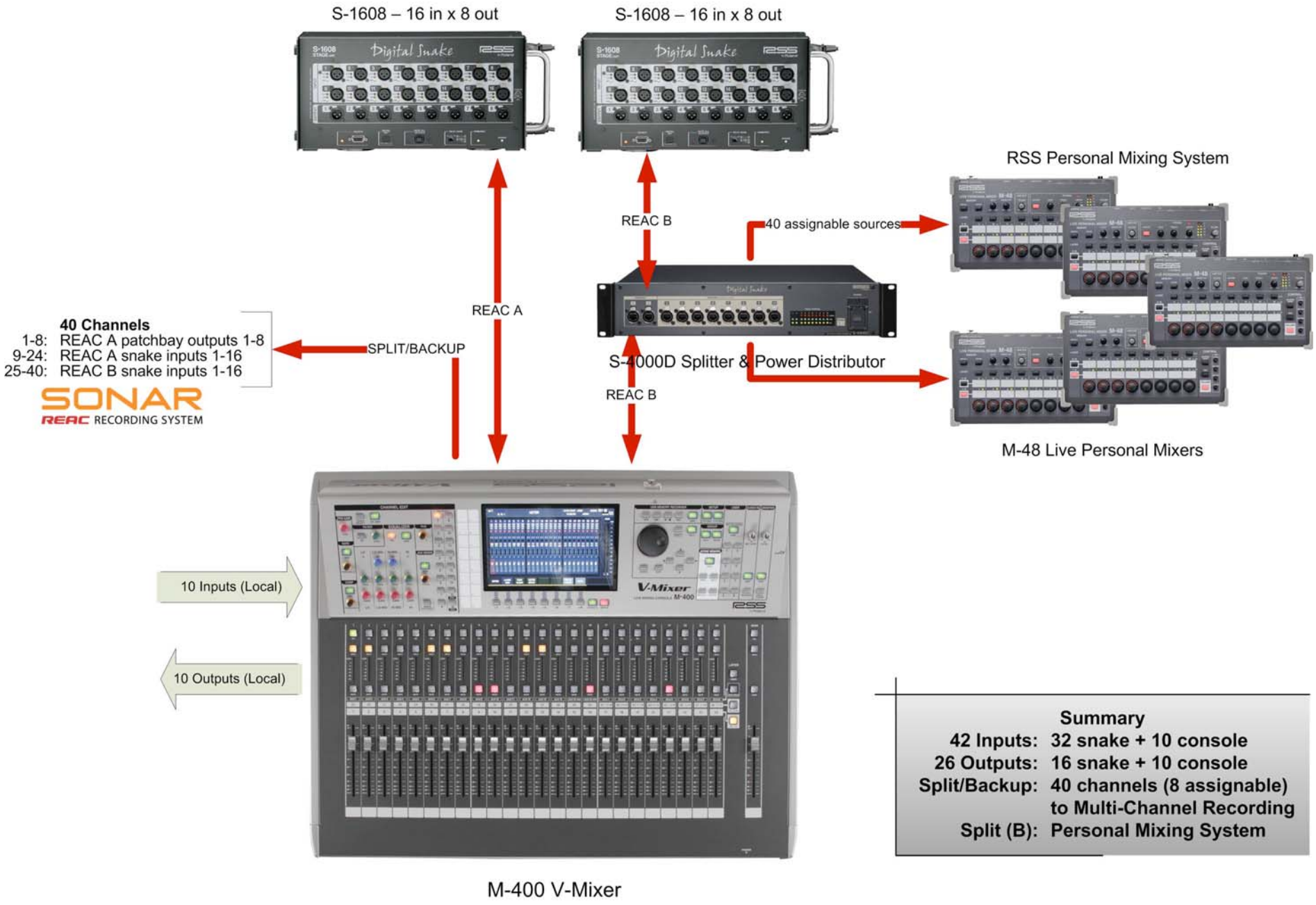
- The REAC B SPLIT carries a maximum of 40 channels.

Example Configurations

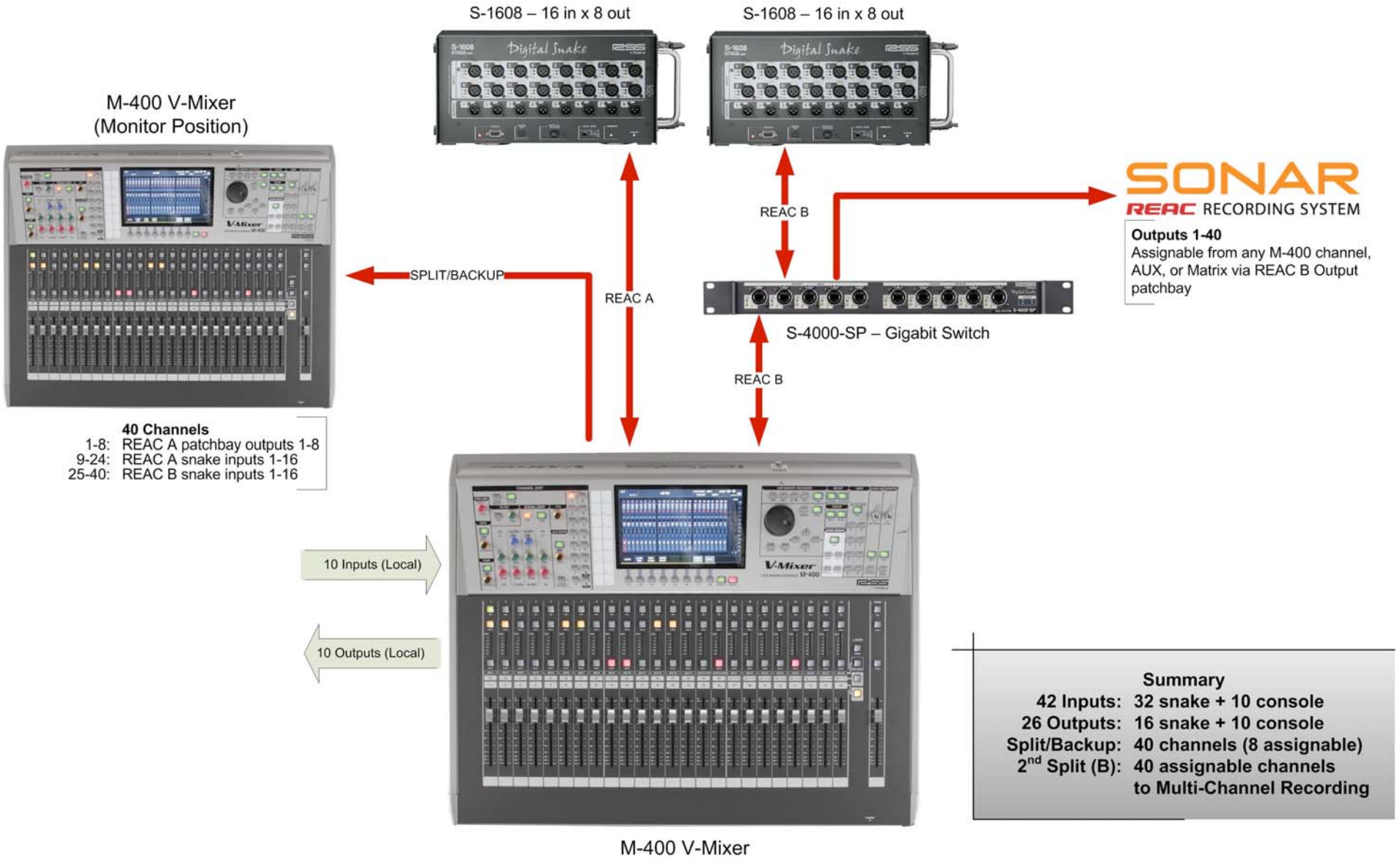
The following pages show example diagrams of V-Mixing Systems setups configured with personal mixing and multi-track recording applications. These include

- Example A – Standard V-Mixing System with the RSS Personal Mixing System and Multi-Channel Recording
- Example B – Standard V-Mixing System with Monitor Position and Multi-Channel Recording
- Example C – Expanded Output V-Mixing System with Third-Party Personal Mixing System and Multi-Channel Recording
- Example D – Expanded V-Mixing System with the RSS Personal Mixing System and Multi-Channel Recording
- Example E – Expanded V-Mixing System with more FOH local inputs and Third-Party Personal Mixing System
- Example F – Expanded V-Mixing System with Large RSS Personal Mixing System
- Example G – High Input V-Mixing System with the RSS Personal Mixing System
- Example H – Ultimate (90x90) V-Mixing System – Maximum Ins and Outs
- Example J – Basic V-Mixing System with Third-Party Personal Mixing System and Multi-Channel Recording

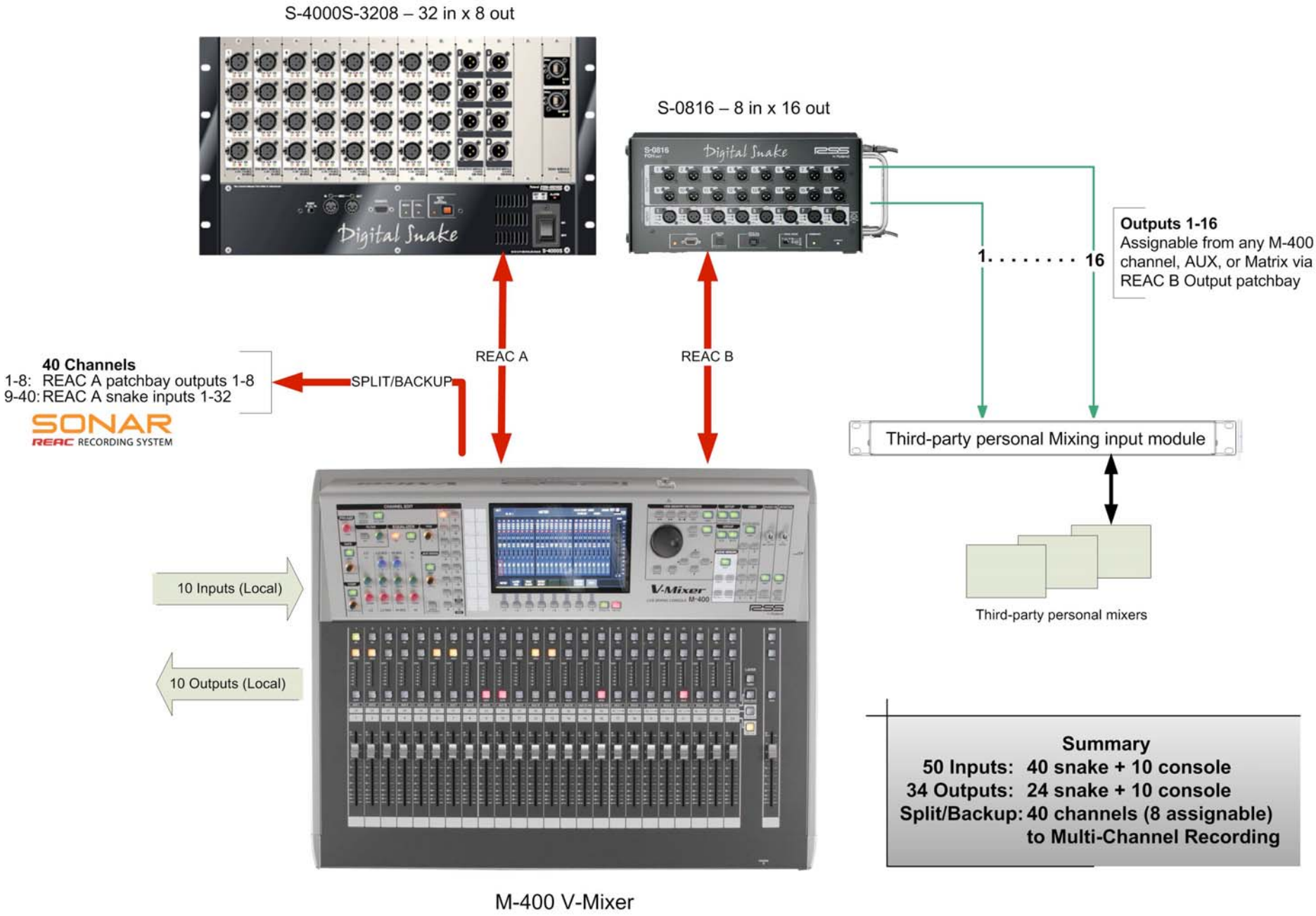
Example A – Standard V-Mixing System with the RSS Personal Mixing System and Multi-Channel Recording



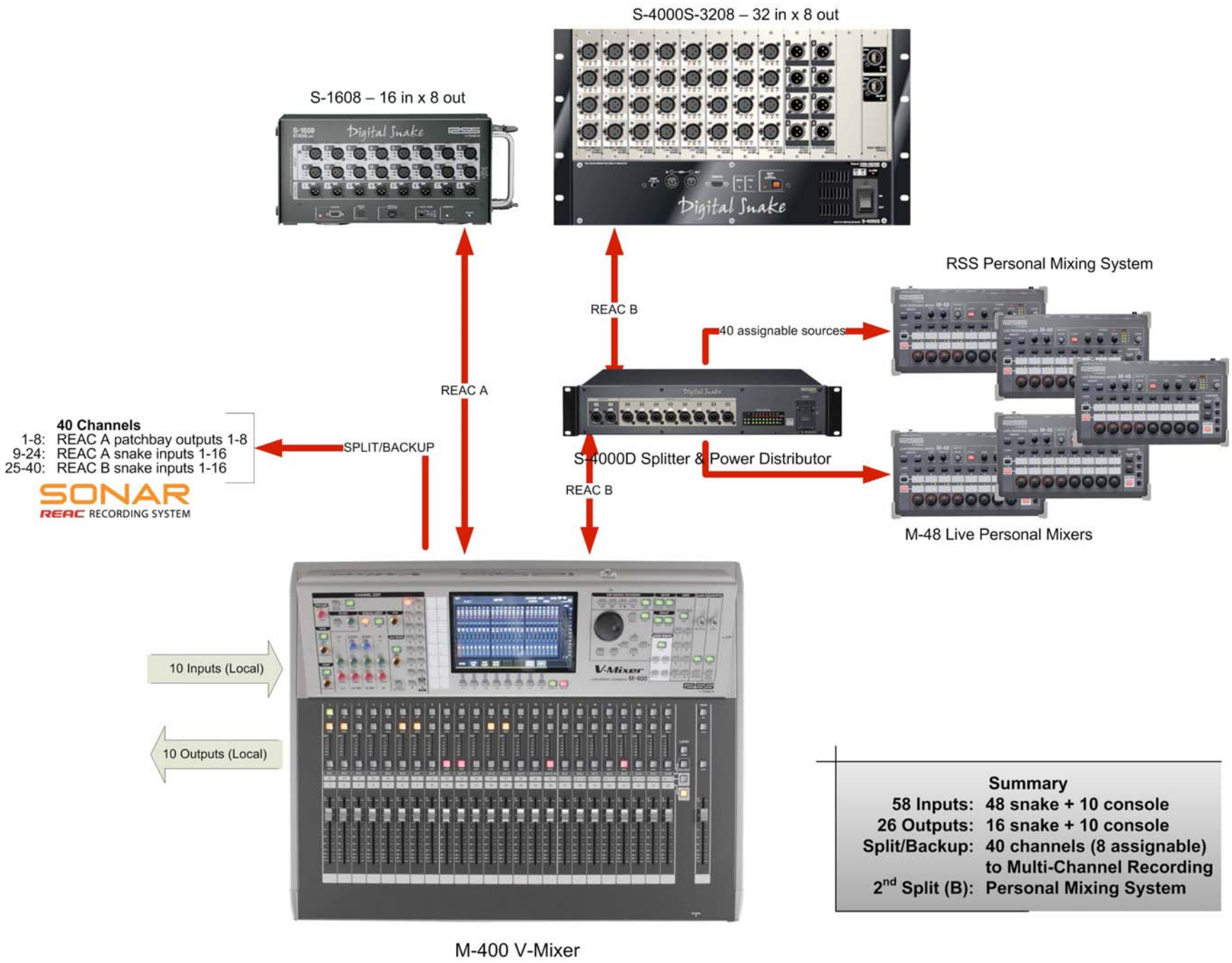
Example B – Standard V-Mixing System with Monitor Position and Multi-Channel Recording



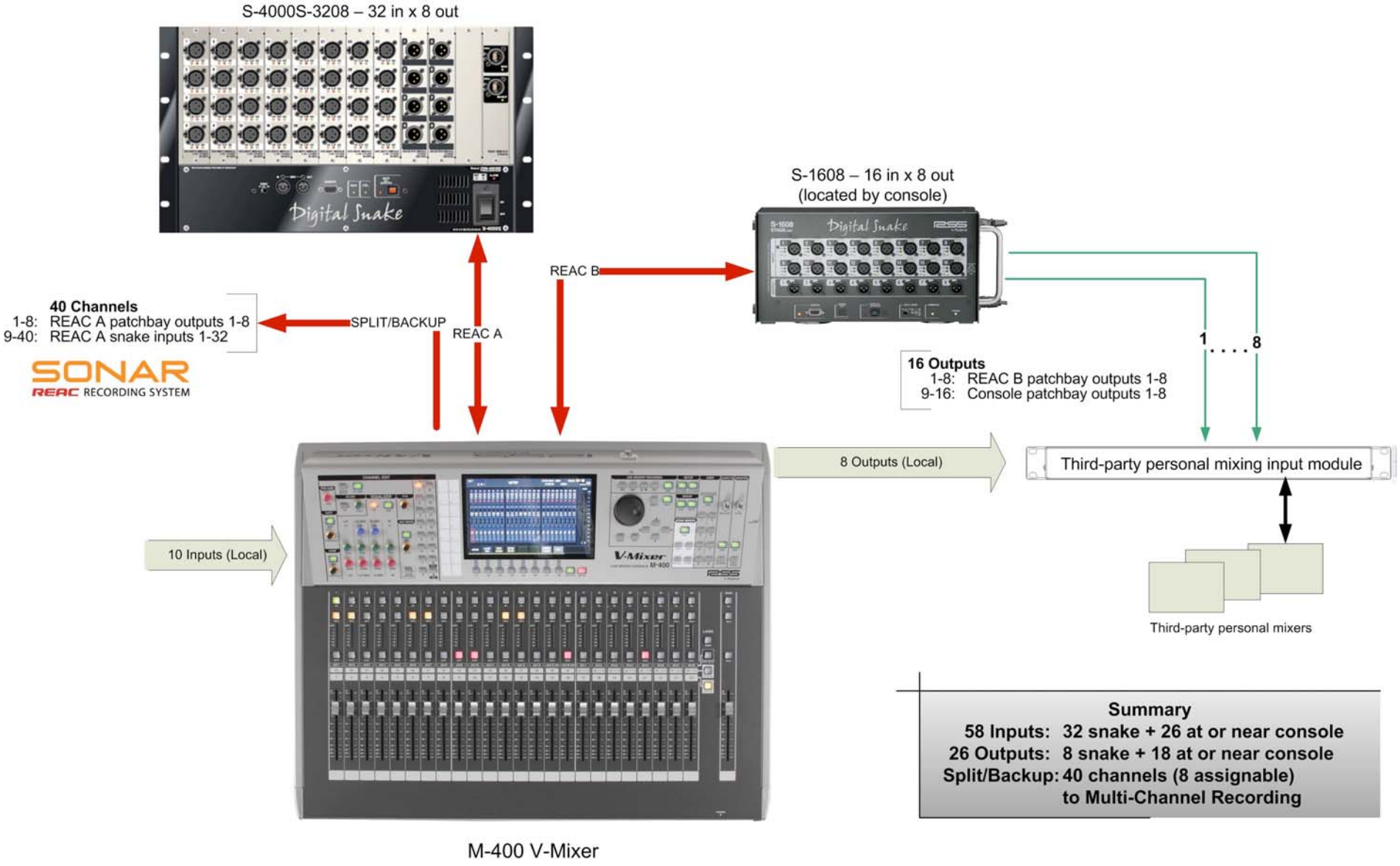
Example C – Expanded Output V-Mixing System with Third-Party Personal Mixing System and Multi-Channel Recording



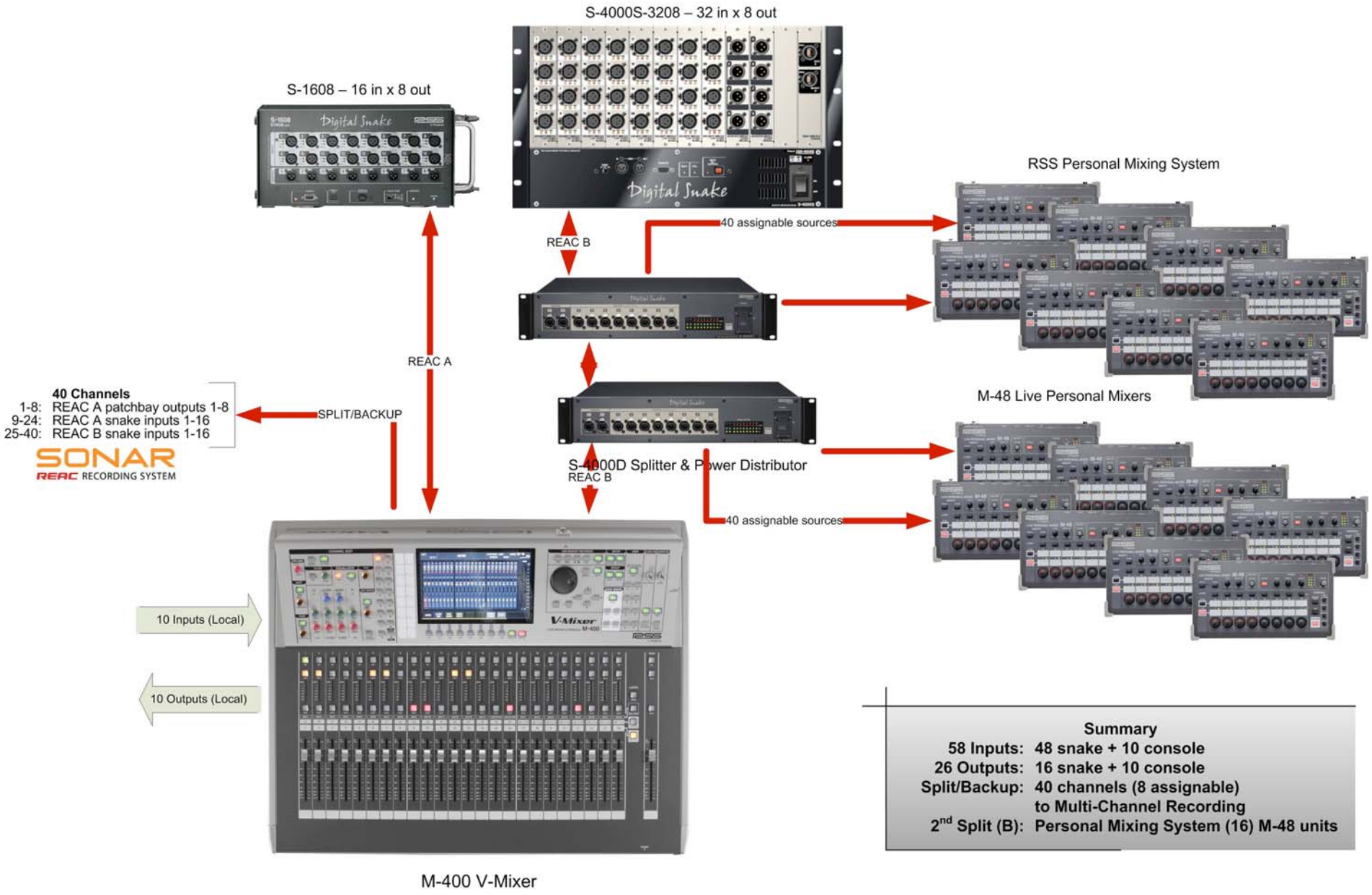
Example D – Expanded V-Mixing System with the RSS Personal Mixing System and Multi-Channel Recording



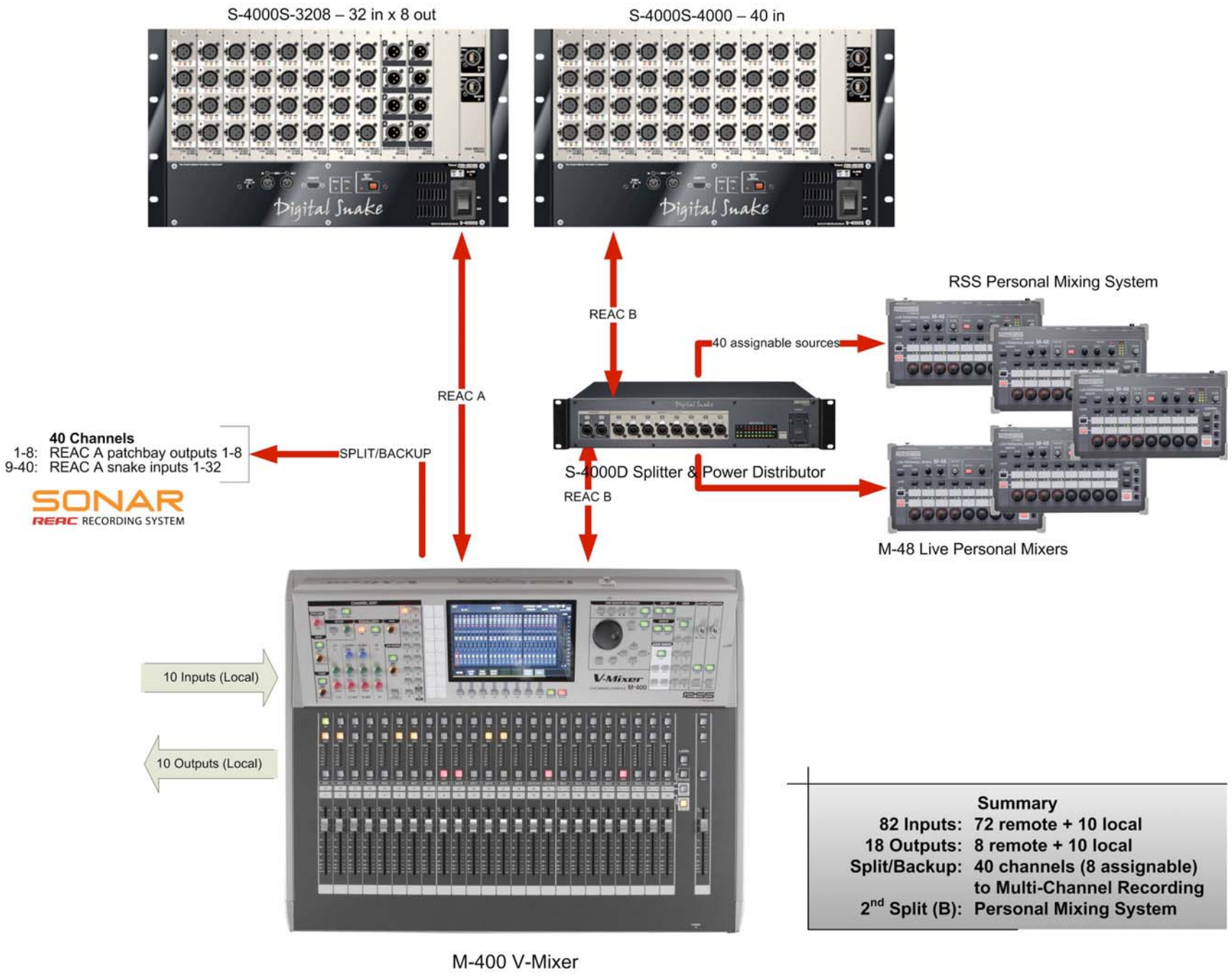
Example E – Expanded V-Mixing System with more FOH local inputs and Third-Party Personal Mixing System



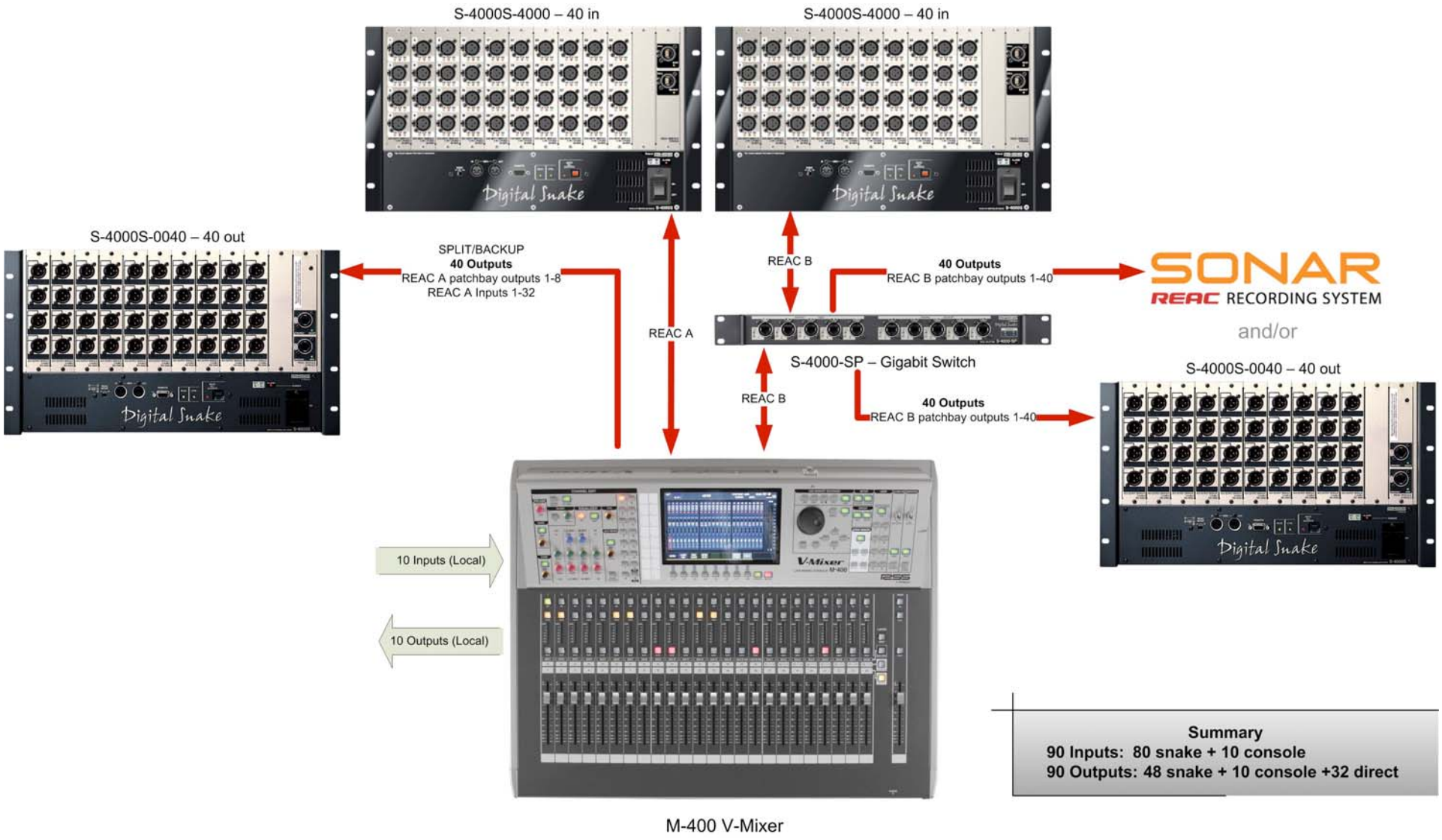
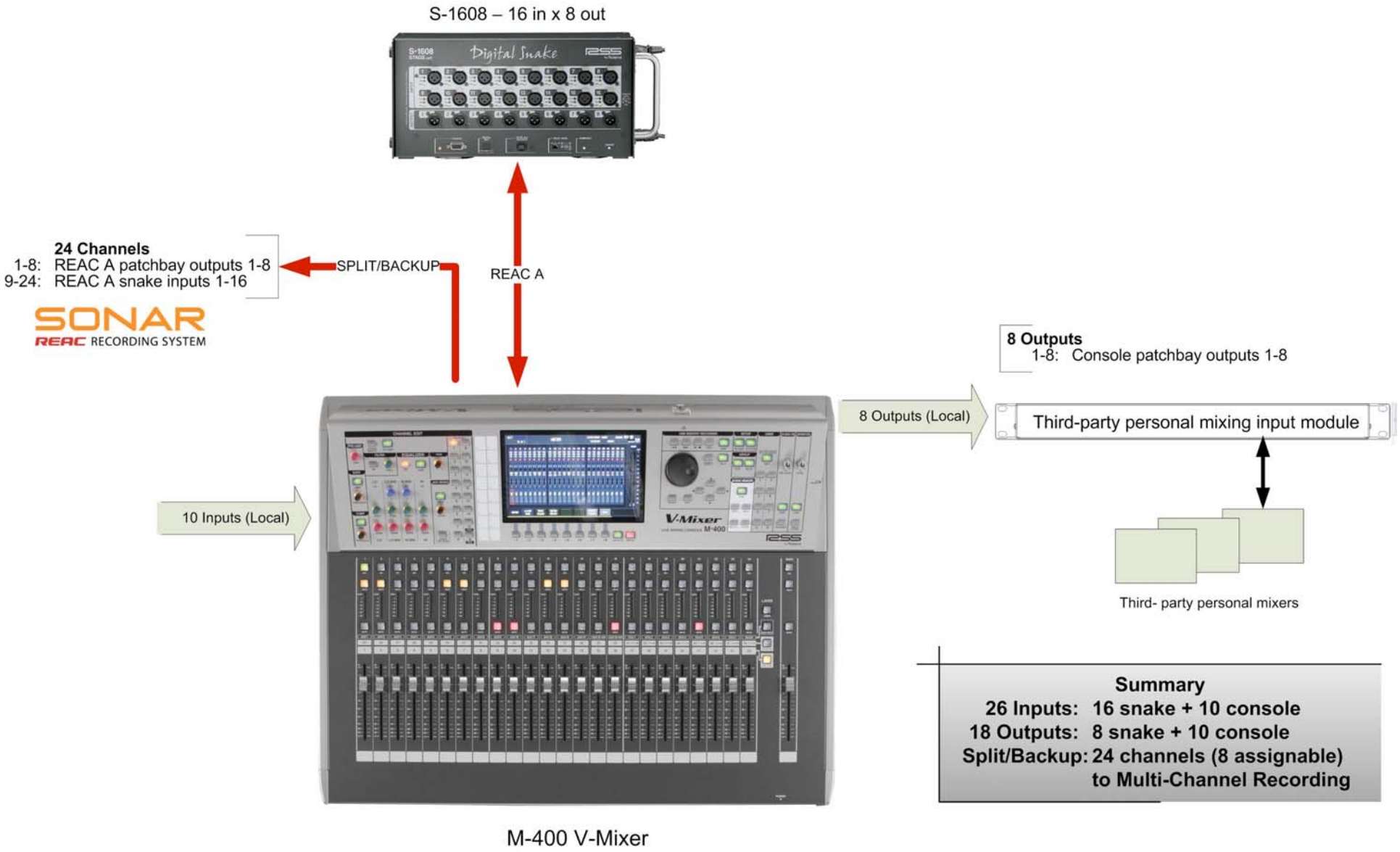
Example F – Expanded V-Mixing System with Large RSS Personal Mixing System



Example G – High Input V-Mixing System with the RSS Personal Mixing System



Example H – Ultimate (90x90) V-Mixing System – Maximum Ins and Outs



Example J – Basic V-Mixing System with Third-Party Personal Mixing System and Multi-Channel Recording