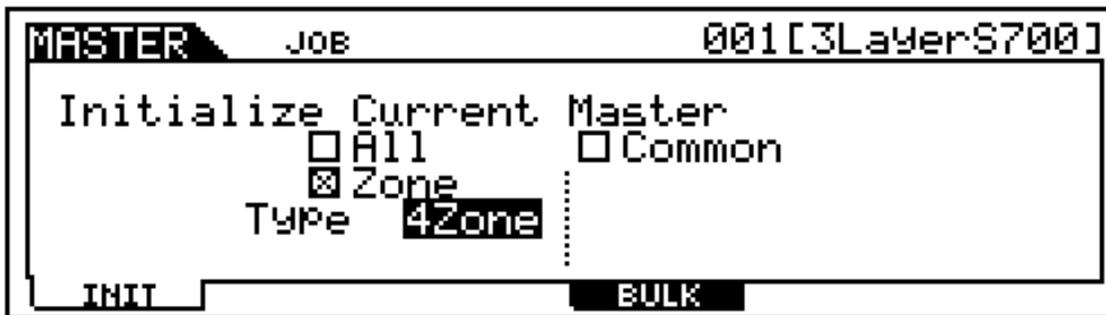


y POWER USER

Understanding S90 Master Mode



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The 128 Master setups can be used to organize and memorize your setups, regardless of the mode, by allow you to assemble them in one neat bank. It can also function as a place to store your external MIDI Controller setups. The S90 is a 4-Zone Master MIDI controller. When a zoned setup is used, you can have up to 4 Zones. It can be any combination of 4 Zones internal/external. Familiarize yourself with basic S90 modes and operations before diving in this end of the pool. Save any personal data before following this document. The principal modes of S90 are VOICE, PERFORMANCE, and SEQPLAY. A Master mode setup can be used to recall a Voice, a Performance, or a SeqPlay mix. Therefore a good use of the Master setups is organizing your favorite things to do with the S90 into one Bank called the MASTER Bank. You can access setups via a Foot Switch. A second use for Master setups is to organize your external MIDI gear as well. You can send a Bank Select and Program Change message on four

different MIDI channels simultaneously when you recall a MASTER setup. The Bank Select and Program Change data can be "preset" so that you can address internal S90 Voices and external setups from your 4 Zones.

If you are new too this kind of synth architecture you will need to gain an appreciation of the advantages that each different mode has to offer. For example, certain controller options are available in a Performance that perhaps you do not get in Voice mode. You may, after a time create your own User Performances that suit your needs as a performer.

Although Master setups are non-volatile, often the data they point to is volatile. Read on...

MASTERING MASTER MODE

If you are using a S90 alone, Master Mode can be used to assemble your S90 setups in one convenient bank. A Master location can point to a Voice, a Performance, or a Sequence Play Mix. Study the MASTER data in the S90 as an example of how Master setups can be used. Press and illuminate the MASTER LED. The MASTER setups are used to recall different Performances and Voices – freely moving between modes. You can set up a Footswitch (FS) assigned to Control Change cc99 to advance through the Master setups during a live session. To assign a footswitch to increment through the MASTER setups, press [UTILITY]/ [F4] CTL ASN/ [SF3] FT SW. To learn from these MASTER setups, recall one and then press [F2] MEMORY from the main MASTER screen to see how they can be directly associated with a Voice, Performance, or as we will learn, associated to a SeqPlay Mix (a multi-timbral setup).

```
MASTER 001[3LayerS700]
Mode Voice ZoneSwitch off
Memory PRE1:001
[AP:3LayerS700]
PLAY | MEMORY
```

```
MASTER 001[Westcoast ]
Mode Performance ZoneSwitch off
Memory USER:001
[Kb:Westcoast ]
PLAY | MEMORY
```

```
MASTER 001[Jammin ]
Mode SeqPlay ZoneSwitch off
Memory mix:01
[Jammin ]
PLAY | MEMORY
```

Master mode can also be used to control internal sounds, and/or complex configurations where both internal and external sounds are used together, that is, setups where you have Zones that are controlling Internal S90 sounds while other Zones might be controlling external devices. What type of sound you can use, and how many internal sounds you can use is the subject of this article. By the time you reach the level of creating your own Master setups you should have gained a thorough knowledge of the S90 and it's modes. We will state them here so that you can fully understand what is possible and what is impossible from a Master setup.

Critical Background Information

Rule 1: A Voice is the fundamental playable entity in the S90. It is made up of up to four multi-sampled sounds called Elements. Each Voice has a Dual Insertion effect, a reverb and a chorus processor available. The Dual Insertion effect, a powerful unit with some 129 algorithms, can be real time controlled via your MIDI controllers and has an intricate relationship to the individual multi-sampled Elements of the Voice. The Dual Insertion effect is an important component – and is often the “personality” of the Voice. A Voice occupies a single MIDI channel and in Voice mode, only one Voice can be recalled at a time. There are 3 banks of 128 Preset Voices, 128 User Voices, 128 General MIDI Voices, 48 Preset Drum Kits, 16 User Drum Kits and a GM Drum Kit.¹

Rule 2: A Performance is a combination of up to four Voices. Each Performance has a reverb, a chorus, a variation effect and one of the assigned Voices can activate its real time controllable Dual Insertion effect from Voice mode. Performances are made up of sounds found in Voice mode. It places up to four of them into PARTS – you edit the Parts without changing the original Voice data. All Voices in a Performance occupy the same basic MIDI channel and one Performance can be recalled at a time. There are 128 USER Performances. Performances can be copied into MIXES for use in multi-timbral setups, as necessary. This actually places the PARTS (up to 4) in a MIX with each one set to the same Basic Receive Channel.

These two modes, Voice and Performance, are the principal playable setups on the S90. The SEQ PLAY mode has 50 setups to hold what are called, appropriately enough, a MIX. When you enter a SEQ PLAY MIX you can play on one MIDI channel at a time (several PARTS, however, can be assigned to a single MIDI channel). You can transmit on up to four MIDI channels simultaneously with the Master Mode 4-Zone function.

Rule 3: 128 MASTER MIDI ZONE Control setups can be created and a S90 Voice, Performance or a SEQ PLAY MIX can be associated with it. You can have up to 4 Zones. The S90 can transmit OUT via MIDI on up to 4 Zones. Zones can address internal sounds

¹ If you install the optional PLG150 Series plug in boards you can address their Preset and User banks, as well.

referred to as TG, Tone Generator. Zones can be assigned to control external sounds (referred to as MIDI). If you have a Zone setup associated with a Voice memory, one internal Voice can be recalled. If you have Zone setup associated with a Performance memory, one internal Performance containing up to 4 Voices can be recalled. If you have a Zone setup associated with SeqPlay Mix memory, you can address the internal S90 on four separate MIDI channels.

To understand rule 3 please take your time with this article. We have all ready seen how MASTER setups can be used to recall a Voice, a Performance, a SEQ PLAY MIX. Now, we need to understand how a MASTER can work as a "multi-zoned" controller setup, controlling both internal and external tone modules. The architecture of the S90 is extremely flexible; you are not prevented from making meaningless settings. (You will see what I mean later).

NOTE: Your mileage will vary depending on the MIDI modules you are using. Please refer to the Owner's Manuals of your external gear for the appropriate Bank Select and Program Change numbers for your products.

BANK SELECT and PROGRAM CHANGE

When a Master Setup is recalled you can have it send a Bank Select and Program Change both to the internal tone generator and out via MIDI or, if you wish, to one or the other, as is necessary to setup your rig. The key thing to know is that you can control up to 4 individual ZONES. That said, you might find some unique uses for the Master setups as you get to know them better.

Bank Select and Program Change

S90 Voices can be recalled via standard MIDI messages for Bank Select as follows:

Bank	MSB	LSB	PC range
Pre1	063	000	1-128
Pre2	063	001	1-128
Pre3	063	002	1-128
User	063	008	1-128
Pre Drum	063	032	1-48
User Drum	063	040	1-16
PLGUSRslot1	063	024	1-64
PLGUSRslot2	063	025	1-64
PLGUSRslot3	063	026	1-64
PLGPRES1slot1	063	070	1-64
PLGPRES2slot1	063	071	1-64*
PLGPRES3slot1	063	072	1-64*
PLGPRES1slot2	063	073	1-64
PLGPRES2slot2	063	074	1-64*

PLGPRES3slot2	063	075	1-64*
PLGPRES1slot3	063	076	1-64
PLGPRES2slot3	063	077	1-64*
PLGPRES3slot3	063	078	1-64*

*The PLG150-VL is currently the only board with the additional 2 PLGPRES banks, i.e., PLGPRES2 and PLGPRES3, to accommodate velocity and breath controlled Voice Banks.

S90 Performances can be recalled via the same type of Bank Select messages. You can use a Performance when a Performance memory is associated with the Master setup.

Bank	MSB	LSB	PC range
Performance	063	064	1-128

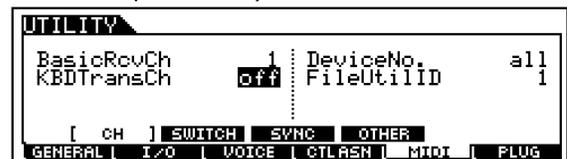
If, for example, you want to recall the Violin Voice located in PRESET bank #2, position 1, you would send MSB = 063/ LSB = 001 (to select Preset 2) and PC 1. To recall an entire Performance you would, first, associate the MASTER to Performance mode and then send MSB = 063/ LSB = 064 followed by the Program Change number to recall the desired Performance.

You cannot use Bank Select commands to address a single Voice within a Performance. A Performance must be recalled as a unit. The reason should be obvious but let's state it again anyway: A Performance addresses all of it's component Voices on the same MIDI channel and only one Performance can be recalled at a time. Notice that when you activate the MASTER mode the Voice, Performance, or SEQ_PLAY mode LED is also illuminated signifying that you are in that mode. Its rules will apply!

MASTER mode setups combining internal sounds and external MIDI modules

ZONE Setups and MIDI Transmit

The Basic Receive Channel and the Keyboard Transmit Channel are global for when the S90 is in Voice or Performance mode. However, when you are in a multi-timbral MIX (SeqPlay), your transmit channel will be determined by the track you select or will depend on what Zone(s) you are currently playing (if a MASTER ZONE setup is active).



In [UTILITY]/ [F5] MIDI/ [SF1] CH set the Keyboard Transmit Channel = OFF and the Basic Receive Channel = 1. This is typical when you are going to use the S90 as a MASTER MIDI CONTROLLER in a large setup. Now all of your settings will be determined by your MASTER configurations. Setting the MIDI channel transmit to OFF will mean that you will play **only** the internal S90 sounds when you are in Voice mode or Performance mode, however, when you activate the MASTER MODE you can be transmitting on the MIDI channels as defined by the current Master settings. This is a useful when you want to break the fulltime MIDI connection between the S90 and your rig. When you recall a MASTER that is associated with either Voice or Performance mode (without the ZONE SWITCH active) you will communicate with the internal Voice and Performance as normal. If you activate the Zone Switch for a MASTER with a Voice or Performance Memory associated, as we'll see, it then will receive according to the Basic Receive Channel selected in UTILITY. You will address any external modules only when you activate the MASTER Zone control function – giving you complete control over MIDI transmit via your MASTER setups.² When a MASTER ZONE setup is associated with a SEQ PLAY MIX you can address the MIX on four independent channels via the four ZONES.

Let's learn how a MASTER is associated with a MODE and MEMORY location:

- Recall [MASTER] and Initialize MASTER 001. Press [JOB]/ [F1] Init and check the ALL box. Press [ENTER]/ [YES] to execute.
- From the main MASTER 001 screen press [F2] Memory. To associate this memory location select "VOICE" as the MODE, and "PRE1: 001 3LayerS700" as the MEMORY.
- Press [STORE] / [ENTER] / [YES] to store this Master setup to location 001 (A01).



Any time MASTER 001 is recalled it will recall your "3LayerS700" sound. There is no signal assigned to go out via MIDI so any connected modules will be silent.

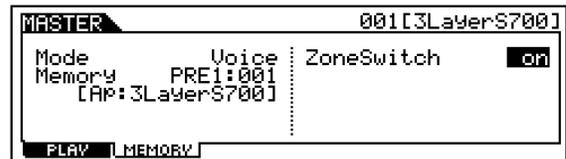
Scenario 1: On the opening number of the evening you need to start with a single Voice,

² The S90 can only receive on one MIDI channel while in Voice mode and Performance mode.

a solo S90 acoustic piano, (3LayerS700). Later you will need a S90 electric piano Voice (Vintage '74) layered with an external module string-pad sound.

There are a several ways to accomplish this. This example will give some idea of the flexibility of the MASTER mode when used as a Zone Controller.

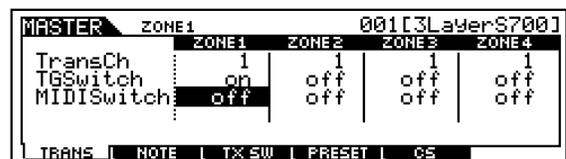
- Select MASTER 001. Press [JOB] and Initialize MASTER 001. From the main MASTER screen, press [F2] Memory, associate this location with the VOICE mode PRE1: 001 "3LayerS700" as before (more on this in a moment). We will activate the ZONE parameters to recall both the internal electric piano sound and the external string sound.
- On the right side of the MEMORY screen activate ZoneSwitch = ON.



- Now we will assign the Zones to select the sounds. This will entail going to MASTER EDIT mode. Press [EDIT]/ Touch Track [1]-[4] for Zone parameters.

Like other S90 modes there are two levels of editing here. The COMMON level and the individual Zone level. The [COMMON] button selects the upper level that affects all Zones ([F1] Name/ [F2] Other) and the Track select buttons [1]-[4] will select editing of the individual Zones 1-4.

- Activate Zone 1. Press [F1] Trans (transmit). Set the transmit channel to communicate with the internal S90 Tone Generator, Channel 1.
 - TG SWITCH = ON
 - MIDI SWITCH = OFF



- Press [F2] NOTE and make any Octave, Transpose or key limits, if you need them.

- Press [F3] TX SW (Transmit Switch). Activate both Bank (TG) = ON and PC (TG) = ON for ZONE 1.

MASTER		ZONE1				001[3LayerS700]			
PAGE		ZONE1	ZONE2	ZONE3	ZONE4				
Bank(TG)		on	off	off	off				
PC(TG)		on	off	off	off				
Bank(MIDI)		off	off	off	off				
PC(MIDI)		off	off	off	off				

TRANS | NOTE | TX SW | PRESET | CS

This will enable us to send a Bank Select/Program Change to the internal S90 tone generator when the MASTER is recalled. Nothing is sent right now, the actual value is sent when you recall the MASTER. You will see the change when you finally STORE this MASTER setup.

- Press [F4] PRESET. Here you can set the Bank Select and Program Change values for the S90 tone generator. Set this to: PRESET 1; Voice 014
 - "BankMSB" 063
 - "BankLSB" 000
 - "PgmChange" 014 (Vintage '74)
 - Set "Volume", as required
 - Set "Pan", as required

MASTER		ZONE1				001[3LayerS700]			
		ZONE1	ZONE2	ZONE3	ZONE4				
BankMSB		063	000	000	000				
BankLSB		000	000	000	000				
PgmChange		014	001	001	001				
Volume		100	100	100	100				
Pan		C	C	C	C				

TRANS | NOTE | TX SW | PRESET | CS

NOTE: This MSB/LSB and PC will override the associated Voice selected back on the [F2] MEMORY screen.³

- Now lets setup the external sound. Press [F1] Trans (transmit) and set parameters for ZONE 2. Press track [2] or cursor right. Set the transmit channel to communicate with your external module. This can also be set to MIDI channel 1, as it will not interfere with the internal setup. (Select any channel, as necessary for your external module).

MASTER		ZONE2				001[3LayerS700]			
		ZONE1	ZONE2	ZONE3	ZONE4				
TransCh		1	1	1	1				
TGSwitch		on	off	off	off				
MIDISwitch		off	on	off	off				

TRANS | NOTE | TX SW | PRESET | CS

- TG SWITCH = OFF (this is why it doesn't interfere with internal sounds, each Zone is independent)
- MIDI SWITCH = ON

³ We will see later how this feature can be used to further the flexibility of your MASTER setup.

- Press [F2] NOTE and make any Octave, Transpose or key range limits, if you need them.
- Press [F3] TX SW (Transmit Switch). Activate both Bank (MIDI) = ON and PC (MIDI) = ON for ZONE 2. This will set up the Bank Select and Program Change messages we will send. Make sure your external module is set to receive these messages.

MASTER		ZONE2				001[3LayerS700]			
PAGE		ZONE1	ZONE2	ZONE3	ZONE4				
Bank(TG)		on	off	off	off				
PC(TG)		on	off	off	off				
Bank(MIDI)		off	on	off	off				
PC(MIDI)		off	on	off	off				

TRANS | NOTE | TX SW | PRESET | CS

- Press [F4] PRESET. Here you can set the Bank Select and Program Change values for your external module. Refer to the documentation of your external device to find the MSB/LSB and PC numbers.

MASTER		ZONE2				001[3LayerS700]			
		ZONE1	ZONE2	ZONE3	ZONE4				
BankMSB		063	000	000	000				
BankLSB		000	000	000	000				
PgmChange		014	001	001	001				
Volume		100	100	100	100				
Pan		C	C	C	C				

TRANS | NOTE | TX SW | PRESET | CS

- Check to see if your external module will receive Volume and Pan information in this manner. With some devices you will have to store that information in the external devices setup. You also need to decide whether to use your external module in its single or multi-timbral mode.

- Press [STORE]/ [ENTER]/ [YES] to Store your MASTER setup.

When setting up the MASTER location, we associated it with a VOICE on the MEMORY screen, by pressing [F2] from the main MASTER screen. We then placed the single Voice that you are going to play on the left side of this screen. In our examples we associated the "3LayerS700" as that single Voice. We used the MASTER Zone MSB/LSB setup to point to the Vintage '74 sound internally and the String-pad sound externally. When this MASTER setup is recalled, the Vintage '74/external String-pad sound overrides the normal Voice "3LayerS700". To play just the "3LayerS700" press the [VOICE] mode button – this will exit MASTER mode and recall the associated "3LayerS700" sound; to play the internal/external layer press the MASTER button. This works because when you recall MASTER mode it will send out the Bank Select and Program Change information to

both the internal S90 controlled Zone and to the external Zone. And when you select VOICE you are not transmitting out via MIDI (MIDI Transmit OUT parameter is OFF, remember).

This will work anytime your principal sound, in this case an S90 Voice, **and** your Zone controlled sound is also a S90 Voice. It will work if your associated sound is a Performance **and** your Zone controlled sound is also a S90 Performance. In other words, you cannot use this trick to switch from an associated Voice to a Zone-selected Performance (or vice versa). This should not present a problem since a Performance can be made that contains any single Voice you need⁴, if necessary.

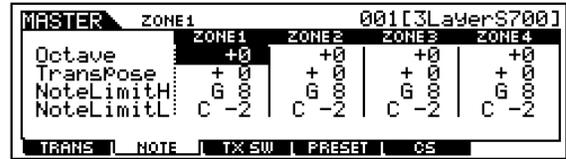
The same routine could be used if you were pointing the MASTER Memory [F2] to a particular PERFORMANCE. You can use the ZONE setup to recall a different internal Performance on one zone. (MSB = 63/ LSB = 64.) The other Zones can be used to address your external devices out via MIDI. In fact, the sounds that are active when a S90 Performance is recalled are programmable. For example, the Volume slider position is storable in a Performance; therefore a Performance that normally contains a Piano layered with strings could be recalled with the Volume of the strings stored at zero. You could fade them in or out as needed with a CS (control slider).

You can name your MASTER setups something other than the associated sound's name – it is up to you. To name a MASTER, you need to be in EDIT/ COMMON/ F1 NAME. Usually the purpose or song name is an appropriate thing to call it.

The possibilities are greatly enhanced when you associate the MASTER ZONE setup with a SeqPlay MIX. You can address four different MIDI channels of that MIX, one from each Zone. And depending on how you have configured the MIX, the possibilities are truly boundless – multiple PARTS of a MIX can be combined to a MIDI channels.

To create MASTER Splits simply use the Zone EDIT Note Limit H (High) and Note Limit L (Low) parameters to set limits on that particular zone's transmit range.

⁴ Another advantage of placing favorite Voices in a Performance is that you gain a fifth effect processor, the VARIATION effect (unavailable in Voice mode).



Summary: There are Masters and then there are Masters w/ZONE. The S90 can be accessed by up to 4 MIDI channel of the MASTER Keyboard setup when the ZONE Switch is activated. A Master setup by itself can be associated with a single S90 Voice, or a single S90 Performance. Basically, a MASTER memorizes the S90 MODE and the selection (Voice, Performance, or SeqPlay Mix). If the Zone Switch is active in a MASTER setup, it will additionally include all the setup parameters for communication, internally to the memorized mode, and externally to your connected MIDI modules.

ZONE Templates

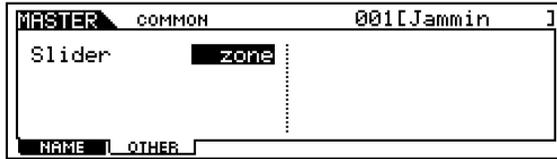
The S90 gives you 3 templates for setting up ZONE configurations. To use these from MASTER mode, you would press [JOB]/ [F1] INIT. Uncheck the box that says ALL and highlight the box that says ZONE. Press [YES] to check it. You can select a **SPLIT** (2 Zones will be activated with a default split point at C3), **4-ZONE** (all four will be activated) and **LAYER** (2 Zones will be activated across the MIDI key range). Select a template, set MIDI channels (for Split or Layer) and press [ENTER]/ [YES] to execute.



CONTROL SLIDERS

In MASTER/ [EDIT]/ [COMMON]/ [F2] OTHER you can set up how the Control Sliders behave per Master setup. You can select between PAN,

TONE, ASSIGN, MASTER EQ, and VOLUME, and if the ZONE SWITCH is ON, ZONE.



What this refers to is how the CONTROL FUNCTIONS are set when the MASTER setup is recalled. If you select PAN, for example, the LED at the top of the Control Function section will illuminate and you will have access to CS1 = Pan, CS2 = Reverb Send, CS3 = Chorus Send, CS4 = Tempo. If you select TONE then the four knobs will be Cutoff, Resonance, Attack and Release. If you select ASSIGN the knobs will be Assign A, Assign B, Assign 1 and Assign 2 (recalling what they were programmed to do in the original Voice or Performance that is associated). If you select Master EQ the next LED will illuminate and you will have access to the gain control for four of the 5-bands of the S90 Master EQ. Next the CS Sliders will be Volume controls CS1-CS4. If your MASTER setup is a "Zoned" setup you will probably want to select ZONE. This will make the settings you make per each Zone, active for the Control Sliders. Use Track buttons [1]-[4] to view individual Zone parameters. The default assignment when you select ZONE is for Volume (7). Each Slider can set per Zone to any MIDI control change message between 1-95 (except 32), per MASTER setup. There is a difference between the VOLUME assignment and the ZONE assignment set to control VOLUME. If you select "VOLUME" as the SLIDER assignment, in a MASTER ZONE setup associated with VOICE mode, the sliders will be controlling the internal Voice's Element Volumes – as they do in Voice mode. If you select ZONE as the assignment, then the sliders will be controlling the Volume of the entire Voice assigned to that ZONE.

You can always see an overview of your MASTER setup by pressing the INFORMATION button while in Master Play mode.

- Press [Master]/ [F1] Play/ [INFORMATION].



Important note: While Voices and Performances can be STORED to Banks. An

S90 MIX is "put" in a TEMPLATE. There are 50 TEMPLATES that will remain in memory even after power down. When you have assembled the sounds into your SEQ_PLAY MIX you can "PUT" them to a TEMPLATE. While viewing your MIX press [F5] TEMPLATE, select a numbered location 1-50, name it appropriately, then press SF5 PUT to write this data to a TEMPLATE location.



You do not have to clear a TEMPLATE – you write over existing data. Data will remain until you initial (Factory Reset) or load in an ALL data file that includes new SYSTEM DATA. To prevent changing your own System data via SmartMedia Card, when you load someone else's ALL data file remember to check the box that says "WITHOUT SYSTEM". This will maintain your UTILITY mode settings and preserve your MIX Templates, as well.

Designing your own setups

How complex can these setups get? This is unknown. If you have a need, you'll figure it out, necessity being the mother of invention. The thing is; if you understand the fundamental rules, you will know the difference between what is and is not possible. For example, if you play in a live scenario, you may need to play more than one keyboard at sometime during the madness of an evening's set. Can you recall a Master setup on the S90 that sends setup data to your other devices and play an internal/external combination when you are playing on the S90's keybed and play a different sound from the S90 when you move to a second external keybed? Well, yes, that is possible. If you have a Master Zone setup that is associated with a MIX, you can certainly play a 4-Zone setup with as many as four internal/external sounds and still access the S90 sound set, independently, via the MIDI IN jack. Because the S90 is multi-timbral and capable of receiving on multiple MIDI channels when in a SEQ_PLAY MIX, you will be able to control a PART(s) of that MIX via MIDI IN. Imagine that your second keyboard when set to transmit on MIDI channel 16 communicates with PART 16 of the S90's MIX. At the same time you can independently be transmitting via a ZONE MASTER to 4 separate PARTS when you play the S90's keyboard (let's say on channels 1-4). If you send Program Changes from your external keyboard on any unused

MIDI channel (5-16) you can select and change the sounds in the S90's MIX remotely. If that external keyboard can send Bank Select and Program Changes you can select VOICES from the entire S90 palette. No one article can outline all the possibilities. But if you understand MIDI and you understand how the S90 behaves in response to your MIDI settings you will be able to design some pretty complex but thoroughly useful setups. This article can only hope to get you started.

Storage issues

Your MASTER setups and your SeqPlay Mixes will be saved as part of an ALL data CARD file type. Master setups and SeqPlay Mixes will remain in memory after power down but will be cleared if you perform a Factory Reset. Backup all data by saving an ALL file type to an optional SmartMedia card. The data that they "point" to must be in its appropriate places, i.e., Voice data, Performance data, and SeqPlay Mix Templates. If you change or replace any of the target data, then the MASTER setups will be altered. The MASTER actually stores 'pointers' not the actual data. For example, if your MASTER setup targets a USER bank Voice, if you do not have that USER Voice in the proper location, the data for the MASTER will be incorrect. It will simply target the Voice in that location. For this reason Master's cannot be loaded individually – they depend on all the components being in the proper places, as all a Master is, is a collection of pointers.

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