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POWER USER

Understanding S90 ES
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 ES 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 ES modes and operations before diving in this end of the pool. Save any personal data before following this document. The principal modes of S90 ES are VOICE, PERFORMANCE, and SEQPLAY/MULTI. A Master mode setup can be used to recall a Voice, a Performance, or a SeqPlay Multi. Therefore a good use of the Master setups is organizing your favorite things to do with the S90 ES 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. These Bank Select and Program Change data can be "preset" so that you can address internal S90 ES 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.

MASTERING MASTER MODE
If you are using a S90 ES alone, Master Mode can be used to assemble your S90 ES setups in one convenient bank. A Master location can point to a Voice, a Performance, or a Sequence Play Multi. You can use a Footswitch to advance through the Master setups during a live session. The MASTER program data in the S90 ES are an example of how Master setups can be used. The MASTER setups 001-128 are used to recall different Performances and Voices. You can set up a Footswitch (FS) assigned to Control Change cc99 to advance through the Master setups.
- Press [UTILITY]
- Press [F4] CTL ASN
- Press [SF3] FT SW.

MASTER setups can be directly associated with a Voice, Performance, or Multi/SeqPlay Mix. Press [F2] MEMORY from the main MASTER screen to see how they are linked to a VOICE, PERFORMANCE or MULTI/SEQ PLAY mix.

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 ES sounds while other Zones might be controlling external devices. By the time you reach the level of creating your own Master setups you should have gained a thorough knowledge of the S90 ES 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.

Rule 1: A Voice is the fundamental playable entity in the S90 ES. It is made up of up to four multi-sampled sounds called Elements. (Or it is a single Element program from a PLG150 board). Each Voice has a Dual Insertion effect, a reverb and a chorus processor available. The Dual Insertion effect can be real time controlled via MIDI controllers and has an intricate relationship to the individual multi-sampled Elements. A Voice occupies a single MIDI channel and in Voice mode, only one Voice can be recalled at a time. There are 4 banks of 128 Preset Voices, 128 User Voices, 128 General MIDI Voices, 64 Preset Drum Kits, 32 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, and each 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 four available 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 a Multi for use in multi-timbral setups (typically for Sequence playback), as necessary. This PF COPY Job actually places the PARTS (up to 4) in a MULTI with each one set to the same Basic Receive Channel.

These two modes, Voice and Performance, are the principal playable setups on the S90 ES. There is a MULTI mode that has 128 locations to hold multi-MIDI channel mixes. When you enter MULTI/SEQ PLAY you can play on one MIDI channel at a time (several PARTS, however, can be assigned to a single MIDI channel)… The S90 normally transmits on one MIDI channel at a time – unless you use the Master Mode Zone function – which allows you to transmit on up to four.

Rule 3: 128 MASTER MIDI <u>ZONE</u> Control setup can be created and a S90 ES Voice, Performance or a MULTI/SEQ PLAY mix can be associated with each. You can have up to 4 Zones. The S90 ES can transmit OUT via MIDI on up to 4 Zones. Zones can address internal sounds (referred to as TG, Tone Generator) or external sounds (referred to as MIDI) or both simultaneously.

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, or a Performance. 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 ES 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.

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.

See the end of the article for a listing of S90 ES Bank Select MSB/LSB values.

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

MASTER mode setups combing internal sounds and external MIDI modules
ZONE Setups
The Basic Receive Channel and the Keyboard Transmit Channel are global for when the S90 ES is in Voice or Performance mode. Your transmit channel will be determined by the track you select when you are in a multi-timbral MIX and will depend on what Zone you select when in a Master Zone setup.
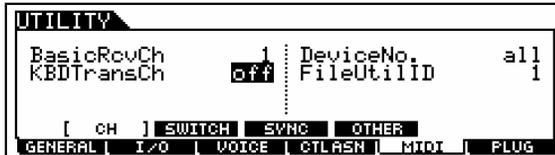
In [UTILITY]/ [F5] MIDI/ [SF1] CH set the Keyboard Transmit Channel = OFF and the Basic Receive Channel = 1. Setting the MIDI channel transmit to OFF will mean that you will play **only** the S90 ES when you are in Voice mode or Performance mode, however, when you activate the MASTER MODE you will be transmitting on the MIDI channels as defined by the current Master settings. This is a useful when you want to break the connection between a single S90 ES Voice or a single S90 ES Performance and your MIDI rig without using an entire Master setup location. You will address the external modules only when you activate the MASTER control function.

Scenario 1: On the opening number of the evening you need to start with a single Voice, a solo S90 ES acoustic piano, (Natural S). Later you will need a S90 ES electric piano Voice (Vintage '74) layered with an external module string-pad sound.

There are a few ways to how to accomplish this. The simplest is via two MASTER setups:
- 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. Associate this memory location with "VOICE" mode, "PRE1: 001 Natural S".
- Press [STORE]
- Any time MASTER 001 is recalled it will recall your "Natural S" sound.

- Go to MASTER 002. Press [JOB] and Initialize MASTER 002. From the main MASTER screen, press [F2] Memory, associate this location

with the VOICE mode PRE1: 001 "Natural S", also (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.
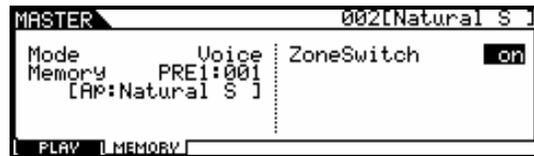
- Now we will assign the Zones to select the sounds. This will entail going to MASTER/ [EDIT]/ Touch Track [1]-[4] for Zone parameters. Like other S90 ES modes there are two levels of editing here. The COMMON level and the individual Zone level. The [COMMON] button selects the upper level that effects 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 ES Tone Generator, Channel 1.
  - TG SWITCH = ON
  - MIDI SWITCH = OFF
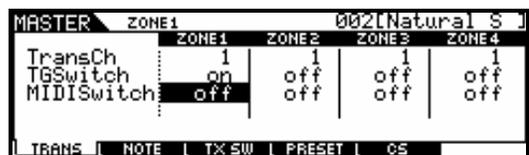
- Press [F2] NOTE and make any Octave, Transpose or key limits, if you need them.

- Press [F3] TX SW (Transmit Switch). Activate both Bank(TG) = ON and PC(TG) = ON for ZONE 1.
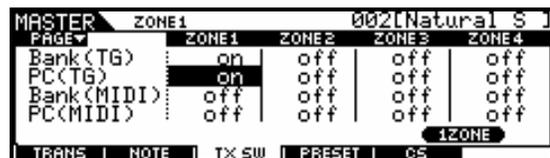
This will enable us to send a Bank Select/Program Change to the internal S90 ES tone generator when the MASTER is recalled. Nothing is sent right now, the actual value is sent when you recall the MASTER. You will see the change when you STORE this MASTER setup.

- Press [F4] PRESET. Here you can set the Bank Select and Program Change values for the S90 ES tone generator. Set this to: PRESET 1; Voice 014
  - "BankMSB" 063
  - "BankLSB" 000
  - "PgmChange" 037 (Vintage '74)
  - Set "Volume", as required
  - Set "Pan", as required

```
MASTER  ZONE1      PRE1:037[Kb:Vintage'74]
                ZONE1   ZONE2   ZONE3   ZONE4
BankMSB          063     000     000     000
BankLSB          000     000     000     000
PgmChange        037     001     001     001
Volume           100     100     100     100
Pan               C       C       C       C
  TRANS  |  NOTE  |  TX SW |_PRESET |   CS   [ SEND↟ ]
```

NOTE: This MSB/LSB and PC will override the associated Voice selected back on the [F2] MEMORY screen.[2]

- 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            002[Natural S ]
                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

- 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.

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

```
MASTER  ZONE2            002[Natural S ]
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
                                        1ZONE
| 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            GM:001[AP:ConcertGnd]
                ZONE1   ZONE2   ZONE3   ZONE4
BankMSB          063     000     000     000
BankLSB          000     000     000     000
PgmChange        037     001     001     001
Volume           100     100     100     100
Pan               C       C       C       C
| TRANS  |  NOTE  |  TX SW |  PRESET |   CS   [ SEND↟ ]
```

- 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.
- You may have noticed how the name of the "associated" program is automatically adopted as the name of the MASTER. You can change the name, however, if you wish. While in EDIT mode:
  - Press [COMMON]
  - Press [F1] NAME

- [STORE] your MASTER setup. [ENTER]/ [YES]

Summary: In this example we used two Master setups to accomplish the goal. In case you forgot…our first setup was just acoustic piano, our second setup used Zones and recalled an internal electric piano layered with an external module's string sound. The same routine could be used if you were pointing the MASTER Memory [F2] to a PERFORMANCE. You can use the ZONE setup to recall an internal Performance on one zone. (MSB = 63/ LSB = 64.) This will be possible if you select Performance as the MASTER mode type on the F2 Memory screen. The other Zones can be used to address your external devices out via MIDI.

If you think 128 Master setups are a lot you can spend them as freely as you wish. If, however, you think 128 Master setups are far too few you will want to pay close attention to how this next tip works because you can consolidate your setups.

Power Tip: If you want to accomplish this from a single MASTER setup you can make use of the fact

that the VOICE or PERFORMANCE that is associated with the MASTER setup is the sound that is recalled when you <u>deactivate</u> the MASTER setup. Here's a slick trick.

When setting up the previous MASTER location, we associated it with a VOICE on the MEMORY screen, by pressing [F2] from the main MASTER screen. Place 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. In Master 002 we used the MASTER Zone MSB/LSB setup to point to the Vintage '74 sound internally and the String sound externally. When this MASTER setup is recalled, the Vintage '74 sound overrides the "Natural S". To play just the "Natural S" press the [VOICE] mode button – this will exit MASTER mode and recall the associated "Natural S" sound; to play the internal/external layer press the MASTER button. This works because when you recall the MASTER it will send out the Bank Select and Program Change information to both the internal S90 ES controlled Zone and to the external Zone.

This will work anytime your principal sound, in this case a S90 ES Voice **and** your Zone controlled sound is also a S90 ES Voice. It will work if your associated sound is a Performance **and** your Zone controlled sound is also a S90 ES Performance. In other words, you cannot use this trick to switch from an associated Voice to a Zone-selected Performance (or vice versa) with this tip. This should not present a problem since Performances can be made that contain any single Voice you need, if necessary. In fact, the sounds that are active when a S90 ES 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 a zero. You can fade them in or out as you need with a CS (control slider).

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.

```
MASTER    ZONE1         001[3LayerS700]
                 ZONE1  ZONE2  ZONE3  ZONE4
Octave            +0     +0     +0     +0
Transpose       + 0    + 0    + 0    + 0
NoteLimitH       G 8    G 8    G 8    G 8
NoteLimitL       C -2   C -2   C -2   C -2

  TRANS   NOTE    TX SW   PRESET    CS
```

Summary: There are Masters and then there are Masters w/ZONE. The S90 ES 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 ES Voice, or a single S90 ES Performance. Basically, a MASTER memorizes the S90 ES MODE and the selection (Voice, Performance, or Multi/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 ES gives you 3 templates for setting up ZONE configurations. To use these: from MASTER mode 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.

```
MASTER    JOB           001[3LayerS700]

Initialize Current Master
            □All        □Common
            ☒Zone       UpperCh          1
         Type Split     LowerCh          1
                        SplitPoint     C 3
  INIT                    BULK
```

```
MASTER    JOB           001[3LayerS700]

Initialize Current Master
            □All        □Common
            ☒Zone
         Type 4Zone
  INIT                    BULK
```

```
MASTER    JOB           001[3LayerS700]

Initialize Current Master
            □All        □Common
            ☒Zone       UpperCh          1
         Type Layer     LowerCh          1
  INIT                    BULK
```
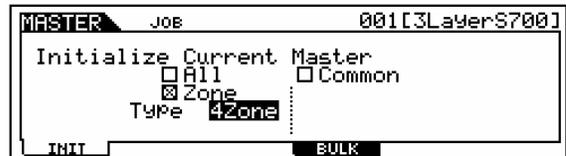
CONTROL SLIDERS
In MASTER/ [EDIT]/ [COMMON]/ [F2] OTHER you can set up how the Control Sliders behave per Master setup. You can select between PAN, TONE, ASSIGN, MASTER EQ, and VOLUME, and if the ZONE SWITCH is ON, ZONE.

```
MASTER    COMMON        001[Jammin    ]

Slider          zone

  NAME    OTHER
```
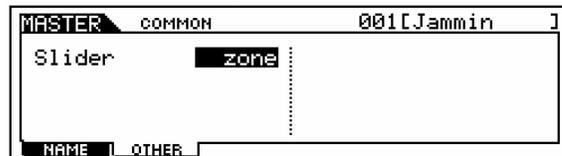
What this refers to is how the CONTROL FUNCTIONS are set when the MASTER setup is recalled. If you select PAN, for example, the LED at the top of the Control Function section will

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 ES 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.

You can always see an overview of your MASTER setup by pressing the [INFORMATION] button.

In the screen shot above, I have setup Master 128 to be associated with a MULTI/SeqPlay setup: Multi 012 "Cool Funk" – one of the example Multi setups. I am transmitting on four ZONES because I have setup a complex Split setup (using the Master [F2] NOTE page) where I am playing Guitar (Zone 1/ MIDI channel 1), Bass (Zone 2/ MIDI channel 4), Organ (Zone 3/ MIDI channel 6) and Brass (Zone 4/ MIDI channel 8). Each zone is set to in a specific Note Range on the keyboard creating a complex split/layer. I also have the CS set to ZONE so I have independent Volume control for each ZONE.

Important note: Voices, Performances and Multi/SeqPlay mixes can be STORED to their respective Banks. They will remain in memory even after power down. Your MASTER setups are stored as part of an ALL data File type. The data that they point to must be in its appropriate places, i.e., Voice data, Performance data, and Multi/SeqPlay setups. If you change any of the target data the MASTER setups will be altered and adversely affected. Remember they are only pointers to the actual data. If for example you load in new USER Voices or Performances the current Master may point to a data location

properly but the data in that location will be wrong.

Bank Select and Program Change
S90 ES sounds 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
PLGPRE1slot1	063	070	1-64
PLGPRE2slot1	063	071	1-64*
PLGPRE3slot1	063	072	1-64*
PLGPRE1slot2	063	073	1-64
PLGPRE2slot2	063	074	1-64*
PLGPRE3slot2	063	075	1-64*
PLGPRE1slot3	063	076	1-64
PLGPRE2slot3	063	077	1-64*
PLGPRE3slot3	063	078	1-64*

*The PLG150-VL is currently the only board with the additional two PLGPRE banks, i.e., PLGPRE2 and PLGPRE3, to accommodate velocity and breath controlled Voice Banks.

User Perf	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 MULTI/SEQ_PLAY mode LED is also illuminated signifying that you are in that mode. Its rules will apply!

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