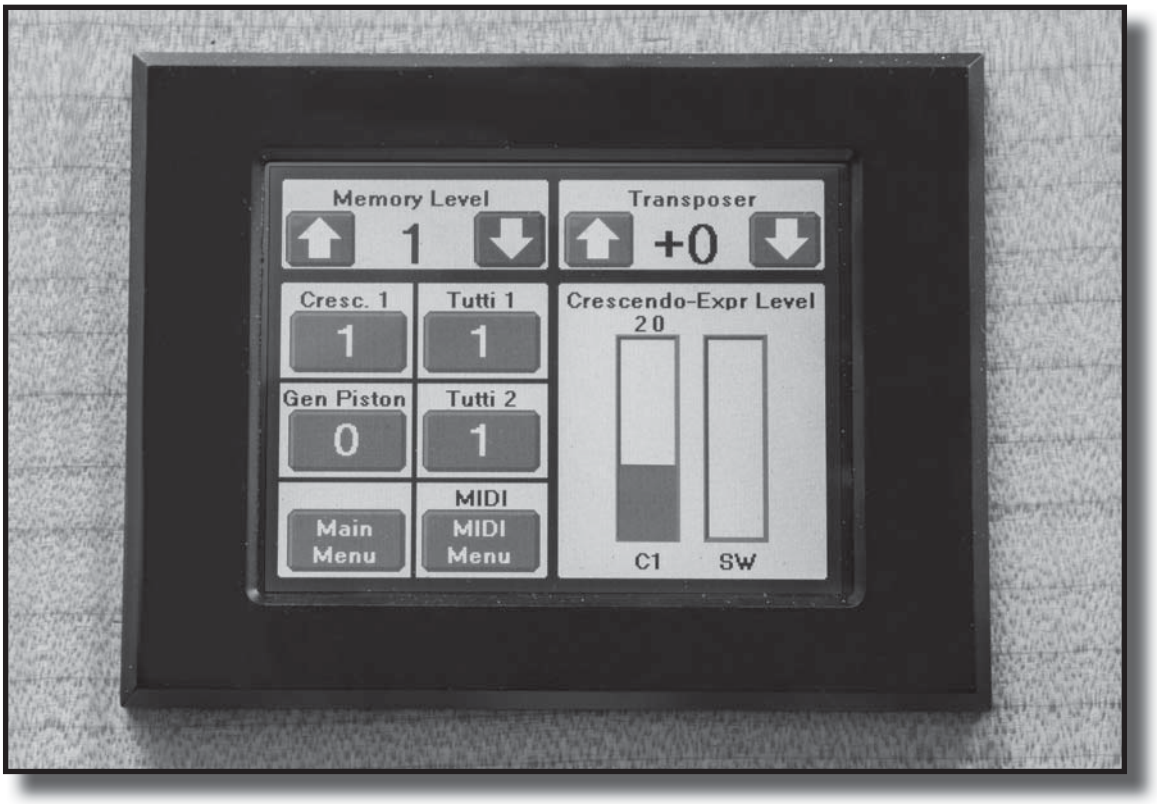
MS8400 Configuration Manual



This manual covers the configuration of the MS8400 Pipe Organ Control System. For installation of the MS8400, see the MS8400 Installation Manual. Additional documentation can be found online at syndyne.com and the syndyne youtube channel www.youtube.com/syndyneco

Control System Installed By _____ Date Installed_____

Installer Telephone _____ Email _____ Fax_____

Control System Maintained By _____

Maintenance Telephone _____ Email _____ Fax_____

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GENERAL AND SAFETY INFORMATION

COPYRIGHT

Any resident content on the MS8400 as well as this manual and any applicable documentation, is considered copyright by Syndyne Corporation.

READ THE ENTIRE MANUAL

Please read this entire manual before attempting to operate the MS8400.

ELECTRIC SHOCK WARNING

- Do not enclosure. There are no servicable parts inside, and opening the enclosure will void the warranty.
- Keep the MS8400 system away from water.

TOUCHING THE SCREEN

- The MS8405 touch screen was designed to be touched firmly using a finger.
- A stylus can be used, but it may wear the screen out faster then using your finger.
- Do not use any item sharper then a stylus or a finger.
- Long and/or sharp finger nails may also decrease the life of the touchscreen.
- Do not use a pen, pencil, marker, or other item that can mark on the screen.

CLEANING TOUCH SCREEN

- Use a damp cloth to lightly clean the screen on the MS8405.
- Do not use cleaning solutions that are costic or leave a residue.

USB DRIVES AND DEVICES

There are too many USB drives and devices available on the market to have tested them all. Although the majority of USB drives should work with the MS8400, we cannot guarantee that all USB drives will work. If you have a problem when using a new USB drive that is not approved by Syndyne, make sure the same problem occurs using a Syndyne approved flash drive before attempting to contact Syndyne for support.

MIDI FILES AND DEVICES

Currently the MS8400 only plays MIDI type 0 single track files. MIDI type 1 files can be converted to type 0 files using a computer. The MS8400 is tested and works with Syndyne equipment. The MS8400 should work with general MIDI devices, however some devices rely on non-standard MIDI messages which may cause undesired results. For more information on how your organ system sends and receives MIDI, please contact your organ system's installer.

STATIC WARNING

The Syndyne MS8400 System contains electrical components that are susceptible to damage by static disharge. To avoid damage, use antistatic handling materials and make sure you are well grounded at all times.

BEFORE CONFIGURATION

Before configuring the MS8400 system, the following steps should be completed.

- All MS8400 cards should be installed
- DIP switches should be set on all cards in the system.
- All installation safety rules should be followed
- The MS8400 system should be powered on
- All connections to the system should be checked for validity
- Every CAN port should be filled with either an ethernet cable, a CAN termination resistor, or a CAN loop.

CONFIGURATION STEPS

It is recommended that the system is configured in order of which buttons appear first in the System Configuration menu. Start with the first row of buttons and move from left to right then move to the second row from left to right, and then the last row from left to right. Following this order insures that no steps are missed and that all prerequisite steps are completed in order.

LOGGING IN AS A BUILDER

The MS8400 can be configured with different organist access levels to protect itself from unauthorized access via a 4 digit access code. By default, the system has a "Builder" account with an access code of 1234 which has full access to all system configuration menus. It is highly recommended to write this code down in a safe place if it is changed from the default 4 digit code. Unless the builder gives access to another organist, only the builder will have access to the System Configuration menu.

MS8405 MENU LISTING

The MS8405 menu system begins at the Main Menu. Under the Main Menu, there are two other menu lists which include the System Config Menu and the Test and Diagnose Menu.

MAIN MENU

- Organist Log In/Out
- MIDI Record/Playback
- MIDI Module
- MIDI Stops
- Custom Crescendo
- Blind Check
- Power Operation
- Organist Backup
- Organist Name
- Organist Access No.
- Add Organist
- Delete Organist
- Screen Brightness
- Color Scheme
- Remote Tuner
- **System Config**
- Test And Diagnose

SYSTEM CONFIG

- Name Divisions
- Analog Inputs
- Expression Calibration
- Rotary Selectors
- Multiple Consoles
- Gen Cancel @ Pwr Up
- Transposer Config
- General / Div Pistons
- Special Pistons
- Coupler Config
- Power Config
- Expression Driver
- Driver Stop Config
- Stop/Trap Lines
- AC Chime Volume
- Pizzicato Set Time
- External Bar Graph
- Performance Screen
- Remote Config
- CA Pulse Timing
- Set LCD Contrast
- Organist Access
- System Backup
- Clear Cards
- Reset Screen Flash

TEST/DIAGNOSE

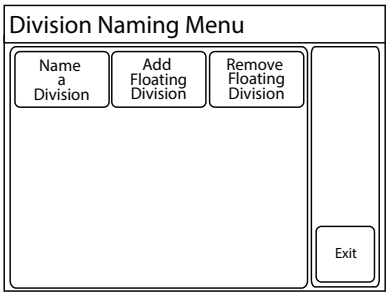
- Stop Control
- Coupler Config
- View Piston Config
- Keyboards
- Driver Cards
- Address Conflict

NAME DIVISIONS (OR ADD FLOATING DIVISIONS)

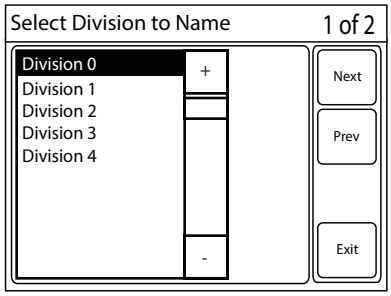
The MS8400 system can have up to 32 divisions. These divisions can be either represented by a keyboard or can be a floating division without a keyboard. Each division can be given a 12 character name in order to more easily configure the system. The system automatically creates and names a division for each MS8404 keying card attached to the system. This name is based on the card number (assigned via dip switches on each MS8404 during installation). The naming division screen is also used to create floating divisions which are not associated with an MS8404 card.

NAMING A DIVISION

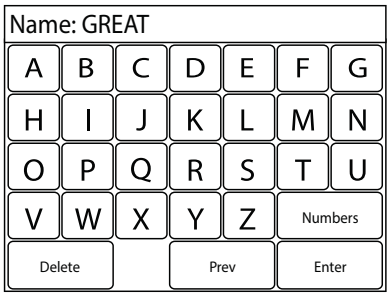
Step 1: From the Name a Division Menu, press the Name a Division button.

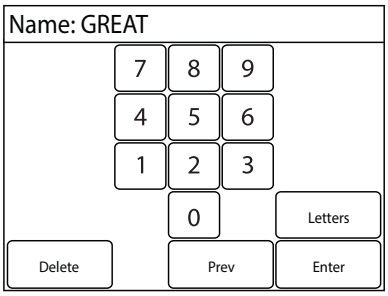


Step 2: Select the desired division from the list box and press the Next button.

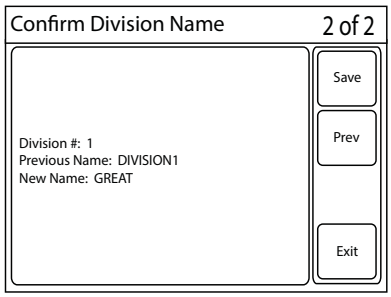


Step 3: Name the Division using the alphanumeric keypad.





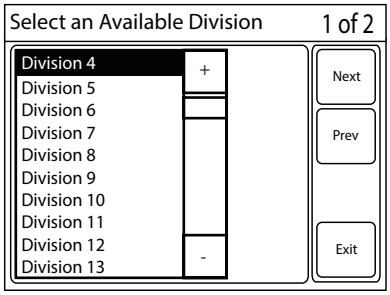
Step 4: Confirm the name and press the Save button.



ADD FLOATING DIVISION

Step 1: From the Name a Division Menu, press the Add Floating Division button.

Step 2: Select the desired division from the list box and press the next button. The list box includes all possible divisions in the system (up to 32) that are not associated with an installed MS8404 card.



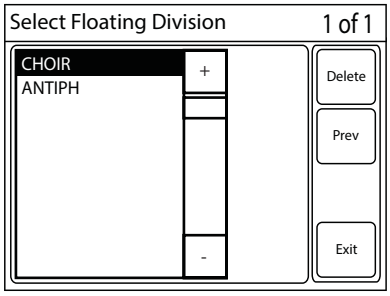
Step 3: Enter a Name using the alphanumeric keypad.

Step 4: Confirm name and press the save button.
(See the screens in Name a Division for an example.)

REMOVE FLOATING DIVISION

Step 1: From the Name a Division Menu, press the Remove Floating Division button.

Step 2: Select the desired floating division from the list box and press the Delete button. There is no confirmation screen when deleting a floating division. The floating division is simply deleted.

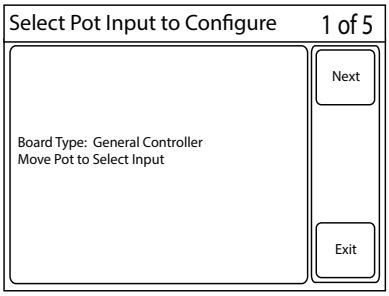


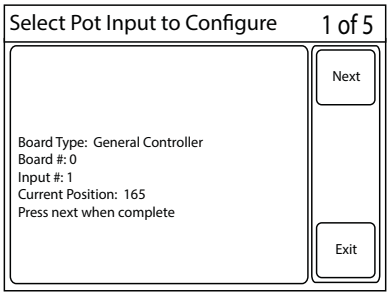
ANALOG INPUTS

The MS8401 General Controller has 4 analog inputs that can be used to control Crescendo Shoe 1, Crescendo Shoe 2, MIDI Pitch, or MIDI Volume. The analog inputs screen is where these inputs are configured and calibrated. By default Analog Input 1 is configured as Crescendo 1 and all other inputs are set to Off. A potentiometer must be connected to an Analog Input before that input can be configured.

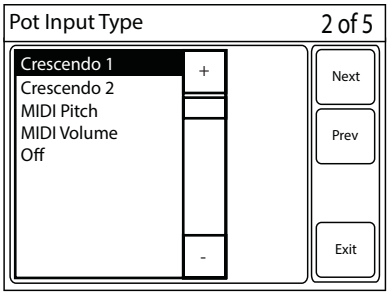
Step 1: Press the Analog Inputs button on the System Configuration Menu.

Step 2: The screen will prompt to "Select Pot Input to Configure." Move the desired potentiometer to select it for configuration. The screen will now display the board and input number on which the pot is attached as well as its current position. Once the correct pot is selected, press the next button.

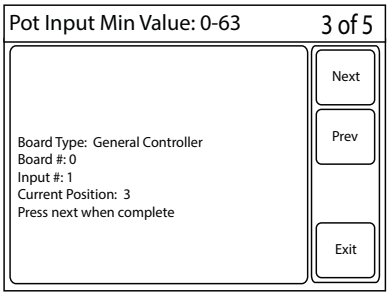




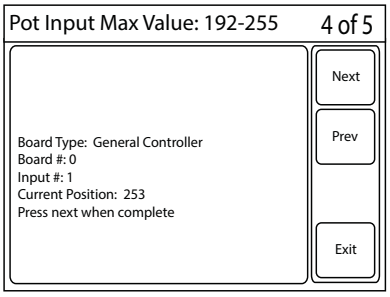
Step 3: Next, select the Pot Input Type. The input can be configured to either Crescendo 1, Crescendo 2, MIDI Pitch, MIDI Volume, or Off. Using the list box on the screen, select the desired input type and press the next button.



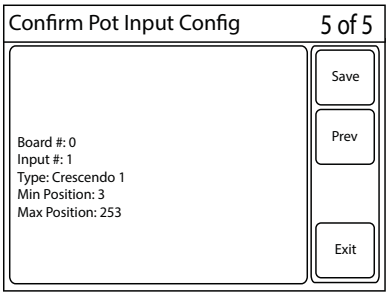
Step 4: Potentiometers are mechanically limited and rarely open and close to their full range from the manufacturer. To set this range, the screen will ask for a minimum value between the range of 0-63. Turn the potentiometer as far "off" as it will go (for crescendo shoes, push down on your heel until the top of the shoe is as far from the console as possible). This value should be close to 0. It is recommended to back off the shoe a little bit in order to make sure that the "Off" position is not at the very end of the potentiometer. Once the minimum value is selected and within range, press the next button.



Step 5: The screen will now prompt to set the maximum value between 192-255. Turn the potentiometer as far "on" as it will go (for crescendo shoes, push down on your toe until the top of the shoe is as close to the console as possible). This value should be close to 255. It is recommended to back off the shoe a little bit in order to make sure that the highest "On" position is not at the very end of the potentiometer. The screen will only accept a value between 192 and 255. Once the maximum value is selected and within range, press the next button.



Step 6: The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.

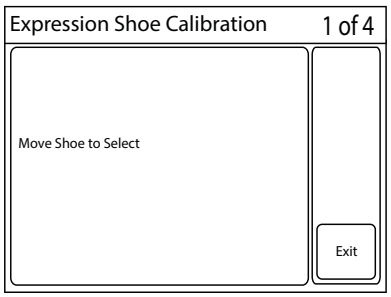


EXPRESSION CALIBRATION

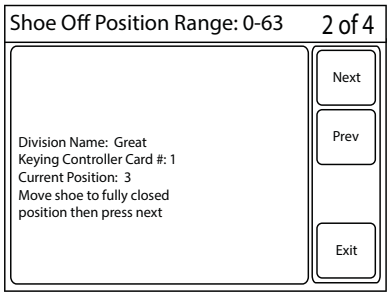
The MS8404 keying input cards each have an input for an expression shoe. The expression calibration screen is used to configure these inputs and calibrate a potentiometer that is connected to one of these Expression inputs.

Step 1: Press the Expression Calibration button on the System Configuration Menu.

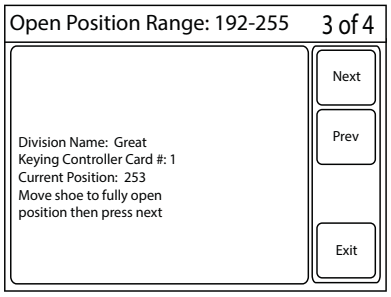
Step 2: The screen will prompt to "Move Shoe to Select." Move the desired shoe and the system will automatically select it for configuration and advance to the next screen.



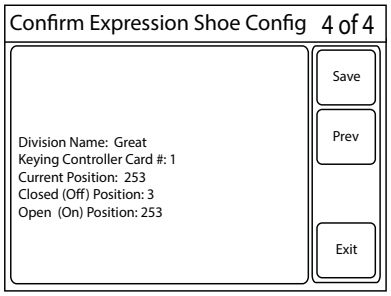
Step 3: Potentiometers are mechanically limited and rarely open and close to their full range from the manufacturer. To set this range, the screen will ask for a minimum value between the range of 0-63. Turn the potentiometer as far "off" as it will go (for crescendo shoes, push down on your heel until the top of the shoe is as far from the console as possible). This value should be close to 0. It is recommended to back off the shoe a little bit in order to make sure that the "Off" position is not at the very end of the potentiometer. Once the minimum value is selected and within range, press the next button.



Step 4: The screen will now prompt to set the maximum value between 192-255. Turn the potentiometer as far "on" as it will go (for crescendo shoes, push down on your toe until the top of the shoe is as close to the console as possible). This value should be close to 255. It is recommended to back off the shoe a little bit in order to make sure that the highest "On" position is not at the very end of the potentiometer. The screen will only accept a value between 192 and 255. Once the maximum value is selected and within range, press the Next button.



Step 5: The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.

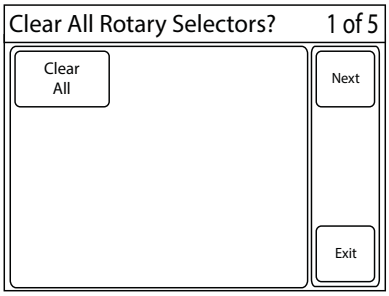


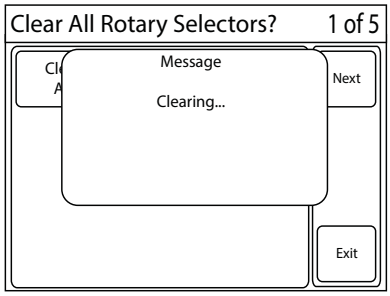
ROTARY SELECTORS

The MS8401 General Controller has 4 inputs for rotary selectors. They can be configured to control Transposer, Memory Level, Memory Bank, or Chime Volume. The Rotary Selectors screen is used to configure these inputs. It is necessary to have a rotary selector connected to a Selector input before it can be configured.

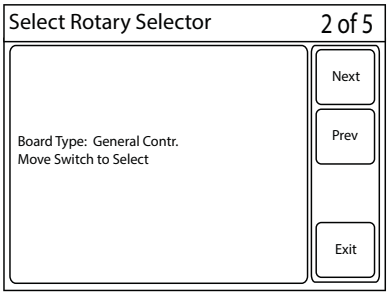
Step 1: Press the Rotary Selectors button on the System Configuration menu.

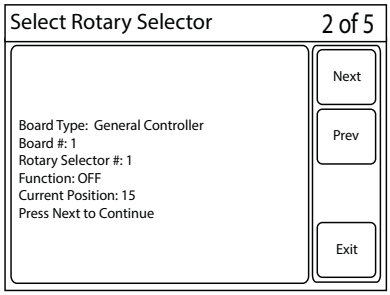
Step 2: The screen first asks to clear all the Rotary Selectors. Pressing the Clear All button will clear the settings for all rotary selector inputs on the MS8401 card that the screen has been assigned (see multiple consoles for more information how to assign the screen to an MS8401). After pressing the clear all button, a dialog box will appear showing that the selectors are being cleared. Once clearing is complete, the screen will automatically advance to the next screen. To continue configuration without clearing rotary selectors, press the Next button.



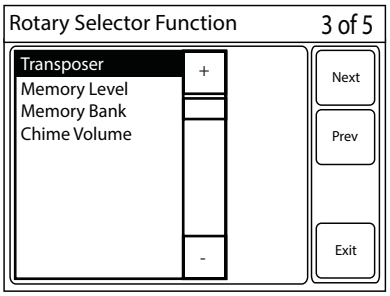


Step 3: Rotate the selector switch to be configured so that the screen can identify it. When the screen has identified a rotary selector it will display it's configuration and current position. Once the correct rotary selector is selected, press the Next button.

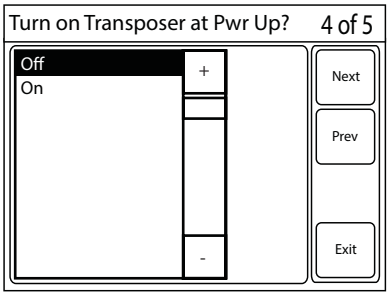




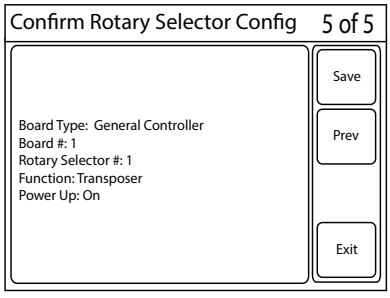
Step 4: Next, choose the desired function for the selector switch. The available functions are Transposer control, Memory Level control, Memory Bank control, and Chime Volume. Depending on the selected function, a different set of screens will be displayed.



Step 5 (Transposer): The Transposer in the MS8400 can be set to turn on or off by pressing a reversible piston. When configuring a rotary selector as a transposer controller, the system must be configured with whether to turn the transposer on or off on power up. Selecting On, will cause the transposer to come on when the organ is powered up. Selecting Off, will cause the transposer to be off when the organ is powered up. Regardless of whether the transposer is on or off, the organ will not transpose when the control is set to 0. If there is no reversible piston to turn transposer on or off, it is recommended to select On, so the transposer can function when the organ is turned on. Otherwise, the transposer will not function.

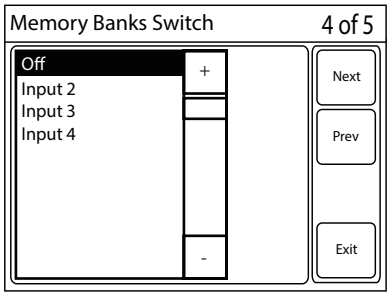


Step 6 (Transposer): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.

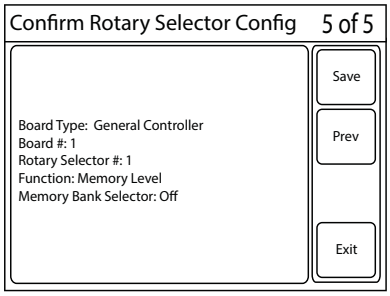


ROTARY SELECTORS (CONTINUED)

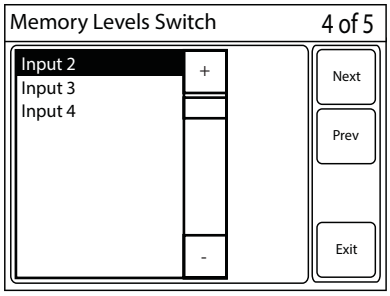
Step 5 (Memory Level): Normally, the MS8405 Touch Screen controls the system memory levels. Selecting the memory level function will allow a 12 position rotary selector to set the current memory level in the system instead of the Touch Screen. Select the Memory Level option from the listbox and press the Next button. Select the desired rotary selector from the list box provided and press next to continue. If memory banks are used, select the desired rotary input to control them. If memory banks are not used, select Off from the list box.



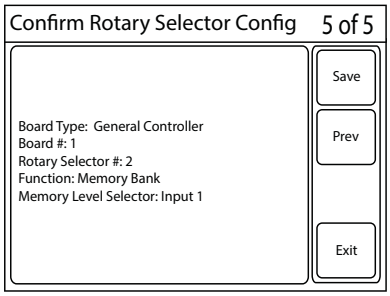
Step 6 (Memory Level): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to the System Configuration menu without saving changes.



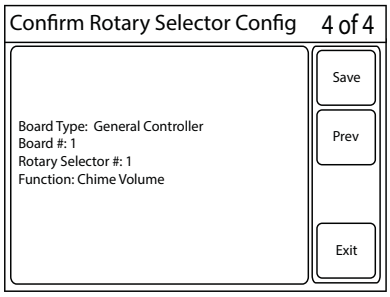
Step 5 (Memory Bank): Memory banks can be used to increase the total number of memory levels available for rotary control. Select the memory bank option and press the next button. When using memory banks, memory levels must also be used. Select the rotary selector input used to control memory levels.



Step 6 (Memory Bank): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.



Step 6 (Chime Volume): Selecting the chime volume option will configure the rotary to control chime volume for the MS8400. The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.

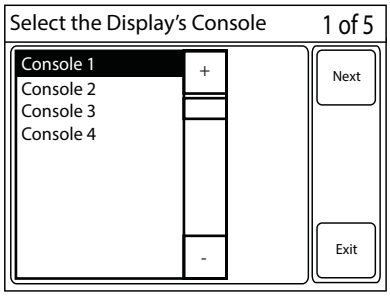


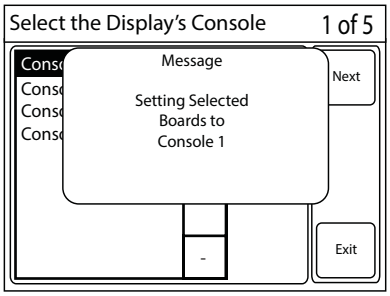
MULTIPLE CONSOLES

The MS8400 system can be configured with up to 4 consoles. The MS8405 Touch Screen, MS8404 Key Input Card, MS8403 Piston Controller Card, and the MS8402 Stop Controller Card must be assigned to a console number. By default, cards from the factory should be configured for console 1, but it is good practice to set all boards in the system to the correct console even if only one console is being used. Also, the MS8401 General Controller Card is assigned to a console number by an onboard DIP switch. Make sure that these DIP switches are set correctly before configuring the system for multiple consoles.

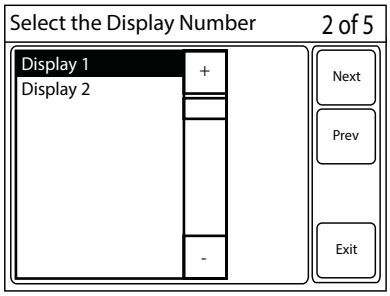
Step 1: Press the Multiple Console button on the System Configuration menu.

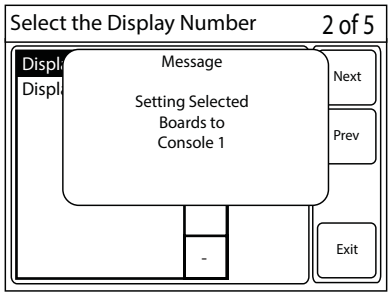
Step 2: The screen first asks to select the console number to configure. When configuring multiple consoles, each console must be configured from the MS8405 Touch Screen that is physically in the console. At this time it is not possible to configure another console from the MS8405. Select the console number from the list and press the Next button.



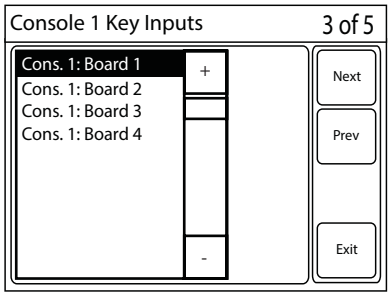


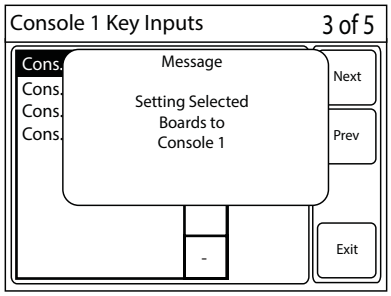
Step 3: The screen will now ask to select the display number for the MS8405. This feature is currently under development. Select display 1 from the list and press the Next button. A message box will be displayed letting you know that the boards are being configured to the console.



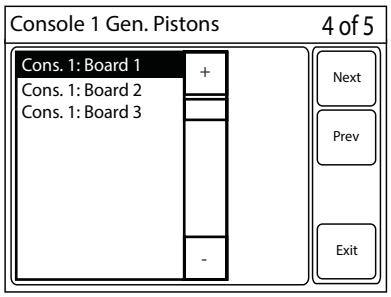


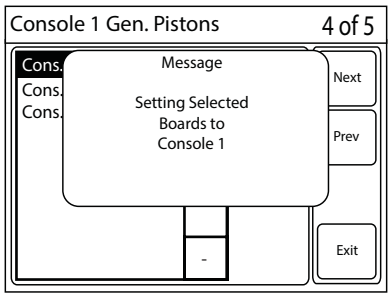
Step 4: Next, the screen will ask to select the Key Inputs for the selected console. The list is populated with all cards in the system. Each card in the list will display its currently configured console number as well as its address number (each board has an individual address set via DIP switches). Select all the boards from the list that are to be setup for the selected console. This list box allows multiple cards to be selected. Once all the correct boards are selected, press the Next button.



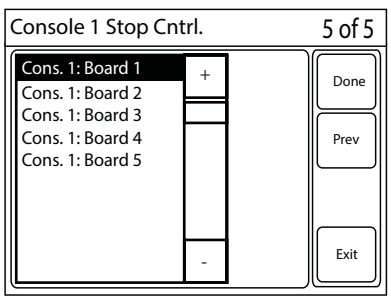


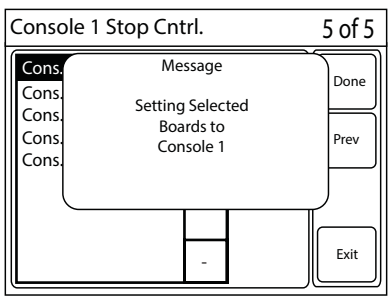
Step 5: Next, the screen will ask to select the Piston Controllers for the selected console. The list is populated with all cards in the system. Each card in the list will display its currently configured console number as well as its address number (each board has an individual address set via DIP switches). Select all the boards from the list that are to be setup for the selected console. This list box allows multiple cards to be selected. Once all the correct boards are selected, press the Next button.





Step 6: Next, the screen will ask to select the Stop Controller for the selected console. The list is populated with all cards in the system. Each card in the list will display its currently configured console number as well as its address number (each board has an individual address set via DIP switches). Select all the boards from the list that are to be setup for the selected console. This list box allows multiple cards to be selected. Once all the correct boards are selected, press the Next button.



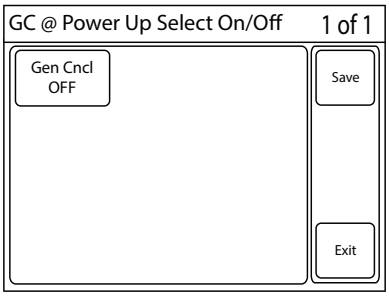


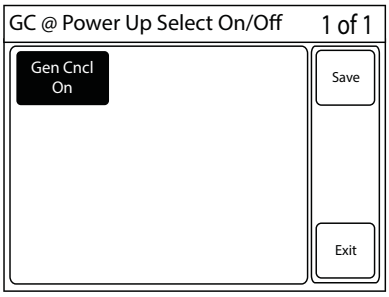
GENERAL CANCEL ON POWER UP

The MS8400 system can be configured to cancel all stops when the organ is powered on.

Step 1: Press the General Cancel at Power up button (labeled GC @ Pwr Up) on the System Configuration menu.

Step 2: The GC @ Power Up Select Screen will be displayed. Press the Gen Cncl button to configure the feature.



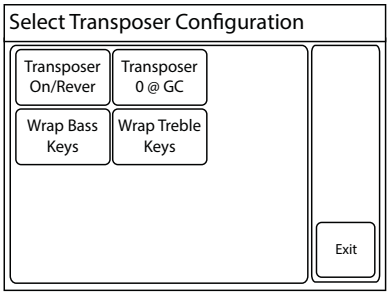


TRANSPOSER CONFIGURATION

The transposer in the MS8400 system has multiple options that can be configured using the MS8405 Control Panel.

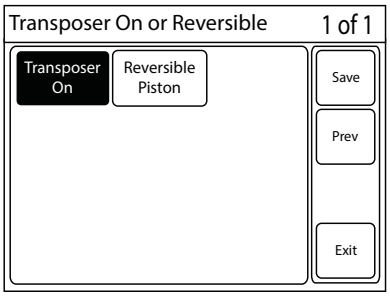
Step 1: Press the Transposer Config button on the System Configuration menu.

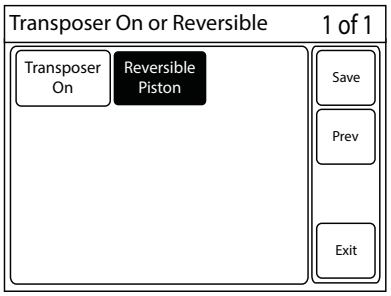
Step 2: The Transposer Configuration menu will be displayed with the four available transposer configuration options. Transposer ON/Reversible is used to setup the transposer as always on (transposition can still be set to zero) or to be turned on and off using a reversible piston. Transposer 0 @ General Cancel is used to revert the transposer to the zero position when a general cancel piston is pressed. This feature cannot be used when a rotary control is configured to control the transposer as the position set on the rotary will override the MS8405 transposer settings. Wrap Bass Keys is used to wrap the notes back up one octave when the transposer goes beyond the bottom of the keyboard. Wrap Treble Keys is used to wrap the notes back down one octave when the transposer goes beyond the top end of the keyboard. Note wrapping is individually configured for each keyboard.



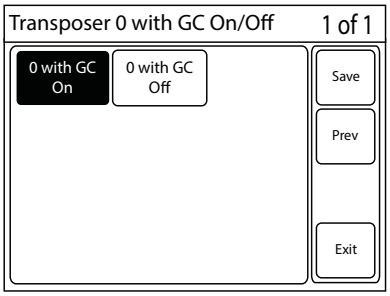
Select the option to be configured and press the next button.

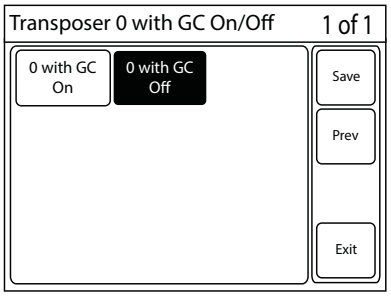
Step 3 (Transposer On/Reversible): Select the Transposer On button if the transposer is not controlled by a reversible piston. Select the Reversible Piston button if the transposer is controlled by a reversible piston. Once the desired selection is made, press the Save button.



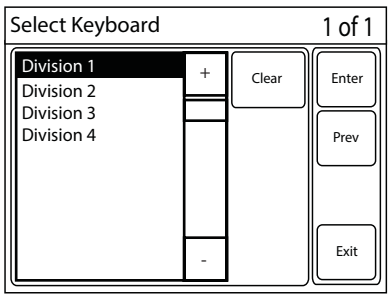


Step 3 (Transposer 0 @ General Cancel): Select the 0 with GC On button to set the Transposer to 0 when General Cancel is pressed. Select the 0 with GC Off button to leave the transposer setting alone when General Cancel is pressed. Once the desired selection(s) are made, press the Save button.





TRANSPOSER CONFIGURATION (CONTINUED)

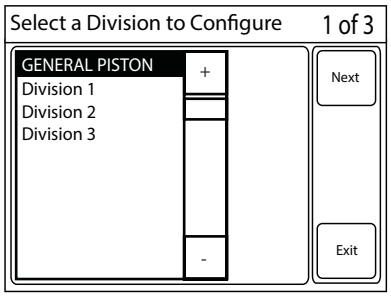


Step 3 (Wrap Bass Keys): The screen will ask which division of keying on which to configure bass wrapping. Select the desired division and press the Enter button to turn wrapping on. To turn wrapping off, select the desired division and press the Clear button. A message box will be displayed while the configuration is being saved. Repeat this process for each division in which the wrapping of bass notes is desired.

Step 3 (Wrap Treble Keys): The screen will ask which division of keying on which to configure treble wrapping. Select the desired division and press the Enter button to turn wrapping on. To turn wrapping off, select the desired division and press the Clear button. A message box will be displayed while the configuration is being saved. Repeat this process for each division in which the wrapping of treble notes is desired.

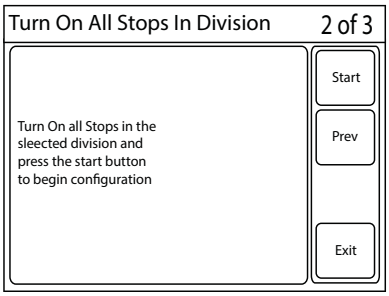
GENERAL AND DIVISIONAL PISTONS

Any piston in the MS8400 system can be configured as a General Piston, Divisional Piston, or Special Piston. This screen configures pistons as Generals or Divisionals.

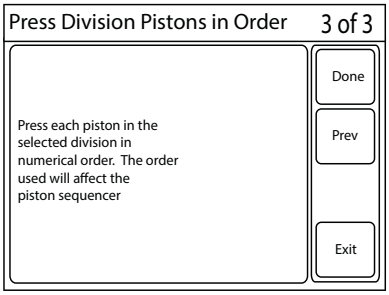


Step 1: Press the General and Divisional Piston button from the System Configuration menu.

Step 2: Select either General Piston to configure Generals or select the desired division to configure Divisional Pistons. Once the desired selection has been made, press the Next button.



Step 3: Turn on all the Stop Controls in the selected division. Any Stop that is turned on will be associated with the pistons pressed in the following step. For example, when configuring General Pistons, turn on all the Stop Controls in the console. Once the desired Stop Controls have been turned on, press the Start button.



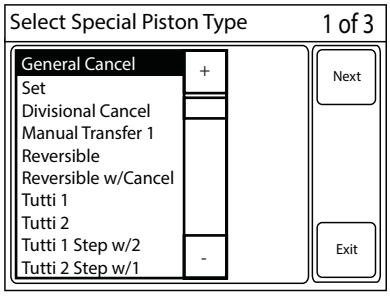
Step 4: Press each Piston in the selected division in sequential order. The sequence in which the Pistons are pressed will determine the order used by the Piston Sequencer function. Once all the Pistons have been pressed, press the Done button to complete configuration.

SPECIAL PISTONS

The MS8400 system has an extensive list of special piston functions that can be assigned to any piston within the system.

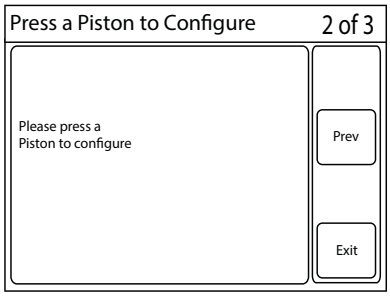
Step 1: Press the Special Piston button from the System Configuration menu.

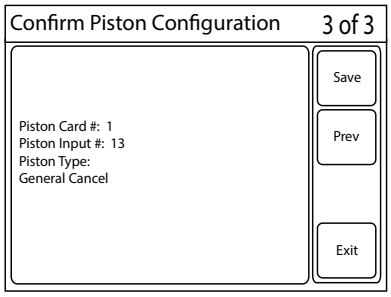
Step 2: Select the special piston type for the list box provided. Depending on what selection is chosen, a variety of screens will be displayed in order to complete configuration. As with all of Syndyne's products, additional features and functions are added continually to improve overall system capabilities. Here is a list of all the piston types available at the time this manual was written.



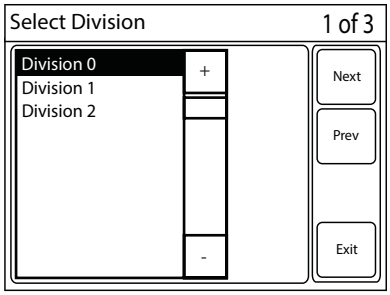
General Cancel	Sforzando 1	Memory Level Down	Ventil 2 Step w/1
Set	Sforzando 2	SFZ/Tutti 1 Mem Lev Up	Ventil 3
Divisional Cancel	Autopedal	SFZ/Tutti 1 Mem Lev Down	Ventil 4
Manual Transfer 1	Transpose	SFZ/Tutti 2 Mem Lev Up	Ventil 3 Step w/4
Reversible	Blind Check Reversible	SFZ/Tutti 2 Mem Lev Down	Ventil 4 Step w/3
Reversible with Cancel	Blind Check Momentary	Crescendo 1 Mem Up	Manual Transfer 2
Tutti 1	Sequence Next	Crescendo 2 Mem Up	MIDI Sustain
Tutti 2	Sequence Previous	Ventil 1	MIDI Panic
Tutti 1 Step w/2	Capture Sequence	Ventil 2	Clear
Tutti 2 Step w/1	Memory Level Up	Ventil 1 Step w/2	

Step 3: For most of the Special Piston types, the next step is to press the desired piston for configuration. After pressing the desired piston the screen will show the piston input number and card number as well as the function to configure. If the settings are correct, press the Save button to save the configuration.

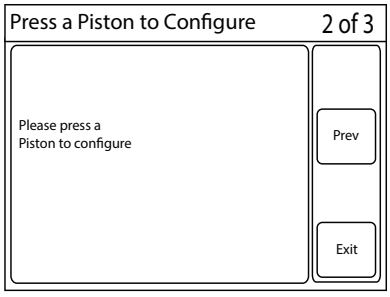


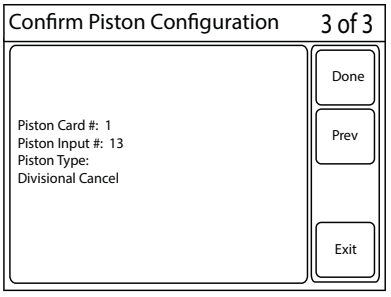


Step 3 (Divisional Cancel): A divisional cancel needs to be associated with a division. The next screen asks to select the division that is desired to cancel when the Divisional Cancel Piston is pressed. Select the division from the list and press the Next button.



Step 4 (Divisional Cancel): The next step is to press the piston to be configured as Divisional Cancel for the selected division. After pressing the desired piston the screen will show the Piston Input number, Card number and Piston Type. If the settings are correct, press the Done button to save the configuration.





SPECIAL PISTONS

Step 3 (Manual Transfer): The system can have two Manual Transfer Pistons. The screen will ask to select the "from" division for the Manual Transfer. Select the desired division from the list and press the Next button.

Step 4 (Manual Transfer): The screen will now ask to select the "to" division for the Manual Transfer. Select the desired division from the list and press the Next button.

Step 5 (Manual Transfer): The next step is to press the piston to be configured as a Manual Transfer. After pressing the desired piston the screen will show the Piston Input number, Card number and Piston Type. If the settings are correct, press the Save button to save the configuration.

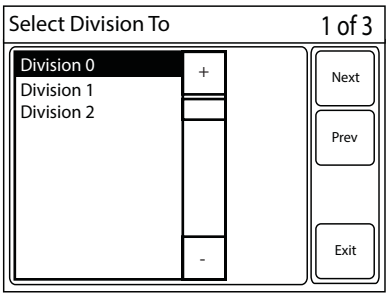
Step 3 (Reversible): Turn on the stop(s) that are to be reversed by the desired Reversible Piston. Once the stops are on, press the desired piston to be configured as a Reversible.

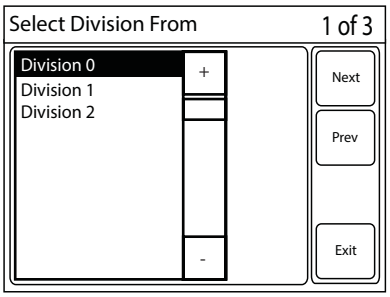
Step 4 (Reversible): After pressing the desired piston, the screen will show the Piston Input number, Card number and Piston Type. If the settings are correct, press the Save button to save the configuration.

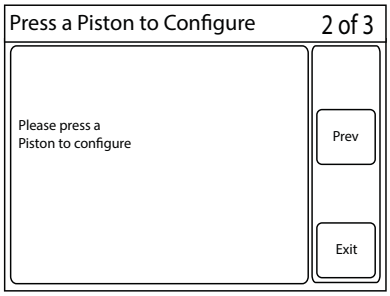
Step 3 (Reversible with Cancel): Turn on the stop(s) that are to be reversed by the desired Reversible Piston. Once the stops are on, press the desired piston to be configured as a Reversible.

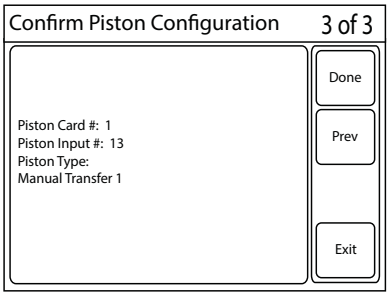
Step 4 (Reversible with Cancel): Turn on the stop(s) that are to be canceled by the desired Reversible Piston. Once the stops are on, press the desired piston to be configured as a Reversible.

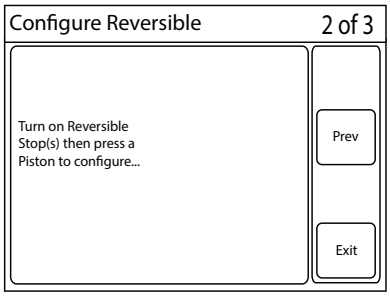
Step 5 (Reversible with Cancel): After pressing the desired piston, the screen will show the Piston Input number, Card number and Piston Type. If the settings are correct, press the Save button to save the configuration.

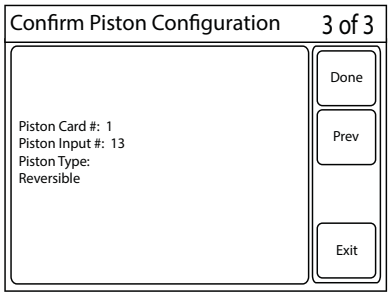


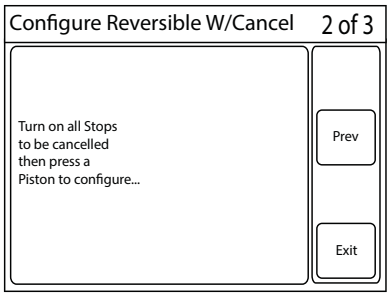


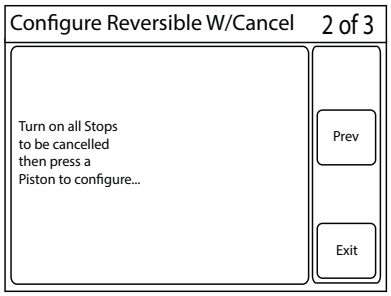


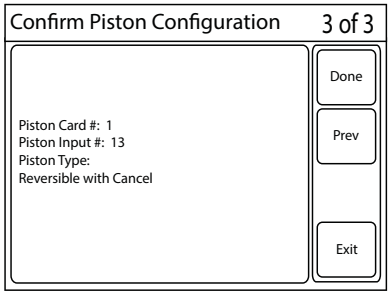










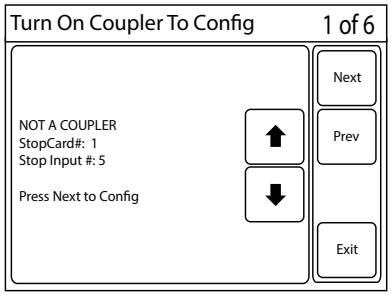


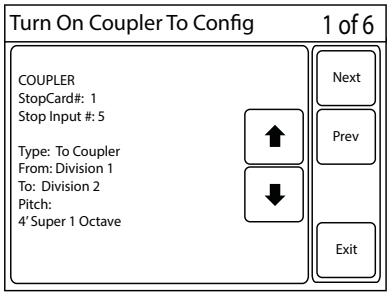
COUPLER CONFIGURATION

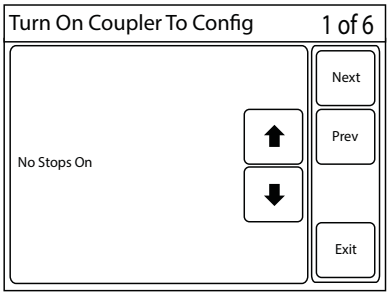
Any stop control in the MS8400 system can be configured as a coupler. There are 7 different coupler types that can be configured including "To," "On," Pizzicato, Sostenuto, Expression, Manual Transfer 1, and Manual Transfer 2. The coupler configuration screen can also be used to clear a coupler.

Step 1: Press the Coupler Config button on the System Configuration menu.

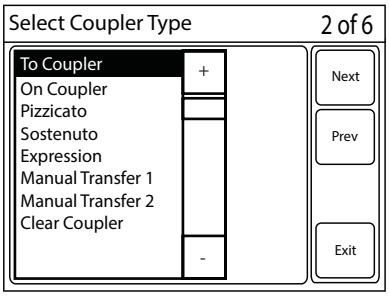
Step 2: Turn on the stop control(s) to be configured as a Coupler. If no stops are on, the screen will display the message, "No Stops On." If more than one stop is on, the up or down arrow will scroll through all active stops. When scrolling through stops, any stop that is not configured as a Coupler will display a message, "NOT A COUPLER." Any stop that has already been configured as a Coupler will display "COUPLER," as well as its coupler configuration information. Once the desired stop has been selected, press the Next button to configure or re-configure the stop as a Coupler.



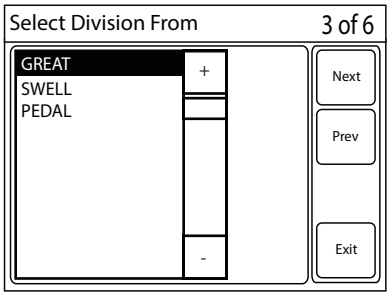


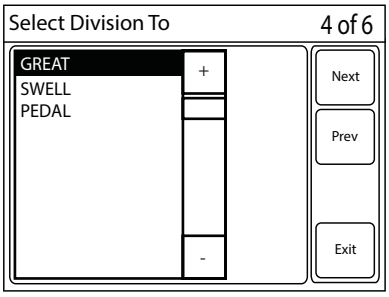


Step 3: There are 7 different coupler types available. A "To" coupler will couple from one division "To" the same or a different division at a variety of pitches. An "On" Coupler will couple the stops from one division "On" to another division. The "On" Coupler works in such a way that the "from" division's intra-manual couplers still couple the keying coming from the "On" division. A Pizzicato coupler operates in the same manor as a "To" coupler except for a programmable strobe effect. A Sostenuto coupler latches on any played notes within a selected division until the coupler is turned off. An expression coupler will couple the expression shoe level from one division to another division (or to all divisions using the "All Swells" selection). There are 2 Manual Transfers available in the MS8400 system. These can be setup as a piston in the Special Pistons screen, or to function with a stop in the Coupler Configuration screen. When this coupler is on, the selected manuals and their associated Divisional Pistons are switched (transferred). Select the desired coupler type from the list and press the Next button to continue.

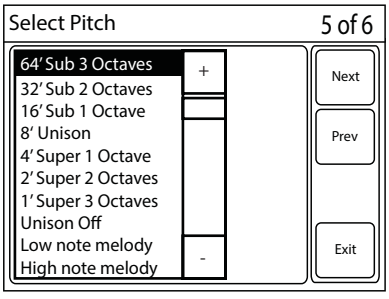


Step 4 (To Coupler): Select the couple from division and press the Next button. Then select the couple to division and press the Next button.



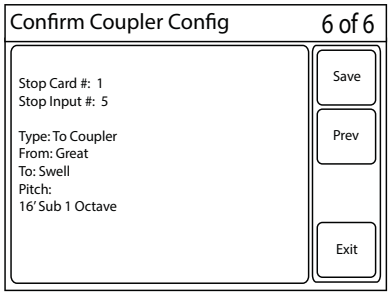


Step 5 (To Coupler): Pitches can be selected from 64', 32', 16', 8', 4', 2', and 1'. There are also options available to make the coupler a Unison off, a Low note melody coupler (often referred to as autopedal), or a High note melody coupler. Select the coupler type from the list and press the Next button.

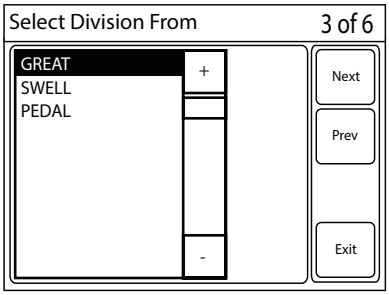


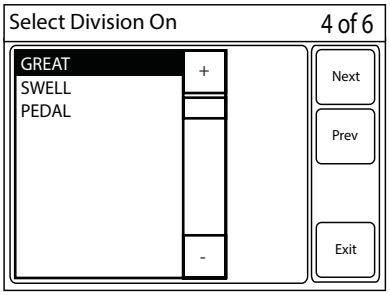
COUPLER CONFIGURATION (CONTINUED)

Step 6 (To Coupler): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.

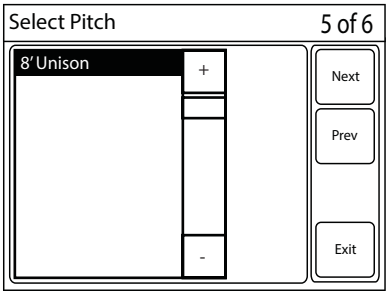


Step 4 (On Coupler): Select the couple from division and press the Next button. Then select the couple to division and press the Next button.

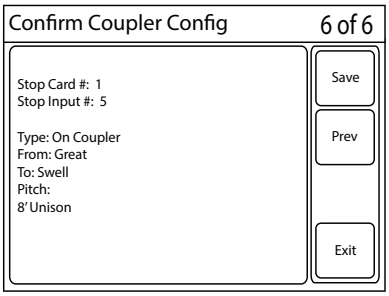




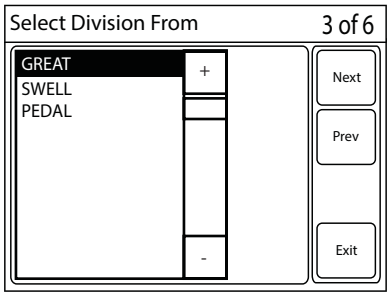
Step 5 (On Coupler): With an "On" Coupler, the only pitch available is 8' Unison. Press the Next button to select 8' Unison.

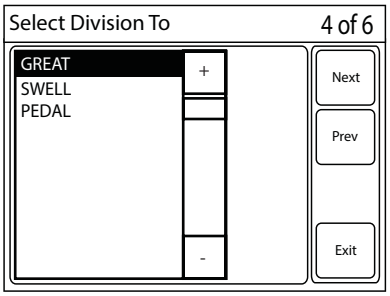


Step 6 (On Coupler): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.



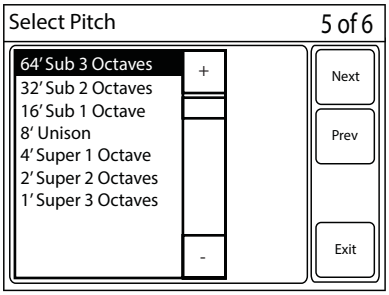
Step 4 (Pizzicato Coupler): Select the couple from division and press the Next button. Then select the couple to division and press the Next button.



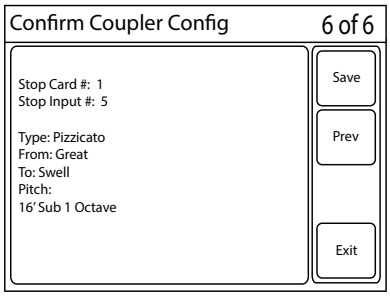


COUPLER CONFIGURATION (CONTINUED)

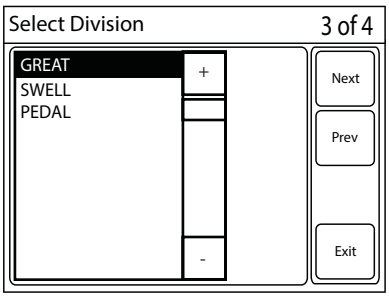
Step 5 (Pizzicato Coupler): Pizzicato pitches can be selected from 64', 32', 16', 8', 4', 2', and 1'. Select the coupler type from the list and press the Next button.



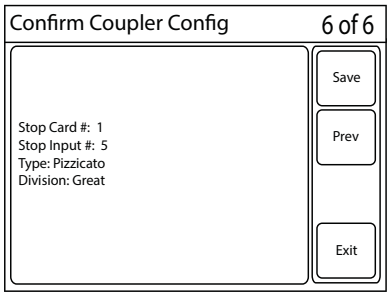
Step 6 (Pizzicato Coupler): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.



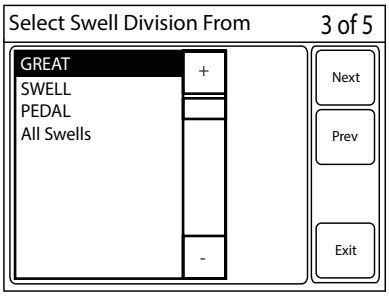
Step 4 (Sostenuto Coupler): Select the division that the sostenuto function will be active on and press the Next button.

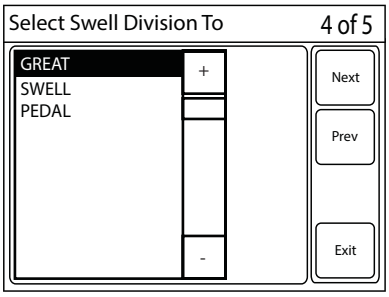


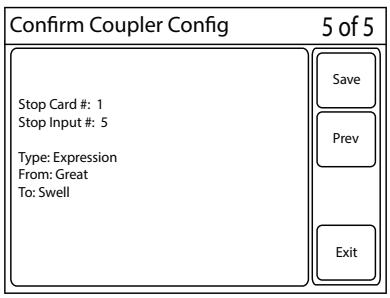
Step 5 (Sostenuto Coupler): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.



Step 4 (Expression Coupler): Select the coupler from division and press the Next button. The All Swells option will couple all swell shoes to the "To" division's shoe. Then select the couple to division and press the Next button.



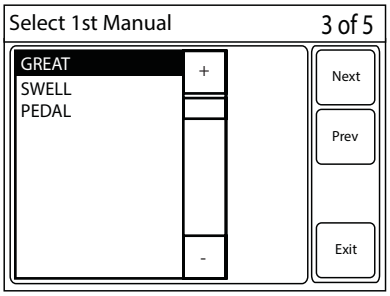


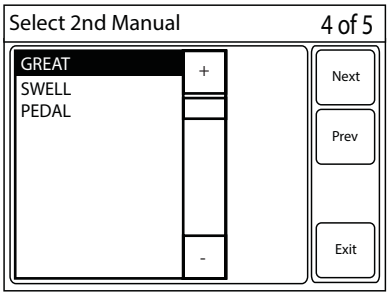


Step 6: (Expression Coupler): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.

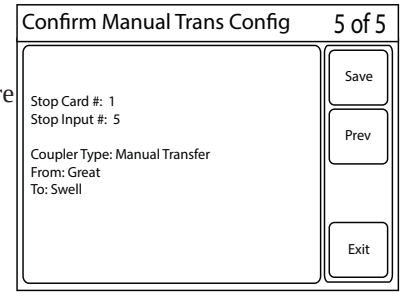
COUPLER CONFIGURATION (CONTINUED)

Step 4 (Manual Transfer 1or2): Select the 1st division to be transferred and press the Next button. Select the 2nd division to be transferred and press the Next button.

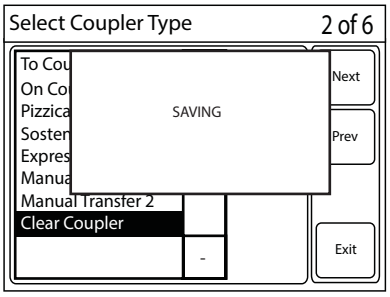




Step 5 (Manual Transfer 1or2): The screen will now ask to confirm the settings before committing them to memory. If the configuration settings are correct, press the Save button which will save the settings in memory and return to the System Configuration menu. If the settings are not correct, use the Previous button to go back through the menus to change settings. The Exit button will return to System Configuration menu without saving changes.

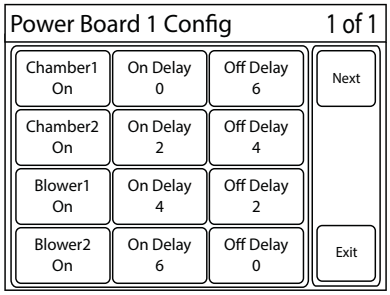


Step 4 (CLEARING A COUPLER): To clear coupler configuration for the selected stop, highlight the Clear option from the list box and press the Next button. A message box will be displayed with the word "SAVING." Once the message box is removed, the coupler configuration has been cleared from memory.



POWER CONFIGURATION

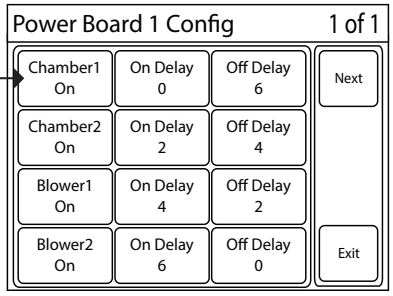
The MS8400 System can have up to 8 separate MS8409 Power Controller cards. Each MS8409 drives up to 4 different relays with configurable On and Off time delays. These cards are designed to provide power control for chamber drivers, blowers, and other remote power requirements directly from the MS8405 Touch Controller. The Power Configuration screen is used to configure how the MS8409 cards operate.

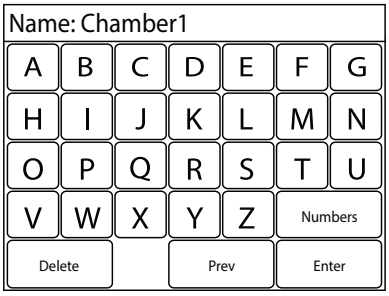


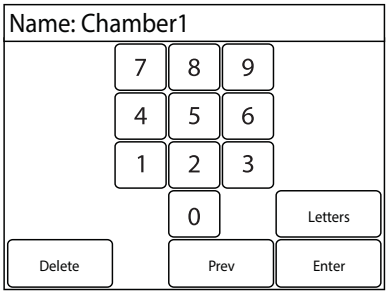
Step 1: Press the Power Config button on the System Configuration menu.

Step 2: The screen will display the first MS8409 card located in the system. The MS8409 has 4 relays for power control and each have a configurable on and off delay timer of up to 60 seconds. Each of these outputs can be given a alphanumeric name to more easily identify what the relay is controlling.

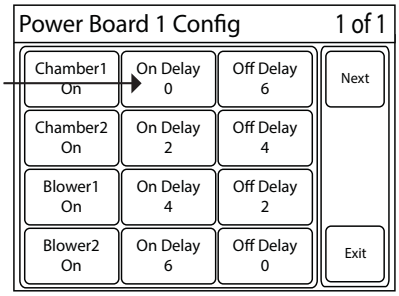
Step 3: To change the name, press the far left button of the desired output. The screen will display an alphanumeric keypad that is used to change the output name. When the name has been entered, press the Enter button to return to the Power Config screen.

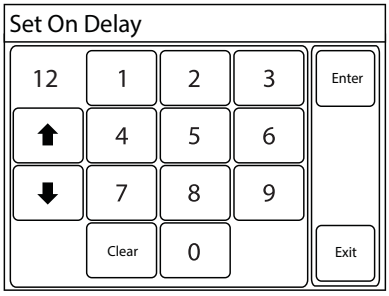




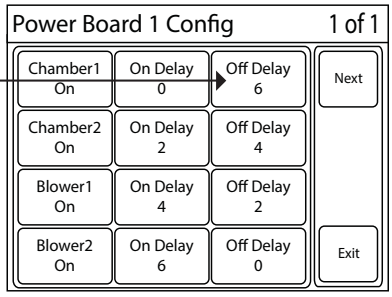


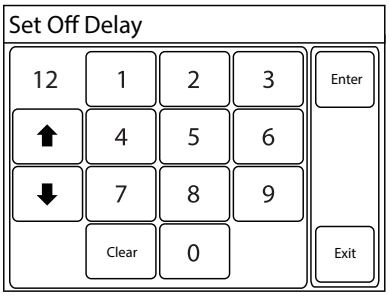
Step 4: To change the On time delay for an output, press the middle button for the desired output. The screen will display a numeric keypad to input the on delay time in seconds. When the on delay time has been entered, press the Enter button to return to the Power Config screen.



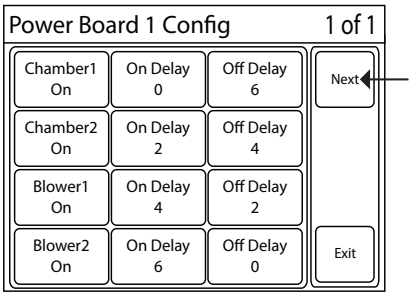


Step 5: To change the Off time delay for an output, press the middle button for the desired output. The screen will display a numeric keypad to input the on delay time in seconds. When the on delay time has been entered, press the Enter button to return to the Power Config screen.



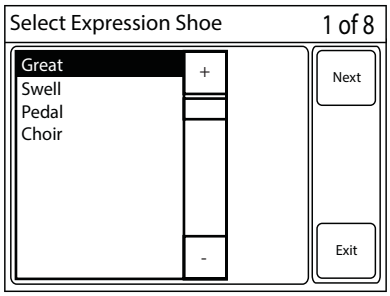


Step 6: If there are more then one MS8409 Power Boards in the system, press the next button to save the settings and move on to the next MS8409 Power Board in the system. Repeat steps 3 through 5 until all MS8409 Power Boards have been configured. Once the last MS8409 Power Board in the system has been configured, press the Save button to save the settings and return to the System Configuration menu.

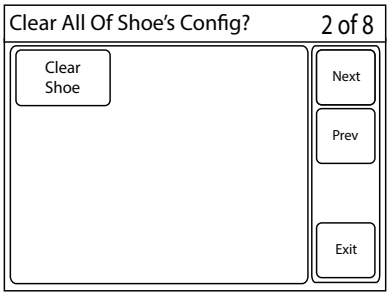


EXPRESSION DRIVER

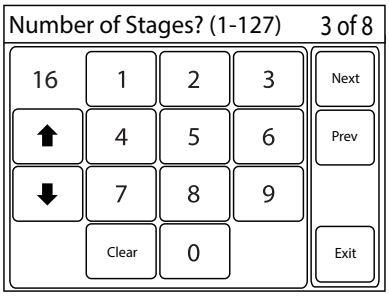
Any of the 80 outputs on the MS8406 Driver Cards can be configured to drive expression in the MS8400 system. The Expression Driver screen is where these outputs are configured to turn on with expression.



Step 1: Each MS8404 Keying Input card has an input on it for a potentiometer that can be used to control expression for the corresponding division. Select the desired expression shoe from the list and press the next button to begin configuration.

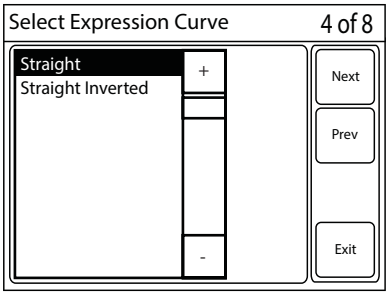


Step 2: The screen will now ask whether to clear all the current configuration data for the selected shoe. This is highly recommended in order to start fresh with configuration and to insure that no unwanted data remains for the selected expression shoe. To clear the expression shoe configuration press the Clear Shoe button. A message will be displayed briefly that the shoe is being cleared. Press the Next button to continue configuration.



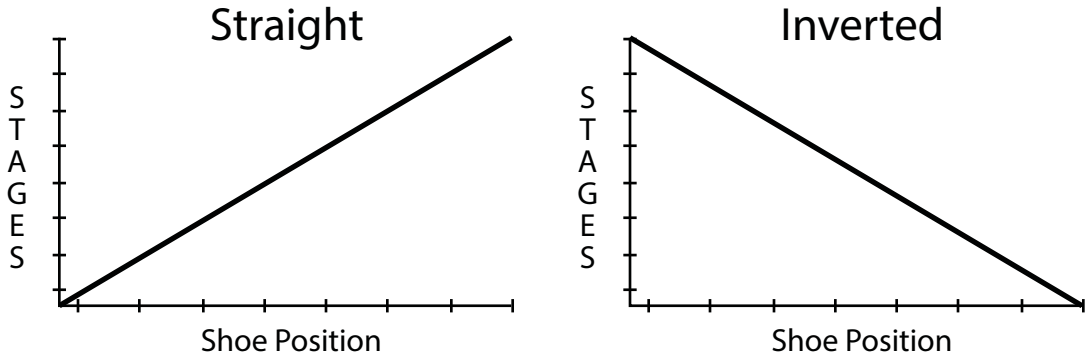
Step 3: Use the numeric keypad to input the total number of expression stages for the swell engine. The MS8400 system can handle up to 127 stages of expression per shoe. Once the correct number of stages is entered, press the Next button.

Step 4: Select the desired expression Curve from the list box. The expression curve is used to control how the stages of expression correspond to the shoe position. Here is an explanation of the options and an example of how they operate.



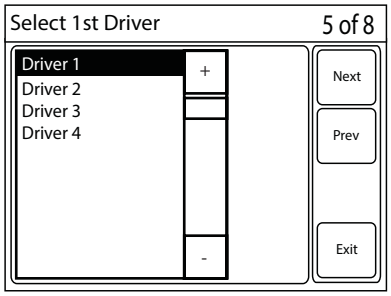
Straight: The total number of stages are divided equally across all the positions on the potentiometer.

Straight Inverted: This is an inverted version of the straight selection. This selection is used where a swell driver requires energized outputs to close the shades rather then to open them.

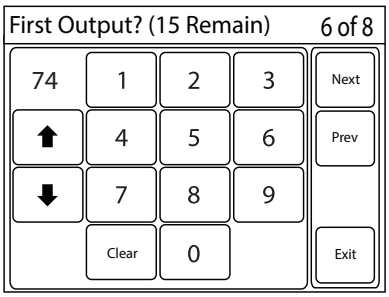


EXPRESSION DRIVER (CONTINUED)

Step 5: Select the 1st Driver Card (MS8406) to configure from the list. Although any spare outputs on MS8406 Driver Cards can be configured to turn on with expression stages, it is recommended to group outputs in order as much as possible to simplify configuration. Once the desired Driver Card has been selected, press the Next button.

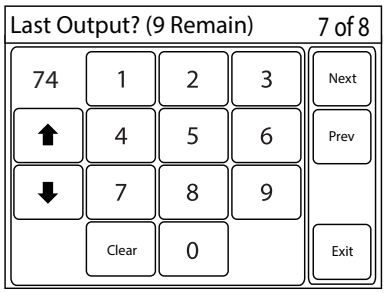


Step 6: Using the numeric keypad, enter the first output to turn on with expression stage one. Once the first output has been entered, press the Next button.

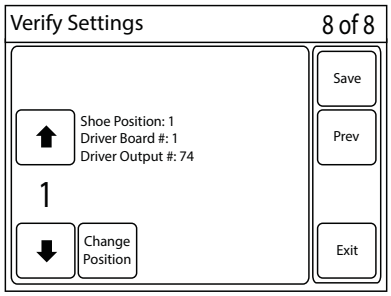


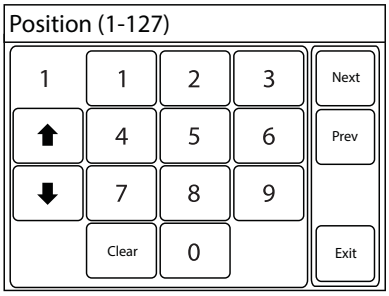
Step 7: Using the numeric keypad, enter the last output to turn on with its corresponding expression stage. Once the last output has been entered, press the Next button.

If the first and last output entered do not include enough outputs to cover all expression stages, the next button will bring up the Select Next Driver screen (repeating step 5). This will allow the remaining expression stages to be assigned to another Driver Card. Note that the total number of unassigned expression stages is displayed in the title for easy reference. Repeat steps 5-7 until all outputs have been assigned. Once all the expression stages have been assigned to driver outputs, the Next button will bring up the Verify Settings screen.



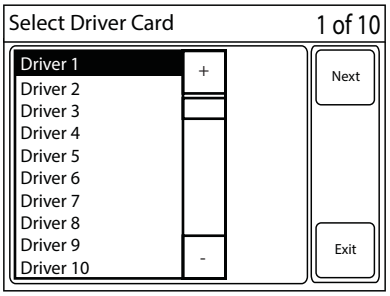
Step 8: Verify that the correct Driver Cards and Outputs have been assigned to the correct expression stages. Use the up and down arrows to scroll through expression stages to see which shoe position, driver card, and output number is assigned to each expression stage. In cases where a custom expression curve is desired, the Change Position button can be used to enter a desired expression shoe position for each expression stage. This feature allows complete control over the relationship between shoe position and expression stage. Once the expression shoe has been configured correctly, press the Save button to save the changes and return to the System Configuration menu.





DRIVER STOP CONFIGURATION

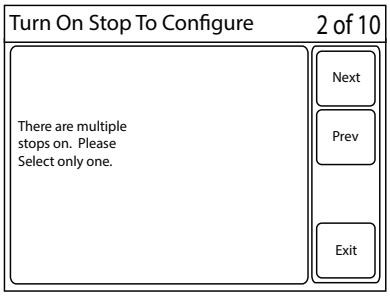
The Driver Stop Configuration screen is used to configure the MS8406 Driver Cards to play pipes. The MS8406 can be programmed with up to 7 different pitches per stop control. Each pitch is programmed directly from the console and can be configured to handle virtually any complex chest configuration. This multiple pitch feature can also be used to create custom synthetic mixtures and resultants.



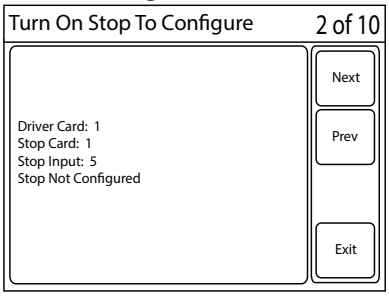
Step 1: It is highly recommended that before configuring, a list is made documenting all the MS8406 Driver Cards in the system and how their outputs have been wired. See the Installation Manual for a standard wiring list form. Documenting is not only a good practice for staying organized, but it will help speed up installation and troubleshooting in the event any mistakes were made in the wiring process.

Step 2: Select the desired Driver Card from the list and press the Next button.

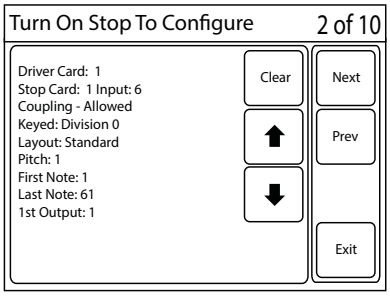
Step 3: The Select Stop to Configure screen will be displayed. Depending on how many stops are on and how those stops are configured, the screen will change. See the drawings below for examples of each possible screen. Turn on the desired stop to configure on the selected MS8406. Turn off all other stops. If the desired stop has not yet been configured, the screen will display the Driver Card number, Stop Controller Card number, Stop Controller Card Input number and a message stating that the stop has not been configured. If the desired stop has already been configured on the selected MS8406, the previous configuration data will be displayed. The up and down arrows can be used to scroll through and view the configuration for each of the 7 different pitches. The Clear button can be used to clear all previously configured data for the desired stop from the selected MS8406. All other data on the selected MS8406 and all data for the desired stop in any other MS8406 will not be affected by the clear button. Once the desired stop has been selected, press the Next button to continue configuration.



Multiple stops on or no stops on

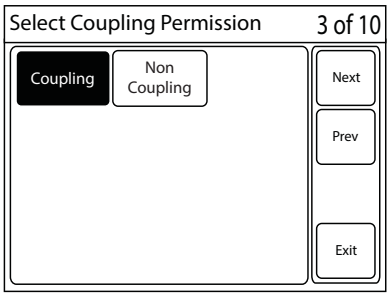


One stop on, not configured

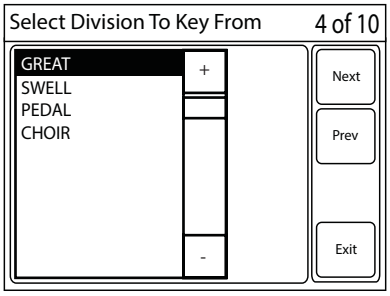


Stop already configured

Step 4: Any stop on any driver card can be configured to be either coupling or non-coupling. Select whether this stop will be allowed to couple, or will be non-coupling by pressing the properly labeled button. Once a selection has been made, press the Next button.

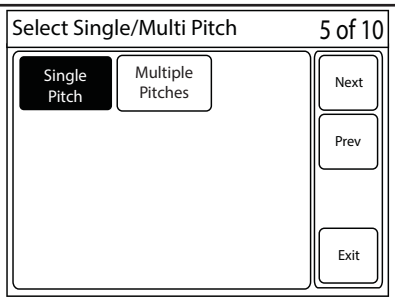


Step 5: Select the Division of keying from which the stop will be playing. Once the desired division is selected, press the Next button.

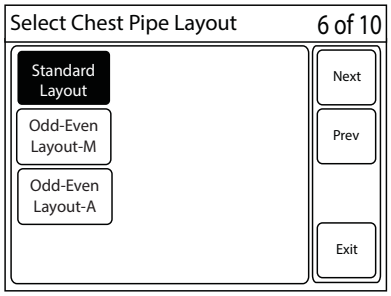


DRIVER STOP CONFIGURATION (CONTINUED)

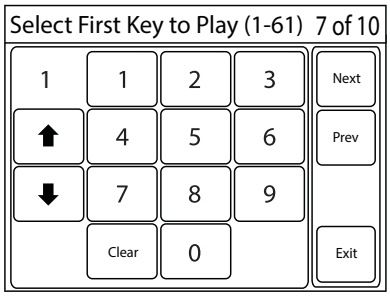
Step 6: Select whether the stop plays at one pitch, or at multiple pitches. Each stop can play at up to 7 pitches per Driver Card. Once the correct pitch setting has been selected, press the Next button.



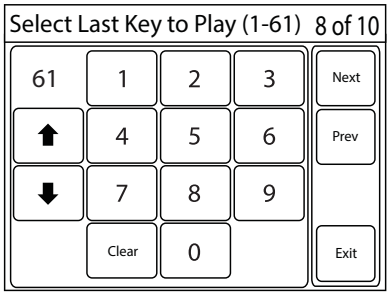
Step 7: Select how the pipes in the chest are laid out. The standard layout is wired chromatically starting on the 1st defined output pin of the MS8406 in order from lowest note to highest note. The vast majority of chests should be wired in this way. For more information on programming chests that have been wired Diatonically, see the diatonic layout section in this manual. Once the layout has been selected, press the next button.



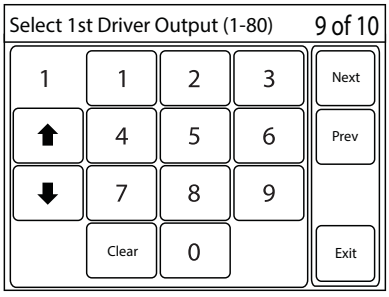
Step 8: Select the first key to play on the selected division. This can be done by pressing a key on the keyboard, or by entering the number through the keypad. For example, if the stop is supposed to play starting on Low C, press Low C and the number will automatically be changed to 1. If the stop is supposed to play starting at Tenor C, press Tenor C and the number will automatically change to 13. Once the first key has been selected, press the Next button.



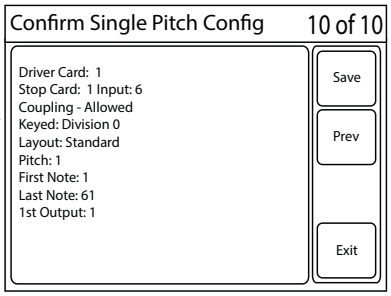
Step 9: Select the last key to play on the selected division. This can be done by pressing a key on the keyboard, or by entering the number through the keypad. For example, if the stop is supposed to play up through the last note on the keyboard, press High C and the number will automatically be changed to 61. If the stop is supposed to play bottom octave only on this driver card, press Low B and the number will automatically be changed to 12. The last note can be set to a value higher then the end of traditional keyboards in order to play any notes that would be coupled or transposed above note 61. For example, setting the last note to 73 will allow coupling or transposition up to an octave above the last note on the keyboard. Once the last key has been selected, press the Next button.



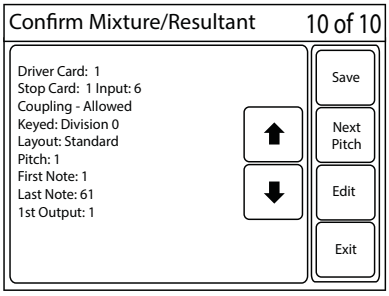
Step 10: Select the 1st output to play on the selected MS8406 Driver Card. The first output selected will play when the first key on the selected division has been pressed. For example, if a 73 note chest is wired from pin 1 through 73, and the selected stop is supposed to play starting at tenor C, enter output number 13. Once the 1st driver output has been selected, press the Next button.



Step 11 (Single Pitch): For single pitch stops, the screen will now ask to confirm the settings to be configured before committing the configuration to memory. The previous button can be used to move back through the screens to make changes. If the settings are correct, press the Save button to save the configuration and return to the system configuration menu.

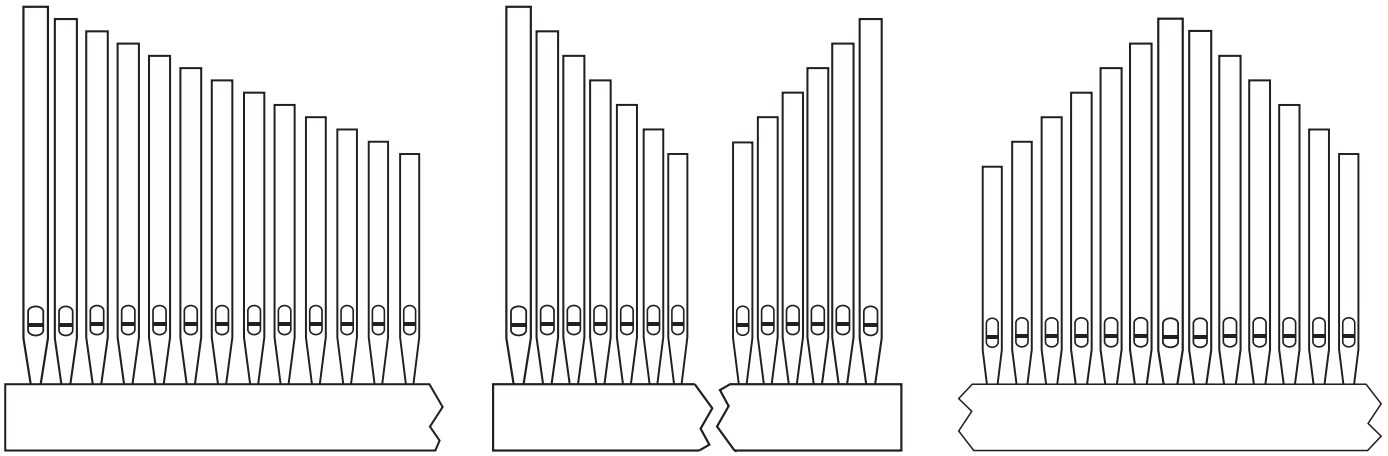


Step 11 (Multiple Pitches): The mixture/resultant confirmation screen is used to view/edit keying for multiple pitches. To configure the next pitch on a multiple pitch stop, press the Next Pitch button and the screen will repeat steps 8 through 10 to setup the next pitch's first key, last key, and 1st output configuration. The up and down arrows are used to scroll through each of the 7 available pitches to view and change their configurations. With a desired pitch selected, the edit button can be used to repeat steps 8 through 10 to setup the selected pitch's first key, last key, and 1st output configuration. Once all the pitches have been configured properly, press the Save button to save the changes and return to the system configuration menu.



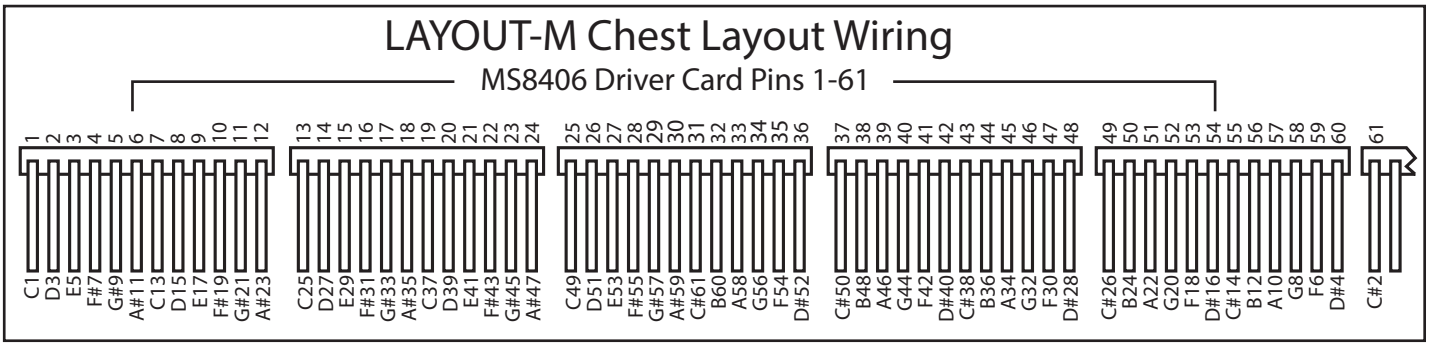
DRIVER STOP DIATONIC WIRED LAYOUTS

Step 7 (Diatonic Layouts): In some cases, chests are built diatonically where the pipes are not in order. In most cases, these chests can still be wired using the standard method of lowest note to highest note. We recommend wiring this way to simplify programming. However, builders may choose to wire diatonic chests straight from one side to another even though the pipes are out of order. Diatonic wiring is handled via two different layouts, Form-M and Form-A. See the drawing for an example of each.

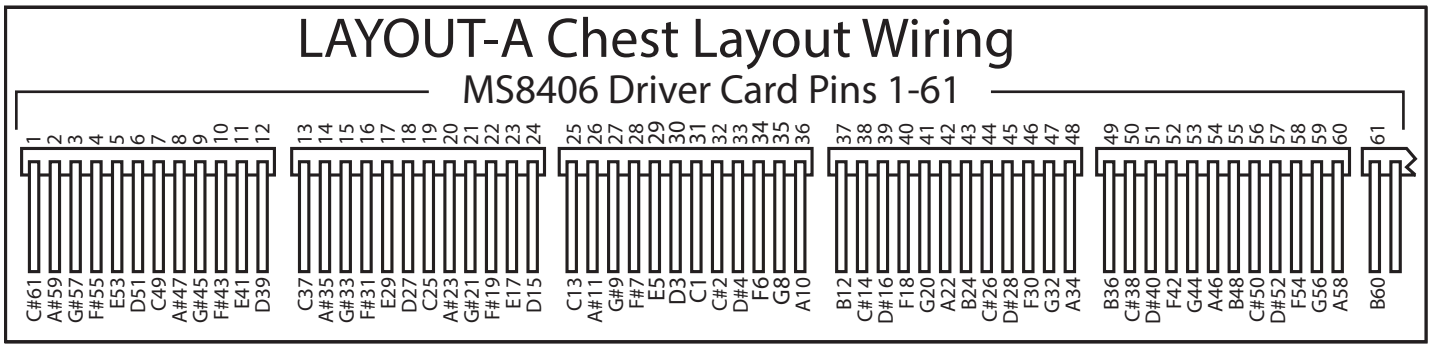


Standard Wiring Diatonic Form-M Diatonic Form-A

LAYOUT-M: The MS8406 can be configured via FORM-M to play the odd notes in order starting at the lowest note on the first defined output pin. Next, the even notes play starting with the highest note working down to the lowest defined even key.



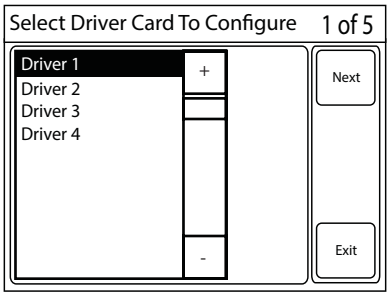
LAYOUT-A: The MS8406 can be configured via FORM-A to play the odd notes in order starting at the highest note on the first defined output pin. Next, the even notes play starting with the lowest note working up to the highest defined even key.



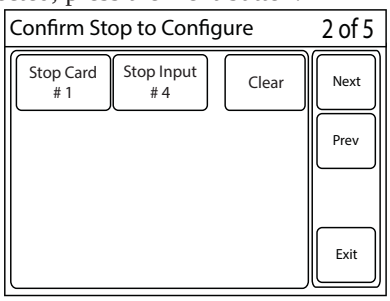
STOP / TRAP LINES

In the MS8400 system, any stop can be programmed to turn on an output on any MS8406 Driver Card. This can be configured as a stop line or a trap line.

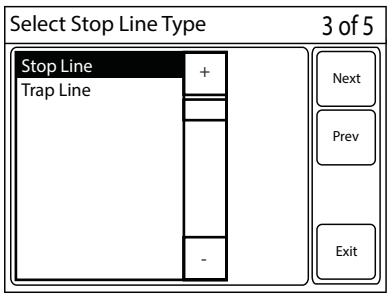
Step 1: Select the MS8406 Driver Card that is to be configured with the desired stop or trap line. Once the correct driver card has been selected, press the Next button.



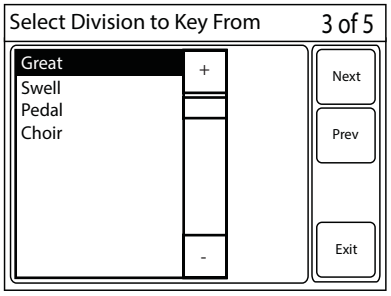
Step 2: Turn on the Stop Control that is to be configured with the desired stop or trap line. The Stop Controller Card number and the Stop Controller Card Input numbers will be displayed for reference. If the stop that is turned on is already configured as a stop or trap line, the clear button can be used to remove the current configuration before continuing. Once the correct Stop Control has been turned on, press the Next button.



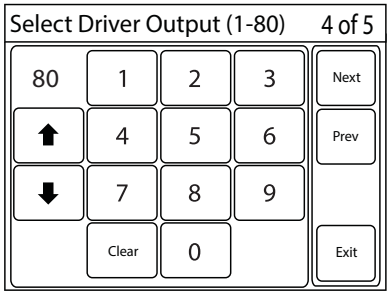
Step 3: Select whether the stop is to be configured as a Stop Line or a Trap Line. A stop line turns on an output on an MS8406 Driver Card when the configured Stop Control turns on and turns off the output when the Stop Control turns off. A trap line turns on an output only when the Stop Control is on and a key from the selected division is being pressed. Trap lines do not activate if no keys are being pressed in the selected division or the Stop Control is turned off. Once the correct type has been selected, press the Next button.



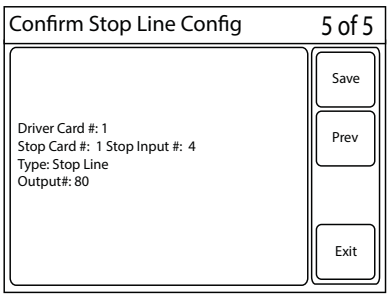
Step 4 (Trap Line): If trap line was selected, the screen will ask to select a Division. If the stop control is on and any key is pressed in the selected division, the trap line will activate. Once the correct division is selected, press the Next button.

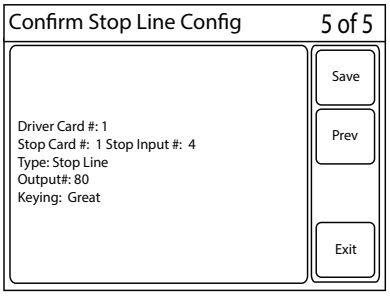


Step 5: Select the output on the selected MS8406 Driver Card that will turn on when the stop or trap line is activated. Any of the available 80 outputs on the driver card can be selected.



Step 6: Confirm that the configuration settings are correct. The Previous button can be used to go back through the menus to make desired changes. The Exit button will return to the System Configuration menu. Once the configuration settings are correct, press the Save button to commit the configuration to memory.

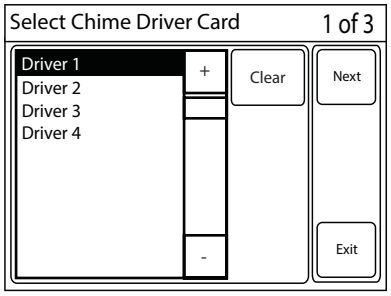




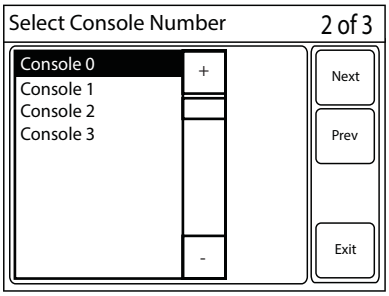
AC CHIME VOLUME

The MS8401 General controller has 4 rotary selector switch inputs. Any of these inputs can be configured to change AC Chime Volume using a Rotary Selector Switch.

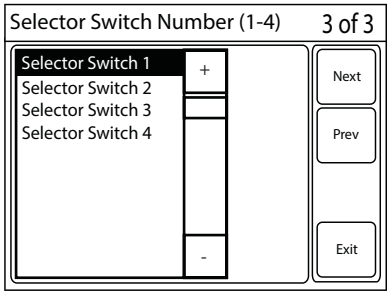
Step 1: Select the Chime Driver Card to be configured. Pressing the clear button will erase any previous configuration data saved in the selected Chime Driver. Once the desired Chime Driver is selected, press the Next button.



Step 2: Select the Console Number where the desired selector switch is located. The console number will be the same as the MS8401 General Controller card number. Once the desired console number is selected, press the Next button.



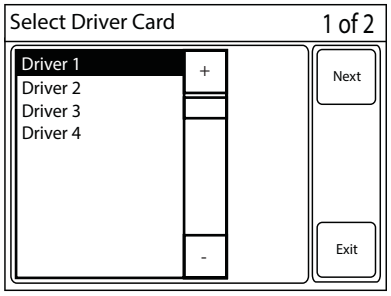
Step 3: Select the desired selector switch number located on the chosen console number. The Previous button can be used to go back through the menus to make desired changes. The Exit button will return to the System Configuration menu. Once the desired selector switch number is selected, press the Save button to commit the configuration to memory.



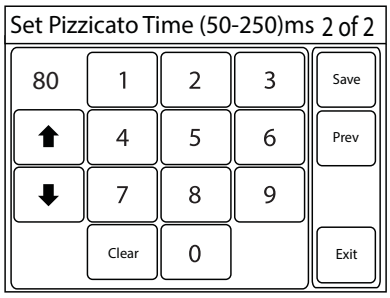
PIZZICATO SET TIME

Any stop in the MS8400 system can be configured as a Pizzicato coupler. Each MS8406 Driver Card can be configured with a different pizzicato coupler time setting. This time setting is made in milliseconds.

Step 1: Select the Driver Card to be configured with a new Pizzicato time setting. Once the desired Driver is selected, press the Next button.



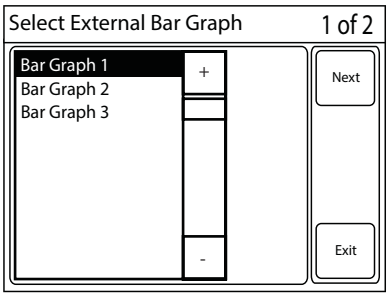
Step 2: Enter the Pizzicato time setting in milliseconds using the keypad. The Previous button can be used to go back through the menus to make desired changes. The Exit button will return to the System Configuration menu. Once the Pizzicato time setting is entered correctly, press the Save button to save the configuration to memory.



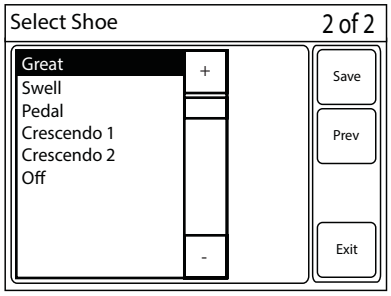
EXTERNAL BAR GRAPH

The MS8415 is an external LED bar graph display that can be used to indicate position on any of the shoes in the MS8400 system.

Step 1: Select the desired MS8415 External Bar Graph. Once the correct MS8415 is selected, press the Next button.



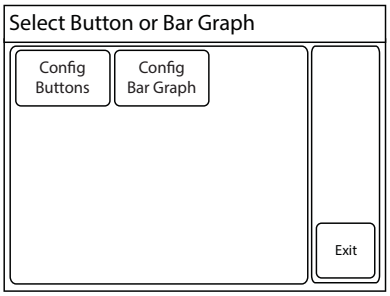
Step 2: Select the shoe whose position is indicated on the MS8415 External Bar Graph. Selecting "Off" from the list will remove the previous configuration data from the selected MS8415. The Previous button can be used to go back through the menus to make desired changes. The Exit button will return to the System Configuration menu. Press the Save button to save the configuration to memory.



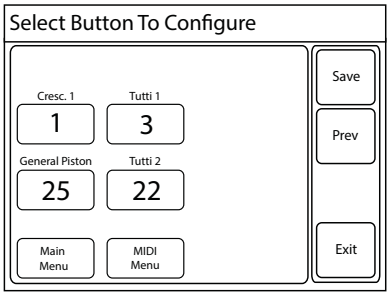
PERFORMANCE SCREEN (BUTTONS)

The performance screen is the primary display of the MS8405 Touch Screen Control Panel during the use of the organ. There are 5 configurable buttons on the performance screen that can be setup for a variety of functions.

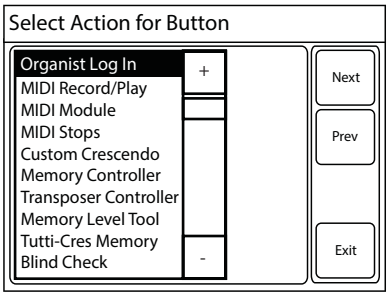
Step 1: From the System Configuration menu, press the Performance Screen Configuration button. From the Performance Screen Configuration Menu, press the button labeled Config Buttons.



Step 2: The screen will display the 6 performance screen buttons in their actual layout. With the exception of the Main Menu, these buttons can be configured by pressing them. Press on any of the configurable buttons to set them to a new function.



Step 3: Select the desired function for the selected button from the list box. Once the desired function has been selected, press the Next button. This will return to the Button Configuration screen where other buttons can be configured. Changes are not saved to memory until the Save button has been pressed on the Button Configuration Screen.



Step 4: Once all the buttons have been changed to their desired functions, press the Save button to save the changes.

Function Button Options:

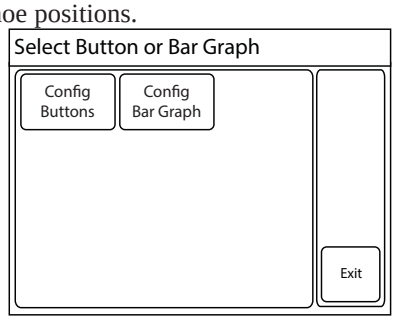
Crescendo 1/2: Displays and Changes the Crescendo Memory Level
Tutti 1/2: Displays and Changes the Tutti Memory Levels
SFZ1/2: Displays and Changes the Sforzando Memory Levels
General Piston: Show the active General Piston Number
Clock: Displays a Clock
Blank: Hides the selected button from the Performance Screen

Buttons for Quick Menu Access:

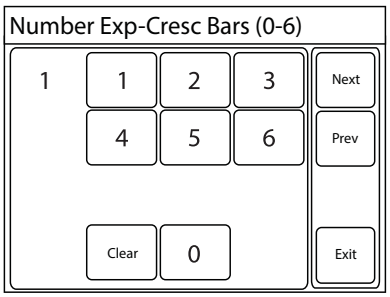
Organist Log In	Organist Backup
MIDI Record/Play	Organist Name
MIDI Module	Organist Access No.
MIDI Stops	Add Organist
Custom Crescendo	Delete Organist
Memory Controller	Performance Screen
Transposer Controller	Screen Brightness
Memory Level Tool	Color Scheme
Tutti-Cres Memory	Remote Tuner
Blind Check	Test and Diagnose
Power Operation	System Config

PERFORMANCE SCREEN (BAR GRAPHS)

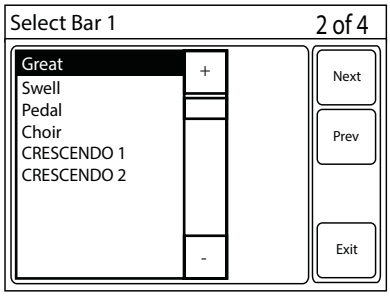
The performance screen is the primary display of the MS8405 Touch Screen Control Panel during the use of the organ. The performance screen can have up to 6 bar graphs to indicate different crescendo or swell shoe positions.



Step 1: From the System Configuration menu, press the Performance Screen Configuration button. From the Performance Screen Configuration Menu, press the button labeled Config Bar Graphs.

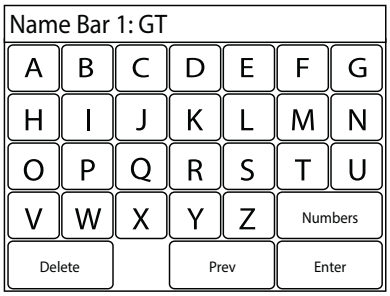


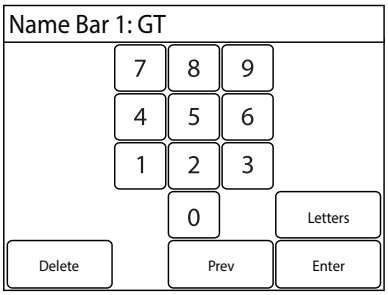
Step 2: Select the number of bar graphs to be configured. The bar graphs will automatically resize themselves to fit the performance screen. Once the correct number of graphs has been entered, press the Next button.



Step 3: Select which shoe the bar graph is supposed to indicate from the list box. The names of the shoes match the names entered in the Division Naming Screen. Once the shoe has been selected, press the Next button.

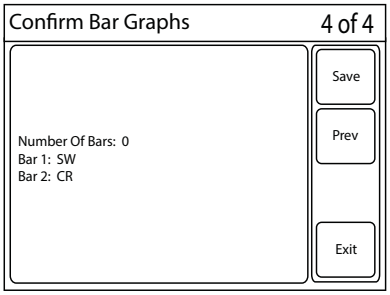
Step 4: Enter the bar indicator text using the alphanumeric keypad. The indicator text is displayed beneath the bar graph on the performance screen. The indicator text has a maximum of three characters. Once the correct bar indicator text has been entered, press the Next button.





Step 5: If more than one bar graph is being configured, repeat steps 3 and 4 for all of the desired bar graphs. Bars displays are placed on the screen in numeric order from left to right.

Step 6: Confirm the bar graph configuration settings displayed on the screen. The Previous button can be used to go back through the menus to make desired changes. The Exit button will return to the System Configuration menu. Once the bar graph settings are entered correctly, press the Save button to save the configuration to memory.



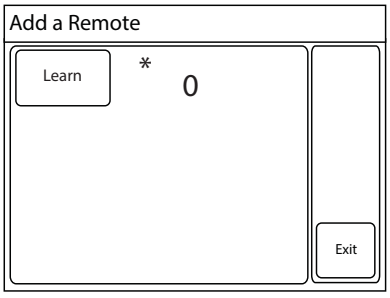
ADD A REMOTE

The MS8405 can be paired with a remote control for MIDI record and playback functionality as well as remote tuning. This screen is used to pair the remote with the MS8405

Step 1: Press the Learn button. An asterix will begin flashing next to the number.

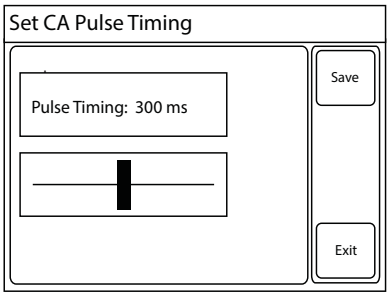
Step 2: Press any of the buttons on the remote control multiple times.

Step 3: Press the learn button. The pairing is complete and pressing any button on the remote control will now cause the number on the screen to change to match the button being pressed.



CA PULSE TIMING

The Combination Action has a configurable pulse time. The pulse time is the length of time that the on or off coils of a Stop Control are energized. A longer pulse time can be useful when older or less responsive stop controls require more power to move. The pulse time is configurable between 100ms and 600ms. 100ms is the factory default setting. Note that adjusting the pulse time will not compensate for a weak power supply.



Step 1: Slide the scroll bar to the left to decrease the pulse time or to the right to increase the pulse time. While the pulse timing screen is displayed, the MS8402 stop controller cards are switched to pulse timing mode. While in pulse timing mode, pressing any general or divisional piston will reverse the position of all stops in the system (if a stop is on, it will be turned off, if a stop is off, it will be turned on). General Cancel will cancel all stops.

Step 2: Use any general or divisional piston to test out the pulse time setting. Continue the process of adjusting the scroll bar and pressing the pistons until all the stop controls are operating as desired.

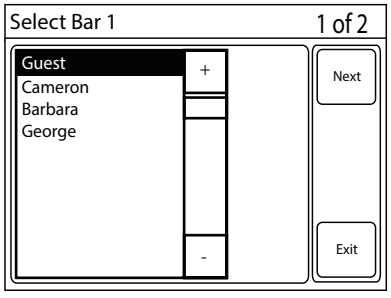
Step 3: Once the correct stop operation is achieved, press the Save button.

SET SCREEN CONTRAST

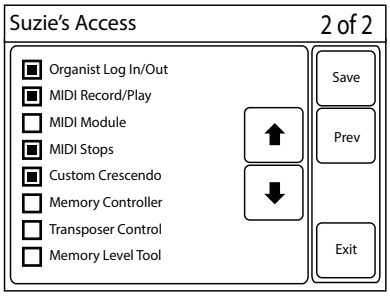
The screen contrast on the MS8405 Touch Screen Control Panel can be configured. Sliding the top bar and bottom bar to the left and right adjusts the screen contrast. Pressing the default button will return the slide bars to 50 (top) and 4 (bottom). Depending on the environmental conditions in which the screen resides, some experimentation with different settings may be required to find the correct settings. Once the correct settings have been discovered, press the Save button. Pressing the Exit button will return to the System Configuration Menu without saving any changes.

ORGANIST ACCESS

The MS8400 system can have up to 50 different organists. Each organist can be configured to have access to any buttons within the system using the organist access screen.



Step 1: Select the organist from the list to change their access settings. Once the correct organist has been selected, press the Next button. Note that the default "Builder" account cannot be selected, because they have access to all menus by default and cannot be limited. This prevents an accidental access lockout from occurring.



Step 2: Press on any menu item in the list to toggle it between checked and unchecked. The organist will have access to any menu item with a checked box and will be denied access to any menu item with an unchecked box. Denying access to a menu item will simply remove the button from the main menu or System Configuration menu. The menu pages will automatically adjust so there are no gaps where missing buttons used to exist.

Step 3: Use the up or down arrows to scroll through all the available menu items. Continue checking and unchecking boxes on each screen until all desired menu items have been checked or unchecked.

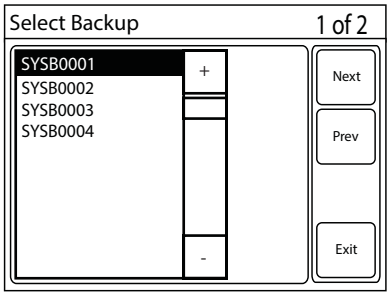
Step 4: Once all the correct menu items are configured, press the Save button. The Exit button returns to the System Configuration menu and the Previous button returns to the organist selection list box.

System Backup / Restore / Firmware Overview

The MS8400 system can save and restore system backup files in order to prevent costly data loss and minimize system downtime in the case a board must be replaced. Firmware updates to the boards can also be achieved by loading firmware files from the MS8405 Touch Screen Controller through a USB jump drive. The different backup, restore, and firmware functions are described each in the following sections.

Restore All Cards

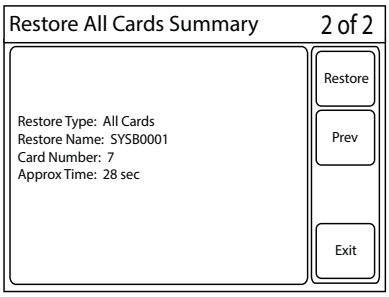
The MS8400 system can restore the configuration information for all cards in a system. If a system were damaged and had to be replaced, new boards could be put into the place of the old damaged boards. The correct board numbers would have to be assigned, for the restore to be done properly.



Step 1: Insert a USB drive with the desired system backup into the MS8400 System.

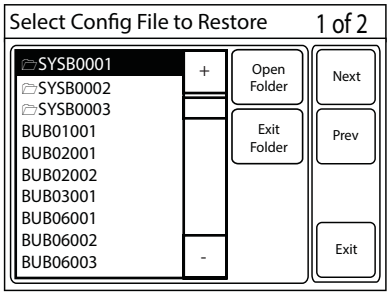
Step 2: Select the desired system backup from the list box. MS8400 "All Card" backups are actually folders that house a list of individual card backup files. The system looks in the root directory or "Home Folder" for any system backup folders and lists them to select from. Once the desired system backup is selected, press the Next button.

Step 3: Confirm the details of the backup to make sure that it matches the number of cards in the system. If the system backup details are correct, press the Restore button. This can take several minutes to complete and will exit to the System Configuration menu when finished. The Exit button returns to the system configuration menu and the Previous button returns to the select backup screen.



Restore Single Card

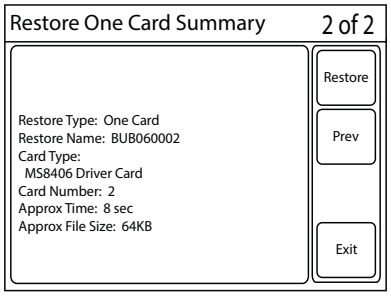
The MS8400 system can restore the configuration information any single card in the system. If any particular board in a system is damaged and must be replaced, a new board could be put into the place of the old damaged board. The correct board number would have to be assigned, for the restore to be done properly. Also, single board files can be restored from inside an "All Card" backup. There is no need to save individual backups of each card separately.



Step 1: Insert a USB drive with the desired single card or system backup into the MS8400 system.

Step 2: Select the desired system backup from the list box. The listbox shows available folders as well as single card backups. To navigate into a folder, select the folder from the list and press the Open Folder button. To navigate out of a folder, press the Exit Folder button. Once the correct single card backup has been located, select it from the list and press the Next button.

Step 3: Confirm the details of the backup to make sure that it matches the information for the replacement card. If the system backup details are correct, press the Restore button. This can take several minutes to complete and will exit to the System Configuration menu when finished. The Exit button returns to the system configuration menu and the Previous button returns to the select backup screen.

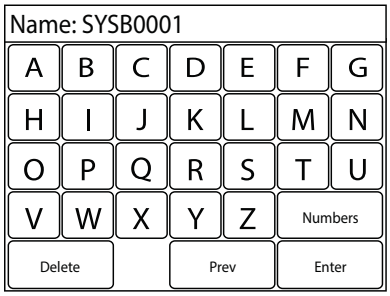


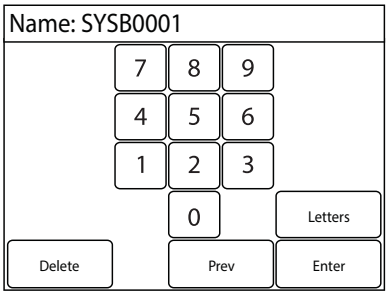
BACKUP ALL CARDS

The MS8400 system can backup the configuration information for all cards in a system. If a system were damaged and had to be replaced, new boards could be put into the place of the old damaged boards. After setting the new card numbers to match their replacements, a system backup can be restored and any saved configuration data would be returned to the instrument.

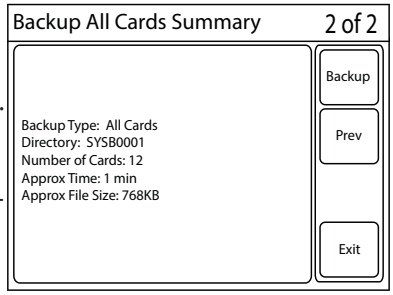
Step 1: Insert a USB drive into the MS8400 Systems USB Port.

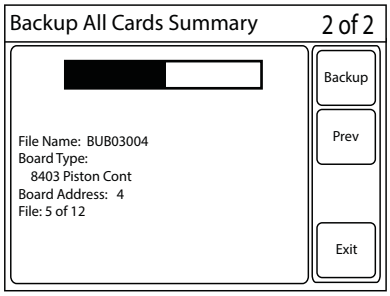
Step 2: Enter a name for the system backup. A suggested name will be automatically generated, but can be editted using the alphanumeric keypad. The backup process creates a folder on the USB drive with the system backup name. Then it fills this folder with all the individual card configuration backups from the entire system. Although this type of backup can be restored to the entire system, individual cards can also be restored from an "All Cards" backup.





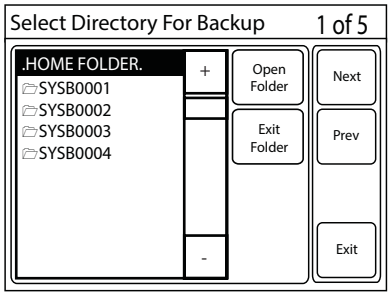
Step 3: Confirm the details of the system backup to make sure that it matches the number of cards in the system and all other displayed information. If the system backup details are correct, press the Backup button. This can take several minutes to complete and will exit to the System Configuration menu when finished. During the backup process the screen will display progress both through text as well as a progress bar. To abort the system backup, the Exit button is used to return to the System Configuration menu and the Previous button returns to the name backup screen.





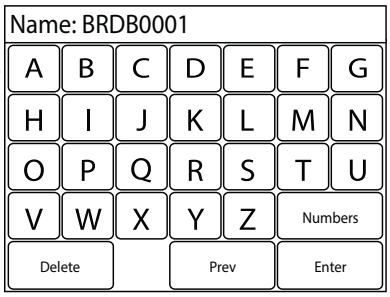
BACKUP SINGLE CARD

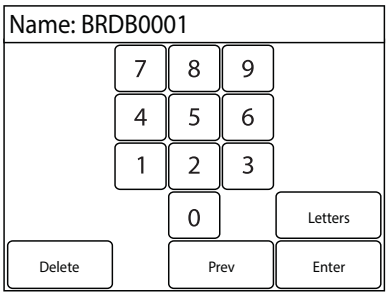
The MS8400 system can backup the configuration information of any single card in the system. It is important to note that doing an "All Card" backup still allows the builder to restore the configuration data from any single card within the system. The single card backup screen is available to speed up the process of backing up a single card when changes have been made. Backing up an entire system can take a long time, depending on the size of the instrument.



Step 1: Insert a USB drive into the MS8400 Systems USB Port.

Step 2: Select the desired folder in which to save the single card backup. It is not recommended to save the backup into a folder that already contains a file of the same name. The listbox shows available folders as well as lists the root directory or "Home Folder". Selecting the "Home Folder" option will save the backup to the root directory or "Home Folder" on the USB drive. To navigate into any folder, select the folder from the list and press the Open Folder button. To navigate out of a folder, press the Exit Folder button. Once the correct folder is selected, press the Next button.

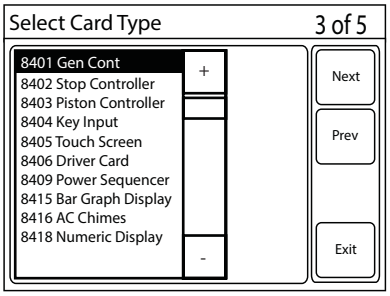




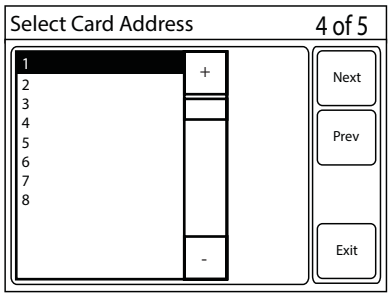
Step 3: Enter a name for the single card backup. A suggested name will be automatically generated, but can be editted using the alphanumeric keypad. The backup process creates a file in the selected folder named whatever is entered in the naming screen.

BACKUP SINGLE CARD (CONTINUED)

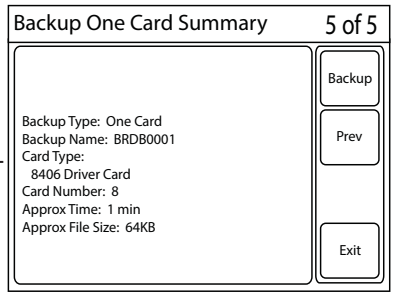
Step 4: There are several different types of cards in the system that can be backed up. The card type can be found listed on the title block located on the physical card. Once the correct card type has been selected, press the Next button.

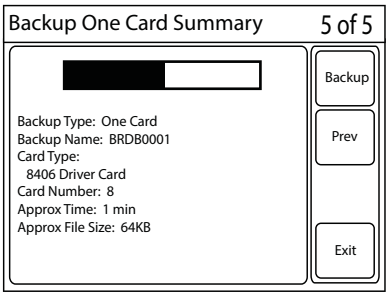


Step 5: The system will request card address numbers from all cards matching the selected card type. These card numbers are set using DIP Switches directly on the board. Once the desired card number has been selected from the list, press the Next button.



Step 6: Confirm the details of the single card backup to make sure that it matches correct card type and card number. If the card backup details are correct, press the Save button. This can take several minutes to complete and will exit to the System Configuration menu when finished. During the backup process the screen will display progress both through text as well as a progress bar. The Exit button is used to return to the System Configuration menu and the Previous button returns to the select card address screen.



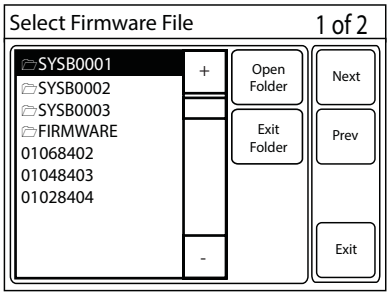


FIRMWARE UPDATE

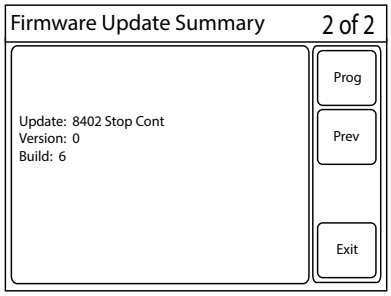
The MS8400 system can be updated to the latest firmware using a USB Drive attached to the MS8400 USB Port. Due to the volatile nature of firmware updating, it is only recommended if there is a particular firmware bug or desired feature that is addressed in the update. Updating to the latest firmware simply to update is not recommended.

Step 1: Insert a USB drive into the MS8400 Systems USB Port.

Step 2: Select the desired firmware file from the listbox. The listbox shows available folders as well as any firmware files in the root directory or "Home Folder". To navigate into any folder, select the folder from the list and press the Open Folder button. To navigate out of a folder, press the Exit Folder button. Note that the firmware name includes the four digit firmware revision and the four digit card type. For example, Revision 0105 of the MS8402 Stop Controller Card would be listed as 01058402. Once the correct firmware file is selected, press the Next button.

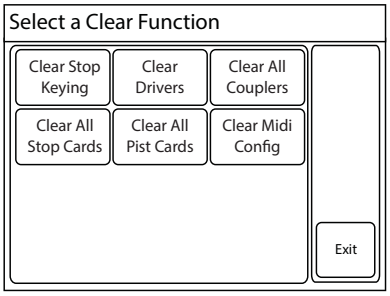


Step 3: Confirm the details of the firmware file to make sure that it matches the correct card type and revision. If the firmware details are correct, press the Program button. This will update all cards throughout the entire MS8400 system that match the selected card type. This process can take several minutes to complete and will exit to the System Configuration menu when finished. To abort the update, the Exit button is used to return to the System Configuration menu or the Previous button returns to the select firmware screen.



CLEARING CARDS OVERVIEW

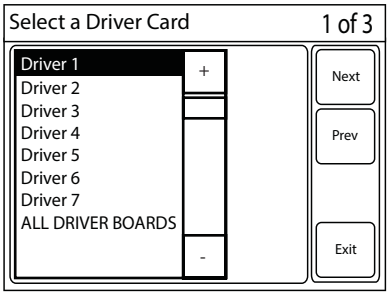
The MS8400 system can clear cards in a variety of ways. It is important not to enter the Clearing Menu without a complete understanding of each button and a level of comfort with how each button operates. The next few sections cover the different buttons on the clearing menu. Note that at this time, Clear Drivers, Clear All Couplers, Clear All Stop Cards, and Clear All Piston Cards immediately clear all the cards in the system of the selected type. There is no warning message that asks to confirm whether the cards should be cleared. Be careful not to use these buttons unless absolutely sure.



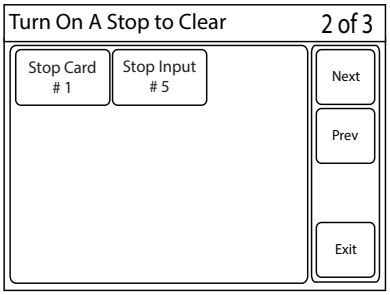
CLEARING STOP KEYING

Clearing Stop Keying clears all the keying configuration for a selected stop in a specific or all MS8406 Driver Cards (depending on selection). To do a full clear of all driver configurations across all driver cards, see the Clear Drivers section.

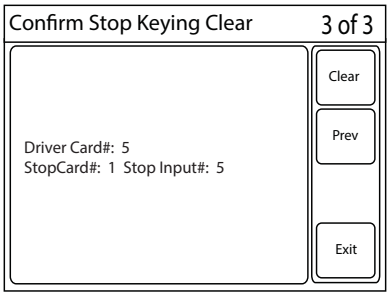
Step 1: Select the MS8406 Driver Card from the list box. Selecting "ALL DRIVER CARDS" from the list will clear the keying configuration for the desired stop in all the MS8406 Driver Cards in the system. Once the correct card is selected, press the Next button.



Step 2: Turn on a Stop Control to clear. Any keying in the selected MS8406 driver card(s) will be removed based on the selected stop control. Only one stop can be on at a time. If more than one stop is on the screen will request to turn on only one stop. If no stops are on, the screen will display that all stops are off. Once the desired stop has been selected, press the Next button.

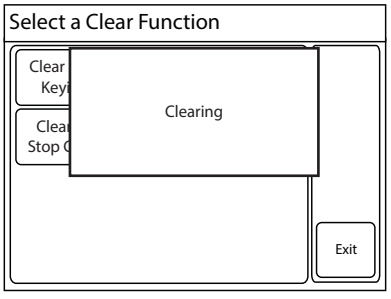


Step 3: Confirm that the clearing details match the desired Driver Card and Stop Control. If the clearing details are correct, press the Clear button. The Exit button returns to the system configuration menu and the Previous button returns to the Turn on a Stop to Clear screen.



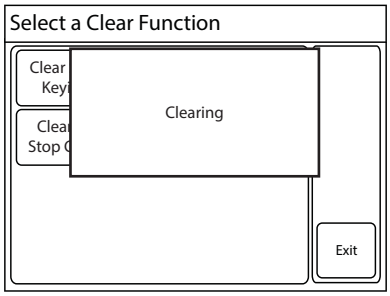
CLEARING DRIVERS

Pressing the Clear Drivers buttons clears all the configuration data in every MS8406 and MS8416 card in the system. There is no coming back from this action. Once the button is pressed, all drivers will be cleared of there configuration data. The drivers will need to be reconfigured or have a configuration backup file restored. Before pressing this button, make sure that it will accomplish what you are expecting. Once the button is pressed, the screen will display a clearing message while the drivers are clearing. Once the screen has returned to the Clearing Menu the drivers have been successfully cleared.



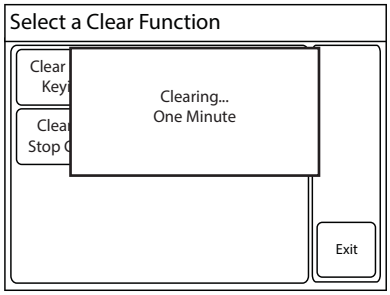
CLEARING ALL COUPLERS

Pressing the Clear Couplers button clears all the coupler configuration data in each MS8402 Stop Controller Card. There is no coming back from this action without a saved configuration backup file. Once the button is pressed, all MS8402 Stop Controllers will be cleared of there coupler configuration data. The couplers will need to be reconfigured or a configuration backup file of the MS8402s must be restored. Before pressing this button, make sure that it will accomplish what you are expecting. Once the button is pressed, the screen will display a clearing message while the couplers are clearing. Once the screen has returned to the Clearing Menu the couplers have been successfully cleared.



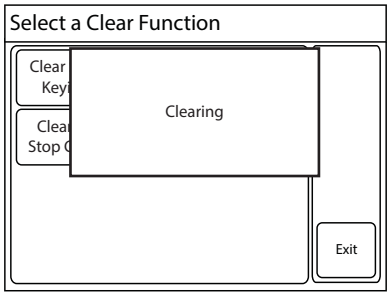
CLEARING ALL STOP CARDS

Pressing the Clear All Stop Cards button clears all the configuration data in each MS8402 Stop Controller Card. There is no coming back from this action without a saved configuration backup file. Once the button is pressed, all MS8402 Stop Controllers will be cleared of there configuration data. The MS8402s will need to be reconfigured or a configuration backup file of the MS8402s must be restored. Before pressing this button, make sure that it will accomplish what you are expecting. Once the button is pressed, the screen will display a clearing warning message while the Stop Controllers are clearing. Once the screen has returned to the Clearing Menu the Stop Controllers have been successfully cleared.



CLEARING ALL PISTON CARDS

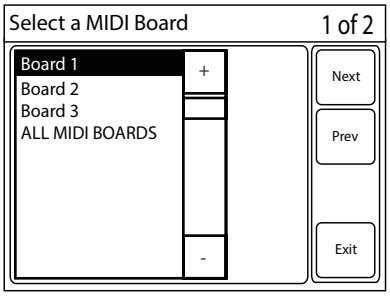
Pressing the Clear All Piston Cards button clears all the configuration data in the MS8403 Piston Controller Cards. There is no coming back from this action without a saved configuration backup file. Once the button is pressed, all MS8403 Piston Controllers will be cleared of there configuration data. The MS8403s will need to be reconfigured or a configuration backup file of the MS8403s must be restored. Before pressing this button, make sure that it will accomplish what you are expecting. Once the button is pressed, the screen will display a clearing message while the Piston Controllers are clearing. Once the screen has returned to the Clearing Menu the Piston Controllers have been successfully cleared.



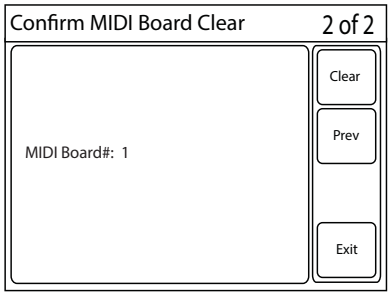
CLEARING MIDI CONFIG

Clearing MIDI Config clears all the configuration data on a single or all MS8410 MIDI Controller(s).

Step 1: Select the desired MS8410 MIDI Controller from the list box. Selecting the "ALL MIDI BOARDS" from the list will clear the configuration data from all the MS8410 MIDI Controllers in the system. Once the correct board is selected, press the Next button.



Step 3: Confirm that the Correct MS8410 is displayed in the confirmation screen. If the settings are correct, press the Clear button. To abort the MIDI Controller Clearing, the Exit button is used to return to the system configuration menu and the Previous button returns to the select a MIDI Controller screen.

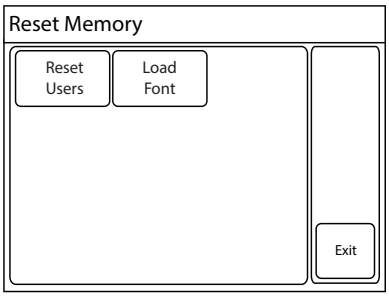


RESET MEMORY

The MS8405 Touch Screen Controller has built in flash memory that may need to be cleared. The next two sections cover Resetting Users and Loading Font Tables. It is recommended practice that the screen memory is reset before the system is implemented to insure that no residual configuration data is in the screen from the factory.

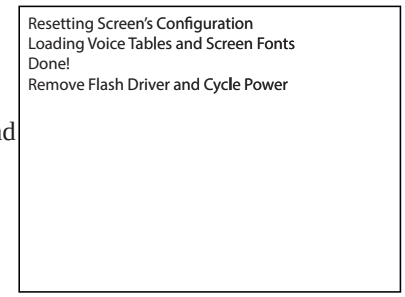
SCREEN RESET

The MS8405 Touch Screen Controller has built in flash memory that can be cleared to return the screen to factory defaults. This button will erase all organists except the Builder and the Guest accounts. Also, the builder and organist passwords will be returned to factory defaults. All system specific configuration in the screen such as division names will be erased. This button will also load the font tables into the screen if the font files are present in the root directory on an attached USB Drive. It is recommended practice that the screen memory is reset before the system is implemented to insure that no residual configuration data is in the screen from the factory.



Step 1: Press the Screen Reset Button.

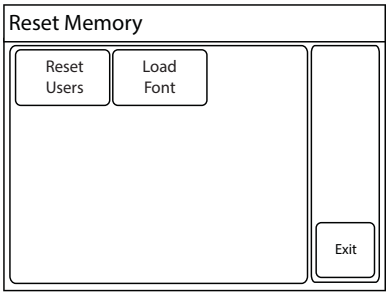
Step 2: During the screen reset, the screen will go blank. Text will be displayed to indicate the screen reset progress. Once the screen reset is complete, the screen should show the text, " Remove Flash Drive and Cycle Power."



Step 3: Turn the screen off and then back on again (power cycle).

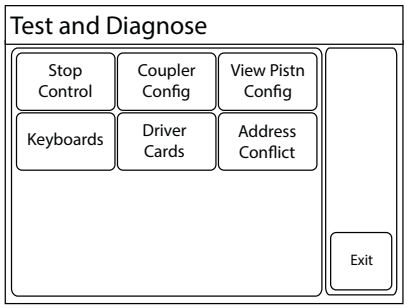
LOAD FONT TABLES

The Load Font table button looks at the USB driver for a font file. If a font file is found, the font is loaded into the system. Fonts are loaded into the system in cases where Syndyne has changed its flash memory structure in a system upgrade or loaded additional font characters. Using this button is not common practice and should only be done if instructed by Syndyne.



TEST AND DIAGNOSE MENU

The Test and Diagnose Menu has the ability to troubleshoot and test many of the common problems that occur when installing a new organ control system. Using the screens in the Test and Diagnose menu should help to quickly identify potential wiring and configuration problems.

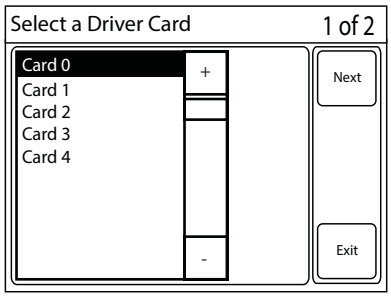


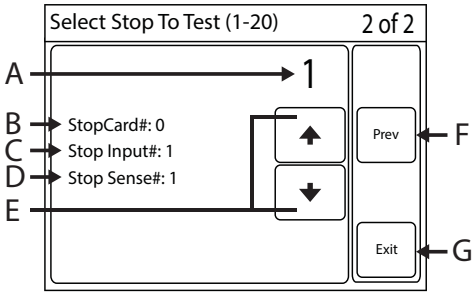
TEST STOP CONTROLS

In the MS8400 system, the Stop Controls are wired into MS8402 cards. Each MS8402 card is capable of driving 20 stop controls. Every MS8402 in the system requires its own unique address which is assigned by on-card DIP switches. The stop controls test is done on an MS8402 card by card basis. Only one stop can be on at a time for this test to function properly.

Step 1: Turn off all the organ's stop controls.

Step 2: Select the MS8402 stop control card to test from the list and press next.





Step 3: Push the Up or Down arrow (E) to energize the next Stop Control's "On Coil." The last line of text (D) gives feedback of potential problems.

A: This displays the stop control number that the system attempted to turn on.

B: This displays the MS8402 card number that was selected in step 2. (for reference)

C: This number will match the number in "A" as the stop that the system turned on.

D: This gives feedback as to whether the stop control is functioning properly and/or wired properly. If the Stop Sense number matches the Stop Input number then the stop is functioning properly. If the stop sense number does not match the Stop Input number, then the Stop Control's sense line or on coil line is wired to the wrong location. The screen will also give an error if more then one stop sense is on at one time.

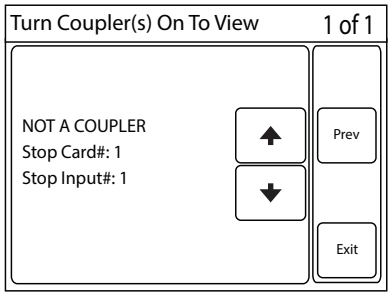
E: These arrows scroll through the Stop Controls on the selected MS8402 and energize their "On/Off Coils."

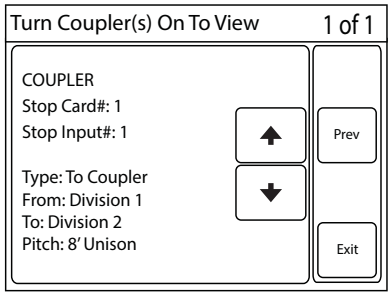
F: This exits to the Test and Diagnose menu.

G: This exits to the Main Menu screen.

TEST COUPLERS

The coupler testing screen is useful for trouble shooting stop controls as well as viewing any coupler configuration that has been programmed on a stop control.





Step 2: Turn on the stop control(s) to test.

Step 3: If more than one stop is on, use the up and down arrows to select the desired stop control.

Step 4: The stop control's configuration information is displayed.

Coupler / Not a coupler: The first line indicates whether a stop control is a coupler or not.

Stop Card#: This indicates the MS8402 card number in which the stop is wired. Card Numbers are configured on each MS8402 card using the Card Number DIP switch. It is crucial that each MS8402 have a different card number.

Stop Input#: This indicates input number in which the Stop Control is wired.

Coupler Type: Couplers can be one of several different types. This line indicates what type of coupler that the stop control is configured to be. Some examples of coupler types include: To Coupler, On Coupler, Pizzicato, Low Note Melody, High Note Melody etc.

From: The division from which stops are being coupled.

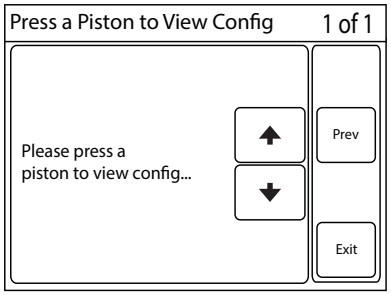
To: The division to which stops are being coupled.

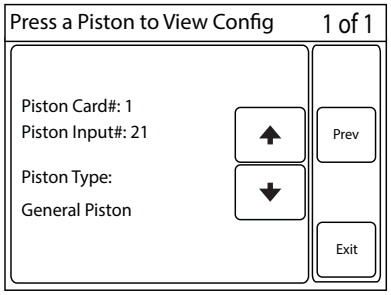
Pitch: The pitch at which stops are being coupled.
Some examples of pitches include: 64' 32', 16', 8', 4', 2', 1', etc.

The Previous button returns to the Test and Diagnose menu and the Exit button returns to the main menu.

TEST PISTONS

The piston testing screen is useful for viewing the configuration of any piston in the system. To test a piston on the piston testing screen, simply press the desired piston and read its configuration data.





Piston Card#: This indicates the MS8403 Card Number to which the piston is wired. Card Numbers are configured on each MS8402 card using the Card Number DIP switch. It is crucial that each MS8402 have a different card number.

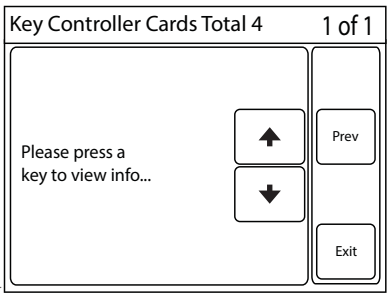
Piston Input#: This indicates the Input Number to which the piston is wired.

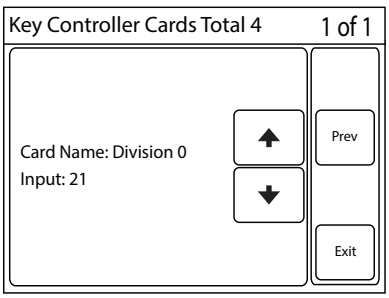
Piston Type: Pistons can be configured as one of many different types. Some examples of piston types include: Divisional, General, Set, General Cancel, Divisional Cancel, Reversible, Associated Reversible, SFZ, TUTTI, Memory Level Up/Down, Transposer Up/Down, Transposer On/Off, etc.

The Previous button returns to the Test and Diagnose menu and the Exit button returns to the main menu.

TEST KEYBOARDS

The keyboard testing screen is useful to see whether there were any mistakes made during the wiring process. Also, the top of the screen displays how many key input boards are in the system. This should match the total number of manual and pedal boards in the organ.





Step 1: Release all keys in the system and make sure that the system does not show that any keys are stuck on.

Step 2: Press down the lowest key on a desired keyboard. The screen will display the Card Name and the corresponding Input Number for this key.

Step 3: Slowly move up the keyboard one note at a time to make sure each note moves up sequentially by one Key Input Number.

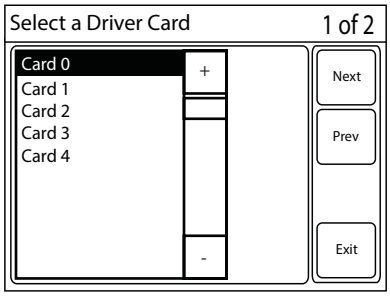
Card Name: Each keyboard is wired to an MS8404 Keying Input Card. These cards can be assigned a name such as “Great,” “Swell,” etc. If no name has been assigned to the card, it will have a default name. The default name is “Division” with the address of the card tagged on the end.

Input: The Input Number on the screen refers to the input pin on the MS8404 Card to which the key is wired. These pins are labeled on the MS8404 Card.

The Previous button returns to the Test and Diagnose menu and the Exit button returns to the main menu.

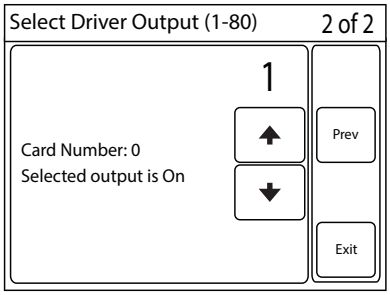
TEST DRIVER CARDS

The MS8406 Driver Card has 80 programmable outputs that can be used to play pipes, turn on stop lines, and much more. The driver card testing screen can sequentially turn on individual outputs of an MS8406 card. This is helpful in testing the functionality of what is wired to each output.



Step 1: Select a MS8406 from the list box and press the Next button.

Step 2: The first output on the selected driver will latch on. Use the up and down arrows to scroll through the outputs on the driver.

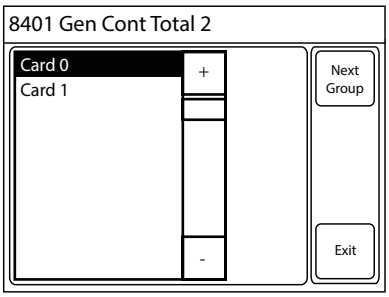


Card Number: Card Numbers are configured on each MS8406 card using the Card Number DIP switch. It is crucial that each MS8406 have a different Card Number.

The Previous button returns to the Test and Diagnose menu and the Exit button returns to the main menu.

TEST FOR ADDRESS CONFLICTS

Each Card in the MS8400 system is given a unique address. The Address Conflict Test screen is used to determine whether any duplicate addresses have been assigned.



The address conflict test is done for each group of cards individually. The type of cards being tested and the total number of unique addresses found are at the top of the screen. Each address that is reported shows up in the listbox. To determine whether there is a duplicate address, count the total number of boards in the organ console and/or chamber. If two boards have the same address, then only one of the addresses will appear in the listbox and the total count will be less than expected.

Pressing the next group button will load the Next Group of boards and their addresses. Pressing the Previous Group button will load the previous group of boards and their addresses. Pressing Exit will return to the main menu.

REMOTE TUNING

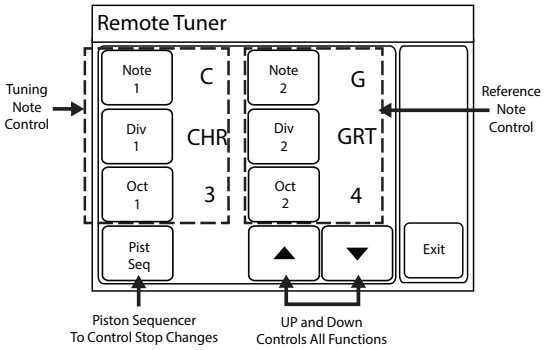
The MS8400 has an optional remote control that allows the builder to remote operate the console from the chamber. Notes can be turned on and off, and stops can be controlled using the general piston sequencer. The MS8405 Touch Screen has a built in Remote Tuning screen that puts the system into tuning mode. The Remote Tuning screen also displays the status of each of the tuning functions. The Remote Tuning function is designed to control two different notes, the note being tuned and a reference note to tune against. Each note can be set to play on a different division using the Division buttons. Octave modes are available for each note which allows to move the notes up an octave at a time.

Tuning Note Control: This group of three buttons controls how the Tuning Note plays. If any ot these three buttons are turned on, the up and down buttons will control them.

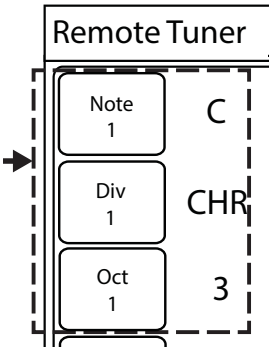
Reference Note Control: This group of three buttons controls how the Reference Note plays. If any ot these three buttons are turned on, the up and down buttons will control them.

Piston Sequencer Control: Turning this button on will allow the up and down arrows to scroll through pistons using the general piston sequencer.

UP and Down Arrows: These are the universal up and down buttons that control everything on the remote tuning screen.



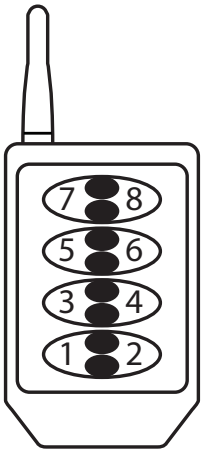
NOTE CONTROL BUTTONS



Note Button: The Note button controls whether the up and down arrows affect the selected note. If the button is on, the note will be moved up or down by a half step, if the button is off, the arrows will not affect the note.

Division Button: The Division button controls whether the up and down arrows affect the selected division. If the button is on, the Division will be moved up or down, if the button is off, the arrows will not affect the division.

Octave Button: The Octave button controls whether the selected note is changed in octave mode. When the button is on, the up and down arrows will move the selected note up or down by an octave. When the button is off, the selected note will only be moved by a half step. Turning on Octave mode will automatically turn on the corresponding Note button. Turning off a Note button will automatically turn off the corresponding Octave button.



REMOTE CONTROL

The remote control is used to press the buttons on the remote tuning screen. Since there are only 8 buttons, turning the Piston Sequencer button on/off is done by pressing both the Up and Down buttons simultaneously.

Button 1: Up Button
Button 2: Down Button
Button 3: Note 1 Octave Mode
Button 4: Note 2 Octave Mode
Button 5: Note 1 Playing Division
Button 6: Note 2 Playing Division
Button 7: Note 1 Latch On
Button 8: Note 2 Latch On

The End

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