



**MIDI FOOT-
CONTROLLER
Z-15**

Operator's Manual

Please, first read this manual carefully!

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Congratulations on your choice! With the **ENGL** Z-15 MIDI Foot Controller, you now own an extremely robust and very versatile MIDI foot controller housed in a fetching stainless steel chassis.

A quick rundown of its features and functionality follows. It:

1. selects 128 MIDI patches (MIDI program numbers or MPN for short).
2. selects MIDI (send) channels 1 to 16.
3. offers two inputs that accept two expression pedals, equipped with potentiometers.
4. enables controller numbers to be assigned freely to each expression pedal.
5. allows four different control curves to be assigned to every continuous controller.
6. offers a variable transmission rate (send interval) for controller words to affect the response of the remote controlled function.
7. features four Switch Loops. Statuses (open/closed) may stored for each of the 128 MIDI patches. This convenient feature allows four switching functions for external devices to be executed simultaneously at the touch of a single button on the Z-15.
8. selects MIDI patches in groups of ten patches called banks or directly, with the latter requiring confirmation.
9. offers a special feature - button-operated Internal Continuous Controllers.
10. A very practical power supply option: via a 5-pin MIDI cord connected to ENGL amps, power amps or preamps equipped with a MIDI IN port featuring phantom power that is enabled via the "ENGL MIDI Foot Controller" switch. An outboard power unit is not required for this type of configuration.

Contents:

1. Z-15 MIDI Foot Controller
2. This manual

Among the hallmarks of this Footpedal are painstaking workmanship and finishing as well as rigorously tested and carefully selected quality components. You'll find guidelines on care and maintenance on page 17. Under the heading Tips from the designer, you'll come across practical tips on the aforementioned features throughout the manual. All critical information concerning the operation of this Footswitch board is preceded by "NOTE", "CAUTION", "Read and heed" or some other eye-catching comment. We're calling your attention to these remarks for reasons of safety or other compelling motives, so please give them due consideration.

A few words of wisdom from the designer: Your first impression may be that handling the foot controller is complicated, particularly if you work with expression pedals and want to define their parameters. To nip frustration in the bud, I suggest you follow along with the examples on pages 12 to 17. This will give you a better understanding of and hands-on experience with the foot controller's functionality. In no time at all, you'll discover that it actually handles very comfortably and conveniently.

Control Panel Features

At page 23 of the manual, you'll find diagrams of the front panel.

In this section, we'll first look at the two operating modes and setup routines. Please refer also to the condensed instructions printed on the control panel. For purposes of clarity, buttons and their functions are shown in italic letters, while readouts appearing in the display are bracketed by the symbols >...<.

MPN:

MPN is short for MIDI program number. In this manual, an MPN is also called a MIDI patch. Not to be confused with a MIDI channel!

MIDI Program bank mode:

In this mode, the foot controller lets you access directly groups of ten MIDI patches each in the currently active bank by pressing the 0 to 9 buttons (Exception: MPN 000 and MPN 129, which do not exist). Use the Up and Down buttons to change from one bank to another. MIDI Program Bank Mode activates automatically when the foot controller is switched on.

MIDI Program direct access mode:

Providing an alternative means of MIDI patch selection, in this mode Up and Down serve to select MIDI patches in ascending and descending order, respectively. Press the 4 button to confirm and send the program change command. To activate this mode, press the 0 button in the first bank 00x until >Cn.1< appears in the display. Press the 9 button until the MPN flashes in the display. Confirm your MIDI patch selection by pressing the 4 button or select the desired MPN by pressing Up or Down. There is another method of activating MIDI Program Direct Access Mode: Press 9 in the last bank 12x until >Cn.2< appears in the display. Press 9 again until the MPN flashes in the display. Confirm the selected MIDI patch by pressing 4. In this mode, you can operate the Internal Continuous Controller using the 1, 2 and 3 buttons, and configure Switch Loops directly using the 5, 6, 7 and 8 buttons once you have confirmed the MPN. In other words you can program Switch Loops for each selected MPN.

Controller Setup:

This setup routine serves to define specific parameters for continuous controllers 1 and 2. To access Controller 1 Setup, press 0 for about three seconds in the first bank 00x until the display reads >Cn.1<. To access Controller 2 Setup, press 9 in the last bank 12x for about three seconds until the display reads >Cn.2<. Select the controller number via Up or Down, the control curve via the 1, 2, 3 and 4 buttons, and the send interval for controller commands via the 5, 6, 7 and 8 buttons. To cancel and exit a Controller Setup routine without programming or storing edited parameters, press 9 twice, in which case >End< appears in the display. Press 0 to store the edited parameters, in which case the display reads >Pro<.

MIDI Channel Setup:

This is also a setup routine; it serves to determine the MIDI channel by which MIDI data are sent. To activate the MIDI Channel Setup routine, press Up and Down buttons simultaneously for about three seconds until >c< appears at the display's first position, followed by the currently selected MIDI channel, for example, >c12< for MIDI channel 12. Press Up or Down to select or change the MIDI send channel. To cancel and exit the MIDI Channel Setup routine without programming or storing edited parameters, press 9, in which case >End< appears in the display. Press 0 to store the edited parameters, in which case the display reads >Pro<

Switch Loop Setup:

The four internal Switch Loops (Switch Loop 1, 2, 3 and 4) are configured in MIDI Program Direct Access Mode. You can program any desired Switch Loop configuration to all 128 MIDI patches. First confirm the selected MIDI patch by pressing 4. Press the buttons 5 (Switch Loop 1), 6 (Switch Loop 2), 7 (Switch Loop 3) and 8 (Switch Loop 4) to activate and deactivate the four Switch Loops. The four red LEDs below the display light up to indicate the given switch loop is set to closed status. Press 0 to store the edited status; the display will read >Pro<.

Internal Continuous Controller:

This is a special MIDI foot controller function that is accessible in MIDI Program Direct Access Mode. When you enable it, use 1 and 2 as up and down buttons to increase and decrease controller values (and vice versa in the case of a negative curve). When you use this function, it responds according to the parameters programmed in the Controller Setup routine in which you called up MIDI Program Direct Access Mode. Though this may strike you being confusing, it's actually quite simple. You'll find a detailed description with an example in section 2. on page 15. When you initially press button 3, it sends the initial value (either 0 or 127, depending on the selected curve); when you press it a second time, it sends the most recently selected controller value. The Internal Continuous Controller is deactivated when both external continuous controllers are in use or an external expression pedal is connected to the continuous controller whose setup routine you used to activate MIDI Program Direct Access Mode.

A detailed look at control and display features as well as ports and connectors follows:

0 button

Select the MIDI patch xx0 in MIDI Program Bank Mode. When banks 1x - 12x are active, pressing this button sends MIDI patch 10, 20, 30 and so forth up to 120 in accordance with the selected bank.

Note: MIDI patch 0 is not indicated as an actual number (in accordance with the MIDI specification, 0hex corresponds to >001<). When you press this button, the display reads >00-<, with a dash rather than a number appearing at the far right position.

Cn.1 Setup

This setup routine serves to determine parameter values for Continuous Controller 1.

The first bank 00x must be active in order to access this routine. Press and hold the button for about three seconds until the display reads >Cn.1<.

Write

This feature serves to store initial and edited settings for

- > the MIDI channels in the MIDI Channel Setup routine;
- > the various parameters for Continuous Controller 1 and Continuous Controller 2 (parameters are configured in Controller Setup routine);
- > the switching statuses of Switch Loops 1, 2, 3 and 4 in MIDI Program Direct Access Mode. Press the button until >Pro< appears in the display to indicate the write operation has been successfully concluded.

1 button

When you press this button in MIDI Program Bank Mode, the foot controller activates MIDI patch 01, 11, 21, 31 and so forth up to 121 within the selected bank.

Linear Positive

When the Controller 1 Setup or Controller 2 Setup routine is enabled, this button selects a positive linear curve (that is, a uniformly ascending curve) for the selected continuous controller.

Cn. value down

This option decreases controller values for the special Internal Continuous Controller function available in MIDI Program Direct Access Mode. Note that if it is assigned to a given controller's descending or negative curve, controller values increase when you press the button. The send interval setting determines the rate at which the control operation (that is, the speed at which controller values are sent) is executed when the button is pressed. The parameters defining the characteristic curve, send interval and controller number are determined by the configuration stored in the Controller Setup routine from which you selected MIDI Program Direct Access Mode. You'll find a detailed description with an example on page 15 and 16.

2 button

When you press this button in MIDI Program Bank Mode, the foot controller activates MIDI patch 02, 12, 22, 32 and so forth up to 122 within the selected bank.

Linear Negative :

When the Controller 1 Setup or Controller 2 Setup routine is enabled, this button selects a negative linear curve (that is, a uniformly descending curve) for the selected continuous controller.

Cn. value up :

This option increases controller values for the special Internal Continuous Controller function available in MIDI Program Direct Access Mode. Note that if it is assigned to a given controller's negative curve, controller values decrease when you press the button. The send interval setting determines the rate at which the control operation (that is, the speed at which controller values are sent) is executed when the button is pressed. The parameters defining the characteristic curve, send interval and controller number are determined by the configuration stored in the Controller Setup routine from which you selected MIDI Program Direct Access Mode. You'll find a detailed description with an example on page 15 and 16.

3 button

When you press this button in MIDI Program Bank Mode, the foot controller activates MIDI patch 03, 13, 23, 33 and so forth up to 123 within the selected bank.

Log. Positive

When the Controller 1 Setup or Controller 2 Setup routine is enabled, this button selects a positive logarithmic curve (ascending according to a predetermined logarithmic curve) for the selected continuous controller.

Cn. initial value

This option switches between the current (most recently sent) and the initial controller value marking the beginning of the curve (0 or 127, depending on the selected characteristic curve) for the special Internal Continuous Controller function. This function is available in MIDI Program Direct Access Mode. You'll find a detailed description with an example on page 15 and 16.

4 button

When you press this button in MIDI Program Bank Mode, the foot controller activates MIDI patch 04, 14, 24, 34 and so forth up to 124 within the selected bank.

Log. Negative

When the Controller 1 Setup or Controller 2 Setup routine is enabled, this button selects a negative logarithmic curve (descending according to a predetermined logarithmic curve) for the selected continuous controller.

confirm MPN

In MIDI Program Direct Bank Mode, the MIDI patch selected via Up or Down is confirmed using this button, whereupon it is sent to the MIDI Out port.

LED 1 - Switch Loop 1 Indicator

This LED indicates the status of Switch Loop 1. LED lights up -> Switch Loop 1 closed.

LED 2 - Switch Loop 2 Indicator

This LED indicates the status of Switch Loop 2. LED lights up -> Switch Loop 2 closed.

LED 3 - Switch Loop 3 Indicator

This LED indicates the status of Switch Loop 3. LED lights up -> Switch Loop 3 closed.

LED 4 - Switch Loop 4 Indicator

This LED indicates the status of Switch Loop 4. LED lights up -> Switch Loop 4 closed.

Up button

Up - Bank

When you press this button in MIDI Program Bank Mode, it selects the next higher bank above the current bank (say, to go from 1x to 2x). The digit appearing at the ones position flashes to indicate that you have left the current bank and that you must send a MIDI program change message by entering the desired patch number (0 - 9). Once you have entered an MPN, the display indicates the selected MIDI patch and the ones position stops flashing. To access a more remote bank, step to it by pressing the button repeatedly or fast-forward to it by pressing and holding this button.

Up - MPN

Press this button in MIDI Program Direct Access Mode to select MIDI patches directly. Every time you press the button, the MIDI patch number increases by one. Pressing and holding the button causes MIDI patches to scroll continuously in ascending order. The display flashes, indicating the selected patch, until you confirm your selection by pressing the 4 button. The selected MIDI patch is sent to the MIDI Out port.

Up - controller number

When you press this button in the given Controller Setup routine for Continuous Controller 1 and Continuous Controller 2, controller numbers increase by one, starting from the currently assigned controller number, with each push of this button.

Up - MIDI channel

When you press this button in the MIDI Channel Setup routine, MIDI channel numbers increase by one, starting from the currently assigned MIDI channel number, with each push of this button.

5 button

When you press this button in MIDI Program Bank Mode, the foot controller activates MIDI patch 05, 15, 25, 35 and so forth up to 125 within the selected bank.

Cn. S. I. 10ms

When you press this button in the Controller 1 Setup and Controller 2 Setup routines, it sets a send interval of 10 ms (milliseconds) for the selected continuous controller's value output rate.

Switch Loop 1

In MIDI Program Direct Access Mode, this button lets you configure Switch Loop 1; that is, close or open it. LED 1 lights up to indicate it is closed.

6 button

When you press this button in MIDI Program Bank Mode, the foot controller activates MIDI patch 06, 16, 26, 36 and so forth up to 126 within the selected bank.

Cn. S. I. 20ms

When you press this button in the Controller 1 Setup and Controller 2 Setup routines, it sets a send interval of 20 ms (milliseconds) for the selected continuous controller's value output rate.

Switch Loop 2

In MIDI Program Direct Access Mode, this button lets you configure Switch Loop 2; that is, close or open it. LED 2 lights up to indicate it is closed.

7 button

When you press this button in MIDI Program Bank Mode, the foot controller activates MIDI patch 07, 17, 27, 37 and so forth up to 127 within the selected bank.

Cn. S. I. 30ms

When you press this button in the Controller 1 Setup and Controller 2 Setup routines, it sets a send interval of 30 ms (milliseconds) for the selected continuous controller's value output rate.

Switch Loop 3

In MIDI Program Direct Access Mode, this button lets you configure Switch Loop 3; that is, close or open it. LED 3 lights up to indicate it is closed.

8 button

When you press this button in MIDI Program Bank Mode, the foot controller activates MIDI patch 08, 18, 28, 38 and so forth up to 128 within the selected bank.

Cn. S. I. 50ms

When you press this button in the Controller 1 Setup and Controller 2 Setup routines, it sets a send interval of 50 ms (milliseconds) for the selected continuous controller's value output rate.

Switch Loop 4

In MIDI Program Direct Access Mode, this button lets you configure Switch Loop 4; that is, close or open it. LED 4 lights up to indicate it is closed.

9 button

This feature selects MIDI patch xx9 in MIDI Program Bank Mode. When you press this button in banks 00x - 11x, a MIDI program message is sent to go to patch x9 in the selected bank; that is, 09, 19, 29, 39 and so forth up to 119.

Note: There is no MIDI patch number 129. When the 9 button is pressed in the last bank, the display reads >12<, with a dash rather than a number appearing at the far right position.

Cn.2 Setup

This function selects Controller 2 Setup, which serves to configure the parameters for Continuous Controller 2 : This setup routine can only be activated from the last bank 12x. Press and hold the button for about three seconds until the display reads >Cn.2<.

End

This function provides access to MIDI Program Direct Access Mode. Press the button to switch from Controller 1 Setup or Controller 2 Setup to MIDI Program Direct Access Mode. To quit MIDI Program Direct Access Mode, press this button again; the display reads >End<.

Three-digit, 7 Segment LED Display

In MIDI Program Bank Mode

In this mode, the display indicates the MIDI program number (MPN). After changing to another bank of ten patches, the digit at the far right flashes until a new patch is selected and a program change message is sent by activating one of the 0 to 9 buttons. The right digit in the display stops flashing when you return to the bank in which the last MIDI patch was selected. After the foot controller is powered up, the ENGL logo runs across the display until a button is activated.

In MIDI Channel Setup

In this mode, the display indicates the selected MIDI channel. After switching to MIDI Channel Setup, >c< for channel appears along with the selected MIDI channel number (example: >c12< for MIDI channel 12).

In Controller Setup

In this mode, the display indicates >Cn.1< or >Cn.2<, depending on the activated

Controller Setup Routine. After about two seconds, the display shows the assigned controller number. After about another two seconds, it indicates the curve assigned to the continuous controller and the selected send interval for the given continuous controller. The decimal point in the middle segment of the display indicates parameters and controller values assigned to Continuous Controller 1. The decimal points at the center and at the right of the display indicate parameters and controller values assigned to Continuous Controller 2.

In MIDI Program Direct Access Mode

When in MIDI Program Direct Access Mode, the display indicates MIDI patches. When the foot controller is set to this mode, the MIDI program numbers in the display flash until you confirm them by pressing 4.

For Write operations

When you press 0 button to store MIDI channels, MIDI controller parameters or switch loop configurations, the display reads >Pro<.

When quitting modes via End

The display indicates >End< when exiting MIDI Program Direct Access Mode and when canceling MIDI Channel Setup without storing configurations by pressing the 9 button.

When connecting an expression pedal

Immediately after you plug in an external expression pedal, the display indicates in successive order the parameters assigned to it in the given Controller Setup as well as the current controller value. At the same time, the controller value is sent to MIDI Out. When you manipulate the external expression pedal, the display no longer shows MIDI program numbers, indicating instead the controller values it is sending to MIDI Out. To help you identify and distinguish between the two external continuous controllers, a decimal point appears in the middle or tens position of the display to indicate parameters and controller values assigned to Continuous Controller 1. Parameters and controller values assigned to the external Continuous Controller 2 are indicated via a decimal point appearing in the display's right ones and middle tens positions. Controller values are not preceded by zeros to make it easier to distinguish between controller values and MIDI patches appearing in the display. For example, if Continuous Controller 1 sends a controller value of 6, the display reads >.6<.

Power monitoring

In the event that the operating voltage dips below the required level, the display will read >Ulo<. The display reads >Uhi< in the event of excess power.

Down button

Down - Bank

When you press this button in MIDI Program Bank Mode, it selects the next lower bank below the current bank (say, to go from 5x -> 4x). The digit appearing at the ones position flashes to indicate that you have left the current bank and that you must send a MIDI program change message by entering the desired patch number (0 - 9). Once you have entered an MPN, the display indicates the selected MIDI patch and the ones position stops flashing. To access a more remote bank, step to it by pressing the button repeatedly or fast-forward to it by pressing and holding this button.

Down - MPN

When you press this button in MIDI Program Direct Access Mode, it selects MIDI

patches directly. The MIDI patch number decreases by one every time you press the button. Pressing and holding the button causes MIDI patches to scroll in continuous descending order. The display flashes, indicating the selected patch, until you confirm your selection by pressing 4. The selected MIDI patch is sent to the MIDI Out port.

Down - controller number

When you press this button in the given setup routine for Continuous Controller 1 and Continuous Controller 2, controller numbers decrease by one with each push of this button, starting from the currently assigned controller number.

Down - MIDI channel

When you press this button in the MIDI Channel Setup routine, MIDI channel numbers decrease by one, starting from the currently assigned MIDI channel number, with each push of this button.

Connections on the rear panel of the foot controller

At page 23 of the manual, you'll find diagrams of the rear panel.

Power Supply

This socket accepts an external power unit for the Z-15. When connecting a power unit, ensure voltage and current comply with the foot controller's specifications.

You may connect an AC (alternating current) power unit as well as a 300-mA DC (direct current) power unit. The AC voltage range is 9 to 12 volts; the DC voltage range is 9 to 15 volts. The polarity at the plug plays no role. The foot controller's display indicates when the power supply drops below or rises above the permissible range.

MIDI Output

This 5-pin DIN port serves to route out MIDI data. Connect it to the MIDI IN of an ENGL amp or a MIDI-enabled device using a suitable MIDI cord. A 5-pin cord connected to the MIDI IN port of an ENGL amp can provide power to the foot controller. To this end, you must set the ENGL amp's phantom power selector accordingly, that is, to the ENGL MIDI Foot Controller position.

Cont. Controller 1

This input (stereo jack) accepts an external expression pedal. Ensure pedals that you want to connect are equipped with an analog resistor (potentiometer) with a 5 kohm to 10 kohm rating (the maximum permissible rating is 20 kohms) to ensure flawless remote control. As soon as you plug in an external expression pedal, the display indicates in successive order the parameters stored for Continuous Controller 1. You can edit and store parameter settings for the expression pedal in the Controller 1 Setup routine. Refer to page 23 for the port's terminal assignments.

Important note please read and heed: Never feed current into this port! Any external voltage patched in via this port can damage the Z-15's electronic circuitry. Always cable up the foot controller carefully, making sure not to mistake this port for one of the two ports for the four Switch Loops!

Cont. Controller 2

This input (stereo jack) accepts an external expression pedal. Ensure pedals that you

want to connect are equipped with an analog resistor (potentiometer) with a 5 kohm to 10 kohm rating (the maximum permissible rating is 20 kohms) to ensure flawless remote control. As soon as you plug in an external expression pedal, the display indicates in successive order the parameters stored for Continuous Controller 2. You can edit and store parameter settings for the expression pedal in the Controller 2 Setup routine. Refer to page 23 for the port's terminal assignments.

Important note please read and heed: Never feed current into this port! Any external voltage patched in via this port can damage the Z-15's electronic circuitry. Always cable up the foot controller carefully, making sure not to mistake this port for one of the two ports for the four Switch Loops!

Switch Loop 1 & 2

This input (stereo jack) addresses the two Switch Loops 1 and 2. Use the 5 and 6 button to configure these two Switch Loops (closed or opened). LED 1 and LED 2 indicate the current status of the respective Switch Loop. Refer to page 23 for an illustration showing the port's terminal assignments.

Switch Loop 3 & 4

This input (stereo jack) addresses the two Switch Loops 3 and 4. Use the 7 and 8 button to configure these two Switch Loops (closed or opened). LED 3 and LED 4 indicate the current status of the respective Switch Loop. Refer to page 23 for an illustration showing the port's terminal assignments.

Detailed descriptions of functions with examples and tips follow:

1. Selecting MIDI patches

You have two different methods to choose from:

Via MIDI Program Bank Mode

This mode is active as soon as you power the Z-15 foot controller up and the ENGL logo runs across the display. In this mode, you can select directly 13 banks (00x to 12x) comprising ten MIDI patches per bank using the 0-9 buttons (excepting the first bank MPN 000 and MPN 129, which do not exist). Press the Up or Down buttons to change banks.

Examples:

To select MIDI patch 3:

-> Press 3 briefly; display reads >003<; MIDI Out sends MPN 3.

To select MIDI patch 47:

-> Press Up 4x; display reads >013<, >023<, >033<, >043<, >.3< flashes.

-> Press 7 briefly; display reads >047<; MIDI Out sends MPN 47.

To select MIDI patch 115:

-> Press and hold Down until you reach bank 11x;

display reads >117<, >.7< flashes.

-> Press 5 briefly; display reads >115<; MIDI Out sends MPN 115.

Advantages: In this mode, MIDI patches are quickly and easily accessed at the touch of a button.

Drawbacks: To call up an MPN located in a remote bank, you must first use Up or

Down to scroll to the desired bank. The Internal Continuous Controller cannot be used in this mode.

A tip from the designer:

This mode is preferable for MIDI patch selection in most applications. If 10 MPNs give you enough sonic options for your musical purposes, it is surely the simplest and most effective tool because you never have to change banks.

Via MIDI Program Direct Access Mode

To activate this foot controller mode, proceed as follows:

-> Call up bank 00x; press and hold 0 for three seconds;
display reads >Cn.1<

or

-> Call up bank 12x; press and hold 9 for three seconds;
display reads > Cn.2<.

-> Press the 9 button briefly to change to MIDI Program Direct Access Mode;
Display shows most recently selected MPN, for instance,>003<; MPN flashes until you confirm it by pressing 4.

To select MPN 9 from MPN 3:

-> Press and hold Up until you reach MPN 9;
display reads >003<, >004<, >005<, >006<, >007<, >008<, >009<;
MPN flashes in the display.

-> Press 4 briefly; display reads >009<;
display stops flashing; MIDI Out sends MPN 9.

In this mode, MIDI patches are first selected using the Up and Down buttons and then activated by pressing 4 to send the program change message. To access patches in this mode, you don't have to change banks but you must press two buttons.

Advantages: All MPNs are selected directly and without changing banks.

The Internal Continuous Controller may be used.

Drawbacks: It takes two switching operations to select each MPN; that is, you must press two buttons, Up or Down, and then 4.

A tip from the designer:

This method is a viable choice if you don't have a problem with "pre-selecting" MPNs and you want to access many different MIDI patches directly without changing banks first. What's more, the Internal Continuous Controller is activated in this mode. For some applications like controlling the ENGL 580 MIDI Preamp's master volume or the mute circuit of various ENGL amps and rack units offering this option, this feature can be quite useful, particularly if you don't have an external expression pedal to use for this purpose.

2. Global settings:

Here's how to set the MIDI send channel in the MIDI Channel Setup routine:

- > Press and hold the Up and Down buttons simultaneously until the current channel number appears in the display, for example, >c12< for MIDI channel 12.
- > Press Up or Down to scroll to the desired MIDI channel (for instance, channel 16); display reads >c16<; the display flashes.
- > Press 0 to store; display reads >Pro<.

Once the setting is stored, the Z-15 quits the MIDI Channel Setup routine and returns to MIDI Program Bank Mode.

A tip from the designer:

The ENGL foot controller sends data via the selected MIDI channel. Which channel you choose doesn't matter unless you want to work with several MIDI devices in a MIDI loop and address and control a specific device via MIDI. To do this, the receiver and foot controller's MIDI channel assignments must match. To obtain information on the selected MIDI send channel, access the MIDI Channel Setup routine as described above. To quit this routine without storing a setting, press the 9 (End) button. The system will quit the MIDI Channel Setup automatically after about 20 seconds.

Setting parameters for expression pedal 1 via Controller 1 Setup

- > Call up the first bank 00x and press and hold the 0 button until the display reads >Cn.1<. All parameters for the stored (current) setting for Continuous Controller 1 appear in successive order in the display: First comes the selected controller number, for instance, >00.4<, then the curve characteristic, for instance, >li.<, whereby the curve type, ascending (positive) or descending (negative), is represented graphically at the far right position. Next appears the send interval between individual controller commands, for instance, >t1.0<.

To demonstrate how changes are made using the appropriate buttons, the following example describes the process of changing to controller number 7 from controller number 4, and selecting an ascending linear curve and a 20-ms send interval:

- > Press Up three times; the display reads >00.5<, >00.6<, >00.7<.
- > Press 1 to select the controller curve characteristic, in this case a linear ascending wave form; display reads >li.< and a special symbol at the right position signifying an ascending curve.
- > Press 6 to set the controller command send interval to 20 ms.
- > Press 0 to store the changes; the display confirms the programming process by indicating >Pr.o<.

Once the settings have been stored, the Z-15 quits the Controller 1 Setup routine and returns to MIDI Program Bank Mode.

Note: The system will quit the Controller 1 Setup routine automatically after about 20 seconds.

Setting parameters for expression pedal 2 via Controller 2 Setup

- > Call up the last bank 12x and press and hold 9 until the display reads >Cn.2<. All parameters for the stored (current) setting for Continuous Controller 2 appear in successive order in the display: First comes the selected controller number, for instance, >00.8.<, then the curve characteristic, for example, >li.o.<, whereby the curve type, ascending (positive) or descending (negative), is represented graphically at the far right position. Next appears the send interval between individual controller commands, for instance, >t5.0.<.

To demonstrate how changes are made using the appropriate buttons, the following example describes the process of changing to controller number 4 from

controller number 8, and selecting a descending logarithmic curve and a 50-ms send interval:

- > Press Down four times; the display reads >00.7.<, >00.6.<, >00.5.<, >00.4.<
- > Press 4 to select the controller curve characteristic, in this case a logarithmic descending wave form; display reads >1.o.< and a special symbol at the right position signifying an descending curve.
- > Press 8 to set the controller command send interval to 50 ms.
- > Press 0 to store the changes; the display confirms the programming process by indicating >Pr.o.<.

Once the settings have been stored, the Z-15 quits the Controller 2 Setup routine and returns to MIDI Program Bank Mode.

Note: The system will quit the Controller 2 Setup routine automatically after about 20 seconds.

A tip from the designer:

The Z-15 gives you a wide range of options for fine-tuning a MIDI device's various continuous controller functions. Let's look at an example of a frequently used continuous controller configuration:

Controller number -> 7 (for volume controllers like those featured on the E580 Preamp). This number determines the MIDI device function that you want to manipulate using the continuous controller. To learn more about the various functions and their controller numbers, consult the manual of the device whose parameters you want to modulate.

Set the controller curve to positive linear or log. positive, depending on the employed pedal and the desired effect on the control operation. Set the controller value send interval to 20 ms or a bit longer if you prefer a different response. When determining the send interval, ensure the device at the receiving end of controller data is able to handle the selected rate of incoming data. If the send interval is too short and a pedal control operation sends tremendous amounts of data, the receiving device may well ignore some controller values. In other words, it may not respond correct to your commands. For example, to manipulate the master knob on the MIDI Preamp 580 using an expression controller, set the send interval to 20 ms. For the internal controller, you can increase the send interval (to 30 or 50 ms) to elicit a slower response when pressing the 2 - Cn. Value Down and 3 - Cn. Value Up buttons. Note that for reference purposes, the stored parameters for continuous controllers 1 and 2 run through the display briefly and in successive order when you plug in an external expression pedal.

Internal Continuous Controller

This function emulates an expression pedal using the 1 and 2 buttons on the Z-15 foot controller. One button raises values, the other lowers them. Which does what depends on the selected curve characteristic. You'll find this option quite useful in the real world, particularly if you do not own an external expression pedal or want to use the Internal Continuous Controller as a second expression pedal. In addition to its standard control function, button 3 lets you switch between the initial value of the selected curve (0 or 127) and the controller value most recently selected with button 1 or 2. The Internal Continuous Controller offers the same three parameter assignments - controller number, curve characteristic and send interval as the two external

continuous controllers. The Controller Setup routine from which MIDI Program Direct Access Mode is accessed determines which parameter values are assigned to the Internal Controller. If you access this mode from Controller Setup 1, the Internal Continuous Controller adopts the parameter settings of Continuous Controller 1. If you activate MIDI Program Direct Access Mode from Controller Setup 2, the Internal Continuous Controller adopts the parameter settings of Continuous Controller 2. **Note:** The Internal Continuous Controller is disabled when you plug an external expression pedal into the port of the continuous controller that the Internal Continuous Controller is currently emulating. This means that if you want to use the Internal Continuous Controller along with an external continuous controller, ensure that you do not activate MIDI Program Direct Access Mode from the Controller Setup routine for the external continuous controller assigned to the connected expression pedal.

Confused? Don't be. Let's look at an example:

Say an expression pedal is connected to external Continuous Controller 1. You decide to use the Internal Continuous Controller to emulate a second expression pedal and employ it as an additional continuous controller.

To do this, change to MIDI Program Direct Access Mode from Controller Setup 2:

- > In the last bank 12x, press and hold 9 until the display reads >Cn.2<.
- > Press 9 again briefly; the MPN flashes in the display.
- > Confirm the MPN by pressing 4 ; the MPN in the display stops flashing.
- > Set controller values using buttons 1 and 2 , whereby pressing and holding the given button causes values to scroll continuously.

The display indicates controller values with a decimal point at the center and at the right positions for the duration of the operation and a moment thereafter. Then the current MPN appears in the display.

Configuring Switch Loops 1 to 4

Call up MIDI Program Direct Access Mode: Press and hold the 0 button in the first bank 00x or the 9 button in the last bank 12x for about three seconds until the display reads >Cn.1< or >Cn.2<. Then press the 9 button briefly to activate MIDI Program Direct Access Mode.

Example: Say you want to program the following configuration for MIDI patch 9: Switch Loop 1 - active; Switch Loop 2 - passive; Switch Loop 3 - passive, Switch Loop 4 - active. The most recently selected patch before you changed to MIDI Program Direct Access Mode was MPN 3. The currently stored status for all four MPN 9 Switch Loops is active:

- > Press Up six times or press and hold it until MPN 9 appears in the display. The display reads >003<, >004<, >005<, >006<, >007<, >008<, >009<; the display flashes.
- > Confirm MPN 9 by pressing 4 ; the display reads >009<; the flashing stops; MIDI Out sends MPN 9.
- > Press 6 to deactivate Switch Loop 2; LED 2 for Switch Loop 2 extinguishes.
- > Press 7 to deactivate Switch Loop 3; LED 3 for Switch Loop 3 extinguishes.

Note: In this example, the two Switch Loops 1 and 4 do not require editing because they have been stored as active in the current configuration for MPN 9. (When the status is passive or open, the LED is extinguished; when the status is active or closed, the LED is illuminated).

-> Press 0 to store the settings; the display reads: >Pro<.

The Z-15 remains in MIDI Program Direct Access Mode upon completion of the storage process.

Note: If you do not press the 0 button, the edited or new setting is deleted when you change over to another MIDI patch or quit MIDI Program Direct Access Mode, and the initially stored configuration (which in this example is all 4 Switch Loops active) remains intact.

A tip from the designer:

The four Switch Loops are very handy auxiliary tools. Some devices such as the ENGL Screamer 50 and ENGL Ritchie Blackmore Signature 100 head sport stereo footswitch inputs for switching channels and other features. These features may also be switched using your Z-15 MIDI Foot Controller's Switch Loops. To this end, simply connect the stereo footswitch send jacks on the amp (e.g. E330, E650, E645) to the foot controller's two Switch Loop inputs using a stereo cord. Once connected, the four buttons 5, 6, 7 and 8 control the various amp functions (for instance, Clean/Lead, Gain Lo/Hi, Reverb, Master A/B, V.L.S. or Contour). Then you can program any combination of amp functions to the 128 MIDI patches as desired.

Handling and Care:

Keep the footcontroller safe from hard knocks and shocks.

Avoid storing the footcontroller in damp or dusty rooms to spare jacks and switches.

Never use caustic or scouring detergents to clean the footcontroller's housing. Use a soft, damp cloth or sponge with diluted soapsuds or a standard brand of mild dishwashing liquid instead. Never use solvents they can dissolve the top panel labels.

Keep liquids well away from the footcontroller, particularly the interior of the housing.

Glossary

MIDI programs:

In this manual, MIDI programs are called MPNs (MIDI program numbers) as well as MIDI patches. The terms are used interchangeably.

Though the MIDI standard defines program numbers 000 to 127 (0hex to 7Fhex), almost all MIDI devices including this foot controller - indicate these programs using a 1-to-128 numbering scheme.

MIDI channel:

The MIDI standard defines 16 channels for sending and receiving MIDI data. The

MIDI channel for sending foot controller data is selected and stored in the MIDI Channel Setup routine.

Continuous Controller:

This is a control mechanism that addresses MIDI devices via the MIDI data circuit. The connected devices must be able to respond to such commands, for example, a volume change message sent via controller 7 using values ranging from 0 to 127. Every (continuous) controller is assigned a controller number to which it responds accordingly when it receives incoming controller values.

The ENGL Z-15 MIDI foot controller offers three control options using MIDI controller data: 1. Continuous Controller 1 for connecting an external expression pedal (a foot pedal with an analog resistor); 2. Continuous Controller 2 for connecting a second external expression pedal (a foot pedal with an analog resistor); 3. The Internal Continuous Controller function, in combination with the 1 and 2 buttons. The Cn. Initial Value function (which is executed via the 3 button in MIDI Program Direct Access Mode) switches between the initial (0 or 127, depending on the selected characteristic curve) and the current value.

Controller command send interval:

The four send intervals of 10, 20, 30 and 50 ms (milliseconds) determine the rate at which digital controller values are sent to the MIDI Out port. In technical terms, the selected interval defines the time between individual send controller data. The Internal Continuous Controller will respond slower at higher interval settings and the control operation will be performed faster at a shorter interval. The lower the value selected, the faster the data transmission rate. While manipulating an external Expression Pedal a short interval will result a high amount of transmitted data.

Switch loop

This term describes a passive electrical circuit in the foot controller that is opened and closed by a relay. Two of these Switch Loops are assigned to each stereo jack, whereby both share the jack's ground terminal. The second terminal of the two Switch Loops is assigned to the jack's stereo or mono contact. Taking the place of conventional two-way footswitches with on/off functionality, the four Switch Loops serve to remote control functions of amps such as the ENGL Screamer, ENGL Ritchie Blackmore Head, ENGL Powerball Head and many more. You'll find the Switch Loops' terminal assignments and circuit diagrams on page 23.

Troubleshooting

The ENGL banner does not cycle through the foot controller's display after plugging in the mains or MIDI cord.

- > When powering the Z-15 via an external power unit: Does the external power unit supply the required current and voltage? (refer to Technical Data on page 21).
- > Is the external power unit or cord defective?
- > Is there a loose connection in the cord's plug?

- Does the plug fit snugly in the foot controller's socket?
- > When powering the Z-15 via the MIDI cord: Is your MIDI cord equipped with the required 5-pin connector?
- > Is the MIDI cord defective (say, a short circuit or broken wire)? Does it have the correct pin assignments?
- > Is the power supply selector (phantom power) for the ENGL foot controller set properly on the ENGL amp (that is, to the ENGL MIDI Foot Controller position)?

The connected amp or effect device fails to respond to MIDI program change commands when you select an MPN on the Z-15.

- > Is the MIDI cord defective (say, a short circuit or broken wire)? Does it have the correct pin assignments?
- > Check cable connections: Is the foot controller's MIDI Out connected to the MIDI In on the ENGL amp or MIDI device?
- > Are the Z-15 Foot Controller and the amp (or effect device) set to the same MIDI channel?
To check this, you can set the amp (or effect device) to OMNI Receive mode. In this mode, MIDI data received via all 16 channels are accepted. Check the foot controller's MIDI send channel setting in the MIDI Channel Setup routine and, if necessary, set it to the correct channel.
- > Is the connected MIDI device able to switch to the selected MIDI patch? The number of MIDI patches on the MIDI device may be limited (look this up in the MIDI device's operating manual).
- > Is your ENGL amp or ENGL MIDI peripheral device equipped with a display providing visual confirmation?
If not (as is the case with the E670, E570 and Z-7), perhaps you have not programmed different settings (presets) to the MIDI patches. This may explain why there is no response when you select presets. Program presets with different settings and try again.

The amp addressed by the Z-15 or effect device does not respond to MIDI controller commands when you manipulate an external expression pedal or the Internal Continuous Controller.

Check the following items if the Z-15 foot controller's display does not respond to the expression pedal (that is, it fails to indicate controller values):

- > Is the external expression pedal or its cord or plug defective?
- > Are the external expression pedal's terminal assignments consistent with the terminal assignments of the input jacks for the two continuous controllers on the foot controller? You'll find the assignments for the two jacks on page 23.
- > Did you plug the external expression pedal's connector into one of the two jacks labeled Cont. Controller 1 Input or Cont. Controller 2 Input?
Check if you have connected the pedal to the appropriate port.

Try using the foot controller's Internal Continuous Controller to carry out the given function. If it too fails, you can rule out the aforementioned causes.

Check these items if the internal controller continuous also fails to elicit a response

from the amp or MIDI device:

- > Is the MIDI cord defective (say, a short circuit or broken wire)?
Does it have the correct pin assignments?
- > Check cable connections: Is the foot controller's MIDI Out connected to the MIDI In on the ENGL amp or MIDI device?
- > Are the Z-15 foot controller and the amp (or effect device) set to the same MIDI channel? To check this, you can set the amp (or effect device) to OMNI receive mode. In this mode, MIDI data received via all 16 channels are accepted. Check the foot controller's MIDI send channel setting in the MIDI Channel Setup routine and, if necessary, set it to the correct channel. Like program change commands, controller commands are sent with a channel number.
- > Is the controller number setting on the foot controller consistent with the controller number of the function that you want to remote control at the amp or effect device? Example: On the E580 Preamp, controller number 7 has a fixed assignment to master volume. If you use a continuous controller on the ENGL Z-15 to address this function, you must assign controller number 7 to it in the appropriate Controller Setup routine.
- > Is the given controller function enabled at the amp or effect device? Consult the amp or effect device's manual to learn how to enable or activate the controller.

The amp or effect device's response to the expression pedal or Internal Continuous Controller's action is uneven, abrupt, choppy or too slow.

- > Go to the Controller Setup and adjust the send interval accordingly (that is, decrease or increase it).

The amp or effect device's response is the opposite of the expression pedal or Internal Continuous Controller's action.

- > Change the curve characteristic in the appropriate Controller Setup.

The functions of an amp addressed by the Z-15's Switch Loops do not respond when activating or deactivating Switch Loops.

- > Check terminal assignments. The assignments for the two jacks that access the four Switch Loops are on page 23.
- > Check if the cord connecting the amp and the foot controller has a short-circuit or broken wire.
- > Did you plug the stereo cord's connector into one of the two jacks labeled Switch Loop 1 & 2 and Switch Loop 3 & 4 ?
- > Check if the foot controller is switching the two Switch Loops that are connected to the amp via the stereo cord.
- > Is the stereo cord properly plugged into the amp?

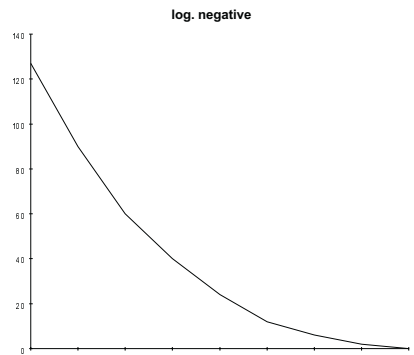
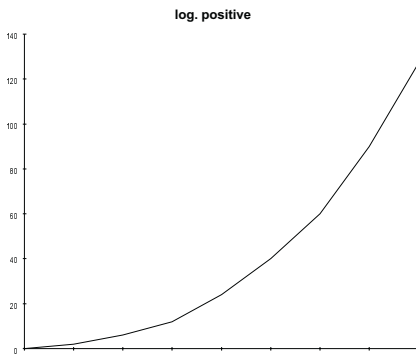
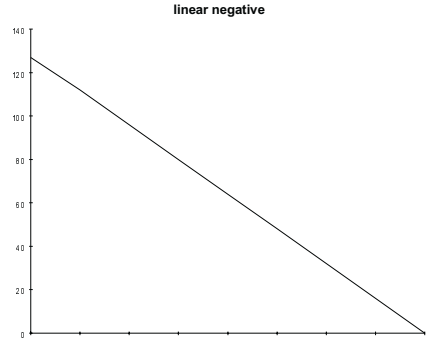
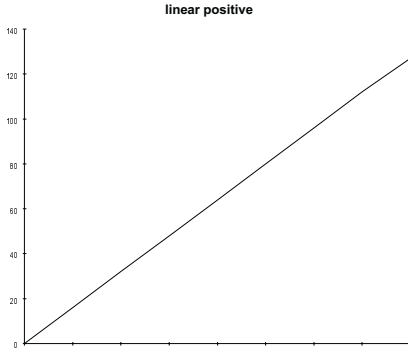
The operating voltage supplied to the foot controller is too high or too low.

- > The display reads >Ulo<, indicating that the voltage is too low.
- > The display reads >Uhi<, indicating that the voltage is too high.
- > Make sure the operating voltage corresponds to the stipulated specifications.

Technical data

Power supply:	9 to 13 volts AC or 9 to 15 volts DC, approx.300 mA;
Logic control system: Processor, software:	T89C51AC2 with internal 32 K Flash for source code, integrated 2 K memory (EEPROM) and 10-bit A/D;
MIDI interface:	Asynchronous date protocol compliant with the MIDI standard
Basic channels:	Channel 1 - 16 (0hx - Fhx) in accordance with the MIDI specification, Display reads >1< to >16<
Program change:	Program numbers 001 - 128 (0hx - 7Fhx) in accordance with the MIDI specification, Display reads >001< to >128<
Controller number:	Controller numbers 000 - 127 (0hx - 7Fhx) in accordance with the MIDI specification, Display reads >000< to >127<
Controller values:	Controller values 000 - 127 (0hx - 7Fhx) in accordance with the MIDI specification, Display reads >0< to >127<
Controller send Send intervals:	10 ms, 20 ms, 30 ms and 50 ms intervals between individual data frames;
Switch Loops 1-4:	Switching current: 1A max., switching voltage: 100 volts switching power: 15 watts max. response time: < 1ms; Function: Loop open - Loop closed; shared GND terminal on the stereo jack;
Expression pedal:	Reference voltage at the two ports: 3 volts; Control element: passive potentiometer with 5 or 10 kohm resistance (20 kohm maximum);
CAUTION:	Never feed external voltage into the two Cont. Controller 1 and Cont. Controller 2 ports!
Dimensions:	Length: 500 mm, depth: 150 mm, overall height with buttons: 55 mm;
Weight:	approx. 2,4 kg;

Graphical view of the four controller curves:



Note: Technical specifications are subject to change without notice

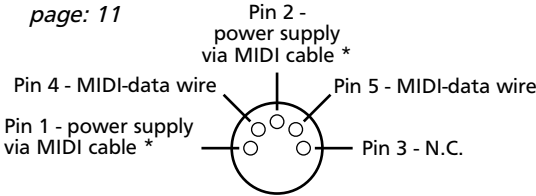
ENGL Gerätebau GmbH
Germany

Internet: <http://www.engl-amps.com>

Text, design, graphics and layout: Horst Langer, ENGL Amp Designer

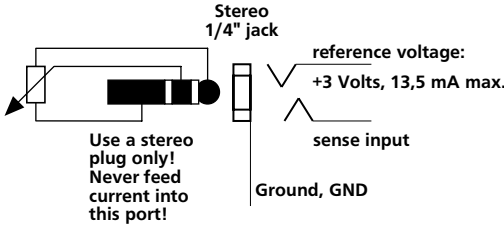
Wiring of Principal Connectors

MIDI Out, DIN connector



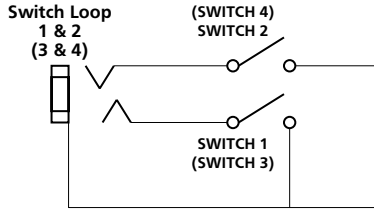
*: Power supply from ENGL devices that are equipped with a MIDI IN port. The corresponding configuration switch at the amp must be set to the position **ENGL MIDI Footcontroller**.

Controller Input



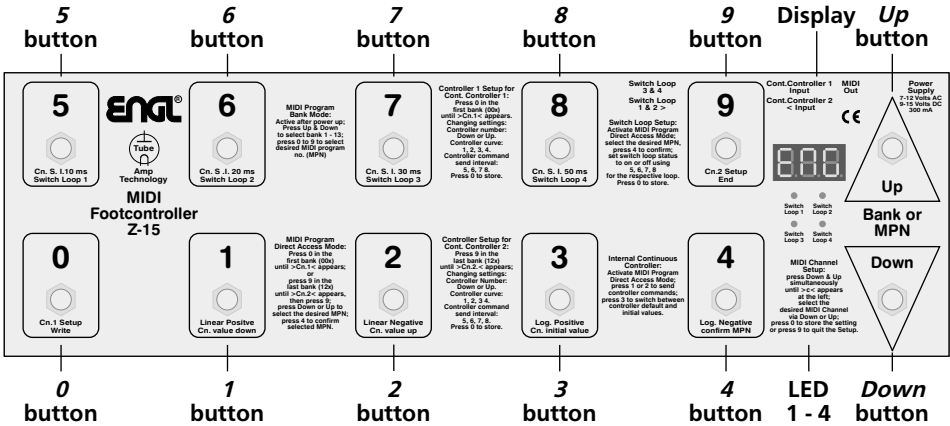
page: 11

Switching loop´s schematics:

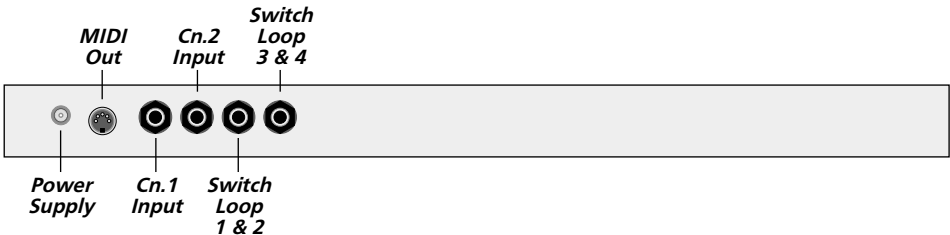


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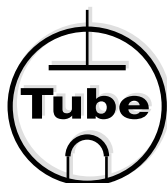
Control Panel Layout



Connections on the rear panel



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Text, Design, Grafiken, Foto und Satz
Horst Langer, **ENGL** Amp Designer