



electro-harmonix

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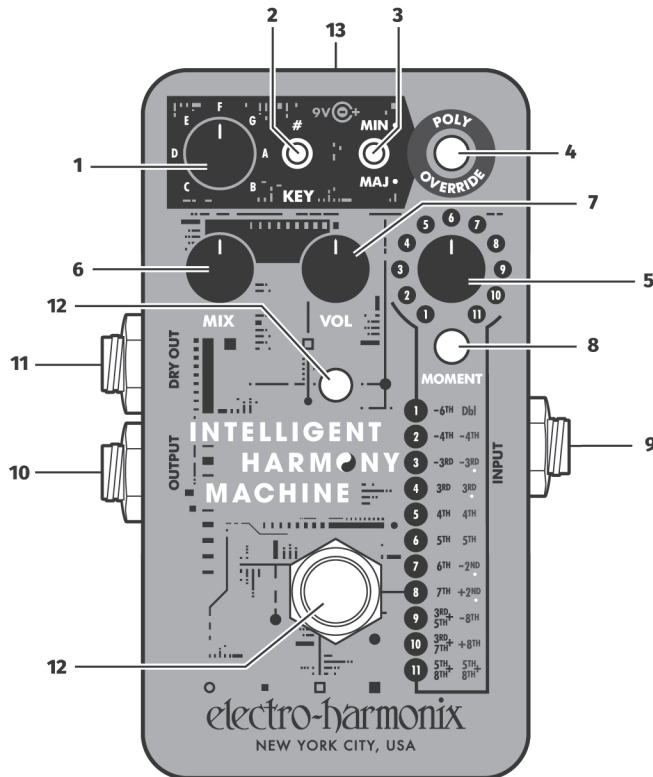
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INTELLIGENT HARMONY MACHINE

Congratulations on your purchase of the **Intelligent Harmony Machine (IHM)**: a compact, harmony generating, polyphonic pitch-shifting powerhouse! The IHM creates authentic sounding diatonic harmonies—harmonies within a given key, tracked from single notes—and performs polyphonic pitch-shifting—fixed pitch shifts independent of key, on both single notes and chords—all from a standard electric guitar, bass or many other electronic instruments. It accepts power from 9V batteries and standard 9VDC center-negative power supplies. In addition to the required input and output jacks, the IHM also features a dry output jack for extra routing flexibility.

WARNING: This device comes equipped with an Electro-Harmonix 9.6DC-200 power supply. It requires 26mA at 9VDC with a center negative plug. Use of the wrong adapter or a plug with the wrong polarity may damage the device and void the warranty. Do not exceed 10.5VDC on the power plug. Power supplies rated for less than 30mA will cause the device to act unreliably.

Controls and Connections



1. KEY Knob This seven-position rotary switch, in conjunction with the toggle switch to its right, sets the key the IHM is in while in Intelligent Mode. This knob has no effect while in Polyphonic Override Mode.

2. KEY Toggle Switch This switch works in conjunction with the knob to its left to set the key of the IHM. With the switch in its upwards position the key is set to the sharp variation of the key set by the KEY knob. With this switch in its downwards position, the key is set to the natural variation of the key set by the KEY knob. This switch has no effect while in Polyphonic Override Mode.

3. MAJ / MIN Toggle Switch In Intelligent Mode this switch sets whether the key (set by the KEY knob and switch) is major or minor. In Polyphonic Override Mode this switch can be used for intervals 3, 4, 7, & 8 (3rds and 2nds) to set whether the pitch-shift interval is a major 3rd/2nd or a minor 3rd/2nd.

WARRANTY INFORMATION

Please register online at www.ehx.com/product-registration or complete and return the enclosed warranty card within 10 days of purchase. Electro-Harmonix will repair or replace, at its discretion, a product that fails to operate due to defects in materials or workmanship for a period of one year from date of purchase. This applies only to original purchasers who have bought their product from an authorized Electro-Harmonix retailer. Repaired or replaced units will then be warranted for the unexpired portion of the original warranty term.

If you should need to return your unit for service within the warranty period, please contact the appropriate office listed below. Customers outside the regions listed below, please contact EHX Customer Service for information on warranty repairs at info@ehx.com or +1-718-937-8300. USA and Canadian customers: please obtain a **Return Authorization Number (RA#)** from EHX Customer Service before returning your product. With your returned unit, include a written description of the problem as well as your name, address, telephone number, e-mail address, RA# and a copy of your receipt clearly showing the purchase date.

United States & Canada

EHX Customer Service
Electro-Harmonix
co New Sensor Corp.
47-50 33rd Street
Long Island City, NY 11101

Tel: 718-937-8300
Email: info@ehx.com

Europe

John Williams
Electro-Harmonix UK
13 Cwmdonkin Terrace
Swansea SA2 0RQ
United Kingdom

Tel: +44 179 247 3258
Email: electroharmonixuk@virginmedia.com

This warranty gives a purchaser specific legal rights. A purchaser may have even greater rights depending upon the laws of the jurisdiction within which the product was purchased.

COMPLIANCE

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment under FCC rules.



The CE logo indicates that this product has been tested and shown to conform with all applicable European Conformity directives.



The WEEE or "trashcan" logo indicates that this product is made up of electronic components that should not be trashed alongside household waste but instead should be recycled by a proper electrical waste facility.

MOMENTARY PITCH SWEEP TIME

When in momentary mode, by default, the pitch changes instantly to the set interval upon pressing the footswitch, and changes instantly back to the bypass signal upon releasing the footswitch. The IHM includes an option to slow down the pitch sweep time when pressing and releasing the footswitch.

To enable this option, first hold down the MOMENT illuminated button for about two seconds. Release MOMENT after it starts blinking. While MOMENT is blinking, the IHM will be in momentary mode. All knobs and switches will still work as usual, except the VOL knob. While the MOMENT button is blinking, the VOL knob adjusts the sweep time. As you turn the VOL knob clockwise, the sweep time increases. Turning the knob all the way counterclockwise will result in there being no sweep (the default setting).

To save the sweep time setting, hold down the MOMENT button again until it stops blinking. Now pressing the footswitch in Momentary mode will result in pitch sweeps with the set sweep time. The IHM stores your Momentary mode sweep time setting into internal memory and recalls your setting on each power cycle.

Tips

Selecting the Key: While in Intelligent Mode, if you are having a hard time generating the correct harmony notes you want for a specific line, try playing with the key setting. Different keys generate different harmonies for specific notes, sometimes the harmony notes you want to generate are technically in a different key (or scale) than what you would initially assume.

Signal Path Placement: Experiment with where you place the IHM in your signal path, especially when it comes to distortion pedals. Placing the IHM after distortion will lead to a more “realistic” sound as far as multiple guitars playing together. Placing the IHM before distortion will “glue” the harmonies together more, making it sound more like one unified instrument.

Notes and Specifications

- ▶ Audio input impedance at INPUT jack: 2.2M Ω
- ▶ Audio output impedance at OUTPUT and DRY OUT jacks: 680 Ω
- ▶ Current draw: 26mA at 9.0VDC
- ▶ Maximum input signal: +4.0 dBu

4. POLY-OVERRIDE Button Use this button to switch between Intelligent Harmony mode and Polyphonic Override mode. When this switch is lit the IHM is in Polyphonic Override mode.

5. INTERVAL SELECT Knob This eleven-position rotary switch selects the interval of the harmony or pitch shift applied to the effect signal. The exact function of these intervals varies depending on which mode the IHM is in.

6. MIX Knob Sets the mix between the dry and effect (harmony or pitch-shifted) signal. Fully dry signal at minimum, fully effected signal at maximum.

7. VOL Knob Sets the output volume of the IHM.

8. MOMENT Button When this illuminated button is lit, the IHM is in momentary mode. In momentary mode, the effect is only active while the footswitch is held down.

9. INPUT Jack This is the input jack for the IHM. The load impedance presented at the INPUT jack is 2.2M Ω .

10. OUTPUT Jack This is the main output for the IHM. The source impedance presented at the OUTPUT jack is 680 Ω .

11. DRY OUT Jack This jack outputs a buffered version of the dry signal present at the INPUT jack at all times. The source impedance presented at the DRY OUT jack is 680 Ω . Pro Tip: when using DRY OUT, you can set MIX to maximum so that only the wet signal is present at the OUTPUT jack. Each output jack now outputs a different set of notes, or a unique signal, that can go to its own amp or be processed individually.

12. FOOTSWITCH and STATUS LED The footswitch is used to toggle the effect on and off. When the MOMENT button is lit, the IHM is in momentary mode, and the effect will only be active while the footswitch is being held down. With the MOMENT button off, the IHM is in latching mode. In latching mode pressing and releasing the footswitch once will switch between the IHM being active and being in buffered bypass mode. The red LED illuminates to indicate when the IHM is active.

13. 9V Power Jack The included 9VDC, center-negative power supply can be connected to the power jack to provide power without a battery. The IHM requires 26mA at 9VDC on a center-negative plug. Do not exceed 10.5VDC at the power jack.

When using a 9V battery, plugging into the INPUT jack activates power. The input cable should be removed when the unit is not in use to avoid running down the battery. We recommend alkaline batteries for the IHM.

To change the 9-volt battery, you must remove the 4 screws on the bottom of the IHM. Once the screws are removed, you can take off the bottom plate and change the battery. Please do not touch the circuit board while the bottom plate is off or you may damage a component.

Note: When initially powered up (from either an AC adapter or a battery) the IHM takes two to three seconds to turn on.

Operating Instructions

Insert the output plug from the supplied 9VDC AC adapter into the power jack at the top of the IHM, or make sure a working 9V battery is installed in the unit. The IHM must be powered to pass signal, even in bypass. Connect an instrument cable from your guitar to the INPUT jack. Connect an instrument cable between the OUTPUT jack and a suitable amplifier. Click the footswitch to engage the IHM (the illuminated MOMENT button should be off). The red LED lights to indicate that the unit is active. Start with MIX and VOL knobs at noon (50%)

The IHM operates in two distinct modes: **Intelligent Mode** and **Polyphonic Override Mode**. When lit, the POLY-OVERRIDE button indicates that Polyphonic Override is enabled. With this button off, the IHM is in Intelligent Mode. Press and release the POLY OVERRIDE button to toggle between the two modes.

INTELLIGENT MODE

In Intelligent Mode the IHM generates diatonic harmonies in a set key based on single notes played on your instrument. Playing multiple notes or chords will not work well in this mode. *Note: It is very important that your guitar be in tune (based on A440) for the IHM to work properly in this mode!*

Setting the Key

The key is set by the top-left seven-position knob in conjunction with the two toggle switches to its right. If that knob is set to "C" and both knobs are set to the downward position (natural, and MAJ) the key is set to C major. If the two toggle switches are moved to the upwards position (#, and MIN) the key is now set to C# minor.

Selecting the Interval

The harmony interval is set by the bottom-right eleven-position switch. The intervals are listed in the chart on the right.

The exact note the IHM generates depends on the key and interval settings along with the exact note played. For example, with the key set to C and the interval set to a 3rd up, if a C note is played, the IHM will generate an E note, a major third up from C. If a D is played with the same settings, the IHM generates an F, a minor third up from D. This is because in Intelligent Mode the IHM produces diatonic harmonies, harmonies that are within the set key.

Secondary Interval Options

When in Intelligent Mode, there are two additional options for the last three interval positions: 9, 10, and 11, each of which generates two harmony voices. To access

INTELLIGENT MODE	
1	6th Down
2	4th Down
3	3rd Down
4	3rd Up
5	4th Up
6	5th Up
7	6th Up
8	7th Up
9	3rd Up + 5th Up*
10	3rd Up + 7th Up*
11	5th Up + 8th Up*

* Secondary interval options available.

these options, hold down the POLY-OVERRIDE button for about two seconds, until it starts blinking. From here, press and release the same button again and the blinking speed changes. There are three speeds: slow, medium, and fast. Slow is the factory default and matches the printed labels on the IHM. The interval settings are:

SECONDARY INTERVALS			
	SLOW	MEDIUM	FAST
9	3rd Up + 5th Up	4th Down + 3rd Up	6th Down + 4th Down
10	3rd Up + 7th Up	3rd Up + 6th Up	3rd Down + 3rd Up
11	5th Up + 8th Up	8th Down + 5th Up	8th Down + 4th Down

For positions 9 and 11, the two secondary options represent inversions of the same chord. For interval 10, a 3rd+6th option is available, plus an inversion of that option.

When setting the secondary option with the POLY-OVERRIDE button, your selection applies to all three interval positions: 9, 10, and 11. Once you are done selecting, press and hold POLY-OVERRIDE for about two seconds, until it stops blinking. The IHM stores your secondary interval choice into internal memory and recalls your setting on each power cycle.

Note: While the POLY-OVERRIDE button is blinking, the IHM will be in Intelligent Mode. In some instances, when you first start holding the button down, the IHM may briefly switch into Polyphonic Override mode until the button begins to blink.

POLYPHONIC OVERRIDE MODE

In Polyphonic Override Mode the IHM can generate polyphonic pitch-shifts, very similar to the EHX Pitch Fork™. To enter Polyphonic Override Mode, press the top-right POLY-OVERRIDE button so that it is lit.

In Polyphonic Override Mode no key has to be set. In this mode you can play single notes as well as chords. The pitch-shift interval is set with the same eleven-position knob, though the interval settings might differ as compared to Intelligent Mode (see chart on the right).

Doubler

When using the Doubler setting, the IHM's effect signal is at the same pitch as the input. This mode emulates the effect of two guitarists playing the same part simultaneously.

POLYPHONIC OVERRIDE MODE	
1	Doubler
2	Perfect 4th Down
3	3rd Down*
4	3rd Up*
5	Perfect 4th Up
6	Perfect 5th Up
7	2nd Down*
8	2nd Up*
9	Octave (8th) Down
10	Octave (8th) Up
11	Perfect 5th + 8th Up

* Set major or minor 3rd/2nd by using the MAJ/MIN toggle switch.