Noatronic
Onboard Expression

User Manual

www.noatronic.com
info@noatronic.com
+45 3142 3445

NB: Onboard Expression does not work with wireless systems

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User Manual revision history:
v1.0 - 5. October 2018:
Initial revision.
v1.1 - 29. October 2018:
Switch functionality changed.
v1.2 - 14. May 2019:
MIDI functionality changed.
v1.3 - 18. Dec 2019:
Intellectual property link added.

Thank you for purchasing Onboard Expression!

Hopefully this product will inspire you to use your gear in a creative way.

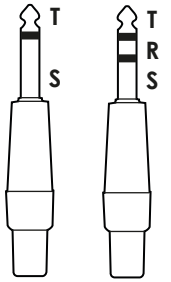
I would love to see how you are using it and to know if it is improving your setup and playing. Therefor I encourage you to contact or tag us on social media.

Michael Engel, Noatronic.

TRS and TS Jacks

Onboard Expression uses both TS (mono) jacks and TRS (stereo) jacks.

TS jacks has 2 terminals isolated with 1 black line and TRS jacks has 3 terminals isolated with 2 black lines.

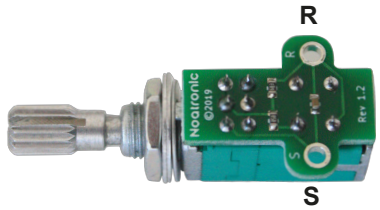


Included TRS socket

Onboard Expression Controller

The Controller works like a push-push potentiometer with a center detent, intended to replace a tone potentiometer in an electric guitar. It is a completely passive device, that require no battery, as all the digital computing happens inside the Onboard Expression Receiver.

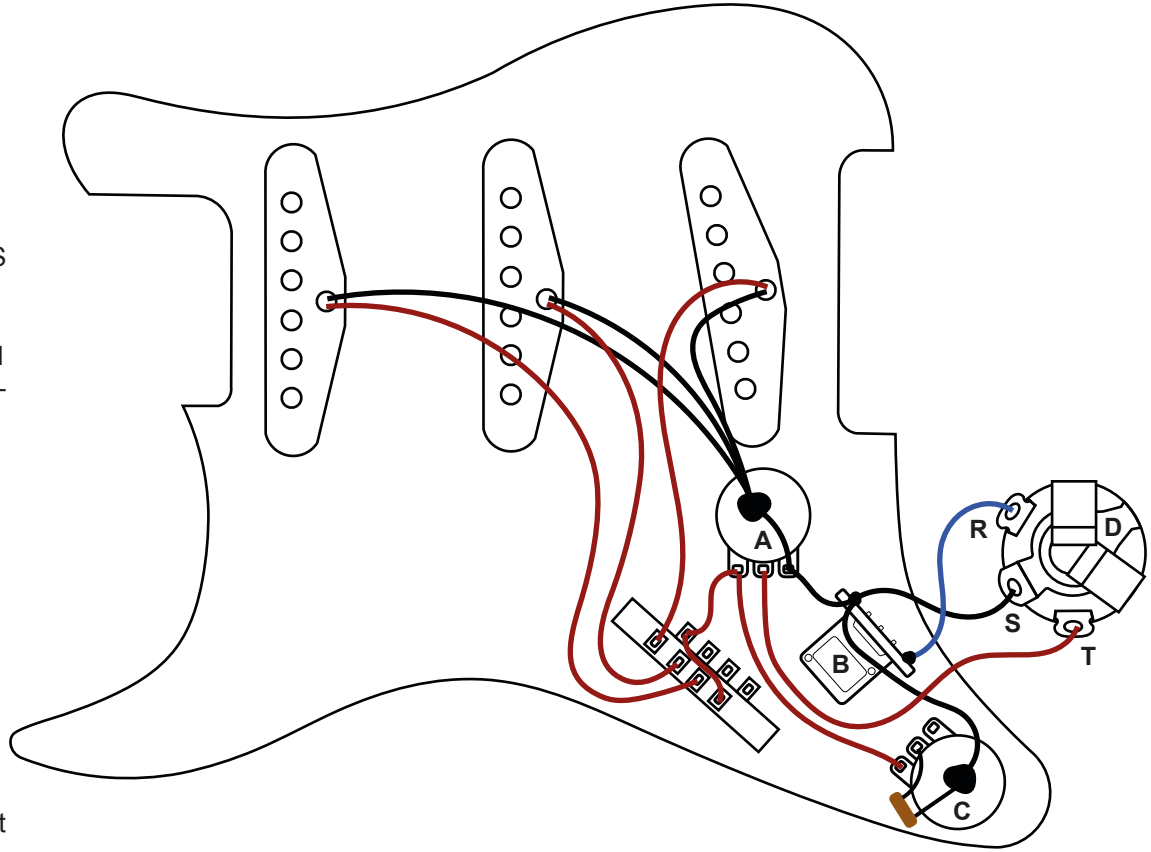
NB: The system only works with one Controller per guitar

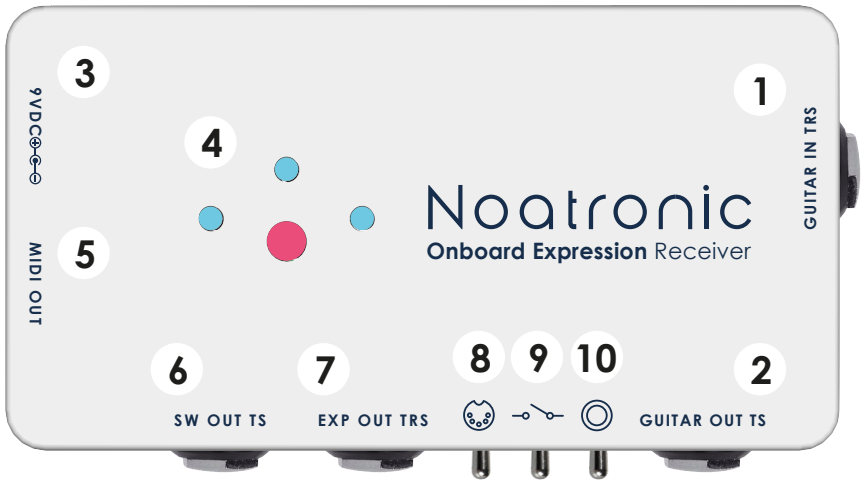


Installing the Onboard Expression Controller

The Controller has two terminals, *S* and *R,* where *S* connects to the sleeve (S) of the TRS socket and *R* to the ring (R). The guitar's hot signal connects to the tip (T) of the TRS socket and the guitars ground to the sleeve (S). After installation the guitar will still work perfectly with a mono TS cable although the Controller will have no effect.
Shield the guitar to ensure proper functionality in noisy envionments.

The wiring diagram below shows a Stratocaster with master volume (A), Onboard Expression Controller (B), master tone (C) and TRS jack socket (D).





1) GUITAR IN TRS
Connect to guitar with a TRS (stereo) cable.

2) GUITAR OUT TS
Connect to amp/pedal input with a TS (mono) cable.

3) 9VDC
Industry standard center negative 9VDC power input. Maximum current draw is 80ma. (PSU not included)

4) LED's
The red LED indicates if the Onboard Expression Controller has been pushed/engaged. The blue LED's indicates the position of the Controller. Different MIDI and Switch modes changes the behavior of the LED's.

5) MIDI OUT
Connect to MIDI IN on the device you want to control with a 5-pin MIDI-cable.

6) SW OUT TS
Simulates a pulsing (momentary) or latching footswitch. Connect to a pedal, amp-modeler or amp where you would normally connect an external footswitch and control it by pushing the Onboard Expression Controller. Set function and polarity with the Switch Setting (9).

7) EXP OUT TRS
Simulates a tip-to-wiper 20kΩ linear expression pedal. Connect to a pedal, amp-modeler or other gear with a stereo (TRS) cable, where you would normally connect an expression pedal and control it by turning the Onboard Expression Controller.

8) MIDI Setting

- Preset
- Snapshot / Scene
- Expression & Bypass

9) Switch Setting

- Pulse NO
- Latching NO
- Latching NC

10) Option

- Hold * (see below)
- Calibration 1
- Calibration 2

8) MIDI Setting in detail

When MIDI Channel is set between 1 and 15

Preset
Turning the controller sends PC 0-2 when it's not engaged and PC 3-5 when it's engaged.

Snapshot / Scene
Turning the controller sends CC69 values 0-2 when it's not engaged and CC69 values 3-5 when it's engaged.

Expression & Bypass
Turning the controller sends CC100 values 0-127 and pushing it toggles between CC102 values 0 and 127.

When MIDI Channel is set to 1/2

Preset
Turning the controller sends PC 0-2 on channel 1 and pushing it toggles between PC 0 & 1 on channel 2.

Snapshot / Scene
Turning the controller sends CC69 values 0-2 on channel 1 and pushing it toggles between CC69 values 0 and 1 on channel 2.

Expression & Bypass
Turning the controller sends CC100 values 0-127 on channel 1 and pushing it toggles between CC102 values 0 and 127 on channel 2.

WARNING: Connecting EXP OUT TRS (7) to gear that uses other than TRS tip-to-wiper expression pedals can potentialy damage both units.

*** Hold for 1 second**
Calibrate and save to Calibration 1

*** Hold for 2 seconds**
Calibrate and save to Calibration 2

When calibrating, simply set the Controller according to the status of the LED's.

*** Hold for 4 seconds**
MIDI-channel select
Press momentarily upwards to set the channel acording to the *MIDI Channel Table* below.
When done simply hold the switch upwards for 1 second to save and exit.

MIDI Channel Table

Ch.	LED's	Ch.	LED's
1	○ ○ ○	9	● ○ ○
2	○ ● ○	10	● ● ○
3	○ ○ ●	11	● ○ ●
4	○ ● ●	12	● ● ●
5	● ○ ○	13	● ○ ○
6	● ● ○	14	● ● ○
7	● ○ ●	15	● ○ ●
8	● ● ●	1/2	● ● ●