

Proposal for a new standard:

POLYPHONIC INSTRUMENT COMMUNICATION

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BASIC REQUIREMENTS

The new communication standard should meet the desires of communication between portable acoustic and electromechanical instruments, especially the electric guitar, and be open enough to do so in the next decades.

It should be possible to use it together with the conventional phone plug.

The connector should be rigid enough to support heavy stage activity

The new connection will give a new range of sounds by handling strings independently (Polyphony).

Inevitably the system will be more expensive, but should become available even with a low cost instruments, if not all new features are used.

Since musicians tend to have one amplifier and several instruments, as much of the electronics as possible should stay out of the instrument

Modules with the connector and minimum electronics should become available for instruments manufacturers without electronic department (luthiers).

So far, we see the following necessities:

- Supply for the electronics in the instrument (2-3pins)
- Analog lines for the conventional pickups (1-2 pins)
- Analog lines for the polyphonic pickups separately or multiplexed (2-8 pins)
- Digital serial line from amplifier to control parameters and displays in the instrument. Preferably working at low frequency rates and/or symmetrically to avoid crosstalk noise and separate shielding (1-2 pins)
- Digital or analog lines from instrument to amplifier sending button and knob dates (1-3pins)
- Headphones output on the instrument (optional) (0-2 pins)

CONCRETE WIRING PROPOSAL

Neutrik 12 pin and/or DIN 13 pin

- 1-6 Polyphonic Output (levels like Roland 13 pin DIN)
 - 7 Creative Output: separate magnetic pickup or 7th string or multiplexed signals
 - 8 Monophonic Output (magnetic pickups) (little above standard guitar level)
 - 9 Multiplexed Analog Parameters Output
 - 10 Digital Control Input (mpx clock/pickup switching/display)
 - 11 +7 VDC
 - 12 - 7 VDC
- case GND

COMMUNICATION BETWEEN GUITAR AND AMPLIFIER

Like in the MIDI standard, each instrument type can carry a identification code. The amplifier informs itself about the kind of instrument that has been connected, scans through the knobs and interprets the information.

If send (pin10) is a serial digital and receive (pin9) multiplexed analog signal, only a decoder and a analog multiplexer and analog switches are needed in the instrument.

In a more simple instrument, a single control voltage could be applied directly to the receive line. This signal will be recieved on all channels.

Instead of using constant polling, the first return channel could be defined as "analog interrupt", indicating the operation of a knob on the instrument.

COMPATIBILITY WITH THE EXISTING

So far the following enterprises have confirmed their interest in participation:

ROLAND
ZETA (GIBSON)
SHADOW
PARADIS

The ROLAND 13pin DIN plug so far is clearly the widest spread connector of a similar idea. So the new standard should be as compatible to it as possible.

The adaptation to the PHOTON SUB-D and the KORG connector should become possible.

The PARADIS Neutricon connection works with higher levels and single supply. So the new standard can be driven with resistors in the connector and external controls.