NDR6110

Single Channel Dynamic Driver for Piezoelectric actuators

Purpose

The **NDR6110** series piezo actuator driver is intended as the basic device that enables to supply various piezoelectric actuators with static and dynamic voltage in the range up to ±100V or 0-200V. The driver can be used as a part of fine adjustment mechanism in mechanical positioning equipment with piezo feed, or for other piezo element applications.

Basic driver – **NDR6110** Single Channel Dynamic Driver
(±**100V or 0-200V** static or dynamic supply)

Features

- **Bipolar and unipolar output load**
- **Galvanic separation of the output**
- **Adjustable input range and phase inversion**
- **Full stroke driving capability for :**
  - **Benders (bimorphs)**
  - **Stacked actuators**
  - **Bipolar stacks**
  - **Shear mode actuators**
- **Low noise**
- **Small unified dimensions**

Output voltage range ±100V (benders) and 200V (stacks), other ranges available on demand

Description

The driver has a built-in voltage converter, so that only a single external supply voltage is needed. The device is supplied by the +5V/1A stabilized adaptor for 100-230 VAC. The adaptor is included. The driver input signal can be static or dynamic in limited range of frequencies. It can be supplied by a potentiometer, trimmer, frequency generator, or D/A converter. The input range can be switched between ± 2.5, ± 5, 0 to 5, 0 to 10 Volts. The gain of the amplifier can be switched to negative (opposite phase). An internal voltage limiter guarantees output voltage within limits during operation and also during start-up or shutdown. The actuator is protected against overvoltage or reverse voltage and subsequent depolarization.
The output of the device is galvanically separated from other circuits. The following voltages are connected to the pins of the output connector: +U, -U, zero Volts, and output. This allows for connecting all categories of piezoelectric actuators.

The NDR6110 series drivers are available in a broad range of versions: with a potentiometer instead the input connector, DIN rail mounting casings, and OEM printed boards. Option is a bipolar asymmetrical output voltage (i.e. -30 to +150 V).

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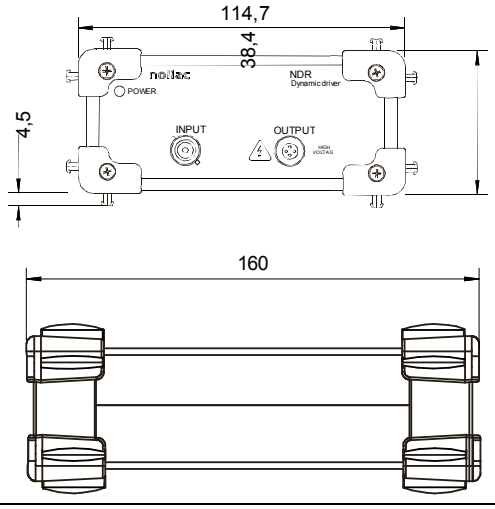
Parameters

Electrical parameters			
Parameter	**Unit**	**Typical value**	**Remark**
Number of channels		1	
Supply voltage	V	110 - 230V/50 – 60 Hz →5V/1A AC/DC Adaptor is in the scope of delivery	
Supply current	mA	780	
Output voltage amplitude and load current (RMS)		±30 V (bender), 60 V (stack) / 40 mA	
		±60 V (bender), 120 V (stack) / 20 mA	
		±75 V (bender), 150 V (stack) / 15 mA	
		±100 V (bender), 200V (stack) / 10 mA	
Output voltage tolerance	%	10	
Frequency range Low Frequency limit	Hz	0	DC coupled
High frequency limit (-3 dB under full stroke, For± 100V)	Hz	60 165 320	1 µF load 0.5 µF load 0.235 µF load
Output limitation tolerance	V	± 4	
Output noise	mV	2 mV RMS	1 µF load
Input voltage range	V	± 2.5, ± 5, 0 to 5, 0 to 10	Switchable
Input impedance	kOhm	10	
Input connection		terminals	
Output connection		terminals	
Environmental parameters			
Temperature range	°C	+5 to +45	
Relative humidity	%	max 80% to 31°C, max 50% above 40°C	
Ingress protection		IP20	When connectors are opened.
Mechanical parameters			

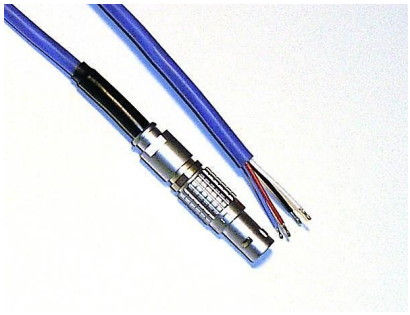


Piezo driver selection table

Driver model number	
Output voltage range	**Ordering code**
± 30 V (bender) 60 V (stack)	NDR6110 -30+30
± 60 V (bender) 120 V (stack)	NDR6110 -60+60
± 75 V (bender) 150 V (stack)	NDR6110 -75+75
± 100 V (bender) 200 V (stack)	NDR6110 -100+100

Note 1: Input voltage ranges are switchable for all model numbers

Accessories



Output signal cable

SK05BE/1,5m – Output cable. The cable is equipped by LEMO 4 way connector at one side. The second side is free. The cable is intended for experimental purposes. The standard length 1.5 m could be changed in 0.5 m step upon request.

WARNING

The instrument may only be operated by personnel who are capable of recognizing contact hazards and implementing appropriate safety precautions. Contact hazards are present anywhere where voltages are higher than 50 V.

Order example

The single channel NDR6110 driver with output voltage +/- 100 V has the order code **NDR6110 -100+100.**

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