

# Piezoelectric Drivers

## NDR6110 Single Channel Dynamic Driver

## NDR6110 OEM Single Channel Dynamic Board

### 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



### Description

NDR6110 Single Channel Dynamic Driver is a standalone single channel dynamic piezoelectric driver. The piezoelectric driver is intended as a basic device enabling supply of various piezoelectric actuators with static and dynamics voltage in the range up to  $\pm 100V$  or  $0-200V$ . The driver can be used as a part of fine adjustment mechanism in mechanical positioning equipment with piezoelectric feed, or for other piezoelectric element applications. The NDR6110 Single Channel Dynamic Driver can supply actuators with a capacity of up to  $1 \mu F$ .

NDR6110 OEM Single Channel Dynamic Board is a single channel dynamic board that can be fitted into your own system. The piezoelectric board provides the same features and capacity as the standalone model of NDR6110.

### Standard Product or Custom Solution

This document contains information about the piezoelectric driver NDR6110. All the CTS multilayer products can be custom designed to match specific requirements – find more information on [www.ctscorp.com](http://www.ctscorp.com).

## Specifications

Parameters	Typical value	Unit	Remark
Number of Channels	1		
Supply Voltage	230 V / 50 Hz or 115 V / 60 Hz → 5 V / 1 A	V	AC/DC Adaptor is in the scope of delivery for the NDR6110 driver version, but not for NDR6110 OEM Board
Supply Current	780	mA	
Output Voltage Amplitude / Maximal Capacitance @ 50 Hz <sup>1</sup>	±30 V (bender), 60 V (stack) / 1.0 µF		
	±60 V (bender), 120 V (stack) / 0.5 µF		
	±75 V (bender), 150 V (stack) / 0.4 µF		
	±100 V (bender), 200 V (stack) / 0.3 µF		
	-30 V ÷ +150 V (stack) / 0.3 µF		
Maximum Current Amplitude	10	mA	
Frequency Range			
Low Frequency Limit	0	Hz	DC coupled
High Frequency Limit	60		100% load <sup>2</sup>
-3 dB under full stroke	120	Hz	50% load
	240		25% load
Output Limitation Tolerance	- 4 ÷ +10	V	
Output Voltage Tolerance	5	%	Of the stack voltage
Output Noise	3	mV	RMS, 1 µF load
Input Voltage Range	± 2.5, ± 5, 0 ÷ 5, 0 ÷ 10	V	Switchable
Input Impedance	10	kΩ	
Input Connection	Terminals		
Output Connection	Terminals		

<sup>1</sup> The sum of both piezo capacitances for benders

<sup>2</sup> According to Output voltage amplitude / maximal capacitance @ 50 Hz

Environmental Parameters

Parameters	Typical value	Unit	Remark
Temperature range	+5 ÷ +45	°C	
Relative humidity	max 80 % to 31 °C, max 50 % above 40 °C	%	
Ingress protection	IP20 (for NDR6110 Driver) IP100 (for NDR6110 OEM Board)		When connectors are opened

## Standard Versions

### NDR6110 Single Channel Dynamic Driver

Output Voltage	Order Code
± 30V (bender) 60V (stack)	NDR6110-30+30
± 60V (bender) 120V (stack)	NDR6110-60+60
± 75V (bender) 150V (stack)	NDR6110-75+75
± 100V (bender) 200V (stack)	NDR6110-100+100
- 30V to 150V (stack)	NDR6110-30+150*

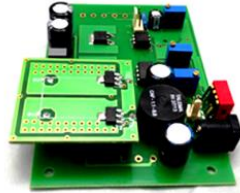
\* This model can also be provided with an actuator discharge circuit. In this case, the order code is NDR6110-30+150

### NDR6110 OEM Single Channel Dynamic Board

Output Voltage	Order Code
± 30V (bender) 60V (stack)	NDR6110 OEM-30+30
± 60V (bender) 120V (stack)	NDR6110 OEM-60+60
± 75V (bender) 150V (stack)	NDR6110 OEM-75+75
± 100V (bender) 200V (stack)	NDR6110 OEM-100+100
- 30V to 150V (stack)	NDR6110 OEM-30+150

Piezoelectric Drivers Product Families

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NDR6110 Single Channel Dynamic Driver  
NDR6110 OEM Single Channel Dynamic Board



NDR6210 Single Channel Dynamic Driver  
NDR6220 Single Channel Dynamic Driver

NDR6210DC Single Channel Dynamic Driver  
NDR6220DC Single Channel Dynamic Driver



NDR6880 Single Channel Dynamic Driver  
NDR6880-20A Single Channel Dynamic Driver



NDR6881 Dual Channel Dynamic Driver  
NDR6881-20A Dual Channel Dynamic Driver

Learn more about the different piezoelectric drivers on [www.ctscorp.com](http://www.ctscorp.com).