NDR68 Driver Series NDR6881

NDR6881 Dual Channel Dynamic Driver for Piezoelectric Actuators

Features

- High current
- High power
- Power recovering
- Wide frequency range
- Two separate channels
- Floating outputs
- Galvanic separation of outputs from other circuitry

Purpose

The **NDR6881** is the dual channel driving unit used for static and dynamic supply of large piezoelectric actuators having capacity up to 200uF. The NDR6881 is primarily designed as a standalone laboratory desktop unit. It is used for driving or positioning or (in common sense) for operating only the piezoelectric actuators/stacks of various types. The device is not designed for use with loads having high energetic losses. The device also cannot be used with piezoelectric actuators having positive energetic balance in long term meaning (energy harvesting).

Description

The device is a source of single polarity voltage. Its value is proportional to input signal. The NDR6881 consists of two main blocks – the preamplifier and the high voltage stage. The input stage is galvanically separate from the output high voltage part. Signal ground of the BNC connector is connected to device casing. Amplifier outputs are floating. One of its wires could be optionally grounded externally. Block schema is in Figure 1.

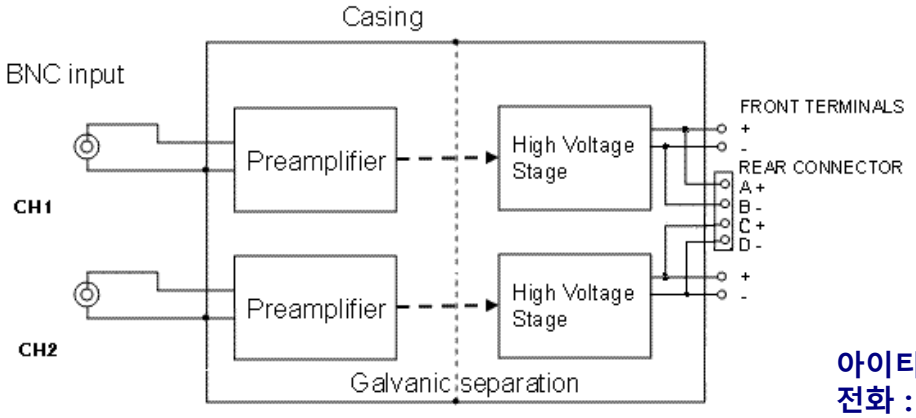

Figure 1 Block schematics of the NDR6881

The device operates at switching principle with pulse-width modulation.
The energy from mains is forwarded into the actuator. Output voltage grows in accordance with the input signal. When the phase of the input is changed the electric charge is “pumped” back from the actuator to internal storing capacitors. In the next phase is the charge from the capacitor transferred into the actuator again. If the voltage on the storage capacitor falls under preset limit the energy in the capacitor is refilled from the power supply.

Parameters

Electrical parameters			
Parameter	**Unit**	**Value[1]**	**Remark**
Number of channels		2	
Supply voltage	V	230V/50 Hz or 115V/60Hz	Two versions of the device
Power	W	Max. 110	
Output voltage amplitude and load current (RMS)	V	0 – 150	
	A	3.5	
Peak current	A	10	Goes down with temperature of the end stage
Power loses actuator covered by the driver	W	80	Per all device
Frequency range Low frequency limit	Hz	0	DC coupled, but galvanically isolated
High frequency limit (-3 dB)	kHz	6 20	Full stroke Small signals
Frequency filter	Hz	100	
Output voltage linearity	%	5	
Output noise	mV	30[2]	RMS, 50 µF load
Maximal capacity load	uF	200	
Input voltage range	V	0 to 10 or 10 - 0	Selectable input phase
Input impedance	kOhm	10	
Input connection		BNC	
Output connection		+/- terminals and 4 way Amphenol type 62IP	
Maximum voltage between input and output part and maximum voltage between channel outputs	V	500	
Dimension	mm	382x270x160	
Mass	kg	7.9kg	
Temperature range	°C	+5 to +45	

[1] Tolerance 10 % is applied on all values (if applicable).
[2] Value is guaranteed from 10 to 90% of dynamic range. Out of this range could be higher the residual noise or distortion at small capacitive loads.