

30DV50 & 30DV300 – Digital Amplifiers

Concept

The line of digital piezo amplifiers (d-Drive) of piezosystem jena is now expanded by the OEM amplifier module 30DV300 with high output current of 300 mA. The amplifier is designed for use as a single unit in industrial settings. It is compact, robust and mountable in different manners and is highly reliable. The 30DV300 was designed for universal use with a main supply voltage from 10 V to 30 VDC. The casing is available as a screw slot version (see picture) or for use in a 19"-rack mount casing.

Piezo actuators can be controlled in three different ways: By using the potentiometer on the front panel, by analog signal 0...10 V or by PC Interface. The high performance of the 30DV300 with 20 bit resolution guarantees the customer high speed positioning with the highest accuracy available. It includes rise time optimization and an active oscillation damping for each special application.

Features:

The 30DV300 comes with an auto calibration routine and Automatic Sensor Identification (ASI). All values of the actuating system, like capacitance, measurement system, resonant frequency and motion are automatically stored in the amplifier. An automatic amplifier optimization occurs after actuator identification. All this makes system configuration very easy and saves a lot of time.

A unique feature of the 30DV300 is that it can be used in combination with strain gauge or capacitive feedback sensors without additional modification.

The DSP (digital signal processor) runs at 64 MHz. The sampling rate is only 20 µsec. We also implemented adjustable features such as slew rate, notch filter frequency and pass filters frequencies.

A built-in function generator offers sine, triangular and square functions as well as noise and sweep.



image: 30DV300
(with screw slot casing)

Product Highlights:

- 1 channel digital amplifier
- Supply voltage 10...30 VDC
- High output current of 300 mA
- Auto calibration and ASI-function (**A**utomatic **S**ensor **I**dentification)
- For all kinds of closed loop sensors
- Built-in wave function generator
- Programmable filter functions

Application:

- Digital control of piezo actuating systems in industrial and laboratory settings for automatic control of high resolution nano-positioning applications

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Installation

Designed mainly for OEM use, the single channel amplifier can be used in labs as a stand-alone version as well as in industrial applications. For industrial use, the robust aluminium casing can easily withstand mechanical shocks. All functions can be controlled from the front panel. The PC interface on the backside allows 19"-rack mounting with easy cable handling. Special extension cables are available for using the actuating system far from the amplifier.

Technical Data

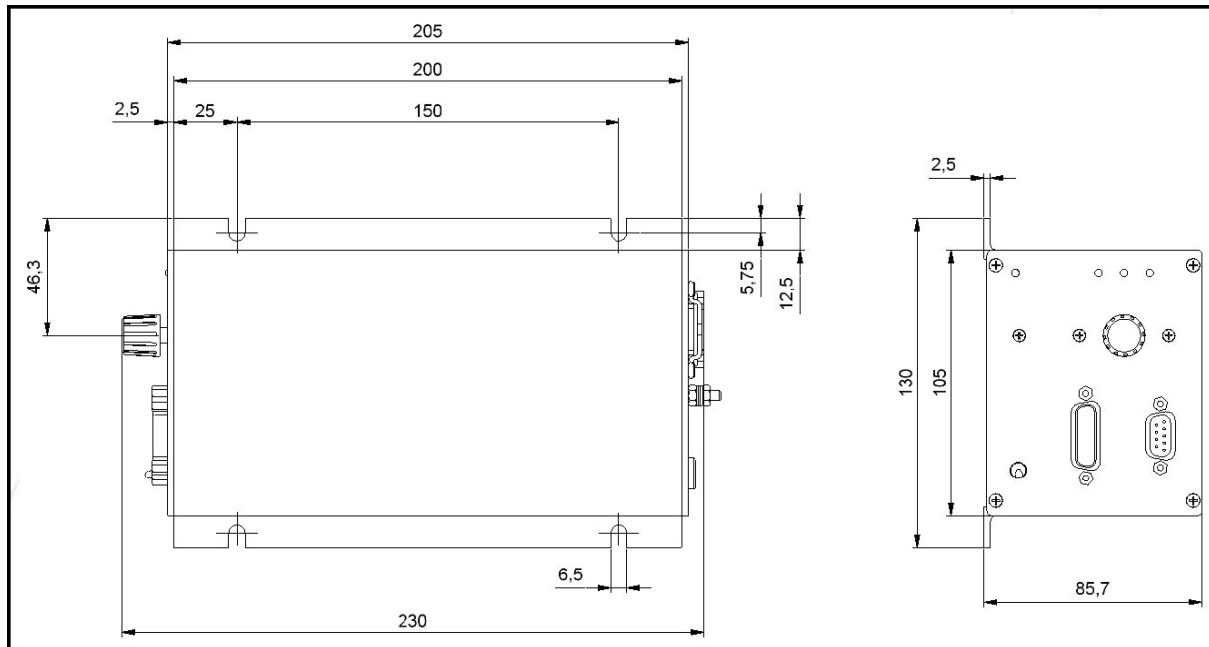
| | UNIT | 30DV300 | 30DV300 CAN | 30DV50 | 30DV50 CAN |
|-----------------------------|------|--|-------------|-------------------------------------|------------|
| Part no. | - | E-754-400 | E-754-450 | E-754-300 | E-754-350 |
| Channel | - | 1 | | | |
| Processor | MHz | 64, 32-bit floating point DSP | | | |
| Resolution | bit | 20 | | | |
| Servo rate | µs | 20 | | | |
| Main supply | VDC | 10 to 30 / max. 5 A | | 10 to 30 / max. 2.5 A | |
| Main supply connector | - | low voltage socket with 2,1 mm-pin | | | |
| Power | W | 45 | | 7,5 (max. 15W for nanoX™ actuators) | |
| Output Voltage | V | -20 to +130 (+130 to -20 for nanoX™actuators) | | | |
| Permanent output current | mA | 300 (2x150 mA for nanoX™-actuators) | | 50 | |
| Connector actuator | - | SUB-D 15pin | | | |
| Actuators | - | all actuators with "D"-option (open loop, capacitive or strain gauge position sensor) | | | |
| Controller | - | PID digital with DSP, lowpass & notchfilter | | | |
| Modulation input | V | 0 to +10 (programmable slew rate and low pass) | | | |
| Input resistance | kΩ | 25 | | | |
| Monitor output | V | 0 to +10 | | | |
| Output resistance (monitor) | kΩ | <1 | | | |
| MOD / MON connector | - | SUB-D 9pin | | | |
| DC voltage level | V | -20 to +130 (adjustable on front panel or via interface) | | | |
| digital interfaces | - | RS 232 | RS 232 | RS 232 | RS 232 |
| | | | CAN | | CAN |
| Specials | - | short circuit proved temperature control ASI-function (automatical sensor identification) integrated function generator | | | |

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|--------------|------|-------------------------------------|-----------|---------------|-----------|
| Part no. | - | E-754-400 | E-754-450 | E-754-300 | E-754-350 |
| Display | - | LED | | | |
| Size (WxHxD) | mm | 130 x 86 x 230 (5.1" x 3.4" x 9.1") | | | |
| Weight | kg | 1.8 (4 lbs) | | 1.6 (3.5 lbs) | |

Size Casing with Screw Slots [mm]



CAN-Bus Interface for up to 10x faster reaction times

The 30DV50 and 30DV300 are also available in a variant with CAN-Bus interface (Part no. E-754-350 for 30DV50 and Part no. E-754-450 for 30DV300). With the CAN-Bus Interface, reaction times of the controlled piezo actuator can be reduced up to 10 times.

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