

**digital • piezo • control**

## **d-Drive amplifier EVD 50, EVD 125, EVD 300**

- for low voltage piezo electrical actuators (\*-D)
- up to 300mA permanent output current
- 20-bit resolution
- built in function generator
- output of trigger impulses
- modulation input 0...10V
- 19"-module for modular d-Drive® system
- ASI / ASC-function

(\*actuators with part.no. suffix "D")

### **applications**

- nanopositioning for low voltage piezo electrical actuators
- high accuracy positioning in laboratory and industry
- automation



fig.: EVD 50

### **Concept**

The piezo amplifier series EVD are fully digital amplifier modules designed for high-resolution piezo electrical actuators.

The amplifier is part of a modular solution and will be manufactured to fit with a 19" rack mount.

The technical specifications, designed for high precision positioning applications in the nm-range, include a 20-bit solution (oversampling), a built-in function generator as well as the output of trigger impulses. The customer can control the amplifier module in three different ways: by a PC

interface, in combination with EDS 1 or EDS 2, by manual adjustment on the front panel via EDS 2, or by 0...10V analogue input signal.

Permanent output current is 50mA to 300mA per channel. Actuators with high electrical capacitance can be driven very fast with a short rise time.

The EVD 50 CL, EVD 125 CL and EVD 300 CL can be used in combination with strain gauge or high resolution capacitive feedback sensors without additional modification.

The DSP (digital signal processor) works at 64MHz resulting in a servo time of only 20 µsec. The effective resolution is 20bit. The technical specifications and the major advance with the free interchangeability of all calibrated digital actuators make the series EVD 50 CL, EVD 125 CL and EVD 300 CL amplifiers suitable for use in high accuracy positioning applications in these fields: semiconductor, biotechnology, fiber alignment, metrology and many more

#### **ASI function**

ASI: Automatic Sensor Identification:

The ASI function allows you to exchange the same type of actuator and use it with the same amplifier. Actuators for an ASI compatible amplifier are equipped with an external pre amplifier.

New calibration is no longer necessary (valid only for standard calibration).

#### **\*\*\*ASC function**

ASC function: Automatic System Calibration

In addition to the ASI function ASC provides even more functionality for our customers.

The integrated circuit built into a closed loop actuator also contains the parameters for its calibration and other information such as:

- motion • name • axis • serial number
- PID-control and filter setting

Thus the electronics can identify not only the actuator, but also its calibration data. The actuator can be used with a different type of electronic, without need to be recalibrated. The new system works immediately, and at its peak performance. Another significant advantage is the full function generator setup. The full function generator setup contains standard values for amplitude, offset, frequency and so on. All of this information is stored inside an ID chip that is located on the actuator's connector. The setup is immediately active again after switching on the electronic.

**Specification:**

technical data part no.	EVD 50 E-720-100	EVD 50 CL E-720-300	EVD 125 CL E-720-600	EVD 300 CL E-720-700
channels	1	1	1	1
display	no	no	no	no
processor	64MHz, 32bit floating point DSP			
resolution (oversampling)	20 bit			
servo rate	50 kHz			
sensor controller	strain gage, capacitive			
controller	PID digital with DSP, low pass, notch filter			
output voltage	-20...+130V			
output current (continuous)	50mA (2 x 50mA for nanoX™ actuators)		125mA (2 x 125mA for nanoX™ actuators)	300mA (2 x 150mA for nanoX™ actuators)
voltage noise	<0.3mV <sub>RMS</sub> @500Hz		<0.5mV <sub>RMS</sub> @500Hz	
connector output voltage	SUB-D 15pin	SUB-D 15pin	SUB-D 15pin	SUB-D 15pin
DC voltage offset	-20...+130V(adjustable on front panel or via interface)			
modulation input	0...+10V			
input impedance	25kΩ			
monitor output	0...+10V			
monitor output impedance typ.	50Ω			
connector modulation/monitor	SUB-D 9pin	SUB-D 9pin	SUB-D 9pin	SUB-D 9pin
dimensions	3HE 10TE		3HE 20TE	
special features	<ul style="list-style-type: none"> <li>• ASI-function (Automatic Sensor Identification)</li> <li>• ASC-function (Automatic System Calibration)</li> <li>• over temperature protection</li> <li>• short circuit proof</li> <li>• slew rate</li> <li>• notch filter</li> <li>• low pass filter</li> <li>• integrated function generator (sine, triangular, square function)</li> </ul>			