

## Data Sheet

# Electrohydraulic Actuator

## Analog PVE Series 7

The PVE Series 7 is the newest actuator series to join the successful Danfoss PVE portfolio, which has evolved from a solid foundation of technical expertise dating back more than 40 years.

The Danfoss PVE platform offers customers fast, accurate and intelligent operation with plug-and-perform design and works in conjunction with Danfoss high performance proportional valves — PVG 32, PVG 100, PVG 120 and the new PVG 128 and PVG 256, as well as steering valves EHPS, EH, EHi and OSPE.

The PVE Series 7 seamlessly replaces PVE Series 4 actuators, while providing customers with all the new benefits.

The analog PVE Series 7 actuator program has a number of proven-in-use features that deliver the high reliability expected of a Danfoss Power Solutions product.



### Features

#### Benefits

- Increased robustness with new encapsulation standard and corrosion protection of metal parts
- Increased environmental capabilities with increased temperature range of -40 to +90 °C
- Enhanced event diagnostics with dual demodulator LVDT principle
- Increased power efficiency with the introduction of Power Save
- Improved EMC robustness with increased high frequency (HF) immunity field strength
- Easy to comply to on-road legislation with the introduction of the E-mark certificate
- Easier installation and service with new and more compact envelope design

#### Control Options

- Proportional actuators with multi-voltage 11-32 V<sub>DC</sub> supply voltage
- ON/OFF actuators with fixed 12 VDC or 24 VDC supply voltage
- Ratiometric input signal control
- Fixed 0-10 V<sub>DC</sub> input signal control (-U)
- PWM input signal control

#### Compliance and certification

- Compliant with European Directive 2004/108/EC
- Compliant with Machinery Directive 2006/42/EC
- E-mark certified acc. to UNECE regulation no. 10
- Certificates are available upon request

#### General

- Performance variants PVEO, PVEM, PVEA, PVEH and PVES
- Proportional closed loop control with integrated spool position feedback
- ON/OFF open loop control
- Integrated microcontroller with embedded software algorithms
- Event monitoring with active or passive event reaction and recovery
- Integrated LED indicating status
- Power Save
- Spool direction indication (-DI)
- Spool position feedback (-SP)
- Dedicated float pin (U<sub>F</sub>)
- Neutral Power-OFF (-NP)
- DEUTSCH, AMP and DIN/Hirschmann connector types

## Technical data

### Control specification

Supply Voltage ( $U_{DC}$ )	PVEO	Rated	12 V <sub>DC</sub>	24 V <sub>DC</sub>
		Range	11 to 15 V <sub>DC</sub>	22 to 30 V <sub>DC</sub>
		Maximum ripple	5%	
	PVEM/A/H/S	Rated	11 to 32 V <sub>DC</sub>	
		Range	11 to 32 V <sub>DC</sub>	
		Maximum ripple	5%	
Signal Voltage ( $U_S$ )	PVEM/A/H/S	Neutral	$U_S = 0.5 \cdot U_{DC}$	
		Q: P to A	$U_S = (0.5 \text{ to } 0.25) \cdot U_{DC}$	
		Q: P to B	$U_S = (0.5 \text{ to } 0.75) \cdot U_{DC}$	
	PVEH-U/PVES-U	Neutral	$U_S = 5 \text{ V}_{DC}$	
		Q: P to A	$U_S = 5 \text{ V}_{DC} \text{ to } 2.5 \text{ V}_{DC}$	
		Q: P to B	$U_S = 5 \text{ V}_{DC} \text{ to } 7.5 \text{ V}_{DC}$	
Signal voltage PWM ( $U_S$ )	PVEM/A/H/S	Neutral	$U_S = 50\% \text{ DUT}$	
		Q: P to A	$U_S = 50\% \text{ to } 25\% \text{ DUT}$	
		Q: P to B	$U_S = 50\% \text{ to } 75\% \text{ DUT}$	
PWM Frequency ( $U_S$ )	PVEM	Recommended	>200 Hz	
	PVEA/H/S		>1000 Hz	

### Operating conditions

Pilot pressure	PVEO/M/A/H/S	Nominal	13.5 bar	[196 psi]
		Minimum	10.0 bar	[145 psi]
		Maximum	15.0 bar	[218 bar]
	PVEO-HP	Nominal	25.0 bar	[363 psi]
		Minimum	21.0 bar	[305 psi]
		Maximum	25.0 bar	[363 psi]
Storage temperature	PVEO/M/A/H/S	Ambient	-50 to +90°C	[-58 to +194°F]
Operating temperature	PVEO/M/A/H/S	Ambient	-40 to +90°C	[-40 to +194°F]
Oil viscosity	PVEO/M/A/H/S	Operating range	12 to 75 cSt	[65 to 347 SUS]
		Minimum	4 cSt	[36 SUS]
		Maximum	469 cSt	[2128 SUS]
Oil cleanliness	PVEO/M/A/H/S	Maximum	18/16/13 (according to ISO 4406)	