ENGINEERING TOMORROW

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 $V_{DC}$ supply voltage
- ON/OFF actuators with fixed 12 VDC or 24 VDC supply voltage
- Ratiometric input signal control
- Fixed 0-10 $V_{DC}$ 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 ($U_F$)
- Neutral Power-OFF (-NP)
- DEUTSCH, AMP and DIN/Hirschmann connector types

Comprehensive technical literature is online at *powersolutions.danfoss.com*

## Technical data

*Control specification*

| | | | | |
|---|---|---|---|---|
| Supply Voltage ($U_{DC}$) | PVEO | Rated | 12 $V_{DC}$ | 24 $V_{DC}$ |
| | | Range | 11 to 15 $V_{DC}$ | 22 to 30 $V_{DC}$ |
| | | Maximum ripple | 5% | |
| | PVEM/A/H/S | Rated | 11 to 32 $V_{DC}$ | |
| | | Range | 11 to 32 $V_{DC}$ | |
| | | Maximum ripple | 5% | |
| Signal Voltage ($U_S$) | PVEM/A/H/S | Neutral | $U_S = 0.5 * U_{DC}$ | |
| | | Q: P to A | $U_S = (0.5 \text{ to } 0.25) * U_{DC}$ | |
| | | Q: P to B | $U_S = (0.5 \text{ to } 0.75) * U_{DC}$ | |
| | PVEH-U/PVES-U | Neutral | $U_S = 5 V_{DC}$ | |
| | | Q: P to A | $U_S = 5 V_{DC}$ to 2.5 $V_{DC}$ | |
| | | Q: P to B | $U_S = 5 V_{DC}$ to 7.5 $V_{DC}$ | |
| Signal voltage PWM ($U_S$) | PVEM/A/H/S | Neutral | $U_S$ = 50% DUT | |
| | | Q: P to A | $U_S$ = 50% to 25% DUT | |
| | | Q: P to B | $U_S$ = 50% to 75% 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) | |

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