paladon
TOTAL VALVE CONTROL

# TVC POSITIONER

# COMPANY

For over 30 years Paladon Systems has been supplying valve actuators and control systems on a global basis.

Since its inception in 1981, Paladon Systems has continuously developed its design, engineering, organisational, quality and management capabilities. Today Paladon Systems designs and manufactures many valve automation technologies that lead the industry in terms of cost efficiency, operational performance and environmental responsibility.

Paladon Systems' vast experience with supporting the Oil, Gas and Power industries with valve automation solutions for the most critical applications in extreme operating environments has resulted in product designs that offer unsurpassed quality and reliability across all industries and applications.

Holding ISO 9001 certification for over 20 years, today Paladon Systems hold accreditation and approvals from almost all major institutes, engineering companies and end users.

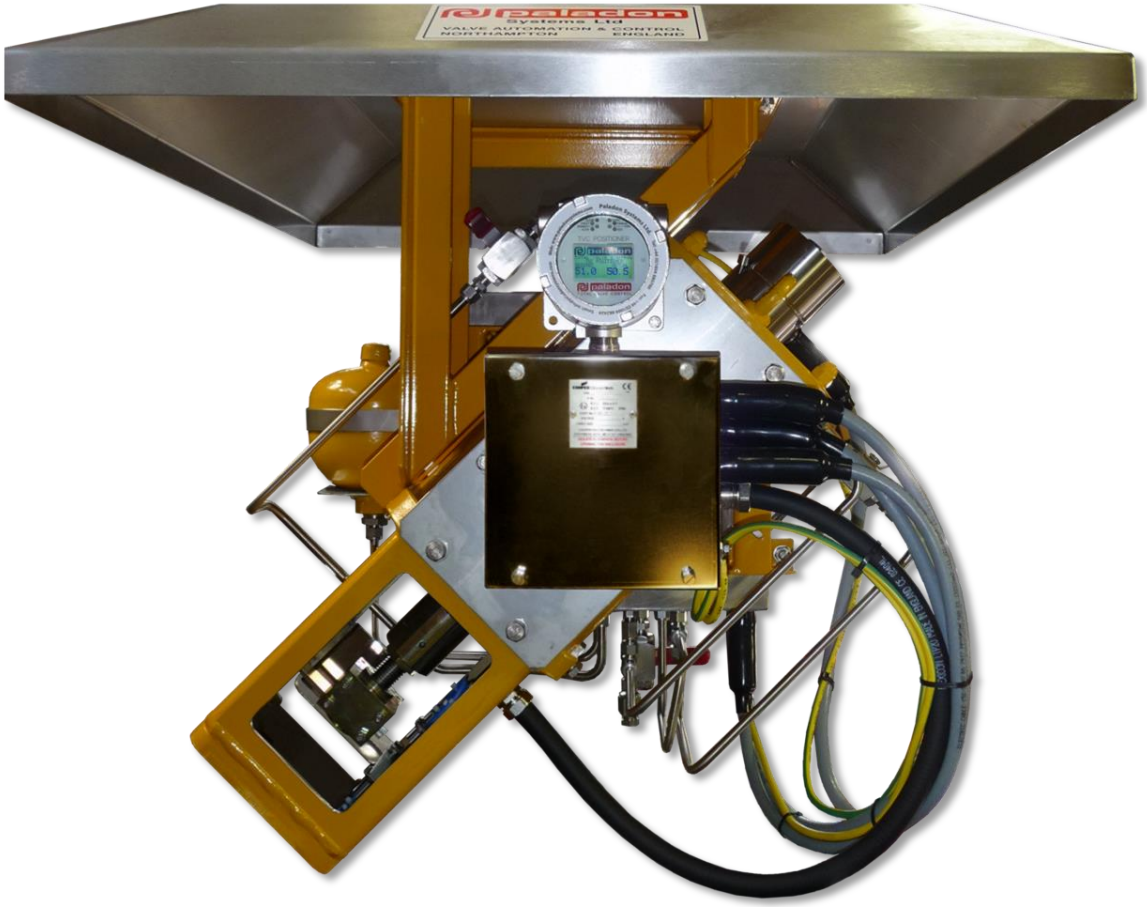
Headquartered in England, Paladon Systems has offices and facilities in Scotland, Italy, Malaysia, the Russian Federation and the United States. With a comprehensive suite of valve automation solutions backed by a dedicated team of field service engineers, Paladon Systems is **Total Valve Control**.

# INTRODUCTION

Paladon Systems TVC Positioners are designed to provide precise positional control of rotary or linear hydraulically or pneumatically actuated valve systems.

# KEY FEATURES

- Comprehensive diagnostics package to facilitate the implementation of cost effective preventive maintenance programs
- Support for HART, Foundation Fieldbus and Profibus communications
- Remote communication via smart PDA, tablet or smart phone
- Direct acting control of on/off or proportional solenoid valves reduces system cost and allows for fast valve stroking speeds
- Low power consumption permits use with solar and/or battery powered systems
- ATEX certified



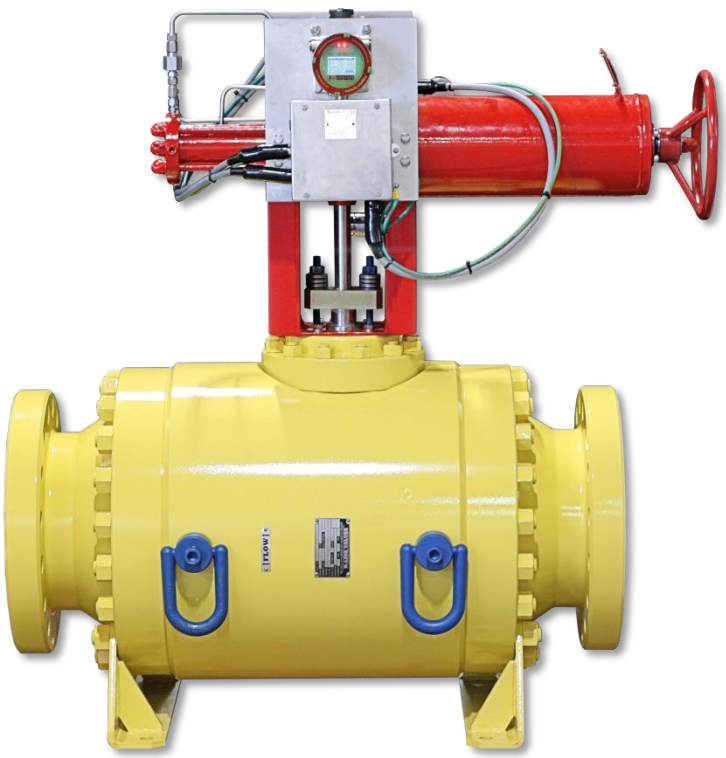
# SYSTEM OVERVIEW

**Basic System**

- Zone 1 / 2 Infrared communication interface using an Exia keypad
- Large graphics LCD with comprehensive status and data display
- Three way galvanic isolation – command in, actual position out and power supply
- Selectable sinking or sourcing actual position 4-20mA output
- Local / remote configuration enable input and open drain status output
- Selectable solenoid drive sense for failsafe operation
- Selectable default operation on command signal/feedback signal break
- ESD solenoid output - 24VDC open drain
- Fault output - 24VDC open drain
- Hydraulic pump drive controlled by demand or external pressure sensors
- External fault contact monitoring
- Selectable interlock between ESD and fault outputs
- Stepping mode with adjustable ON and OFF times
- Low power - normal operation less than 2W plus solenoids
- Direct mounting within Compact Exd Enclosure System

**Enhanced System**

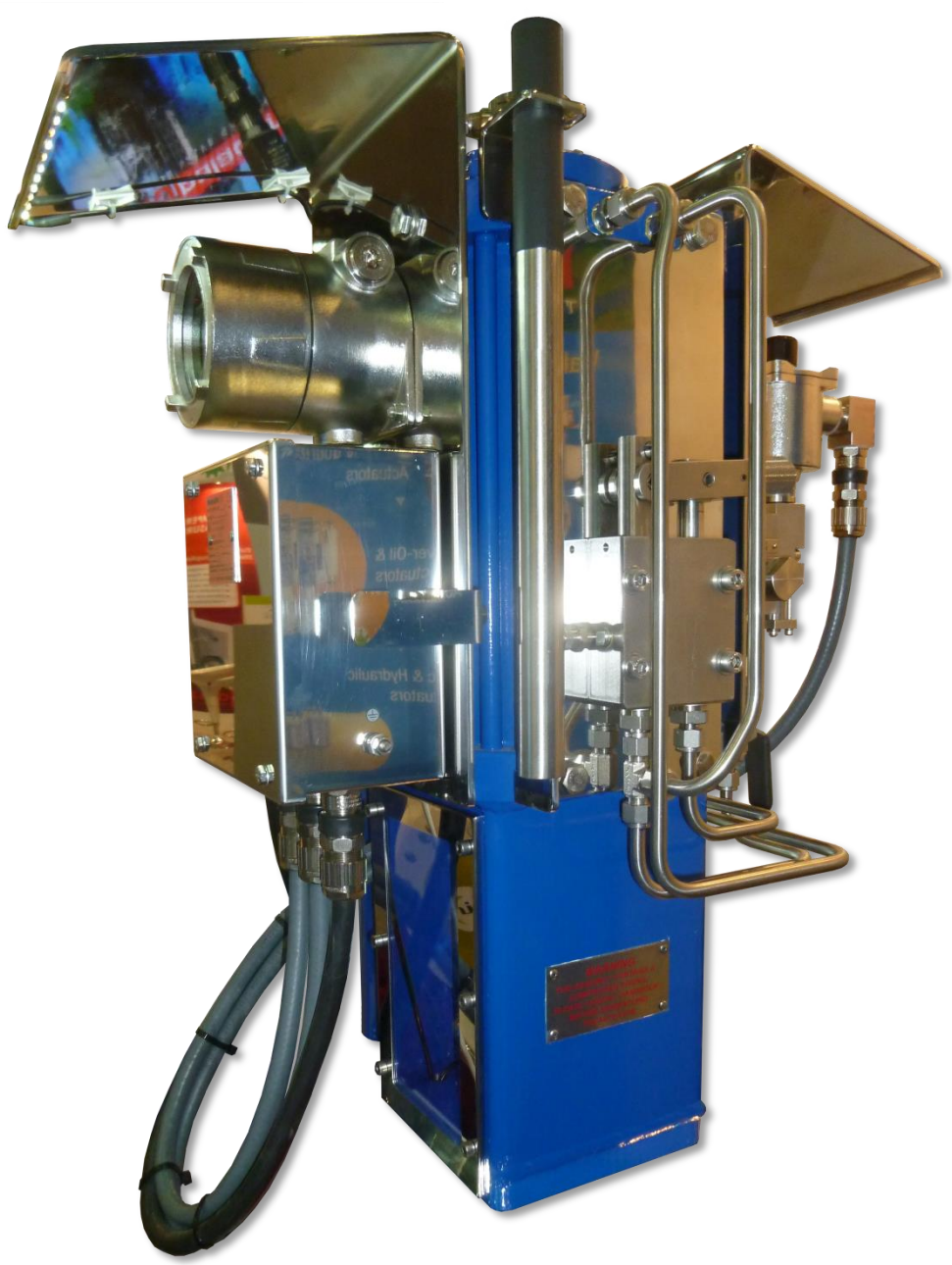
- HART communication channel on re-transmitted actual position signal
- Foundation Fieldbus interface
- 3 analogue inputs for hydraulic system monitoring and condition monitoring
- Performance logging with USB download
- 2.5A proportional solenoid drive with PID control



# OPERATION

The TVC Positioner compares two analogue signals, one representing the desired position (command signal) and the other representing the actual position (feedback signal) of the valve actuator. A difference between these two signals will cause one of the TVC Positioner outputs to operate, driving the valve actuator to the desired position. Positional parameters, including proportional band and dead band can be adjusted to overcome positioning problems.

The valve actuator's stroking speed can be precisely controlled by selecting the stepping mode to provide independent adjustment of the on and off times for the open and close solenoid operation.



# SPECIFICATIONS

- **User Adjustments**
  All adjustments are made using an Intrinsically Safe infrared keypad with user feedback on the LCD screen. Access to these adjustments is protected by a hard-wired remote enable and an internal pass code. On the HART and Foundation Fieldbus versions, adjustments are undertaken via the communications channel.

- **Environment**
  Operating temperature -20°C to +55°C (-4 to +131°F)

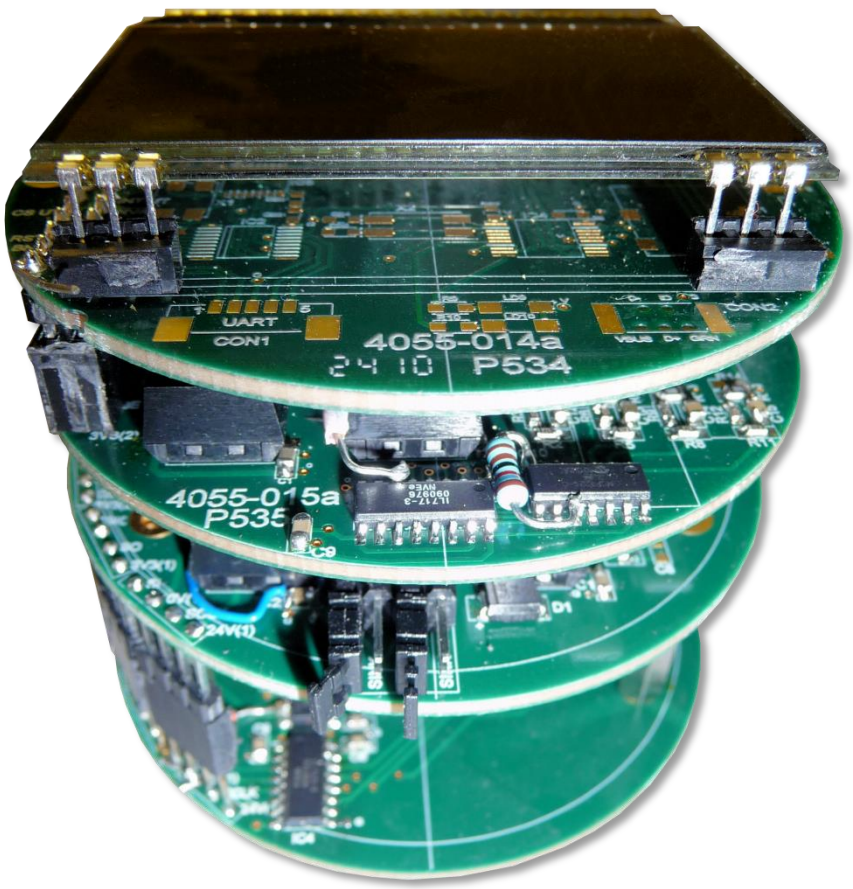
- **Performance**
  The following applies to the TVC only, characteristics of the feedback element and actuator system response will have additional effects:

  Conversion: 12 bit max normal conversion range (4-20mA) = 1 in 3000

  Position resolution: ±0.5% modified to up to ±5% by dead band

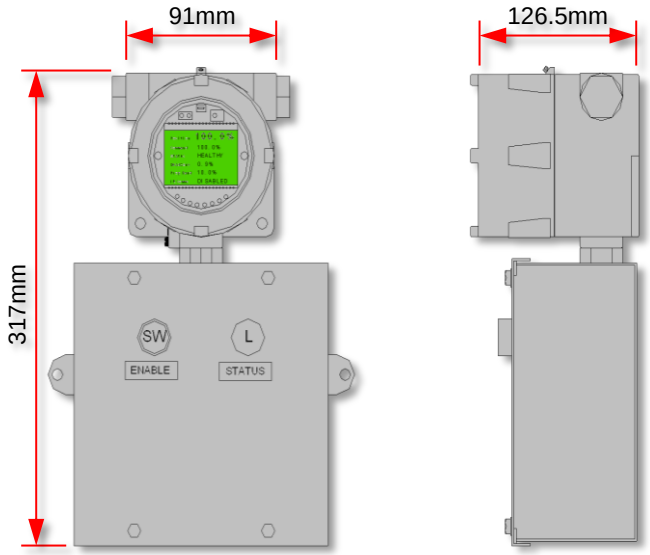
  Accuracy (theoretical): 0.03% span based on conversion resolution of 1 in 3000

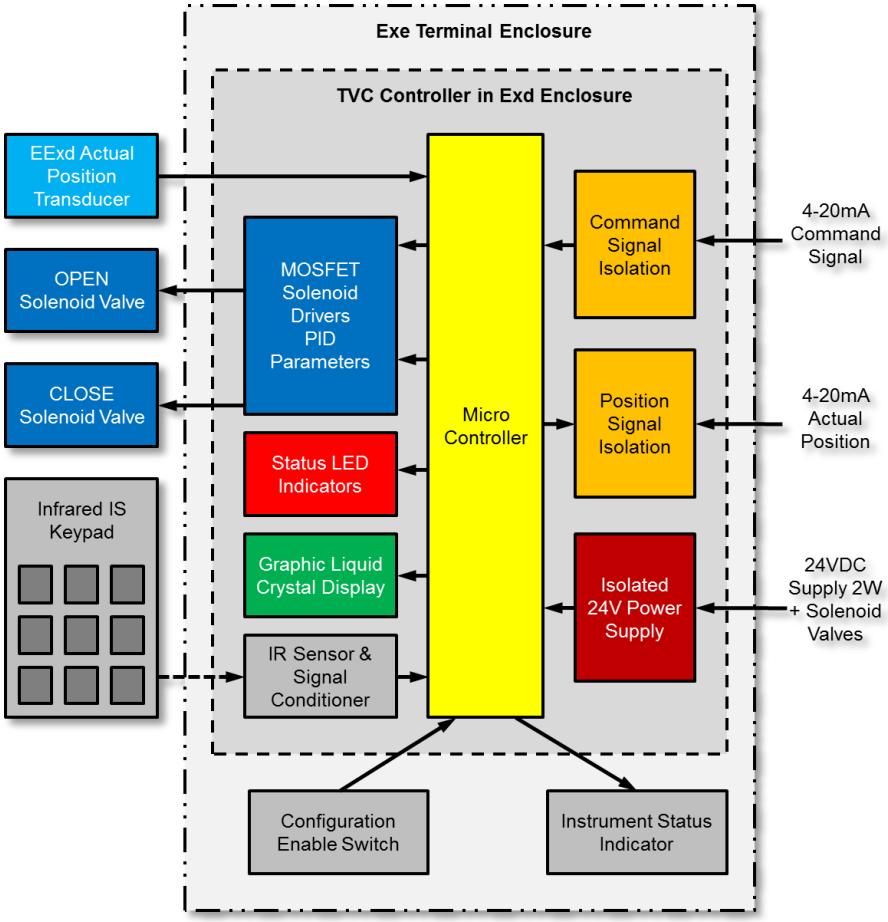
  Accuracy (actual) 0.12% span based on 25% turn down of feedback



# HARDWARE & ARCHITECTURE

The TVC Positioner is mounted within an Exd enclosure and all electronics tropicalized for operation in the most demanding environments.



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**Paladon Systems**
Ferro Fields, Brixworth, Northampton
NN6 9UA, England
Tel: +44 (0)1604 880700 Fax: +44 (0)1604 882424
info@paladonsystems.com

**Paladon Systems**
KingsPoint House, Unit 4, Kingshill Park
Venture Drive, Arnhall Business Park
Westhill, Aberdeen, Scotland, AB32 6FL
Tel: +44 (0)1224 772442 Fax: +44 (0)1604 882424
info.scotland@paladonsystems.com

**Paladon Italia**
Via Barbieri, 24 - 27040 Pinarolo Po (PV), Italy
Tel: +39 0383 878524 Fax: +39 0383 878042
info.italia@paladonsystems.com

**Paladon Systems**
No. 8 Jalan Serendah 26/39, Seksyen 26
40400 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel: +603 5614 3211 Fax: +603 5614 4511
info.asiapacific@paladonsystems.com

**Paladon SDT**
121352 Davydkovskaya Str. 12/3
Moscow, The Russian Federation
Tel/Fax: +7 495 735 28 07 (08) (09)
info.russianfederation@paladonsystems.com

**Paladon Americas**
14514 Luthe Road, Houston, TX 77039, USA
Tel: +1 855 725 2366 Fax: +1 832 310 2370
info.usa@paladonsystems.com


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