

# Driving Solutions

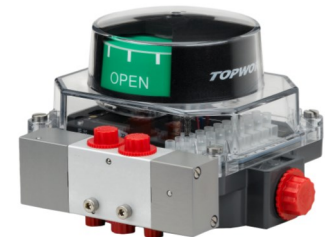
## TopWorx™ Discrete Valve Controllers

### Models TVF, TVL, and TVH

The newest addition of valve controllers to the T-Series product line: the TVF, TVL, and TVH. The TV models are a series of switchboxes that offer a compact, rugged, and dependable solution for discrete valve control and valve position monitoring where weight and real estate are at a premium. All TV valve controllers are certified for intrinsically safe (Division 1/Zone1) and non-incendive applications (Division 2/ Zone 2).

#### Benefits

- Global certifications allow for international standardization.
- Integrated spool valve with single or dual solenoid options for single acting or double acting pneumatic actuators.
- A wide range of bus/sensor options such as ASi, DeviceNet, Profibus, mechanical, NAMUR, reed, and inductive proximity switches.
- Position switches/sensors are easily set with no tools required, reducing installation time and cost.
- Tropicalized Aluminum or 316 stainless steel housing.
- Direct NAMUR mount capability eliminates costly mounting brackets.
- Low profile, but highly visible indicator and small footprint promote significant space savings.
- Ten-point standard terminal strip (optional twelve-point) and spacious interior layout allows ample room inside the enclosure for wiring.



TVF-Aluminum base with clear resin lid



TVL-Aluminum



TVH- 316 Stainless Steel

#### Electrical Classification

##### Hazardous Area Approvals

- ATEX & IECEx- Intrinsically Safe, Dustproof and Non-sparking II2GD & II3GD—Zone 1, Zone 2, Zone 21 and Zone 22 approved
- cULus-Intrinsically Safe and Non-incendive Class I & II Division 1; Class I & II Division 2



Intrinsically Safe and Non-Incendive



The TopWorx™ TVF, TVL & TVH are ideal for a multitude of applications. Modular in design, they carry ATEX, IECEx, and UL certifications and offer competitive features and flexibility at significant cost savings.






**Features:**

- Durable, Stainless Steel, or Aluminum enclosures, designed for mounting to NAMUR actuators
- Color-coded TwistSet cams for easy sensor adjustment

**Options:**

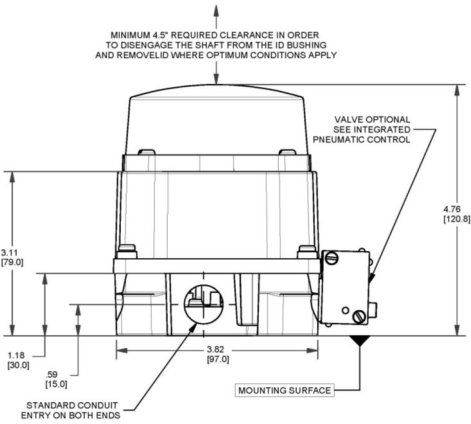
- Mechanical Switches
- Proximity Switches
- Inductive Switches
- Bus Networks

Enclosure	Bus/Sensor	Area Classification	Visual Display	Shaft	Conduit Entries
<p><b>TVF</b> Tropicalized Aluminum base with clear resin lid</p> <p><b>TVL</b> Tropicalized Aluminum base and lid</p> <p><b>TVH</b> 316 Stainless Steel</p> <p><b>Cover bolts:</b> 4 captive slotted stainless steel screws</p> <p><b>Terminal Strip:</b> Standard 10pt. Molded Nylon</p> <p><b>Temperature Rating:</b> Determined by internal components-Consult Factory</p> <p><b>Environment:</b> Designed for NEMA &amp; Type 4, 4X, IP67</p>	<p><b>Bus Network</b> (Area class cannot be 0)</p> <p><b>AS</b> AS-interface <b>DN</b> DeviceNet <b>PB</b> Profibus</p> <p><b>Mechanical Switches</b> (Area class cannot be 2)</p> <p><b>M2</b> (2) Mech SPDT <b>M4</b> (4) Mech SPDT <b>K2</b> (2) Mech SPDT w/ gold contacts <b>T2</b> (2) Mech DPDT</p> <p><b>Proximity Switches</b></p> <p><b>R2</b> (2) SPDT 200mA max <b>R4</b> (4) SPDT 200mA max <b>P2</b> (2) SPDT 3A max</p> <p><b>Analog Output</b> (Available with M, K, T, E)(Not available w/pilot/spool valve) _x 4-20 mA Transmitter</p> <p><b>Inductive Sensors</b></p> <p><b>E2</b> (2) p+f NJ2+V3-N inductive NAMUR <b>12</b> (2) Ind prox PNP N/O (Area class cannot be "W")</p> <p><b>Examples:</b></p> <p><b>0X</b> 4-20 mA Transmitter with mechanical switches</p> <p><b>AS</b> AS-I with "R" type reed switches</p> <p><b>AM</b> As-I with "M" type mechanical switches</p>	<p><b>0</b> Intrinsically safe ATEX/IECEx Zone 1 II2GD Ex ia IIC Ex tb IIIC , IP66/68 (Dust groups TVL/TVH only) CII Div 1 Grps-A-D; CII Div 1 Grps E-G (TVA ATEX/ IECEx only)</p> <p><b>2</b> Non-Incendive ATEX/IECEx Zone 2 II3GD Ex nA nC IIC Ex tc IIIC, IP66/68 CI, Div 2, Grps F&amp;G</p> <p><b>W</b> No approvals, Type4, 4x IP66/68</p> <p><b>G</b> General Purpose Type 4X (Not available on TVA)</p> <p><b>TVF, TVL &amp; TVH</b> 10pt. Terminal strip w/pilots 12pt. Terminal strip w/o pilots</p> <p><b>TVA</b> 8pt. Terminal strip w/o pilots</p> <p> </p> <p>For complete information on certification options, go to <a href="http://www.topworx.com">www.topworx.com</a> and download the applicable product certificate.</p>	<p>Visual Display: Impact resistant polycarbonate; O-ring sealed; 360° adjustable</p> <p><b>G</b> Standard 90° Green OPEN, Red CLOSED</p> <p><b>B</b> 90° Black OPEN, Yellow CLOSED</p> <p><b>Y</b> 90° Yellow OPEN, Black CLOSED</p> <p><b>J</b> 3 Way T port, Green/Red</p> <p><b>K</b> 3 Way L Port, Green/Red</p> <p><b>F</b> Flat-top with skirt indicator (Indicator not provided with "L" shaft option) TVH &amp; TVL only</p>	<p><b>N</b> NAMUR 304 stainless steel</p> <p><b>L</b> 1" Extended Linear Shaft (TVL and TVH only) (Indicator not provided with "L" shaft option)</p>	<p><b>P</b> (2) 1/2" NPT</p> <p><b>E</b> (2) 3/4" NPT</p> <p><b>M</b> (2) M20</p> <p><b>1</b> (2) M25</p> <p>See Next Column </p>

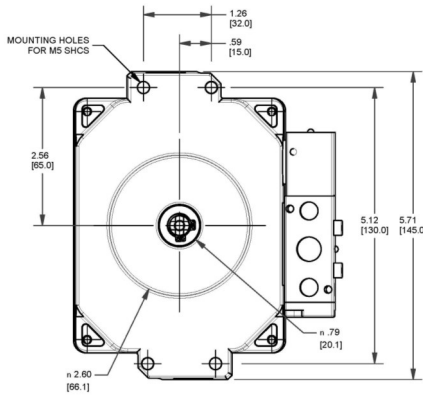
Enclosure <b>TVH</b>	Bus/Sensor --	Area Classification --	Visual Display --	Shaft --	Conduit Entries --
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# Discrete Valve Control

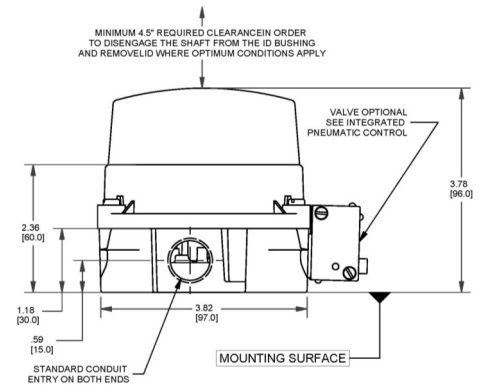
## Dimensions



TVH-TVL



TVL-TVH-TVF

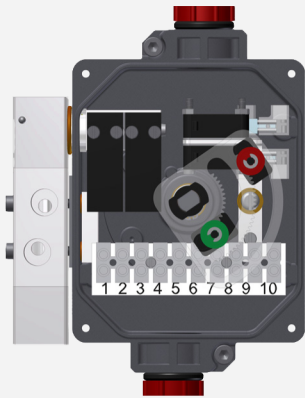


TVF

O-Rings	Pilot	Spool Valve	Valve Cv	Manual Override	Regional Certs
M Silicone	<b>Blank</b> No pilot device(s)  1 (1) 24Vdc pilot, 1W (0.7W for I.S.) fail open/close  2 (2) 24Vdc pilots, 1W (0.7W for I.S.) fail last position  4 (1) 220Vac pilot, 3VA, fail open/closed  5 (2) 220Vac pilots, 3VA, fail last position  7 (1) 110Vac pilot, 3VA, fail open/closed  8 (2) 110Vac pilots, 3VA, fail last position	<b>Blank</b> No Spool valve  A Aluminum Hard coat anodized  6 316 Stainless steel	<b>Blank</b> No Spool valve  1 1.0 Cv (1/4" NPT Ports)  8 1.0 Cv (1/4" BSP Ports)	<b>Blank</b> No override  1 Single Pushbutton Momentary/Latching	<b>N</b> NEPSI  <b>R</b> EAC  <b>B</b> InMetro (Area Class "0" only)  <b>P</b> Peso (Gas approval only)
<b>O-Rings</b> M	<b>Pilot</b> —	<b>Spool Valve</b> —	<b>Valve Cv</b> —	<b>Manual Override</b> —	<b>Regional Certs</b> —

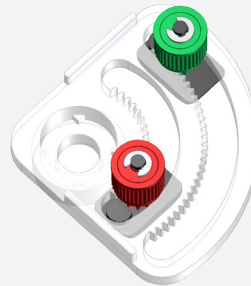
# Superior Valve Control in a Light Weight and Rugged Package.

The TopWorx™ TV models offer an integrated package for discrete valve control. Each model can be configured with an integrated spool valve with single or dual solenoid options for single acting or double acting pneumatic actuators. All internal components (integral switches and solenoids) are pre-wired to 10 pt. terminal strip for ease of field wiring. Designed to provide maximum functionality in a compact form factor, the TopWorx™ T-Series has a number of unique features that save space, time, and money.



### Optimum Use of Space

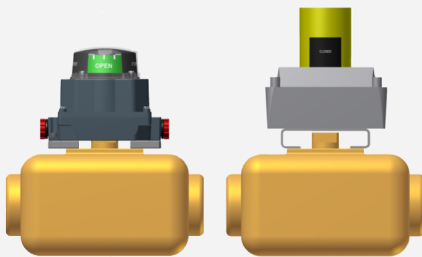
The unique layout supplies ample working space inside the enclosure for wiring and setting of the switches while taking up very little space above the actuator.



### TwistSet Cams

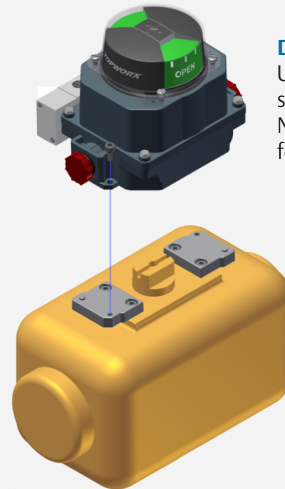
Unique TwistSet cam design allows easy access and accurate step-less setting of sensor position with minimum hysteresis.

Color-coded strikers enable quick identification of open/closed switches.



### Low Profile Design

The unique direct mounting feature eliminates expensive mounting brackets while reducing the height of the valve controller overall footprint above the actuator.



### Direct Mounting

Unique mounting design enables simple attachment to any ISO/ NAMUR actuator without the need for expensive mounting brackets

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