

# GLOBAL LEADERSHIP IN VALVE CONTROL AND POSITION SENSING TECHNOLOGY



**TOPWORX**  
Control Without Compromise



# TOPWORX – THE GLOBAL LEADER IN VALVE CONTROL AND POSITION SENSING TECHNOLOGIES



TopWorx is the global leader in valve control and position sensing for the process industries. Our solutions help plants, platforms, and pipelines improve productivity and increase safety in the harshest environments and toughest applications.



**valvetop** Valvetop® discrete valve controllers enable automated on/off valves to communicate via FOUNDATION Fieldbus, DeviceNet, AS-Interface, Profibus, and HART protocols.

**GO SWITCH** GO® Switch leverless limit switches provide reliable position sensing in extremely hot, cold, wet, dirty, abusive, corrosive, and explosive environments.

Valvetop® Partial Stroke Test Device for emergency shutdown valves

## GLOBAL TECHNOLOGY LEADERSHIP

TopWorx technology advancements are at the forefront of innovation in the process automation industry. TopWorx uses wireless technologies and fieldbus protocols such as FOUNDATION Fieldbus, DeviceNet, AS-Interface, Profibus, and HART to reduce installation costs and enable predictive maintenance at many of the world's leading companies.



## GLOBAL HAZARDOUS AREA CERTIFICATIONS

TopWorx valve controllers and position sensors are globally certified for use in any hazardous location anywhere in the world. In addition to high temperature (up to 204°C), cold temperature (-50°C), and sub-sea (depths to 6,800 meters) applications, TopWorx products are suitable for use in Zone 0 (Intrinsically Safe), Zone 1 (Flameproof/Explosion Proof), and Zone 2 (Non-Incendive) hazardous areas with IECEx, ATEX, GOST, InMetro, UL, CSA, JIS, KOSHA, and NEPSI certifications.



## GLOBAL SERVICE & SUPPORT

With company locations in the United States, United Kingdom, South Africa, Bahrain, and Singapore, TopWorx is strategically positioned to provide the kind of support that a world without compromise demands. In addition, over 150 Certified Product Partners throughout the world are available to provide competent local support when needed.

## WWW.TOPWORX.COM

Visit [www.topworx.com](http://www.topworx.com) for comprehensive information on our company, capabilities, and products – including model numbers, data sheets, specifications, dimensions, and certifications.





DISCRETE VALVE CONTROLLERS FOR ON/OFF VALVES

Valvetop® discrete valve controllers and switchboxes monitor and control the position of automated on/off valves. Valvetop solutions support multiple fieldbus protocols, operate in the most demanding plant conditions, and carry a variety of hazardous area certifications.



VALVETOP D-SERIES  
World-class discrete valve controllers with the highest technology available



**DXP** Tropicalized Aluminum  
Flameproof/Explosion Proof/  
Intrinsically Safe  
Class I Division 1 Groups C & D  
Class I Division 2 Groups A-D  
EEx/Ex ia IIC T6 Tamb -50°C  
to 60°C II1GD  
EEx/Ex d IIB+H2 T6 Tamb -50°C  
to +60°C II2G



**TVG** Direct-Mount Composite Resin  
General Purpose  
Ordinary Locations

**TVC** Direct-Mount Composite Resin  
Non-Incendive/Intrinsically Safe  
Class 1 Division 2 Groups A-D  
EExia IIC T4 Tamb -50°C II2G



**DXR** Composite Resin  
Non-Incendive/Intrinsically Safe  
Class I Division 2 Groups A-D  
EEx/Ex ia IIC T6 II1GD  
EEx/Ex me [ia] IIC T6 II2G



**TXP** Direct-Mount Aluminum  
Flameproof/Non-Incendive/  
Intrinsically Safe  
Class I Division 2 Groups A-D  
EExia IIC T4 Tamb -50°C II2G  
EEx/Ex d IIB T6 Tamb -50°C II2G  
EExd IIB+H2 T6 Tamb -50°C II2GD (Flat top)  
Ex d IIC T4 Tamb -50°C to 80°C (Flat top)



**DXS** 316L Stainless Steel  
Flameproof/Explosion Proof/  
Intrinsically Safe  
Class I Division 1 Groups C & D  
Class I Division 2 Groups A-D  
EEx/Ex ia IIC T6 Tamb -50°C  
to 60°C II1GD  
EEx/Ex d IIB+H2 T6 Tamb -50°C  
to +60°C II2G



**TXS** Direct-Mount Stainless Steel  
Flameproof/Non-Incendive/Intrinsically Safe  
Class I Division 2 Groups A-D  
EExia IIC T4 Tamb -50°C II2G  
EEx/Ex d IIB T6 Tamb -50°C II2G  
EExd IIB+H2 T6 Tamb -50°C II2GD (Flat top)  
Ex d IIC T4 Tamb -50°C to 80°C (Flat top)

INSIDE THE BOX

**BUS NETWORKS**  
:: FOUNDATION Fieldbus  
:: DeviceNet  
:: AS-Interface  
:: Profibus  
:: HART



**SENSORS & SWITCHES**  
:: Partial Stroke Test for  
emergency shutdown valves  
:: GO Switch inside  
:: 4-20mA Transmitter  
:: Pepperl & Fuchs  
:: Proximity  
:: Reed  
:: Mechanical



**SOLENOID VALVES**  
:: 24VDC, 110VAC, 220VAC  
:: Aluminum, 304 Stainless, 316 Stainless  
:: Single Coil, Dual Coil, Blocked Center  
:: High Flow up to 3.0Cv  
:: Low Power



VALVETOP® ORDERING GUIDE

Choose one option from each category to build a complete model number.

Ordering Examples  
DXP-FF0GNEBPA2  
TVG-M22GNEM  
Denotes **FastTrack Delivery** option  
most likely to be available for  
immediate shipment.

Enclosure	Bus/Sensor	Area Classification	Visual Display	Shaft	Conduit	O-Rings	Pilot	Spool	Valve Cv	Override
<b>D SERIES</b> ✓ <b>DXP</b> Tropicalized Aluminum  ✓ <b>DXR</b> Composite Resin  <b>DXS</b> 316L Stainless Steel	<b>AS</b> AS-Interface  ✓ <b>FF</b> FOUNDATION Fieldbus (D Series only)  <b>DN</b> DeviceNet  <b>MB</b> Modbus (D Series only)  <b>ES</b> ESD Module (D Series only)  <b>HL</b> ESD Module w/ HART & GO Switches (D Series only)  <b>GO Switches</b> ✓ <b>L2</b> (2) GO Switches SPDT hermetic seal  <b>L4</b> (4) GO Switches SPDT hermetic seal (D Series only)  <b>Mechanical Switches</b> ✓ <b>M2</b> (2) Mech SPDT  <b>M4</b> (4) Mech SPDT  <b>M6</b> (6) Mech DPDT (D series only)  <b>T2</b> (2) Mech DPDT  <b>K2</b> (2) Mech SPDT gold contacts  <b>K4</b> (4) Mech SPDT gold contacts  <b>Proximity Switches</b> <b>P2</b> (2) SPDT Proximity Switches 3A max  <b>P4</b> (4) SPDT Proximity Switches 3A max  <b>R2</b> (2) SPDT Proximity Switches 250mA max  <b>R4</b> (4) SPDT Proximity Switches 250mA max  <b>Inductive Sensors</b> <b>E2</b> (2) p+f NJ2+V3-N inductive NAMUR  <b>E4</b> (4) p+f NJ2+V3-N inductive NAMUR  <b>Analog Output</b> (Available with 2 switch options only for L,M,K,E & T) (R switches also available for T Series) _X 4-20mA transmitter  OX 4-20mA transmitter (no switches)  _H 4-20mA transmitter w/ HART (D Series Only)	<b>D SERIES</b> <b>0</b> Intrinsically Safe* Class I, Div 1 & 2 Groups A,B,C,D Zone 0 (ATEX) EEx ia IIC II1G IP67; Type 4  ✓ <b>1</b> Flameproof/Explosion Proof Class I, Div 1 & 2 Groups C & D Class I, Div. 2 Groups A,B,C,D (Hermetic seal only) Zone 1 (ATEX/IECEX) EEx/Ex d IIB+H2 II2G IP67; Type 4, 7  ✓ <b>2</b> Non-Incendive Class I, Div 2 Groups A-D Class II, Div 2 Groups E-G Zone 2 (ATEX/IECEX) Ex/EEEx nA IIC II3G Ex/EEEx tD II3D IP67; Type 4 (DXR only)  <b>G</b> General Purpose Ordinary Locations Type 4, 4X (DXR only)  <b>C</b> (ATEX/IECEX) Ex/EEEx d IIC II2G IP67 (DXP only)  <b>W</b> IP67/No approvals  <b>T SERIES</b> ✓ <b>TVC</b> Composite Resin Direct Mount  <b>TXP</b> Aluminum Direct Mount  <b>TXS</b> Stainless Steel Direct Mount	✓ <b>G</b> Standard 90° Green OPEN, Red CLOSED  <b>B</b> 90° Black OPEN, Yellow CLOSED  <b>4</b> 45° Green OPEN, Red CLOSED  <b>Y</b> 90° Yellow OPEN, Black CLOSED  <b>X</b> 45° Black OPEN, Yellow CLOSED  <b>1</b> 3 way, 90°  <b>3</b> 3 way, 90°  <b>5</b> 3 way, 90°  <b>7</b> 3 way, 180°  <b>9</b> 3 way, 180°  <b>F</b> Flat-top w/ skirt indicator (T Series Only)	✓ <b>S</b> 1/4" DD 304 SS  ✓ <b>N</b> NAMUR 304 SS	<b>DXP/DXS</b> ✓ <b>E</b> (2) 3/4" NPT  <b>4</b> (2) 3/4" NPT (2) 1/2" NPT  <b>M</b> (2) M20  <b>3</b> (4) M20  <b>6</b> (4) 3/4" NPT  <b>DXR</b> (Resin conduit entries) <b>A</b> (2) 1/2" NPT  <b>B</b> (2) 3/4" NPT  <b>C</b> (2) M20  Note: Resin conduit entries are recommended for end of line device only.  <b>DXR</b> (Stainless Conduit Entries) <b>P</b> (2) 1/2" NPT  ✓ <b>E</b> (2) 3/4" NPT (DXR Only)  <b>M</b> (2) M20  <b>T SERIES</b> ✓ <b>P</b> (2) 1/2" NPT  <b>M</b> (2) M20	✓ <b>B</b> Buna-N  <b>E</b> EPDM  <b>S</b> Silicone  <b>V</b> Viton  <b>M</b> Buna/EPDM (T Series Only)	✓ <b>Blank</b> No pilot devices  ✓ <b>1</b> (1) 24Vdc pilot, .5W, fail open/closed  <b>2</b> (2) 24Vdc pilot, .5W, fail last position  <b>3</b> (2) 24Vdc pilot, .5W, block center (D Series Only)  <b>4</b> (1) 220Vac pilot, 1.9W fail open/closed  <b>5</b> (1) 220Vac pilot, 1.9W fail last position  <b>6</b> (2) 220Vac pilot, 1.9W block center (D Series Only)  <b>7</b> (1) 110Vac pilot, 1.1W fail open/closed  <b>8</b> (2) 110Vac pilot, 1.1W fail last position  <b>9</b> (2) 110Vac pilots, 1.1W, block center (D Series only)  ✓ <b>P</b> (1) piezo pilot, fail open/closed, (FF only) (D Series only)  <b>R</b> (2) piezo pilots, fail last position, (FF only) (D Series only)  <b>U</b> (2) piezo pilots, block center, (FF only) (D Series only)	✓ <b>Blank</b> No spool valve  ✓ <b>A</b> Aluminum hard coat anodized  <b>S</b> 304 SS  ✓ <b>6</b> 316 SS  <b>C</b> Cold Temp valve to -50° C 1.0 Cv (1/4" NPT ports) (O-ring must be E or S) (D Series Only)	✓ <b>Blank</b> No spool valve  <b>1</b> 1.0 Cv (1/4" NPT Ports) (T Series Only)  <b>2</b> 1.2 Cv (1/4" NPT ports) (D Series Only)  <b>3</b> 3.0 Cv (D Series Only)  <b>C</b> Cold Temp valve to -50° C 1.0 Cv (1/4" NPT ports) (O-ring must be E or S) (D Series Only)	✓ <b>Blank</b> No override (All manual override options for D Series only)  <b>1</b> Single Pushbutton Momentary / Latching  <b>2</b> Dual Pushbutton Momentary / Latching  <b>3</b> Single Pushbutton Momentary  <b>4</b> Dual Pushbutton Momentary  <b>5</b> Manual Reset No voltage release latching with pushbutton (Spool Valve 6 only) (Valve Cv 2 only)  <b>A</b> Single palm actuator Momentary / Latching  <b>B</b> Dual palm actuator Momentary / Latching  <b>C</b> Single palm actuator Momentary  <b>D</b> Dual palm actuator Momentary  <b>E</b> Manual Reset No-voltage release latching with palm actuator (Spool valve 6 only) (Valve Cv 2 only)  <b>T</b> Partial stroke test button with lockable cover (Sensor ES or HL only)

Ordering Guide Fill in each box to create a complete model number.

LEVERLESS LIMIT SWITCHES FOR HARSH ENVIRONMENTS

GO® SWITCH ORDERING GUIDE

Choose one option from each category to build a complete model number.

Ordering Examples  
11-12110-00  
73-13524-A2

☑ Denotes **FastTrack Delivery** option  
most likely to be available for  
immediate shipment.

**GO SWITCH**  
GO® Switch leverless limit switches provide reliable, durable position sensing in the most demanding plant conditions. Using a completely unique technology, GO Switches outperform all other sensors in applications that are extremely hot, cold, wet, dirty, abusive, corrosive and explosive.



**GO SWITCH**  
Ultra-durable proximity sensors



**70 Series** | Flameproof/Explosion Proof/  
Intrinsically Safe  
Class I Division 1 & 2 Groups A-D  
Class II Div 1 & 2 Grps E-G  
EEx/Ex ia IIC T6 II1GD  
EEx/Ex d IIC T6 Tamb -50°C to 80°C  
(For T3 Tamb -50°C to 190°C) II2GD  
EEx/Ex de IIC T6 Tamb -50°C to 80°C  
(For T3 Tamb -50°C to 190°C) II2GD



**Stroke-to-GO®** | Cylinder Position Sensors



**10/20/80 Series** | Flameproof/Explosion Proof/  
Intrinsically Safe  
Class I Division 1 & 2 Groups A-D  
Class II Div 1 & 2 Grps E-G  
EEx/Ex ia IIC T6 II1GD  
EEx/Ex d IIC T6 Tamb -50C to 80°C  
(For T3 Tamb -50°C to 190°C) II2GD  
EEx/Ex de IIC T6 Tamb -50°C to 80°C  
(For T3 Tamb -50°C to 190°C) II2GD



**NuProx™** | Proximity Sensors  
qualified for use in nuclear  
power plants



**35 Series** | Valve Position  
Sensors  
4amp/120VAC  
3amp/24VDC  
Hermetically Sealed



**Defender™** | Turbine Trip Valve  
Monitoring System

BEST-IN-CLASS CAPABILITIES

- Highest amp rating
- Highest pressure rating
- Highest temperature rating
- Highest hazardous area ratings
- Highest resistance to physical abuse
- Highest resistance to corrosives, salt water

Model

- Square Body**  
☑ 11 1-1/2" square x 4 9/16" (Add 1/2" for bottom conduit outlet)  
  
21 1-1/2" square x 3 13/16" (Add 1/2" for bottom conduit outlet)  
  
81 1-1/2" square x 3 7/8" (Add 1/2" for bottom conduit outlet)

Contact Form

- Square Body**  
☑ 1 Single Pole Double Throw (Form C)  
  
2 Double Pole Double Throw (Form CC) (Models 81)  
  
3 Single Pole Double Throw (Form C) Latching (maintained contact) (Models 11 & 21, Outlet 2, 4 or 5 only)  
  
5 Double Make Double Break (Form Z) Two-circuit (Models 11 & 21 only)  
  
6 Double Make Double Break (Form Z) Two circuit, Latching (Maintained contact) (Models 11 & 21, Outlet 2, 4 or 5 only)

Sensing Range

- Square Body**  
0 1/4" end sensing (Model 81 only)  
  
1 Standard sensing - 3/8" side sensing (Models 11 & 21 only)  
  
☑ 2 Extended sensing - 9/16" side sensing (Model 11 only, Contact Form 1 or 3 only)  
  
7 Precise sensing - 1/4" side sensing (minimal differential) (Models 11 & 21 only)

Outlet Position

- Square Body**  
☑ 1 Behind sensing area  
  
2 Left of sensing area (Model 11 & 21 only)  
  
3 Right of sensing area (Model 11 & 21 only)  
  
4 Same side as sensing area (Models 11 & 21 only)  
  
☑ 5 Bottom of Enclosure

Enclosure Material

- Square Body**  
☑ 1 Brass with flat black lacquer coating  
  
☑ 2 Stainless steel\*  
  
3 Brass with corrosion resistant coating  
  
4 Stainless steel with corrosion resistant coating  
  
\* Stainless steel switches are recommended for wet or harsh environments.

Approvals

- Square Body**  
☑ 0 CSA / FM Cl I, Div 2, Grps A-D; Cl II, Div 2, Grps F & G; Cl III (Contact Form 1 or 3; Wiring 00 only)  
  
2 High temp to 350°F (Models 11 & 81; Contact Form 1 or 3 (1 or 2 for Model 81)) (Sensing 1, (0 for Model 81); Enclosure 2; Wiring F only)  
  
3 UL Cl I, Div 1 & 2; Grps A-D; Cl II, Div 1 & 2, Grps E-G; Cl III (Enclosure 2 or 4 only) (Lead seal required)  
  
☑ 4 CSA / FM Cl I, Div 1; Grps A-D; Cl II, Div 1, Grps E-G; Cl III (Enclosure 2 or 4 only) (Lead seal required)  
  
5 MSHA approved "Explosion Proof" (Enclosure 2 only) (Wiring B3 or longer) (Models 11 & 21 only)  
  
6 CSA FM Cl I, Div 2; Grps A-D; Cl II, Div 2, Grps E-G; Cl III (Lead seal req'd)  
  
7 CSA General Purpose  
  
8 UL General Purpose

Wiring Options

- All options apply to both **Square Body** and **Round Body**
- Terminal Block**  
☑ 00 (Models 11&21 only)  
  
**Lead Wires - 18 Gauge** (7G - 7H = 20 gauge)  
☑ A2 36"  
A3 72"  
A4 144"  
A\_\_\_ Greater than 144" - specify length in 5ft. Increments  
  
**Cable - 18 Gauge**  
B2 36"  
B3 72"  
B4 144"  
B\_\_\_ Greater than 144" - specify length in 5ft. Increments  
  
**Water Resistant Squeeze Connector** (Models 72, 74, 76 only) (Approval 7 or 8 only)  
C2 36"  
C3 72"  
C4 144"  
C\_\_\_ Greater than 144" - specify length in 5ft. Increments  
  
**Mini Change Connector** (Models 11, 21, 81, 71, 73, 75, 77, 7G only) (Approval 7 or 8 only; 3 pin is 8 only)  
DCA 3 pin  
DCD 4 pin  
DCG 5 pin  
DCH 7 pin (7G and 81 only)  
  
**Micro Change Connector** (Models 11, 21, 81, 72, 74, 76) (Approval 7 or 8 only; 3 pin is 8 only)  
DBA 3 pin  
DBD 4 pin  
  
**SubSea Connector** (Models 11, 21, 81, 73, 75, 77) (11, 21, or 81 - Enclosure 2 or 4 only) (Approval 7 or 8 only; 3 pin is 8 only)  
3DD 3 pin  
4DD 4 pin  
8DD 8 pin (7G and 81 only)  
3DE 3 pin 90°  
4DE 4 pin 90°  
  
**Hi-Temp™ Leads** (Teflon insulated) 18 Gauge (7G - 7H = 20 gauge)  
F2 36"  
F3 72"  
F4 144"  
F\_\_\_ Greater than 144" - specify length in 5ft. Increments  
  
**Hi-Temp™ Leads** (Peek insulated) (Models 71-77)  
H2 36"  
H3 72"  
H4 144"  
H\_\_\_ Greater than 144" - specify length in 5ft. Increments

UNIQUE CAPABILITIES

FEATURES AND BENEFITS

- :: No exposed moving parts to bend or break
- :: Can be wired AC or DC, N/O or N/C, in series or parallel
- :: Not affected by electrical noise, weld fields, or radio frequency
- :: Not affected by dust, dirt, moisture, or most caustics, corrosives, or chemicals
- :: No leakage current or voltage drops
- :: Multiple wiring options including lead wires, cables, quick disconnects
- :: A wide variety of hazardous area certifications for Zone 0, 1, and 2
- :: Operating temperatures ranging from -50°C to 204°C

OPTIONS AVAILABLE

- :: Explosion Proof
- :: Intrinsically Safe
- :: SPDT, DPDT Contacts
- :: SubSea/Underwater to 6,800 meters
- :: High Temperature to 204°C



Model

Contact Form

Sensing Range

Outlet Position

Enclosure Material

Approvals

Wiring Options

**Ordering Guide** Fill in each box to create a complete model number.



Visit [www.topworx.com](http://www.topworx.com) for comprehensive information on our company, capabilities, and products – including model numbers, data sheets, specifications, dimensions, and certifications.

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**[www.topworx.com](http://www.topworx.com)**

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