



IVC - Integrated Valve Controller IVM - Integrated Valve Monitor

The Lumitech IVC combines position sensors and an on-board solenoid valve into a unique direct mount enclosure that saves space and installation costs.



- Direct Mount with no brackets
- Intrinsically Safe Zone 0 (CI I, Div 1)
- Non-Incendive Zone 2 (CI I, Div 2)
- Integral Solenoid Valve
- Optional GO Switch leverless limit switches

Table of Contents

2	Mounting Overview
2	Mechanical Installation Procedures
4	Pneumatic Hookup Procedures
5	Sensor Modules & Specifications
7	Customer Feedback



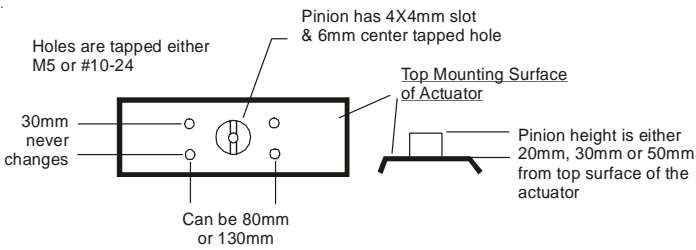
Lumitech IVC and IVM

ISO 5211/NAMUR Actuator Accessory Mounting

The TopWorx Lumitech IVC and IVM product line is a direct mount valve control and/or monitoring package for any ISO 5211/NAMUR actuator.

Though specifically designed for direct interface with ISO 5211/NAMUR accessory mounting dimensions, the unit can be used on nearly any non-NAMUR actuator utilizing one of TopWorx's VIP Bracket Kits. Our bracket kits are manufactured in-house from stainless steel flat and bar stock, providing superior stability and corrosion resistance for the life of the product. These mounting kits may be found in the VIP Mounting Kits section of the TopWorx Process Automation Solutions Pricing Guide (publication L-L106), attainable through our distribution network, or on-line at www.topworx.com. See Figure 1 below for the ISO 5211/NAMUR accessory mounting standard.

Figure 1
ISO 5211/NAMUR standard



Since the Lumitech unit is designed for direct mounting to ISO 5211/NAMUR actuators, you will realize a cost and labor savings on projects since there are no mounting brackets to purchase or install.

Table 1 - Enclosure / Target Materials of Construction

Enclosure / Target Materials of Construction	
Enclosure Body and Lid	Polybutylene Teraphthalate (PBT) / Polycarbonate Blend
LED Lens	Polycarbonate
Enclosure O-ring	Silicone
All Enclosure Inserts	Stainless Steel
Spool Valve Manifold Gasket	Silicone
Target Core and Target Rings	Polybutylene Teraphthalate (PBT) / Polycarbonate Blend
Dome	Polycarbonate

Mechanical Installation Procedures

Your Lumitech package comes complete with all necessary fasteners for mounting to any ISO/NAMUR actuator. The holes on the top accessory mounting pad are tapped either M5 or #10-24 (see Figure 1), both of which are included in the hardware package.

Reference Figure 2 for all steps below.

Step 1

Thread the M5 or #10 stud into the holes on the top surface of the actuator on the same side as the air ports of the actuator. Tighten the studs using good mechanical practices. The enclosure is designed to be transversely mounted to the length of the actuator.

When mounting the unit using the 80mm spaced holes, the crescent shaped spacer must be used under the enclosure.

Step 2

Slide the enclosure mounting feet over the installed studs and secure with the washers and nuts provided.

Step 3

Attach the Drive Cup to the actuator pinion. Align the tang on the bottom with the slot in the actuator pinion.

Step 4

To install the target assembly, first determine the position of the valve. Typically, a valve is in the CLOSED position when received new. Slide the target assembly (Core Indicator and Target Rings) over the Drive Cup with one of the Red "Closed" quadrants facing the enclosure body. Push the assembly down until it bottoms out.

Step 5

Install the Dome with the captured screws through the enclosure lid.

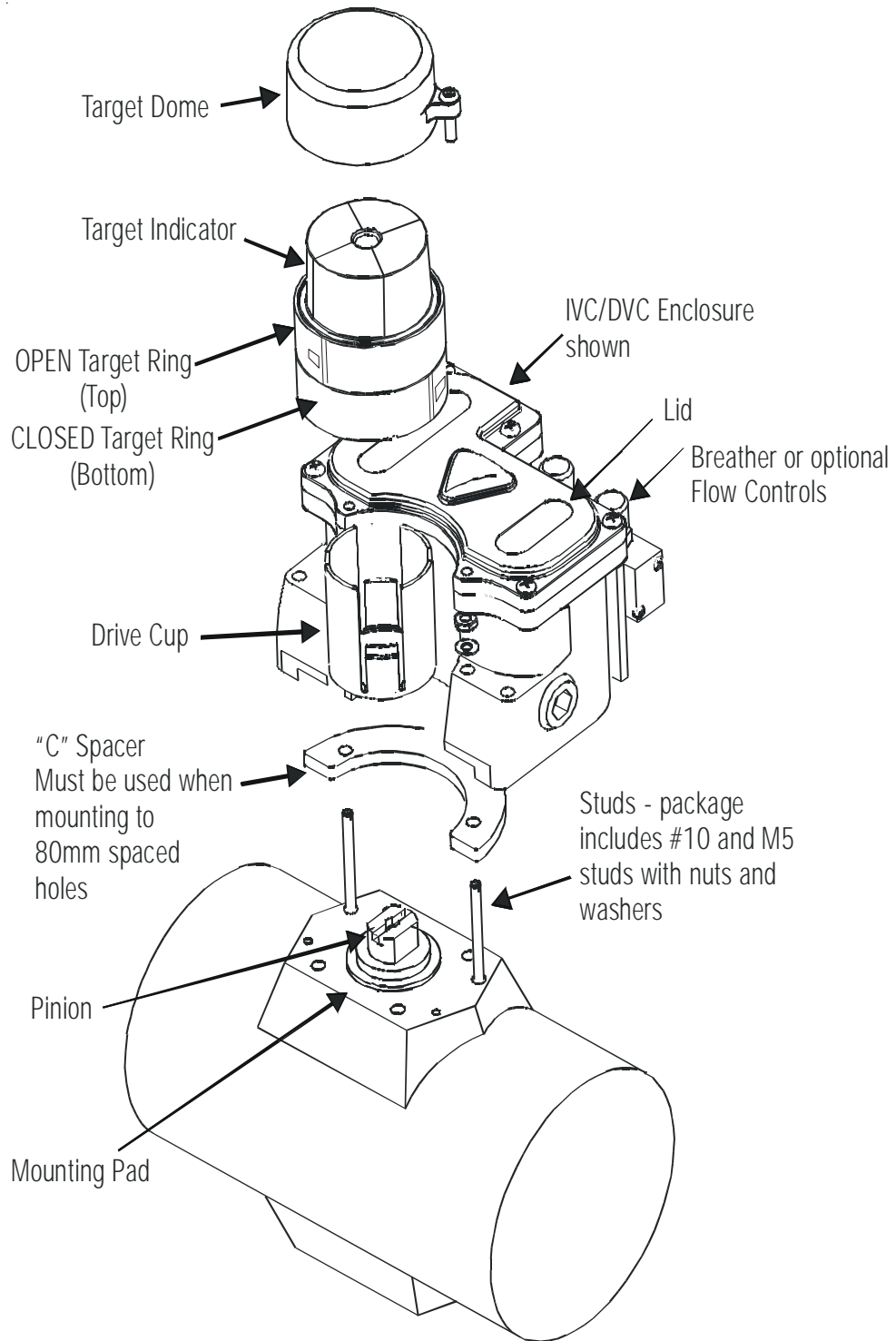


This product comes shipped with plastic plugs in the conduit entries in an effort to protect the internal components from debris during shipment and handling. **It is the responsibility of the receiving and/or installing personnel to provide appropriate permanent sealing devices to prevent the intrusion of debris, or moisture, when stored outdoors or when installed.**



It is the responsibility of the installer, or end user, to install this product in accordance with the National Electrical Code (NFPA 70), or any other national or regional code defining proper practices.

Figure 2
Mechanical Installation Exploded View



Pneumatic Hookup Procedures

Prior to connecting the supply air to the spool valve, flush the system to remove any debris or contaminants. Galvanized pipe can easily flake and contaminate the system and therefore is not recommended.

4-Way Spool Valves

The TopWorx spool valve is a 5 port, 4-way valve driven by an internally mounted pilot valve. The spool valve supply port and work ports are 1/4" NPT. The exhaust ports are 1/8" NPT, marked as follows for the IVC:

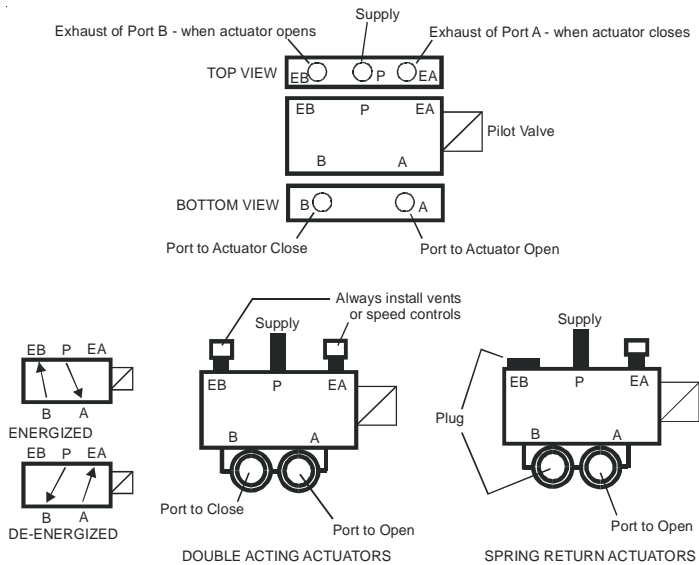


Table 2 - Spool Valve Specifications

Spool Valve Specifications	
Medium	Dried/filtered air (5 micron)
Max Operating Pressure	100psi (0.7 MPa)(6.89 Bar)
Min Operating Pressure	30psi (0.21 MPa)(2.07 Bar)
Ambient Temperature Range	22° to 122°F (-5° to 50°C)
Flow Coefficient	1.2 Cv
Environment Rating	Type 4, 4X, IP56
Port Size	1/4" NPT(Supply & Work), 1/8" NPT(Exhaust)
Pilot Operator Manual Override	Non-Locking Push Type
Valve Body	Diecast aluminum, dichromate and / or epoxy coating. Stainless steel option.
Valve Seals	Buna-N

Highly Recommended

TopWorx highly recommends Loctite 567 brand thread sealant. Do not use a hard setting pipe compound. If Teflon thread seal tape is used, start the wrap on the second thread from the leading thread of the fitting. This will prevent tape shreds from contaminating the spool valve seals.

Flow controls (AL-M21) or Breathers (AL-M31) should be installed in the exhaust ports to keep debris from falling into the spool valve and damaging the seals. This must be addressed prior to installation, or storage.

Don't forget!

TopWorx has a complete line of breathers, flow controls, regulators and filters.

Check out www.topworx.com or call us at 502.969.8000 for more details

The TopWorx Sensor Communication Module (SCM) for the IVC/IVM unit, comprises integral conventional switch relays and LED driver circuits for ease of calibration, and local visual indication of the valve's state.

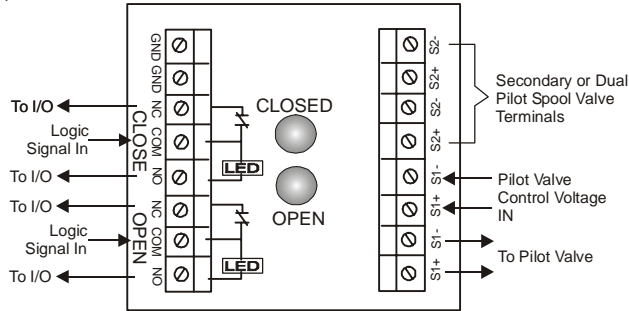


Figure 3 - IVC/IVM Conventional Switch Module

Calibration of Limit Switches for SCM-PS and SCM-GO Modules

First, be sure you have an air supply connected, and the appropriate spool valve to actuator connections, as illustrated in the Pneumatic Hookup section. Set the air supply between 80 and 100psi.

Reference Figures 3 and 4 for all steps below.

Step 1

Using a 24VDC regulated power supply, connect (+) to COM and (-) to NO terminals. Maximum current rating for units with LEDs is 0.25A.

Caution: Many power supplies do not have clipping circuits to dampen surge currents; therefore, ALWAYS use a load resistor with a value of 200 to 2500 Ohms in series with the COM or NO legs of the circuit or damage may occur.

A 9V battery may be used as an alternate power source. No load resistors are required.

Step 2

With the valve in the CLOSED position, rotate the lower Target Ring clockwise until the Red LED lights. To unlock the Target Ring insert flatblade screwdriver in slot and twist to disengage snap. Lock the Target Ring in place by squeezing the ring until it snaps shut. This sets the CLOSED limit switch.

Step 3

Cycle the valve to the OPEN position using the attached control equipment, or by depressing the orange manual override button on the bottom of the spool valve.

Step 4

While the valve is in the OPEN position, rotate the upper Target Ring counterclockwise until the Green LED lights. To unlock the Target Ring insert flatblade screwdriver in slot and twist to disengage snap. Lock the Target Ring in place by squeezing the ring until it snaps shut. This sets the OPEN limit switch.

Step 5

Cycle valve several times to insure limit switches maintain calibration. Check that the target assembly is secure to the actuator pinion, and all air connections are tight.

Table 3 - IVC/IVM Conventional SCM-PS Electrical Ratings

SCM-PS Electrical Ratings		
	Current/Voltage	Voltage Drop
Standard SCM w/LEDs	0.25A@24VDC 0.25@120VAC	5V
Standard SCM w/o LEDs	0.5A@24VDC 1A@120VAC	0V

Table 4 - IVC/IVM Pilot Coil Electrical Ratings

IVC AC/DC Pilot Coil Electrical Rating	
AC Voltage	115V (50/60 Hz)
DC Voltage	24V
Voltage Tolerance	+/- 10% of rating
Coil Insulation	Class B
Power Consumption (AC)	1.2VA (60 Hz)
Power Consumption (DC)	0.6 Watts

For Intrinsically Safe applications wire in accordance with Control Drawing S-K087 and S-K087A.

DID YOU KNOW? TopWorx manufactures the globally-known GO Switch Leverless Limit Switch, which comprises a full line of harsh environment sensors. If your application is very cold, very hot, under water or in a caustic atmosphere, then GO Switch has the answer.

Figure 4 - GO Switch Option "G2" Wiring Scheme

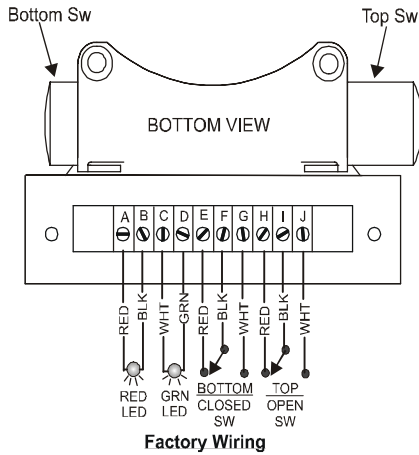
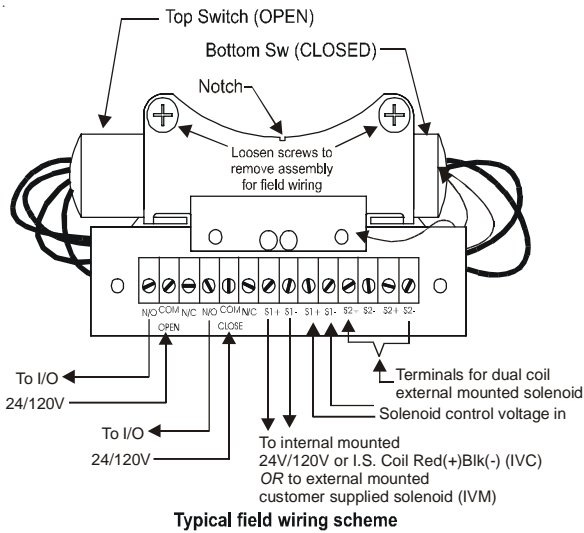
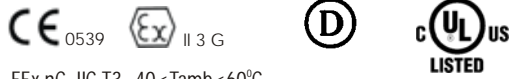


Table 5 - SCM-GO Electrical Ratings

SCM-GO Electrical Ratings		
	Current/Voltage	Voltage Drop
IVC/IVM GO Switch Module w/LEDs	0.25A@24VDC 0.25@120VAC	5V
IVC/IVM GO Switch Module w/o LEDs	3A@24VDC 4A@120VAC	0V

For Intrinsically Safe applications wire according to Control Drawing S-K087 and S-K087A.

Telemetering Equipment for use in Hazardous Locations



EEx nC IIC T3 -40<Tamb<60°C
 DEMKO 02 ATEX 130956X IP56
 Max current 250mA @ 24VDC/120VAC (with LEDs)
 Max current 0.5A/24VDC; 1A/120VAC (SCM-PS)
 Max current 3A/24VDC; 4A/120VAC (35-13319-A1 GO Switch)
 Class I, Div.2, Grps A, B, C, D; Class II, Div.2, Grps F & G; T3C
 Type 4, 4X

Telemetering Equipment for use in Hazardous Locations



EEx ia IIC T3 -40<Tamb<60°C
 DEMKO 02 ATEX 130958X IP56
 Class I, Grps A, B, C, D, Div.1 & 2; Class II, Grps F & G, Div.1 & 2; T3C
 Type 4, 4X
 Install per Control Drawing S-K087 & S-K087A
 Intrinsically Safe / Securite Intrinsique

Special Conditions of Safe Use (All installations)

Clean only with a damp cloth to prevent possibility of electrostatic discharge.

Warranty

TopWorx warrants that each item of new equipment manufactured by it will be free from defects in material and workmanship under normal use and service; its obligation under this Warranty, being limited to making good, at its factory, and part of parts thereof, which shall be returned to it with transportation charges prepaid, within one year after the date of the purchase of such equipment by the original purchaser, and which its examination shall disclose to its satisfaction to have been thus defective. TopWorx however, assumes no risk or liability for results of the use of the products purchased from it.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER OF MERCHANTABILITY FITNESS, OR OTHERWISE EXPRESSED OR IMPLIED, AND ALL OTHER OBLIGATIONS OR LIABILITIES AND TOPWORX NEITHER ASSUMES, NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THIS EQUIPMENT.

No claims for labor in replacing defective parts and equipment and consequential damages will be allowed by the Company.

This Warranty shall not apply to equipment which has been subjected to misuse, negligence or accident.

This Warranty shall not apply to any equipment which shall have been repaired or altered, outside the Company's factory so as to affect such equipment's stability or reliability in the judgement of the Company.

Customer Feedback Form

For us to better serve you, we need your comments. Please take the time to fill out this questionnaire. We value your feedback!

Contact _____

Company _____

Address _____

City _____ State _____ Zip _____ Country _____

Telephone _____ Fax _____

Email _____

What type of company do you work for? Distributor Valve Automator Systems Integrator End User Other

In what industry are the TopWorx devices being used? Chemical Food & Beverage Pharmaceutical Power

Oil & Gas Pulp & Paper Wastewater Other

Briefly describe the process where the devices are being used? _____

Which TopWorx products are being installed: _____

Date TopWorx products are being installed: _____

Was the product easy to mount? _____

Was the product easy to calibrate and address (if applicable)? _____

Was the product easy to commission (if applicable)? _____

Was the Instruction Manual thorough and easy to read and understand? _____

What improvements, if any, would you make to this product or the Instruction Manual? _____

Please fax your replies to TopWorx at **502.969.5911**. If you prefer, email your comments and suggestions to **info@topworx.com**. For an overview of the additional TopWorx products available, please visit our website at **www.topworx.com**.

We look forward to serving you with Speed & Excellence. Thanks for your feedback!

About Valvetop™

Valvetop valve networking and control devices link on/off valves to process control systems via a variety of fieldbus protocols. Valvetop valve controllers and monitors support multiple bus protocols, operate in the most demanding plant conditions, and carry a variety of global approvals. Whether your application is rotary or linear, fieldbus or conventional, hazardous or general purpose, we have a suitable solution for you.

For inquiries, contact TopWorx at: 502.969.8000
www.topworx.com
info@topworx.com

About TopWorx

TopWorx is the leader in field networking, valve control, and position sensing solutions for the process industries. Our products and services help plants, mills, and pipelines improve their performance by making it easy to implement modern automation technologies.



Field Networking Solutions

Network™ field networking products and services make it easy for plant personnel to understand, implement, and enjoy the benefits of modern bus networking technologies.



Valve Control Solutions

Valvetop™ valve networking and control solutions support multiple bus protocols, operate in the most demanding plant conditions, and carry a variety of global approvals.



Position Sensing Solutions

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

TOPWORX

3300 Fern Valley Road
Louisville, Kentucky 40213 USA

502.969.8000 phone
502.969.5911 fax
info@topworx.com

www.topworx.com

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