WESTLOCK CONTROLS

# **INTELLIS** NETWORK CONTROL MONITORS

NON-HAZARDOUS, INTRINSICALLY SAFE, EXPLOSIONPROOF/FLAMEPROOF - ATEX/IEC

Intellis is a family of fully-integrated control monitors that provide cost-effective valve automation and intelligent networking via the major network protocols

## FEATURES

- Dedicated network modules (PACs) for all major protocols.
- Simple in-field conversion of network protocols.
- Multiple housing options (resin, aluminum, stainless steel).
- Models approved for all hazardous area applications.
- Control & monitoring for rotary and linear valves.
- Non-contact position monitoring by Hall effect sensors.
- Integrated pneumatic actuation control via pre-wired Falcon II solenoid valves.
- On-line predictive and maintenance-related diagnostics.
- Eliminates wiring cost of conventionally-hardwired I/O systems.
- Reduces design engineering man-hours
- Range of drive shaft options.
- Visual indication Beacon available in a choice of styles and colors.

## TECHNICAL DATA

| | |
|---|---|
| **Agency approvals** | |
| Area classification | |
| Non-hazardous | 3500/8500, 3800/8800 Series |
| Intrinsically safe | 3300/8300, 3600/8600 Series |
| Explosionproof | 2200 Series |
| Enclosure standards (IEC) | |
| All enclosures | IP66 |
| **Network protocols supported** | |
| PROFIBUS DP | 2200, 3500/8500, 3800/8800 Series |
| FOUNDATION Fieldbus™ | 2200, 3300/8300, 3600/8600 Series |
| DeviceNET™ | 2200, 3500/8500, 3800/8800 Series |
| AS-Interface® Ver. 3.0 | 2200, 3500/8500, 3800/8800 Series |
| **Enclosures** | |
| | Engineered resin |
| | Aluminum |
| | Stainless steel |

## GENERAL APPLICATION

Intellis network control monitors use embedded control systems to automate valves and link field I/O to the host PLC or DCS. They incorporate all the features of standard Westlock control monitors with the addition of a network I/O module.

## NETWORK SYSTEMS FOR VALVE AUTOMATION

Intellis is a family of field network control monitors which use embedded control systems to automate valves and link field I/O to the host PLC or DCS. They incorporate all the features of standard Westlock control monitors with the addition of a network I/O module.

Each network monitor houses two discrete Hall effect sensors for valve position monitoring, a low power solenoid valve for actuation control and a network interface module for communication via the chosen network protocol. Monitors are available for linear and rotary applications in all area classifications.

### THE NETWORK MODULE

Each Intellis model contains a dedicated network module (Pac) that is integrated within its enclosure. A different Pac is factory-integrated depending upon the network protocol selected. The Pacs' modular design enables the simple conversion of units from one network protocol to another (with the sole exception of FOUNDATION Fieldbus™) in the field by authorized personnel, should the need arise.

Integrated network modules have protective diodes and optical isolation as standard.

**Peripheral interface devices**
- Cables
- Power supplies
- Gateways
- Repeaters
- Extenders
- Configuration tools
- Software/diagnostics
- Junction boxes

### STANDARD NETWORK PROTOCOLS

The development of standard network protocols has made it possible to integrate process control components into a network effectively. DeviceNet™, AS-interface®, PROFIBUS and FOUNDATION Fieldbus™ are now the standards for interfacing discrete devices. They are proven to be extremely reliable, simple to understand and consistently cost-effective. They integrate simply with all major PLCs and DCS systems via off-the-shelf gateway interfaces.

### ACCESSORIES

Westlock Controls is committed to making your network design, procurement and installation experience easier. To complement our wide array of network valve monitoring and control products, we offer a variety of accessories to meet your network connectivity and power requirements. From power supplies and cables to gateways and junctions, we've got what you need to get the job done efficiently.

### SERVICES

Westlock Controls also offers expert services for the design and installation of ASi®, DeviceNet™, PROFIBUS and FOUNDATION Fieldbus™ networks. This includes the specification of all equipment from the PLC or DCS down.

**Application support**
- Engineering design
- Integration
- Start-up support
- Training
- Turnkey installations

Network modules

Gateway interface

Active network tee (ANT)

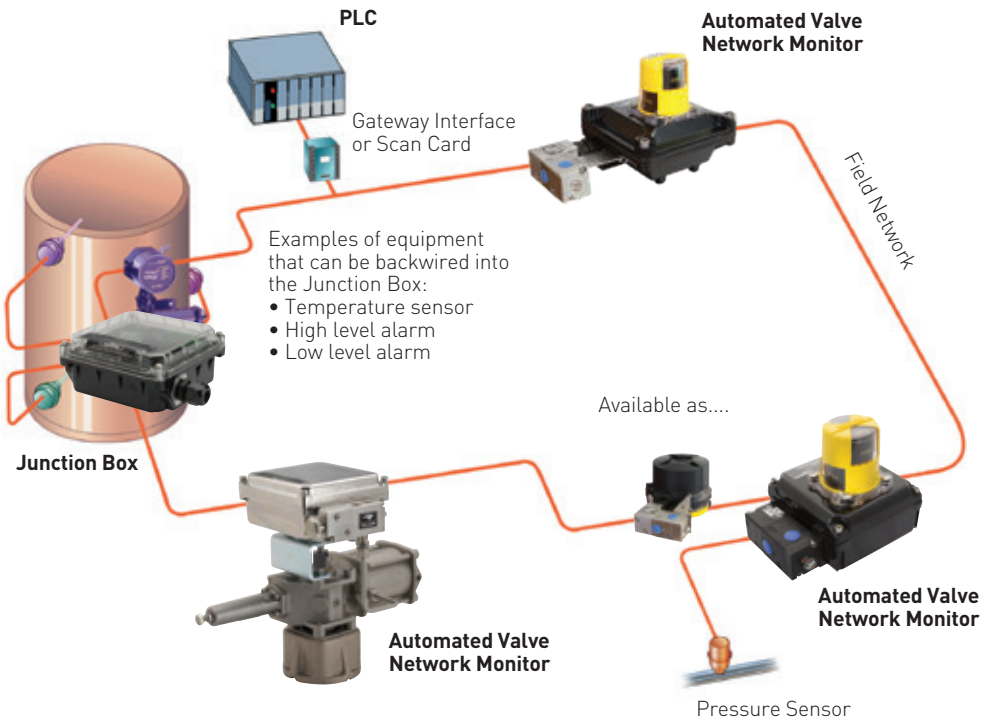
Junction box

Interconnects

## FIELD NETWORK

A field communications network comprises a specific number of network monitors interconnected by a common communications protocol. Network monitors may be placed on the field network in any physical order. Each monitor is assigned a unique address and accepts input/output signals from valve position sensors, solenoids and external devices.

Communication with a PLC, DCS or host computer is accomplished by a compatible gateway interface or scanner card.




### AUTOMATED VALVE NETWORK MONITOR

The network monitor for automated valves couples directly onto the pneumatic or electric actuator. Each unit can accept input/output signals from position sensors and solenoid valves while simultaneously performing on-line diagnostics. In addition, each network monitor will interact with a comprehensive range of external field devices for control or alarm purposes.

### EXTERNAL DEVICE NETWORK MONITOR

Network monitors are available for control or monitoring of non-valve related devices including sensors, alarms, actuators, indicating lights, etc. Depending on the protocol, each stand-alone network monitor is capable of accepting up to six external devices within the primary control network.

# **INTELLIS** NETWORK CONTROL MONITORS
## PROFIBUS

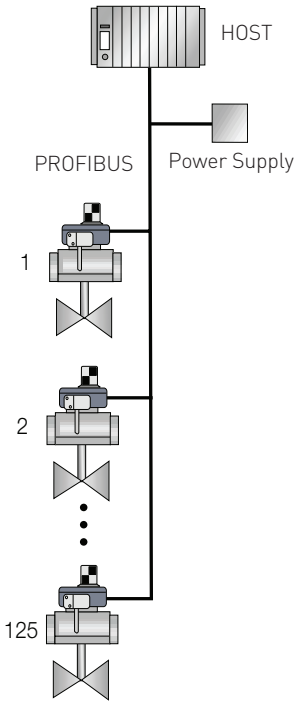

### PROFIBUS 2200, 3500/8500, 3800/8800 SERIES

PROFIBUS (Process Field Bus) has been a standard for field bus communication in automation technology since it was first developed in 1989.

| PROFIBUS | |
|---|---|
| Physical media | Twisted pair for communications, two wires for power |
| Maximum distance | 1200 m (3960 feet) trunk |
| Maximum network monitors per system | 32/segment; 126/system using repeaters |
| Maximum I/O points per system | 1125/system |
| Current consumption per network monitor | 120 mA |
| Interface capability | All PLCs and DCS supporting the PROFIBUS protocol |
| Communications method | Peer to peer and cyclic Master/slave |
| Error checking | CRC check |
| Network topology | Linear, prefered, drops allowed @ Baud rates below 500 kbps |
| Transmission speed | 9.6, 19.2, 93.75, 187.5, 500, 1500, 12000 kbps |
| Redundancy | No |
| Valves specific diagnostics | Yes |

**NOTES**

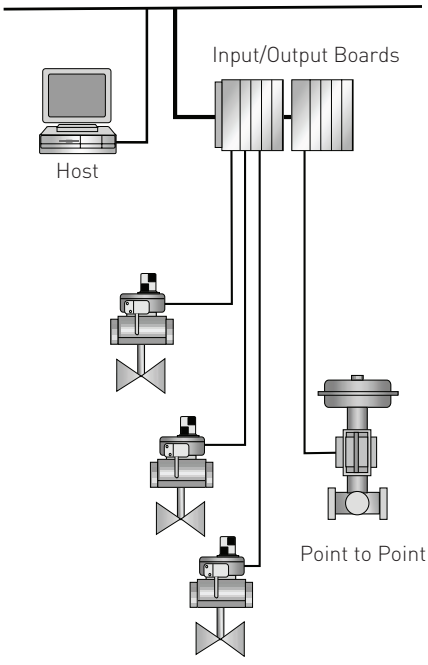
1. Please contact your sales office for guidance on selecting the best possible combination for your control and monitoring requirements.
2. See Hazardous area classification technical bulletin for further information on global standards.




## FOUNDATION FIELDBUS™ 2200, 3300/8300, 3600/8600 SERIES

Foundation Fieldbus is an all-digital, serial two-way communications system that is an open architecture, developed and administered by the Fieldbus Foundation.

| FOUNDATION FIELDBUS™ | |
|---|---|
| Physical media | Two wire cable (communications and power) |
| Maximum distance | 1900 m (6720 feet) including spurs |
| Maximum network monitors per system | 6/segment if bus powered & IS; 12/segment if bus powered & non-IS; 32/seg. if neither bus powered nor IS |
| Maximum I/O points per system | 192/system |
| Current consumption per network monitor | 18-24 mA IS |
| Interface capability | All PLCs and DCS supporting the FF protocol |
| Communications method | Peer to peer |
| Error checking | Manchester encoding |
| Network topology | Daisy chain, trunk/drop (spurs), branching drop (spurs), point to point |
| Transmission speed | 31.25 kbps |
| Redundancy | Yes |
| Valves specific diagnostics | Yes |

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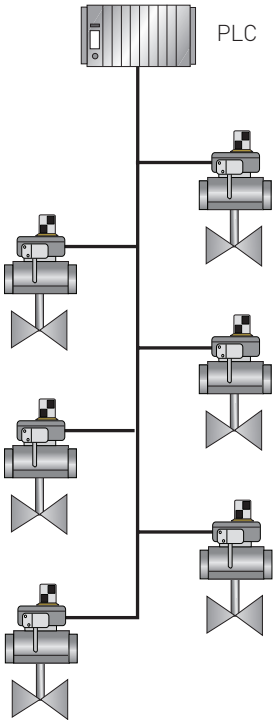
## DEVICENET™ 2200, 3500/8500, 3800/8800 SERIES

DeviceNet™ is an open device network standard based upon proven Controller Area Network (CAN) technology.

| DEVICENET™ | |
|---|---|
| Physical media | Twisted pair for communications, two wires for power |
| Maximum distance | 1600 ft.(485 m) trunk + 512 ft. (155 m) drop |
| Maximum network monitors per system | 63/network; 2 networks/system |
| Maximum I/O points per system | 378/network plus optional 4/20mA analog I/O 756/system |
| Current consumption per network monitor | 45 mA + 20-25 mA/coil |
| Interface capability | All PLCs and DCS with DeviceNet™ Interface |
| Communications method | Master/slave multimaster, peer-to-peer |
| Error checking | CRC check |
| Network topology | Zero drop, trunk/drop, daisy chain, branch |
| Transmission speed | 125 kbps, 250 kbps, 500 kbps |
| Redundancy | No |
| Valves specific diagnostics | Yes |




**NOTES**

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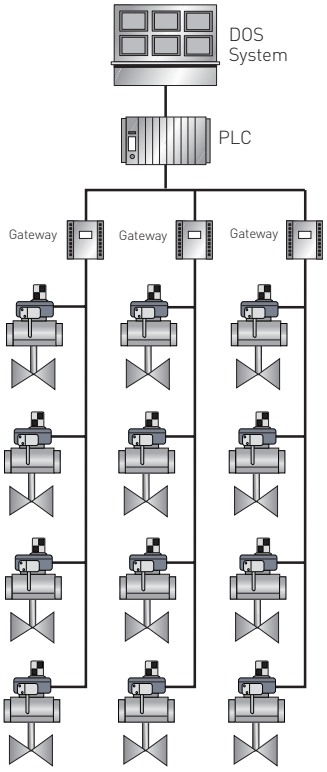
### AS-INTERFACE® VER. 3.0 2200, 3500/8500, 3800/8800 SERIES

The AS-Interface® protocol was developed by a consortium of major European companies. Designed specifically for use in low level automated systems, AS-i can communicate via a gateway to most higher-level bus systems such as DeviceNet™, Modbus® and PROFIBUS.

**AS-INTERFACE® VER. 3.0**

| | |
|---|---|
| Physical media | Two wire cable (communications and power) |
| Maximum distance | 300 ft. (90.9m) 900 ft. (273 m) with repeater |
| Maximum network monitors per system | 62/network with 2.1 Master ,1 network/system |
| Maximum I/O points per system | 434/network, 434/system |
| Current consumption per network monitor | (2 in/2 out) 11 mA (power) - 59 mA (1 in/1 out) |
| Interface capability | All PLC's and DCS with ModBus®, DeviceNet™, PROFIBUS port |
| Communications method | Master/slave with cyclic polling |
| Error checking | Control sum, parity |
| Network topology | Trunk/drop, zero drop |
| Transmission speed | 167 kbps |
| Redundancy | No |
| Valves specific diagnostics | No |

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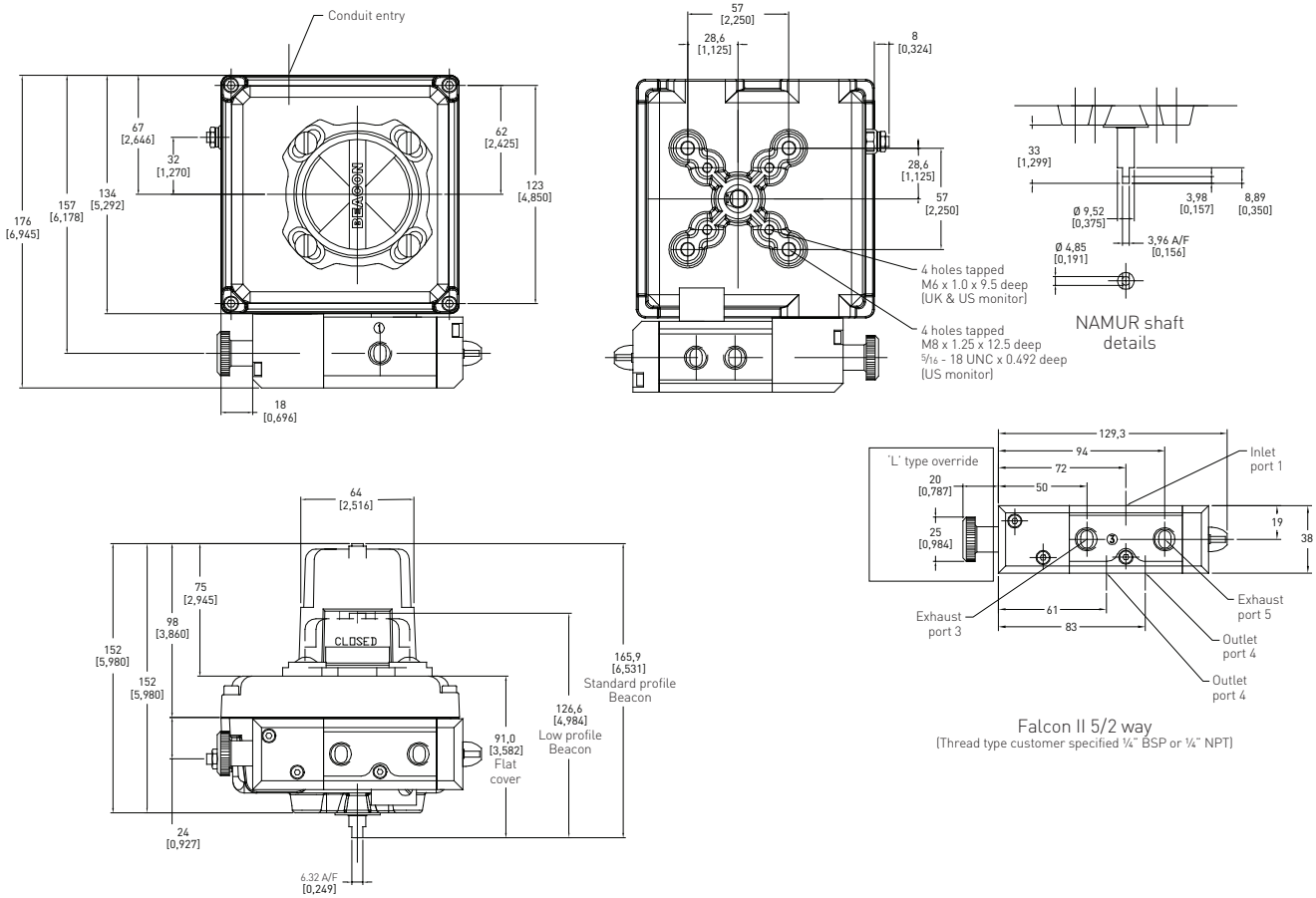
# **INTELLIS** NETWORK CONTROL MONITORS

## ALUMINUM AND STAINLESS STEEL ENCLOSURE DIMENSIONS




Falcon II 5/2 way
(Thread type customer specified ¼" BSP or ¼" NPT)

Dimensions in mm, imperial dimension (inches) in parentheses

### TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **Materials of construction** | |
| Enclosure | Aluminum with powder coat finish<br>Stainless steel with electropolished finish" |
| Shaft and hardware | Stainless steel |
| Beacon visual indicator | Co-polyester |
| Bushing | Oil impregnated bronze (aluminum enclosure)<br>Nylon (stainless steel enclosure) |
| **Drive shaft** | |
| Westlock standard | Double-D with ¼" A/F |
| NAMUR standard | NAMUR standard VDI/VDE 3845 |

**NOTES**

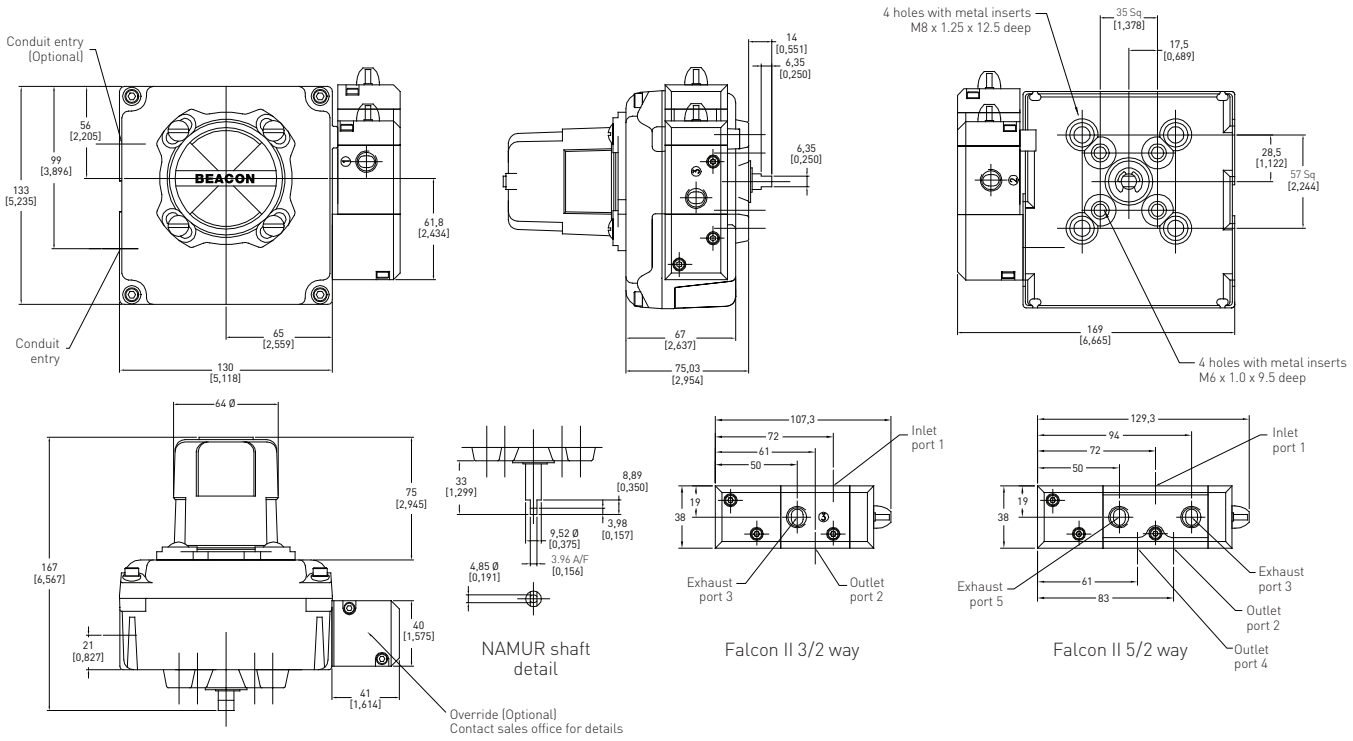
1. Intellis control monitors are available with a choice of conduit entries. Please see the selection guide for standard entries
2. Please consult your sales office for any other requirements

### SOLENOID VALVES

The Falcon range of solenoid valves allows you to choose the material, voltage, number of ports, number of coils and $C_v$ to best suit your application. See the Falcon II data sheet for more information.

# **INTELLIS** NETWORK CONTROL MONITORS

## ENGINEERED RESIN ENCLOSURE (SINGLE COIL) DIMENSIONS




Dimensions in mm, imperial dimension (inches) in parentheses

### TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **Materials of construction** | |
| Enclosure | Engineered resin |
| Shaft and hardware | Stainless steel |
| Beacon visual indicator | Co-polyester |
| Bushing | Nylon |
| **Drive shaft** | |
| Westlock standard | Double-D with ¼" A/F |
| NAMUR standard | NAMUR standard VDI/VDE 3845 |

### SOLENOID VALVES

The Falcon range of solenoid valves allows you to choose the material, voltage, number of ports, number of coils and $C_v$ to best suit your application. See the Falcon II data sheet for more information.

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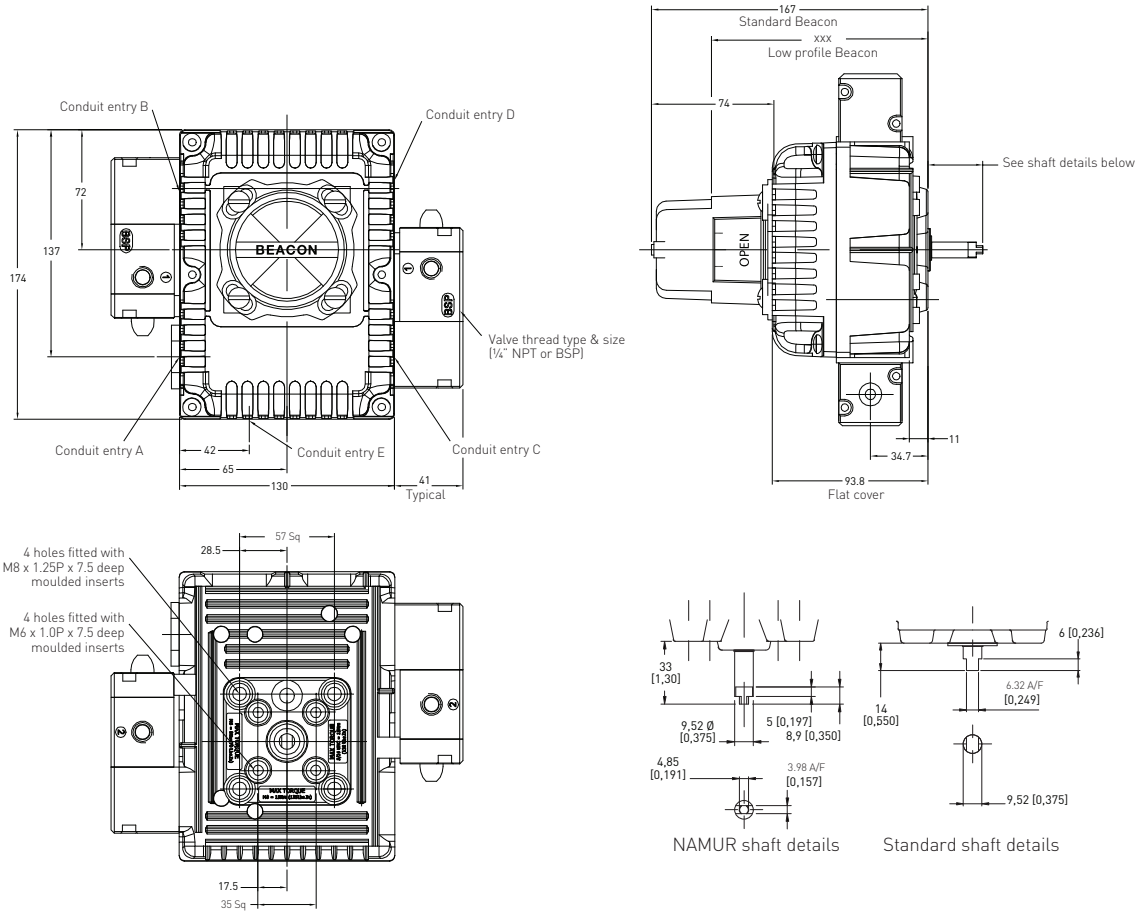


Dimensions in mm, imperial dimension (inches) in parentheses

## TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **Materials of construction** | |
| Enclosure | Engineered resin |
| Shaft and hardware | Stainless steel |
| Beacon visual indicator | Co-polyester |
| Bushing | Nylon |
| **Drive shaft** | |
| Westlock standard | Double-D with ¼" A/F |
| NAMUR standard | NAMUR standard VDI/VDE 3845 |

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## SOLENOID VALVES

The Falcon range of solenoid valves allows you to choose the material, voltage, number of ports, number of coils and $C_v$ to best suit your application. See the Falcon II data sheet for more information.

**Intellis**

| | |
|---|---|
| 22 | 2200 Flameproof enclosure - available with or without solenoid valve |
| 33 | 3300 Intrinsically safe enclosure - not available with solenoid valve |
| 36 | 3600 Intrinsically safe enclosure - includes solenoid valve |
| 35 | 3500 Non hazardous enclosure - not available with solenoid valve |
| 38 | 3500 Non hazardous enclosure - includes solenoid valve |
| 83 | 8300 Intrinsically safe enclosure - not available with solenoid valve |
| 86 | 8600 Intrinsically safe enclosure - includes solenoid valve |
| 85 | 8500 Non hazardous enclosure - not available with solenoid valve |
| 88 | 8500 Non hazardous enclosure - includes solenoid valve |

**Cover style**

| | |
|---|---|
| 4 | With Beacon |
| 6 | Flat cover |

**Position switches**

| | |
|---|---|
| 9 | Inbuilt Hall effect sensors |

**Enclosure material**

| | |
|---|---|
| R | Engineered resin |
| A | Aluminum |
| S | 316 stainless steel |

**Beacon type**

| | | | |
|---|---|---|---|
| BY | Black/yellow standard height BM2-Y(std) | B1 | 90° Flow path BM3-1 |
| LY | Black/yellow low profile height | B3 | 90° Flow path BM3-3 |
| GR | Red/green standard height BM2-RG | B5 | 90° Flow path BM3-5 |
| AR | ANSI Red/white standard height BM2-R | B7 | 180° Flow path BM3-7 |
| 00 | Flat cover (no beacon) | B9 | 180° Flow path BM3-9 |

**Drive shaft output**

| | |
|---|---|
| S | Standard Westlock shaft (double-D with 6.32 mm/ ¼" Flats) |
| N | NAMUR std spec shaft VDI/VDE 3845 |
| * | Non-standard material & build code - consult with sales office for details/other options |

**Solenoid body material**

| | | | |
|---|---|---|---|
| 0 | Not fitted | * | Non-standard build - consult with sales office for details |
| A | Anodized aluminium | E | Atainless steel |

**Stolenoid coil voltage**

| | | | |
|---|---|---|---|
| 0 | Not fitted | G | 90-120 V DC |
| C | 24 V DC | H | 90-120 V AC |
| D | 24 V AC | I | 220-240 V DC |
| E | 48 V DC | J | 220-240 V AC |
| F | 48 V AC | | |

**Solenoid valve specification**

| | |
|---|---|
| 0 | Not fitted |
| U | Falcon II, 3/2-way, 1.1 $C_v$, ¼"NPT entry - fail closed |
| V | Falcon II, 3/2-way, 1.1 $C_v$, ¼"NPT entry - fail open |
| 1 | Falcon II, 5/2-way, 1.1 $C_v$, ¼"NPT entry - fail closed |
| K | Falcon II, 3/2-way, 1.1 $C_v$, ¼"BSP entry - fail closed |
| L | Falcon II, 3/2-way, 1.1 $C_v$, ¼"BSP entry - fail open |
| Q | Falcon II, 5/2-way, 1.1 $C_v$, ¼"BSP entry - fail closed |
| * | Non-standard build - consult with sales office for details |

**Switch/sensor quantity**

| | |
|---|---|
| 2 | Two inbuilt sensors - all enclosures |

**Conduit**

| | |
|---|---|
| 2 | Two conduit entries - all enclosures |
| 3 | Three conduit entries - check availability with sales office |
| 4 | Three conduit entries - check availability with sales office |
| 5 | Four conduit entries - check availability with sales office |

**Unit Specification**

| | |
|---|---|
| GAN | Fitted with Asi Netpac - std material & build |
| UAV | Fitted with DeviceNet Netpac - std material & build |
| BGY | Fitted with Foundation Fieldbus Netpac - std material & build |
| BIP | Fitted with Profibus Netpac - std material & build |
| *** | Non-standard material & build code - consult with sales office for details/ other options |

**Certification**

| | |
|---|---|
| 0 | Non-hazardous |
| A | ATEX |
| I | IECEx |
| * | Other options - consult with sales office for details |

**Revision**

| | |
|---|---|
| R* | Internal Westlock revision number |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 4 | 9 | A | BY | N | 0 | 0 | 0 | 2 | 2 | GAN | -A | R1 = Model number **2249ABYN00022GAN-AR1** |

WESTLOCK
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**Westlock.** We reserve the right to change designs and specifications without notice.