

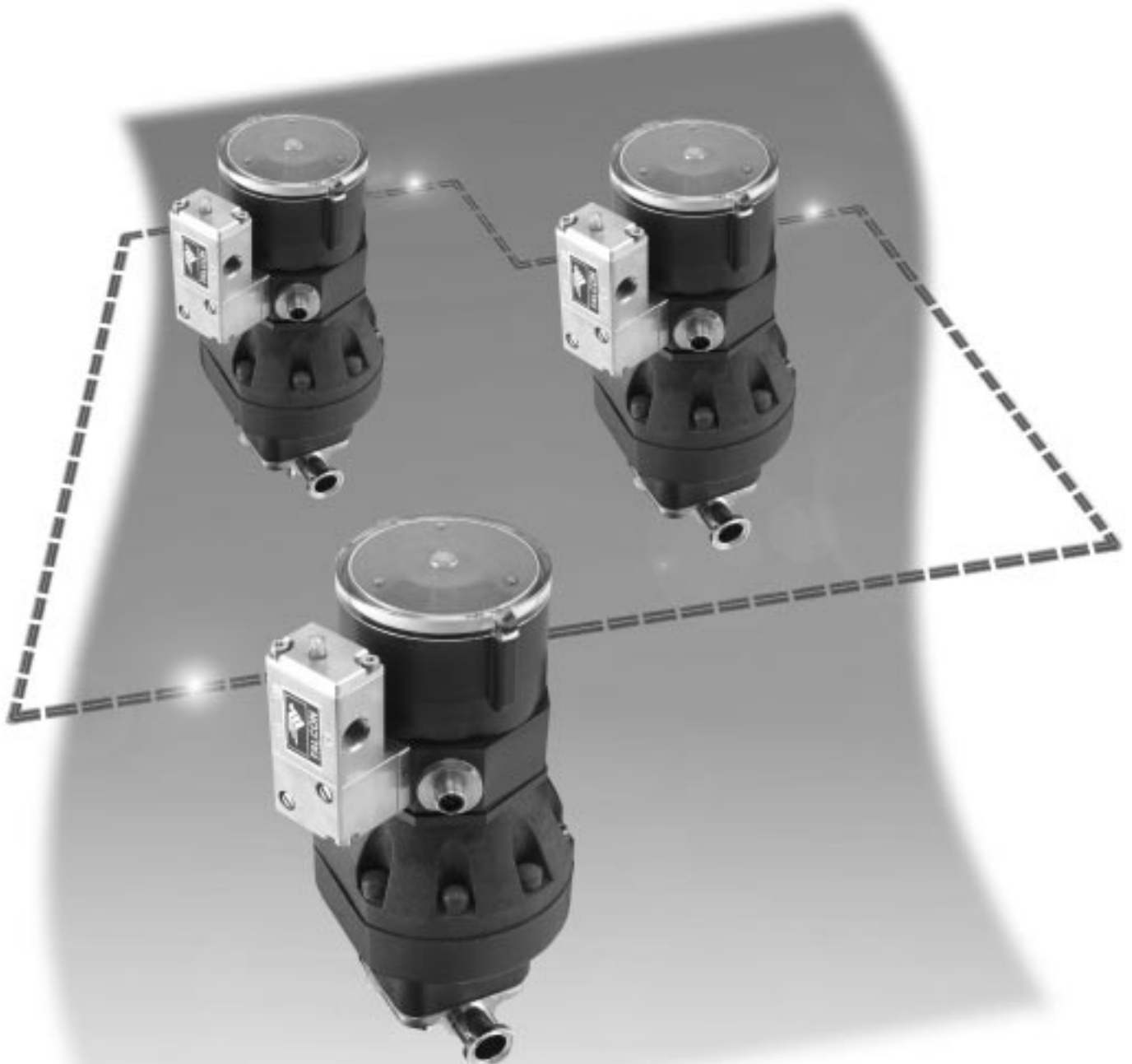
# Intellis™

NETWORK SYSTEMS FOR DIAPHRAGM VALVES

AS-interface® Ver. 2.1

DeviceNet®

Foundation Fieldbus®



**WESTLOCK**  
Network Systems Group

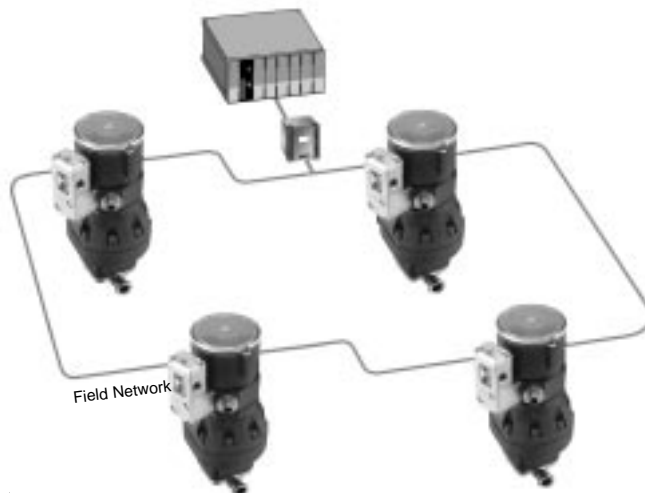
# Intellis™

## Network Systems for Diaphragm Valves



Intellis™ is a family of industrial control field Network Monitors which use embedded control systems to automate valves and link field I/O to the host PLC or DCS. Network Monitors are standard Westlock Control Monitors with the addition of a network I/O module. Each Network Monitor houses two hermetically sealed position sensors for valve position monitoring, a low power solenoid valve for actuation control, and a network interface module for communication via the DeviceNet®, AS-interface® or Foundation Fieldbus® protocol.

By switching from a conventional hardwired I/O system to an Intellis™ network, immediate cost savings are realized through the elimination of hundreds of dedicated wires and their associated costs.



### The Network Monitor

The Network Monitor for diaphragm valves couples directly onto the pneumatic actuator and communicates over a field network via an integrated network module. Each unit has the capability to accept input/output signals from position sensors and a solenoid valve.



### The Network Card

Depending upon the network standard selected DeviceNet®, AS-interface® or Foundation Fieldbus® a dedicated network card is integrated within the enclosure of each Network Monitor. The on-board network card is capable of communicating and controlling 2 inputs and one output.

NETWORK INTERFACE CARD	
<b>INPUT 1:</b>	Valve Position Sensor (closed)
<b>INPUT 2:</b>	Valve Position Sensor (open)
<b>OUTPUT 1:</b>	Solenoid Valve (actuation control)



## Standard Network Protocols

The acceptability of standard network protocols such as DeviceNet®, AS-interface® or Foundation Fieldbus® has made it possible to effectively integrate process control components into a network. DeviceNet, AS-interface or Foundation Fieldbus® have emerged as de facto standards for interfacing discrete devices. They have proven themselves to be extremely reliable, simple to understand and consistently cost effective. The integration of these three major network standards with various manufacturers of PLC's and DCS systems is readily accomplished through the implementation of off-the shelf gateway interfaces.

### Network Protocol Overview

Network Protocol Overview	AS-interface® Ver 2.1	DeviceNet®	Foundation Fieldbus®
	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.	Allen-Bradley is the originator of the DeviceNet® protocol. DeviceNet is an open device network standard based upon proven Controller Area Network (CAN) technology.	The initial specification for Foundation Fieldbus, drafted in 1987, was a joint effort of the IEC and the ISA to create an international fieldbus standard.
<b>Physical Media</b>	Two wire cable (communications & power)	Twisted pair for communications and 2 wires for power	Twisted pair for communications and power.
<b>Maximum Distance</b>	300 ft. 900 ft. with repeater	1600 ft. trunk + 512 ft. drop	1900m, including spurs
<b>Maximum Network Monitors per System</b>	62/network 1 network/system	63/network 2 networks/system	6/segment if bus powered & IS 12/segment if bus powered & non-IS 32/segment if neither bus powered nor IS
<b>Maximum I/O Points per System</b>	186/network 186/system	189/network 378/system	96 discrete
<b>Current Consumption Per Network Monitor</b>	40 mA w/ solenoid energized	45 mA w/ solenoid energized	18-24mA max. with Piezo operator 32mA max. with ULP coil
<b>Interface Capability</b>	All PLC's & DCS w/ModBus, DeviceNet, Profibus Port	All PLC's & DCS supporting the DeviceNet protocol	All PLC's & DCS supporting the FF protocol
<b>Communications Method</b>	Master/slave	Master/Slave	Publisher/subscriber
<b>Error Checking</b>	Manchester encoding	CRC check	Manchester encoding
<b>Network Topology</b>	Zero drop, trunk & drop, tree, star	Zero drop, trunk drop, tree, star	Trunk & drop, zero drop, tree, star
<b>Transmission Speed</b>	167 kbps	125 kbps, 250 kbps, 500 kbps	31.25 kbps
<b>Redundancy</b>	No	No	Yes
<b>Valves Specific Diagnostics</b>	No	Yes	Yes

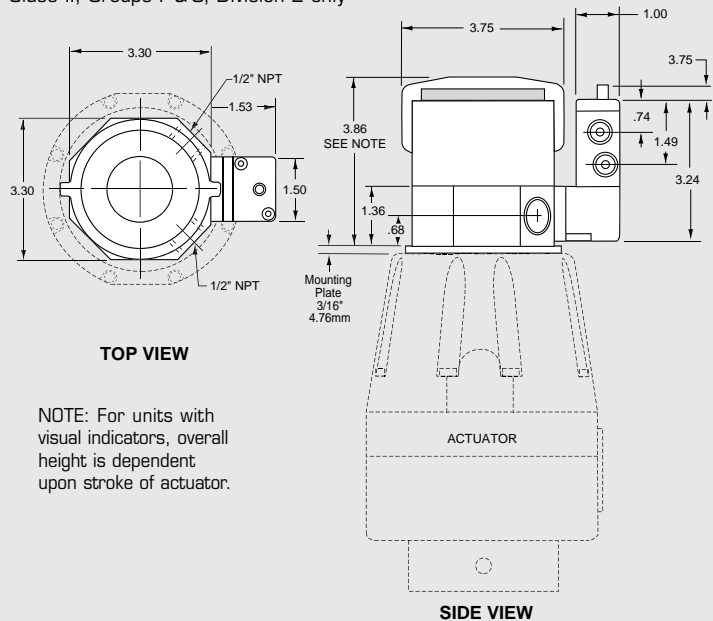
\*For added I/O capability, please consult factory.

**TECHNICAL SPECIFICATIONS & ORDERING GUIDE**

**DIMENSIONAL DATA**

**Model 7399, 7699, 7799**

**Engineered Resin (Nylon)**  
Nema 4, 4x, Nonincendive  
Class I, Groups A, B, C & D  
Class II, Groups F & G, Division 2 only




**TOP VIEW**

**SIDE VIEW**

NOTE: For units with visual indicators, overall height is dependent upon stroke of actuator.

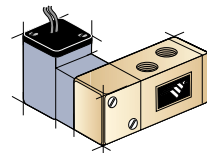
**ORDERING GUIDE**

Network Protocol	Enclosure	Network Card	Solenoid	Gateway Interface
Foundation Fieldbus <b>73*</b>	Engineered Resin <b>99RS</b>	Card A 2 Inputs 1 Output <b>A</b>	Use above listing for ordering solenoid 	DeviceNet Scanner for Allen-Bradley PLC5 <b>DS71</b>
DeviceNet <b>76</b>	Engineered Resin w/ Junction Housing <b>99XS</b>			DeviceNet Scanner for Allen-Bradley SLC <b>DS47</b>
AS-interface <b>77</b>				AS-i/Profibus <b>1060</b>
				AS-i/DeviceNet <b>1078</b>
				AS-i/Modbus <b>1104</b>
				AS-i/Interbus-S <b>1079</b>

**SOLENOID (MANUAL OVERRIDE OPTIONS)**

No-Voltage Release (Latching)	<b>N</b>
No-Voltage Release (Non-Latching)	<b>R</b>
Falcon Manual Maintained Override	<b>L</b>
Falcon Momentary Override	<b>M</b>
External Pilot	<b>E</b>
Lockout	<b>K</b>

**EXAMPLE: S-7399RSAFS02100N**



**SOLENOID VALVES**

Falcon low power solenoid valves operate at 24 VDC, 20 mA, .5 watt. The low power feature (20 mA) allows for a major reduction in power supply requirements. When utilizing the AS-interface protocol, power and communications may be transmitted on the same two wire cable.



**VALVE POSITION SENSORS**

Utilized for full open/close position detection and predictive diagnostic functions, each proximity sensor is hermetically sealed against the intrusion of explosive gases, moisture, and corrosion.

**ORDERING GUIDE (FALCON™ SOLENOID)**

COILS	CV	Body	3-Way	4-Way
<b>F50</b> 24 VDC 0.5 watts NEMA 4, 4x, Nonincendive Class I, Groups A, B, C, D	<b>.3 Cv</b>	Brass	<b>2100</b>	<b>2500</b>
		Alum.	<b>3100</b>	<b>3500</b>
		303 S.S.	<b>4100</b>	<b>4500</b>
		316 S.S.	<b>5100</b>	<b>5500</b>
<b>ZU0</b> 24 VDC 1.0 watts NEMA 4, 4x, Nonincendive Class I, Groups A, B, C, D Class II, Grps. F, G, Div. 2	<b>.5 Cv</b>	Brass	<b>2200</b>	<b>2600</b>
		Alum.	<b>3200</b>	<b>3600</b>
		303 SS	<b>4200</b>	<b>4600</b>
		316 S.S.	<b>5200</b>	<b>5600</b>
	<b>1.2 Cv</b>	Brass	<b>2300</b>	<b>2700</b>
		Alum.	<b>3300</b>	<b>3700</b>
		303 S.S.	<b>4300</b>	<b>4700</b>
		316 S.S.	<b>5300</b>	<b>5700</b>
	<b>3.5 Cv</b>	Alum.	<b>3400</b>	<b>3800</b>

NOTE: For dual coil applications, please consult factory. For Manual Override suffix part number with **MO**

**\*COILS - 7300 PRODUCTS ONLY**

<b>BK0</b> 7.2 VDC 0.014 watts  NEMA 4, 4x, Nonincendive Class I, Groups A, B, C, D Class II, Grps. F, G, Div. 2
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