WESTLOCK
CONTROLS CORPORATION

# Intellis

## DeviceNet Network Monitor
## Models 7604, 7644 & 7679

Installation and Operation Manual

DeviceNet™
CONFORMANCE TESTED

# Revision History

Revision 1.0
1 June, 2004
Initial Version

Revision 1.1
10 February, 2005
Document was updated to reflect new PCB design, addition of pneumatic section, misc. corrections and changes in IOM format.

Revision 1.2
7 August, 2006
Changed note 9 in Class Code 9 of Appendix B

# 1 Introduction

## 1.1 Scope of Manual

This manual contains installation, configuration and specification data for the DPAC DeviceNet valve controller.
This manual assumes a basic level of familiarity and competence with DeviceNet terminology and technology. Only qualified personnel should install, operate and maintain this equipment.

## 1.2 Symbols Used in this Document


This symbol warns the user of possible danger. Failure to heed this warning may lead to personal injury or death and/or severe damage to equipment.


This symbol identifies information about operating the equipment in a particular manner that may damage it or result in a system failure. Failure to heed this warning can lead to total failure of the equipment or any other connected equipment.


This symbol draws attention to information that is essential for understanding the operation and/or features of the equipment.

## 1.3 About DeviceNet

DeviceNet is an open network standard originally developed by Allen-Bradley and based on a broadcast oriented, communications protocol - the Controller Area Network (CAN). The CAN protocol was originally developed by BOSCH the European automotive market for replacing expensive, wire harnesses with a low-cost network.
In 1995 Allen-Bradley released the protocol to the open DeviceNet Vendors Association (ODVA). ODVA oversees the development of the DeviceNet specification and the conformance testing of DeviceNet products. ODVA is open to any manufacturer or user of this protocol with a worldwide membership of over 250 companies.
DeviceNet is a simple networking solution that reduces the cost and time required to install and wire industrial automation devices. A single DeviceNet Intellis System will accommodate up to 63 valves and 1008 discrete I/O points. Although a simple system to

design and implement, DeviceNet has the capability to interconnect complex as well as simple devices to the same network, easily accommodating both analog and discrete I/O. ***Westlock Controls is a member of ODVA and our DeviceNet products are conformance tested and certified.***

## *1.4 Westlock Intellis DeviceNet Module EL-40092*

The EL-40092 module is a 4 input, two output network monitor. Inputs 0 and 1 are internal Hall Effect sensors that are activated by the field of a magnet (south pole). Inputs 2 and 3 are active high/low (activated by pulling the input up to +24V or activated by pulling the input down to ground). The outputs are open drain active low FETs, fused (solid state self resetting) at 0.2A with diode protection to 24Vdc. For current consumption see Table 6, page 1-8. Minimum power supply input voltage is 19Vdc to insure proper solenoid operation.

Connection to the network is via DeviceNet specific cable. There are both Round and Flat Media Refer to the Allen-Bradley document “DeviceNet Cable System”’ (Cat. No. DN-6.72) for a detailed treatment of this topic.

For data exchange to occur each network monitor connected to the DeviceNet network must be programmed with a unique address, numbered between 0 and 63 and all nodes must be set to the same Baud rate as the scanner. This may be accomplished via setting the DIP switch, S1, on the electronics module.

The address and Baud rate may also be set via explicit Messaging if positions 7 and 8 on S1 are set to the “On” position. Refer to Section 3.1, page 3-2 for additional information. It is possible to exchange or add slaves during normal operation without interfering with communications to other nodes.

The Westlock Controls Corp. DeviceNet Module, EL-40092, operates as a GROUP 2 Only Slave on a DeviceNet network. The unit supports Explicit Messages and Polled I/O Messages of the Predefined Master/ Slave Connection Set. The device does not support the Explicit Unconnected Message Manager (UCMM).

Refer to Section 1.5 Device Specifications, page 1-7, for a summary of features.

### 1.4.1 Module Bit Map

| Table 1 | | | |
|---|---|---|---|
| **I/O** | **TYPE** | **MODULE REFERENCE** | **BITMAP OF DATA** INSTANCE #4 (8-POINT INPUT WITH NO STATUS) ATTRIBUTE #3 (DATA) |
| INPUT 0 | Hall Effect | Internal Sensor | BYTE 0, BIT 0 Valve Closed (Bottom L.S.) |
| INPUT 1 | Hall Effect | Internal Sensor | BYTE 0, BIT 1 Valve Open (Top L.S.) |
| INPUT 2 | Active High/Low* | J2-1 (In Hi/Low) to J2-2 (Ground) | BYTE 0 BIT 2 Aux. Input |
| INPUT 3 | Active High/Low* | J2-3 (In Hi/Low) to J2-4 (Ground) | BYTE 0, BIT 3 Aux. Input |
| *Active High/Low indicates that pulling the input pin up to +U or down to ground activates the input. | | | |
| **I/O** | **TYPE** | **MODULE REFERENCE** | **BITMAP OF DATA** INSTANCE #33 (STATIC OUTPUT) ATTRIBUTE #3 (DATA) |
| OUTPUT 0 | Active Low* | J4-1 (+24V) to J4-2 (Out) | BYTE 0, BIT 0 “A” Solenoid |
| OUTPUT 1 | Active Low* | J4-3 (+24V) to J4-4 (Out) | BYTE 0, BIT 1 “B” Solenoid or Aux. Output |
| *Active Low indicates that when the output is activated it pulls the pin down to GND drawing current through the load from the +24V | | | |

### 1.4.2 Watchdog Timer

The DeviceNet Connection Object (Class Code 05) of the DPAC firmware has an integral inactivity/watchdog timer (IWT). The behavior of the IWT is defined by the DeviceNet Specification.
There are two types of message connections, Explicit and I/O, each with their own IWT. There are also different configurable attributes that effect device behavior in the event of an IWT timeout.
The initial timeout value is the **expected_packet_rate** attribute multiplied by 4 or by 10 seconds, which ever is greater (Configuring state). All subsequent activations of the IWT use the **expected_packet_rate** attribute multiplied by 4 as the number of milliseconds to load into the IWT (Established state).
**The default configuration of the DPAC will cause the outputs of the DPAC to go to the de-energized state when either IWT times out.**
The IWT attribute for the Explicit message connection is configurable via explicit messaging. There are two values for this attribute supported by the DPAC; Auto Delete (the factory default setting) and Deferred Delete. Refer to Table 2 for definitions of these values and refer to Appendix B for the Device Specification to obtain Class, Instance, Attribute codes for explicit messaging the device.
The DeviceNet Discrete Output Point Object (Class Code 09) controls the behavior of the DPAC outputs. There are four attributes that specify the behavior of the device when either a Fault state (IWT timeout) or Idle state (Poll message without data) is entered. The DPAC may be configured to execute the Fault Value, outputs “ON” or “OFF”, or to keep at last value. Refer to Appendix B for the Device Specification for additional information.

| Table 2 | |
|---|---|
| **Value** | **Meaning** |
| 1 | *Auto Delete:* The Connection Class automatically deletes the Connection if it experiences an IWT timeout. This is the default value for this attribute with respect to Explicit Messaging Connections |
| 3 | *Deferred Delete:* The Connection transitions to the **Deferred** state if any child connection instances are in the **Established** state. If no child connection instances are in the **Established** state the connection is deleted. This value is invalid for I/O Messaging Connections. |

### 1.4.3 LED Status Indicators


The LEDs provide information concerning the status of inputs, outputs, the module and/or the network. The LEDs provide visual indication whether any inputs or outputs are active and whether the module or network is in a fault condition. The I/O Status LEDs are intended to indicate the state of the inputs and outputs only.

Refer to Table 3, page 1-6, for more information.

| Table 3 | | | |
|---|---|---|---|
| **Module p/n** | **LED** | **State** | **Indicates** |
| EL-40092 | Module Status LED 1 | Off | There is no power applied to the device. |
| | | Green | Device is operating in a normal condition. |
| | | Flashing Green | The device Needs commissioning due to configuration missing, incomplete or incorrect. |
| | | Red | Unrecoverable fault, device may need replacing. |
| | | Flashing Red | Recoverable fault. |
| | Network Status LED 2 | Off | Not powered/ Not online |
| | | Green | For a Group 2 Only device: Device is allocated to Master |
| | | Flashing Green | Online, not connected. For a Group 2 Only device: Device is not allocated to a Master |
| | | Red | Failed communication device. The device has detected an error that has rendered it incapable of communication on the network (Duplicate MAC ID or Bus-off). |
| | | Flashing Red | One or more I/O connections are in the Time-out state. |
| | Closed LS IN_0 LED | Yellow | **Input 0, Bottom L.S. Closed**: Valve is in the closed position as determined by the triggering of the Internal Hall Effect sensor by the travel of the trigger mechanism on the shaft assembly. |
| | Open LS IN_1 LED | Yellow | **Input 1, Top L.S. Closed**: Valve is in the open position as determined by the triggering of the Internal Hall Effect sensor by the travel of the trigger mechanism on the shaft assembly. |
| | Aux. Input IN_2 LED | Yellow | **Input 2, Active:** Dry contact type switch attached to this input is closed. |
| | Aux. Input IN_3 LED | Yellow | **Input 3, Active:** Dry contact type switch attached to this input is closed. |
| | Output OUT_0 LED | Yellow | **Output 0**. “A” Solenoid is energized. |
| | Output OUT_1 LED | Yellow | **Output 1**. “B” Solenoid is energized. |

### 1.4.4 Module Layout

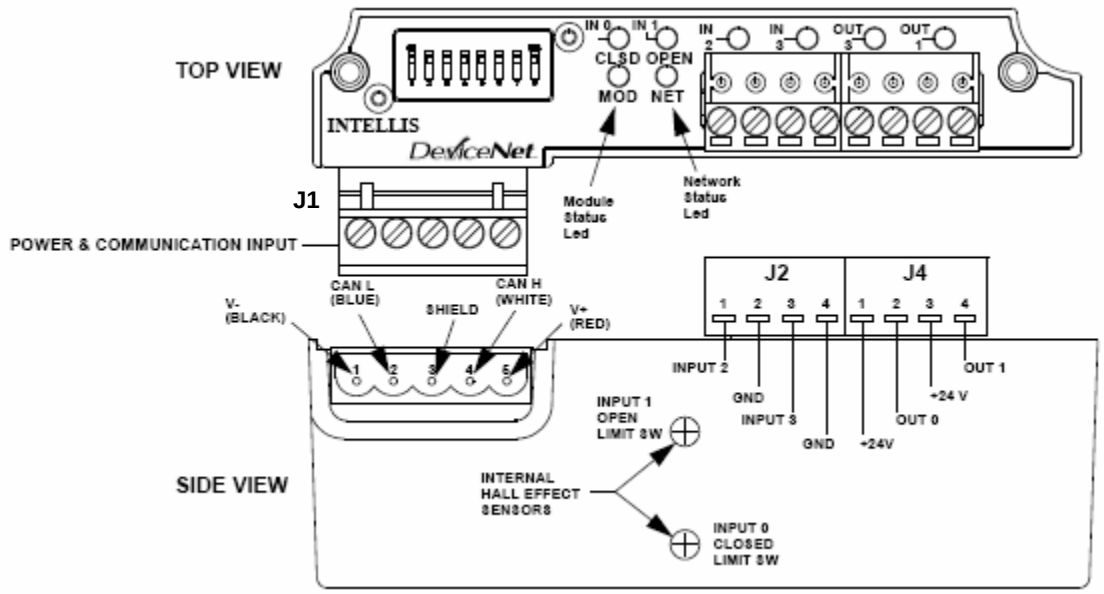



**Figure 1- EL-40092**

## *1.5 Device Specifications*

### 1.5.1 Specifications

| **Table 4** | |
|---|---|
| **Round Physical Media** | Shielded 2 twisted pairs for communication and power |
| **Flat Physical Media** | Unshielded 4 parallel conductors for communications and power |
| **Supported Topology** | Trunk and drop |
| **Maximum Trunk Distance** | Round Media: 500m (1640') @ 125 kbd<br>Flat Media: 420m (1378') @ 125 kbd |
| **Maximum Nodes/Network** | 64, one being the master |
| **Maximum I/O Points/Network** | 378, 4 inputs and 2 outputs/DPAC |
| **Typical Current Consumption/Network Monitor** | 75 mA with single Falcon NI solenoid energized<br>80 mA with single Falcon XP solenoid energized |
| **Host System's Interface** | Allen-Bradley, Omron, Emerson and many others |
| **Communications Method** | Group 2 only slave |
| **Error Checking** | CRC |
| **Redundancy** | No |
| **Valve Specific Diagnostics** | No |

### 1.5.2 DeviceNet Features

| Table 5 | |
|---|---|
| **DeviceNet Features** | |
| Device Type | Generic |
| Explicit Peer to Peer Messaging | No |
| I/O Peer to Peer Messaging | No |
| Configuration Consistency Value | No |
| Faulted Node Recovery | No |
| Baud Rates | 125K, 250K, 500K |
| Master/Scanner | Yes |
| I/O Slave Messaging<br>• Bit Strobe<br>• Polling<br>• Cyclic<br>• Change of State (COS) | <br>No<br>Yes<br>No<br>No |

### 1.5.3 Current Consumption

| Table 6 | | |
|---|---|---|
| **Inputs Active** | **Outputs Active** | **Current Draw[1]** |
| 0 | 0 | 50mA |
| 4 | 0 | 62mA |
| 4 | 1 | 80mA |
| 4 | 2 | 100mA |
| 4 | 1 | 85mA(XP) |
| 4 | 2 | 110mA(XP) |

[1]All current values acquired using a non-incendive solenoid except where noted by an XP (explosion

# 2 Installation Instructions

**Note** IMPORTANT: If the valve monitor is already in the field mounted on an actuator and valve, please follow the field wiring instructions in Section 2.4.

**Warning** Confirm that the area is known to be non-hazardous before opening the cover of a network monitor and making or breaking any electrical connections.

## *2.1 Mounting*

For steps 1-3 refer to Figure 2 below.

1. Attach the proper mounting bracket and adapter (if required) to the valve monitor housing with the hardware provided.
2. Operate the actuator to full closed position.
3. Attach the valve monitor and mounting bracket to the actuator.
4. Note the position of the actuator/valve and confirm the Beacon position is properly aligned, as shown in Figure 3 below while replacing the cover.

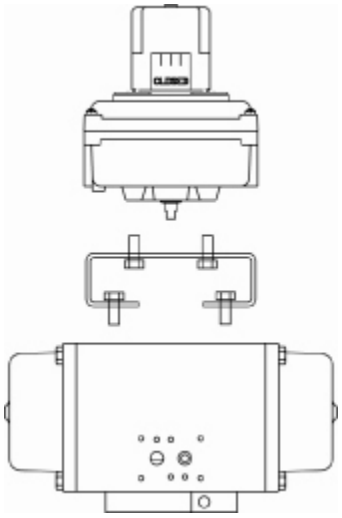


**Figure 2**

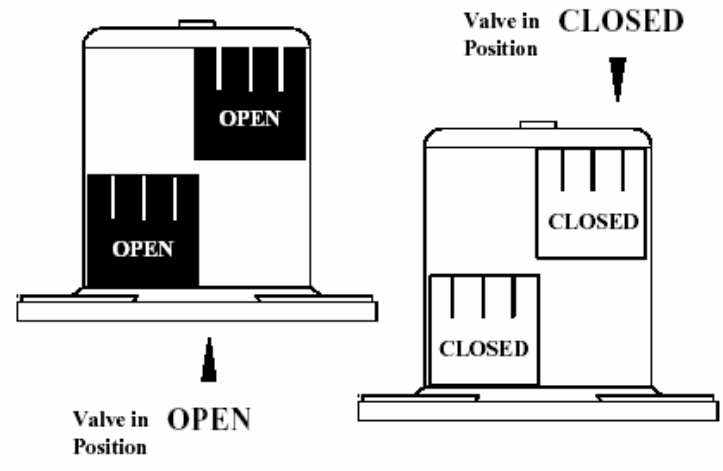



**Figure 3**

## *2.2 Pneumatic Connections*


Personal injury and/or property damage may occur from loss of process control if the supply medium is not clean, dry oil-free air or non-corrosive gas. Instrument quality air that meets the requirements of ISA Standard S7.3-1975 is recommended for use with pneumatic equipment in process control environments. Westlock Controls recommends the use of a 20 micron filter with all Falcon solenoids.

### 2.2.1 Tubing and Fittings

The use of copper, stainless steel, nylon or polyethylene tube is recommended for piping up air circuits and equipment. As a general rule, pipe threaded fittings should not be assembled to a specific torque because the torque required for a reliable joint varies with thread quality, port and fitting materials, sealant used, and other factors. The suggested method of assembling pipe threaded connections is to assemble them finger tight and then wrench tighten further to a specified number of turns from finger tight. The assembly procedure given below is for reference only; the fitting should not be over tightened for this will lead to distortion and most likely, complete valve failure.

1. Inspect port and connectors to ensure that the threads on both are free of dirt, burrs and excessive nicks.

2. Apply sealant/lubricant or Teflon tape to the male pipe threads. With any sealant tape, the first one or two threads should be left uncovered to avoid system contamination.
3. Screw the connector into the port to the finger tight position.
4. Wrench tighten the connector approximately 1 - 2 turns (to seal) from finger tight. Again this is only reference - the fitting should **NOT** be over tightened.

## 2.2.2 Porting

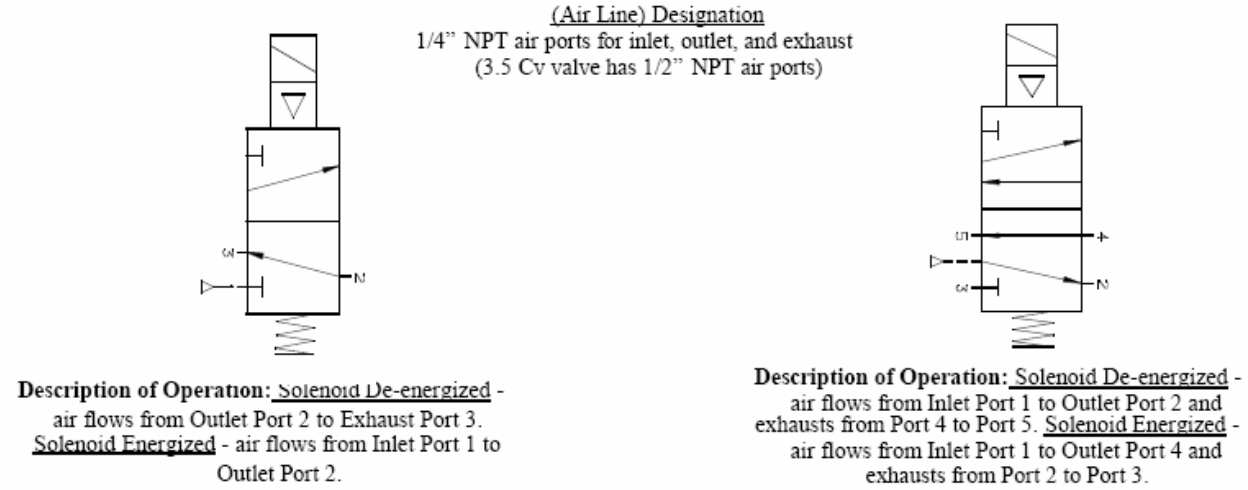



**Figure 4**

## 2.2.3 Maintenance

Routine maintenance is usually confined to the periodic replenishment of Dow Corning III lubricant or equivalent to spool and spring.

## *2.3 Switch Adjustment*

**Note** Switches are factory set. If you need to adjust switches for any reason follow instructions below.

For steps 1-8 refer to Figures 1 and 5.

1. Refer to Figure 1 and note the approximate locations of the Open and Close targets on the DPAC module.
2. With the valve in the closed position, lift bottom cam of the Close sensor trigger.
3. Turn cam until face of trigger is perpendicular to the target and sensor is activated as evidenced by the lighting of the corresponding module LED.
4. Release the cam and the spring will push cam back onto the splined shaft.
5. Operate the actuator to the opened position.
6. Push down the top cam of the Open sensor trigger.
7. Turn cam until face of trigger is perpendicular to the target and sensor is activated as evidenced by the lighting of the corresponding module LED.
8. Operate actuator from one extreme to the other several times to check Limit Sensor operation.

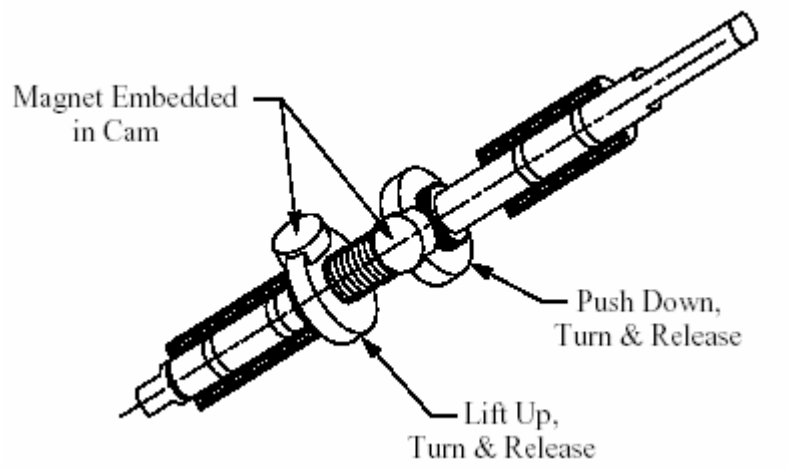



**Figure 5**

## 2.4 Wiring Instructions


**All wiring must be in accordance with National Electrical Code (ANSI-NFPA-70) for the appropriate area classifications.**


All wiring must be in accordance with National Electrical Code (ANSI-NFPA-70) for area classifications. The valve monitors are approved as nonincendive for Class I, Division 2, Groups A,B,C and D; dust-ignition proof for Class II/III, Division 1, Groups E,F and G hazardous (classified) locations; indoor/outdoor (NEMA type 4, 4X).


**Always check the nameplate to make sure the agency approval ratings coincide with the application.**


The proper wiring diagram for your unit is shown on the inside of the enclosure cover.

1. Wiring options for 7604, 7644 and 7679 are shown in Figures 6 and 7 below.
2. Replace the electronics housing cover or junction housing cover.
3. Unit is now ready for automatic operation. If any assistance is required, please call Westlock Controls at (201) 794-7650.

Model # 7679XE

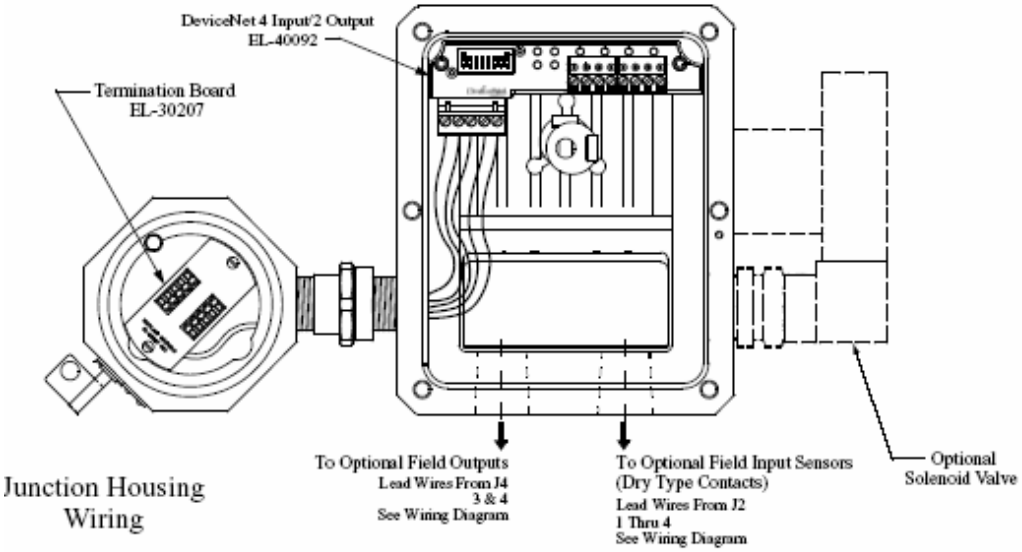



Figure 6

Model # 7644

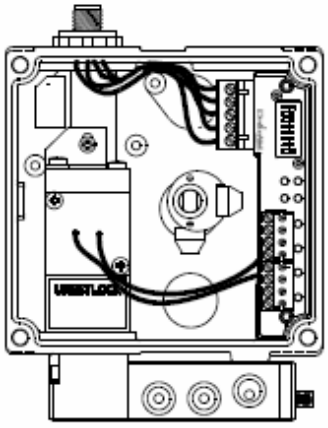


Figure 7

Model # 7679ME

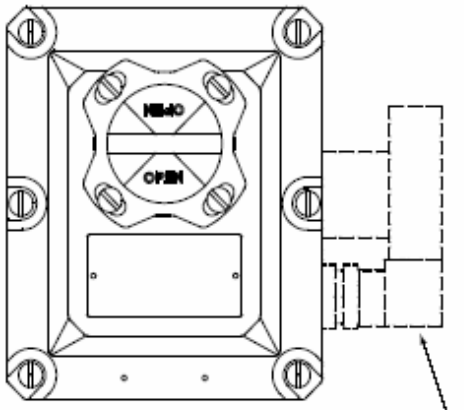
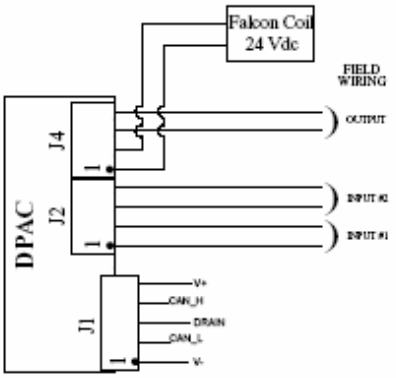
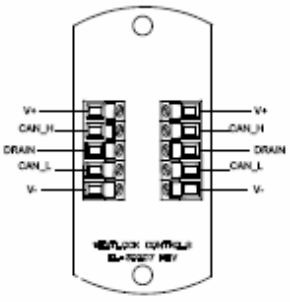



Figure 8

**Wiring Diagram**




Max Wire: 12 AWG
Min Wire: 22 AWG
Strip Length: .250"
Terminal Strip Screws
Max Torque 3.5 in/lbs

## 2.4.1 DPAC Connector Pin-out Diagrams

**PHOENIX STYLE CONNECTOR**
Pin 1/ V-/ Black
Pin 2/ CAN_H/ Blue
Pin 3/ Shield/ Bare
Pin 4/ CAN_H/ White
Pin 5/ V+/ Red

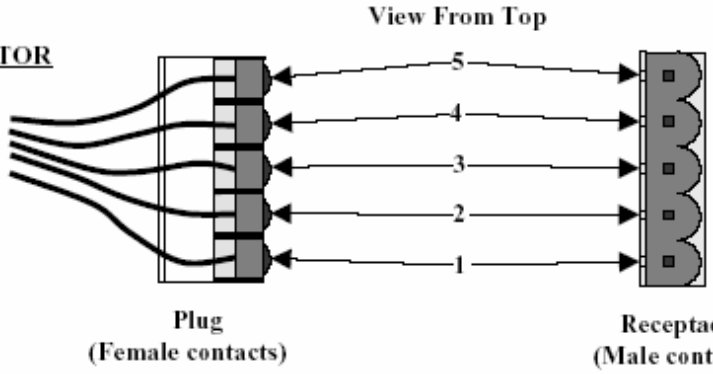



**Figure 9**
**5 – Pin Open Connector**

**ROUND CONNECTORS**
Pin 1/ Shield/ bare
Pin 2/ V+/ Red
Pin 3/ V-/ Black
Pin 4/ CAN_H/ White
Pin 5/ CAN_L/Blue

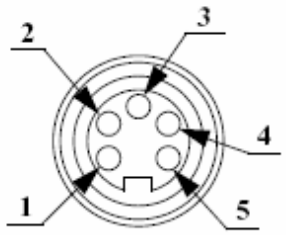



**Figure 10**
**5-PIN**
**"MINI" CONNECTOR**
**FEMALE**

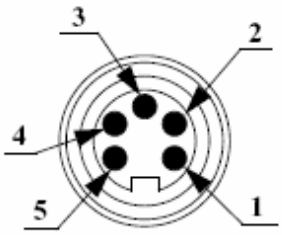



**Figure 11**
**5-PIN**
**"MINI" MALE**
**FIELD WIREABLE**

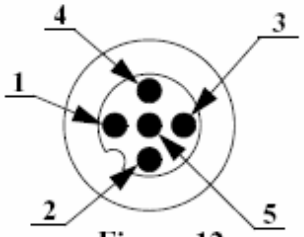



**Figure 12**
**5-PIN**
**M12 MALE**
**"MICRO" CONNECTOR**

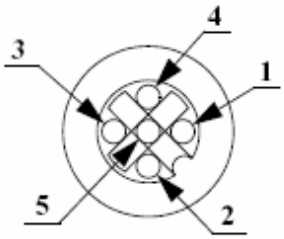



**Figure 13**
**5-PIN**
**M12 FEMALE**
**"MICRO" CONNECTOR**

## 2.5 DeviceNet Cabling Information

**Note** Correct termination of the trunk and total trunk and drop limits for the baud rate the network is to run at must be observed or unreliable operation may result.

| **Table 7** | | | |
|---|---|---|---|
| **Maximum Distance** | | | |
| **Data Rate** | **Flat Cable** | **Thick Cable** | **Med. & Thin Cable** |
| 125 kbd | 420m (1378’) | 500m (1640’) | 100m (328’) |
| 250 kbd | 200m (656’) | 250m (820’) | 100m (328”) |
| 500 kbd | 75m (246’) | 100m (328’) | 100m (328’) |

| **Table 8** | |
|---|---|
| **Data Rate** | **Maximum Cumulative Drop Length** |
| 125 kbd | 156m (512’) |
| 250 kbd | 78m (236’) |
| 500 kbd | 39m (128’) |

## 2.6 DeviceNet Supported Topologies

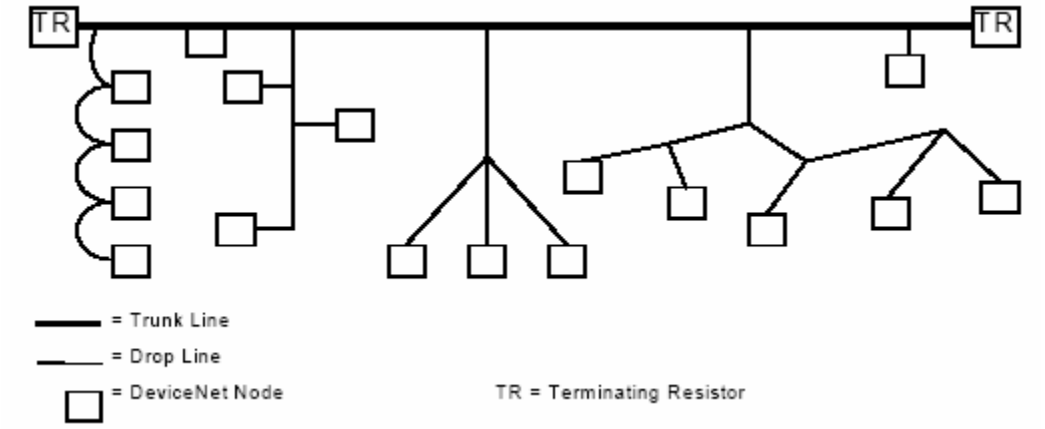



**Figure 14**

# 3 DPAC Configuration

## *3.1 Communication Settings*

For the appropriate DIP switch settings for the address and baud rate of the DPAC refer to Figure 15 and Tables 9 and 10.

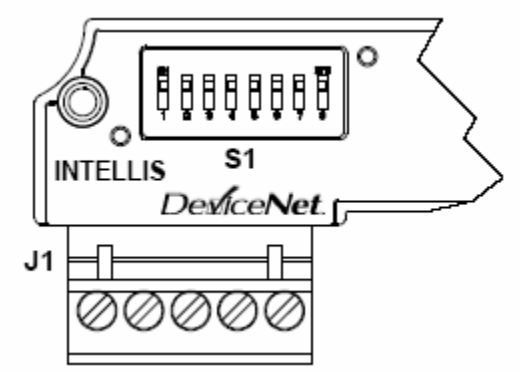



**Figure 15**

### 3.1.1 Baud Rate and Address via the DIP Switch

**Table 9**

| Switch S1 | | Baud Rate | Returned Value |
|---|---|---|---|
| **SW8** | **SW7** | | |
| OFF | OFF | 125 Kbd | 0x00 |
| OFF | ON | 250 Kbd | 0x01 |
| ON | OFF | 500 Kbd | 0x02 |
| ON | ON | Default 125 Kbd or last value set via bus (see Section 3.1.2) | 0x00 (default) or 0x01 to 0x02 if set |

**Table 10-a**

| Switch S1 | | | | | | MAC ID | Returned Value |
|---|---|---|---|---|---|---|---|
| **SW6** | **SW5** | **SW4** | **SW3** | **SW2** | **SW1** | | |
| OFF | OFF | OFF | OFF | OFF | OFF | 0 | 0x00 |
| OFF | OFF | OFF | OFF | OFF | **ON** | 1 | 0x01 |
| OFF | OFF | OFF | OFF | **ON** | OFF | 2 | 0x02 |
| OFF | OFF | OFF | OFF | **ON** | **ON** | 3 | 0x03 |
| OFF | OFF | OFF | **ON** | OFF | OFF | 4 | 0x04 |
| OFF | OFF | OFF | **ON** | OFF | **ON** | 5 | 0x05 |
| OFF | OFF | OFF | **ON** | **ON** | OFF | 6 | 0x06 |
| OFF | OFF | OFF | **ON** | **ON** | **ON** | 7 | 0x07 |
| OFF | OFF | **ON** | OFF | OFF | OFF | 8 | 0x08 |
| OFF | OFF | **ON** | OFF | OFF | **ON** | 9 | 0x09 |
| OFF | OFF | **ON** | OFF | **ON** | OFF | 10 | 0x0A |
| OFF | OFF | **ON** | OFF | **ON** | **ON** | 11 | 0x0B |
| OFF | OFF | **ON** | **ON** | OFF | OFF | 12 | 0x0C |
| OFF | OFF | **ON** | **ON** | OFF | **ON** | 13 | 0x0D |
| OFF | OFF | **ON** | **ON** | **ON** | OFF | 14 | 0x0E |
| OFF | OFF | **ON** | **ON** | **ON** | **ON** | 15 | 0x0F |
| OFF | **ON** | OFF | OFF | OFF | OFF | 16 | 0x10 |
| OFF | **ON** | OFF | OFF | OFF | **ON** | 17 | 0x11 |
| OFF | **ON** | OFF | OFF | **ON** | OFF | 18 | 0x12 |
| OFF | **ON** | OFF | OFF | **ON** | **ON** | 19 | 0x13 |
| OFF | **ON** | OFF | **ON** | OFF | OFF | 20 | 0x14 |
| OFF | **ON** | OFF | **ON** | OFF | **ON** | 21 | 0x15 |
| OFF | **ON** | OFF | **ON** | **ON** | OFF | 22 | 0x16 |
| OFF | **ON** | OFF | **ON** | **ON** | **ON** | 23 | 0x17 |
| OFF | **ON** | **ON** | OFF | OFF | OFF | 24 | 0x18 |
| OFF | **ON** | **ON** | OFF | OFF | **ON** | 25 | 0x19 |
| OFF | **ON** | **ON** | OFF | **ON** | OFF | 26 | 0x1A |
| OFF | **ON** | **ON** | OFF | **ON** | **ON** | 27 | 0x1B |
| OFF | **ON** | **ON** | **ON** | OFF | OFF | 28 | 0x1C |
| OFF | **ON** | **ON** | **ON** | OFF | **ON** | 29 | 0x1D |
| OFF | **ON** | **ON** | **ON** | ON | OFF | 30 | 0x1E |
| OFF | ON | **ON** | **ON** | ON | **ON** | **31** | 0x1F |
| OFF | **ON** | **ON** | **ON** | **ON** | **ON** | 31 | 0x1F |
| **ON** | OFF | OFF | OFF | OFF | OFF | 32 | 0x20 |
| **ON** | OFF | OFF | OFF | OFF | **ON** | 33 | 0x21 |
| **ON** | OFF | OFF | OFF | **ON** | OFF | 34 | 0x22 |
| **ON** | OFF | OFF | OFF | **ON** | **ON** | 35 | 0x23 |
| **ON** | OFF | OFF | **ON** | OFF | OFF | 36 | 0x24 |
| **ON** | OFF | OFF | **ON** | OFF | **ON** | 37 | 0x25 |
| **ON** | OFF | OFF | **ON** | **ON** | OFF | 38 | 0x26 |
| **ON** | OFF | OFF | **ON** | **ON** | **ON** | 39 | 0x27 |
| **ON** | OFF | **ON** | OFF | OFF | OFF | 40 | 0x28 |
| **ON** | OFF | **ON** | OFF | OFF | **ON** | 41 | 0x29 |
| **ON** | OFF | **ON** | OFF | **ON** | OFF | 42 | 0x2A |
| **ON** | OFF | **ON** | OFF | **ON** | **ON** | 43 | 0x2B |
| **ON** | OFF | **ON** | **ON** | OFF | OFF | 44 | 0x2C |

**Table 10-b**

| Switch S1 | | | | | | MAC ID | Returned Value |
|---|---|---|---|---|---|---|---|
| **SW6** | **SW5** | **SW4** | **SW3** | **SW2** | **SW1** | | |
| **ON** | OFF | **ON** | **ON** | OFF | **ON** | 45 | 0x2D |
| **ON** | OFF | **ON** | **ON** | **ON** | OFF | 46 | 0x2E |
| **ON** | OFF | **ON** | **ON** | **ON** | **ON** | 47 | 0x2F |
| **ON** | **ON** | OFF | OFF | OFF | OFF | 48 | 0x30 |
| **ON** | **ON** | OFF | OFF | OFF | **ON** | 49 | 0x31 |
| **ON** | **ON** | OFF | OFF | **ON** | OFF | 50 | 0x32 |
| **ON** | **ON** | OFF | OFF | **ON** | **ON** | 51 | 0x33 |
| **ON** | **ON** | OFF | **ON** | OFF | OFF | 52 | 0x34 |
| **ON** | **ON** | OFF | **ON** | OFF | **ON** | 53 | 0x35 |
| **ON** | **ON** | OFF | **ON** | **ON** | OFF | 54 | 0x36 |
| **ON** | **ON** | OFF | **ON** | **ON** | **ON** | 55 | 0x37 |
| **ON** | **ON** | **ON** | OFF | OFF | OFF | 56 | 0x38 |
| **ON** | **ON** | **ON** | OFF | OFF | **ON** | 57 | 0x39 |
| **ON** | **ON** | **ON** | OFF | **ON** | OFF | 58 | 0x3A |
| **ON** | **ON** | **ON** | OFF | **ON** | **ON** | 59 | 0x3B |
| **ON** | **ON** | **ON** | **ON** | OFF | OFF | 60 | 0x3C |
| **ON** | **ON** | **ON** | **ON** | OFF | **ON** | 61 | 0x3D |
| **ON** | **ON** | **ON** | **ON** | **ON** | OFF | 62 | 0x3E |
| **ON** | **ON** | **ON** | **ON** | **ON** | **ON** | 63 | 0x3F |

### 3.1.2 Baud Rate and Address via the Bus

Setting S1 positions 7 & 8 to ON will allow the address and the baud rate of the DPAC to be set via explicit messaging over the bus. Once the values for the specific attributes have been set the DPAC must have the power cycled for the new settings to be loaded from the devices RAM and become operable.
Refer to DeviceNet Object, Class Code 03 in Appendix B for the explicit messaging codes.

**Note** When changing the baud rate of the DPAC, once the power to the device has been cycled the master will need to be set to that baud rate to enable communication with the DPAC.

# Appendix A

## Contact Information

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# Appendix B

# Westlock Controls Corporation
## DeviceNet DN-WLCIO
## Device Specifications

Publication # 07241992
Date 10/09/2000
Revision # 1.01

Board Revision 02 #02061953
Firmware Revision 1.02

| Rev | Date | Note(s) |
|---|---|---|
| 1.0 | 5/18/1999 | Original |
| 1.01 | 10/09/2000 | Change format of tables |
| | | |

### *Device Profile*

The DN-WLCIO is the General Purpose Discrete I/O Device (Profile Number 7)

## Objects Present in Device

| Object name(class type) | Optional/Required | # of Instances |
|---|---|---|
| Identity (01) | Required | 1 |
| Message Router (02) | Required | 1 |
| DeviceNet (03) | Required | 1 |
| Connection (05) | Required | 2 (one I/O, one Explicit ) |
| Assembly (04) | Required | 2 (instance #4 and #33) |
| Discrete Input Point (08) | Required | 8 |
| Discrete Output Point (09) | Required | 4 |

## Objects That Effect Behavior

| Object | Effect on Behavior |
|---|---|
| Identity | Supports the Reset Service |
| Message Router | No Effect |
| DeviceNet | Configures Port Attributes |
| Connection | Establishes the number of connections |
| Assembly #4 | Defines I/O data format |
| Assembly #33 | Defines I/O data format |
| Discrete Input Point | No effect |
| Discrete Output Point | Executes Fault & Idle Actions |

**Object Interfaces**

| Object | Interface |
|---|---|
| Identity | Message Router |
| Message Router | Explicit Message Connection Instance |
| DeviceNet | Message Router |
| Connection | Message Router |
| Assembly Instance #4 | I/O Connection or Message Router |
| Assembly Instance #33 | I/O Connection or Message Router |
| Discrete Input | Assembly Object or Message Router |
| Discrete Output | Assembly Object or Message Router |

## Identity Object Class Code: 01(0x01)

Class=1, Instance=0, Attribute=1,2,6,7

Identity Object **Class** Attributes

| Attribute ID | Access Rule | Name | Data Type | Value Hex |
|---|---|---|---|---|
| 1 | Get | Revision | UINT | 0x0001 |
| 2 | Get | Max Object Instance | UINT | 0x0001 |
| 6 | Get | Max Class Identifier | UINT | 0x0007 |
| 7 | Get | Max Instance Attribute | UINT | 0x0009 |

Common Services - (**Class**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

Class=1, Instance=1, Attribute=1,2,3,4,5,6,7,8,9,10

Identity Object **Instance** Attributes

| Attribute ID | Access Rule | Name | | Data Type | Value |
|---|---|---|---|---|---|
| 1 | Get | Vendor | | UINT | 0x00F4 |
| 2 | Get | Device Type | | UINT | 0x0007 |
| 3 | Get | Product Code | | UINT | 0x000B |
| 4 | Get | Revision | Major Revision<br>Minor Revision | STRUCT<br>USINT<br>USINT | 0x01,0x02<br>0x01<br>0x02 |
| 5 | Get | Status | | WORD | 0x0000 |
| 6 | Get | Serial Number | | UDINT | 0x02061953* |
| 7 | Get | Product Name | Length<br>Name | STRUCT<br>USINT<br>STRING[5] | 5,"WLCIO"<br>0x05<br>WLCIO |
| 8 | Get | State | | USINT | [0..5] |
| 9 | Get | CCV | | UINT | 0xXXXX |
| 10 | Not Implemented | Heartbeat | | USINT | |

Common Services - (**Instance**)

| Service Code (Hex) | Service Name | Description of Service |
|---|---|---|
| 0x05 | Reset | Depend on parameter, emulate reset type 0 or 1 |
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

* -- Base Serial Number

## *Message Router Object Class Code: 02(0x02)*

Message Router Object **Class** Attributes

Class Implementation is based on class revision 0x0001.
Attributes are not supported.

Common Services - (**Class**)

Services are not supported.

Message Router Object **Instance** Attributes

Attributes are not supported.

Common Services - (**Instance**)

Services are not supported.

## *DeviceNet Object Class Code: 03(0x03)*

Class=3, Instance=0, Attribute=1

DeviceNet Object **Class** Attributes

| Attribute ID | Access Rule | Name | Data Type | Value |
|---|---|---|---|---|
| 1 | Get | Revision | UINT | 0x0002 |

Common Services - (**Class**)

| Service Code | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

Class=3, Instance=1, Attribute=1,2,3,4,5,6,7,8,9

DeviceNet Object **Instance** Attributes

| Attribute ID | Access Rule | Name | | Data Type | Value |
|---|---|---|---|---|---|
| 1 | Get/Set | MACID (Node Address) | | USINT | 0x00 to 0x3F * |
| 2 | Get/Set | Baud Rate | | USINT | 0x00 to 0x02 ** |
| 3 | Get/Set | BOI (Bus-Off Interrupt) | | BOOL | 0x00 or 0x01 |
| 4 | Get/Set | Bus-Off Counter | | USINT | 0x00 |
| 5 | Get | Allocation Information | Choice Byte<br>Master MacID | STRUCT<br>BYTE<br>USINT | 0xXX,0xXX<br>Allocation Byte<br>0x00-0x3F, 0xFF |
| 6 | Get | MAC ID Switch Changed (since last power-up/reset) | | BOOL | 0x00=No Change<br>0x01=Changed |
| 7 | Get | Baudrate Switch Changed (since last power-up/reset) | | BOOL | 0x00=No change<br>0x01=Changed |
| | | | | | |
| 8 | Get | MAC ID Switch Value | | USINT | 0x00 to 0x3F *** |
| 9 | Get | Baudrate Switch Value | | USINT | 0x00 to 0x02 **** |

Common Services - (**Instance**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |
| 0x10 | Set_Attribute_Single | Modifies the contents of the specified attribute |
| 0x4B | Allocate_Master/Slave | Request the use of the Predefined M/S Connection Set |
| 0x4C | Release_Master/Slave | Deallocate the Predefined M/S Connection Set |

* MACID is settable through DeviceNet, if switch S1 positions 7 and 8 are both in the ON position. If switch S1 positions 7 and 8 are both ON then the value returned will be switch S1 positions 1-6 or the last value set. If switch S1 positions 7 and 8 are <u>not</u> both ON then, the value returned will be switch S1 positions 1-6

** Baud Rate is settable through DeviceNet only if switch S1 positions 7 and 8 are both in the ON position.

See Table below.

| Switch S1 | | Returned Value | Speed |
|---|---|---|---|
| Sw8 | Sw7 | | |
| OFF | OFF | 0x00 | 125 kbits |
| OFF | ON | 0x01 | 250 kbits |
| ON | OFF | 0x02 | 500 kbits |
| ON | ON | 0x00 (default)<br>or 0x01 to 0x02 | Default 125 kbits,<br>or last set via Set_Attribute_Single |

*** MACID Switch Value returned will be switch S1 positions 1..6 (ON means logic 1, OFF means logic 0)

| MSB | | Switch S1 | | | LSB | MacID |
|---|---|---|---|---|---|---|
| Sw6 | Sw5 | Sw4 | Sw3 | Sw2 | Sw1 | |
| OFF | OFF | OFF | OFF | OFF | OFF | 0 (0x00 Hex) |
| OFF | OFF | OFF | OFF | OFF | ON | 1 (0x01 Hex) |
| OFF | OFF | OFF | OFF | ON | OFF | 2 (0x02 Hex) |
| … | … | … | … | … | … | … |
| ON | ON | ON | ON | ON | OFF | 62 (0x3E Hex) |
| ON | ON | ON | ON | ON | ON | 63 (0x3F Hex) |

**** Baud Rate Switch Value returned will be switch S1 positions 7,8

| Switch S1 | | Returned Value | Speed |
|---|---|---|---|
| Sw8 | Sw7 | | |
| OFF | OFF | 0x00 | 125 kbits |
| OFF | ON | 0x01 | 250 kbits |
| ON | OFF | 0x02 | 500 kbits |
| ON | ON | Default 0x00 | Default 125 kbits, |

## *Assembly Object Class Code: 04(0x04)*

Assembly Object **Class** Attributes

Implementation is based on the Static Assembly model.
Class Implementation is based on class revision 0x0002.
Attributes are not supported.

Common Services - (**Class**)

Services are not supported.

There are two static instances of the Assembly Object in the device.
Instance #4 is assigned to the device inputs.
Instance #32 or #33 is assigned to the device outputs. Instance #32 is used when the device has 2 outputs or less, Instance #33 is used when the device has 4 outputs.
The tables below show the attributes and the predefined values where applicable.

Class=4, Instance=4, Attribute=3

Assembly Object **Instance #4** Attributes
(Instance #4 is type: 8 point with No Status Bit)

| Attribute ID | Access Rule | Name | Data Type | Value Hex |
|---|---|---|---|---|
| 3 | Get | Data | ARRAY of one BYTE | 0x00 to 0xFF<br><br>BBBBBBBB * binary |

Common Services - (**Instance #4**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

## * Format of Assembly Object, Instance #4 (8-point Input with No Status ), Attribute #3 (Data)

| Byte Number | Bit Number | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | DI 8 | DI 7 | DI 6 | DI 5 | DI 4 | DI 3 | DI 2 | DI 1 |

## Mapping of Assembly Object, Instance #4 (8-point Input with No Status), Attribute #3 (Data)

| Bit Name | Class | | Instance Number | Attribute | |
|---|---|---|---|---|---|
| | ClassName | Number | | Name | Number |
| DI 1 | Discrete Input Point | 8 | 1 | Value | 3 |
| DI 2 | Discrete Input Point | 8 | 2 | Value | 3 |
| DI 3 | Discrete Input Point | 8 | 3 | Value | 3 |
| DI 4 | Discrete Input Point | 8 | 4 | Value | 3 |
| DI 5 | Discrete Input Point | 8 | 5 | Value | 3 |
| DI 6 | Discrete Input Point | 8 | 6 | Value | 3 |
| DI 7 | Discrete Input Point | 8 | 7 | Value | 3 |
| DI 8 | Discrete Input Point | 8 | 8 | Value | 3 |

Class=4, Instance=32, Attribute=3

Assembly Object **Instance #32** Attributes
(Instance #32 is type: 2-Point Output, and is used only when the device has 2 outputs or less. See instance #33 for 4 output devices.)

| Attribute ID | Access Rule | Name | Data Type | Value Hex |
|---|---|---|---|---|
| 3 | Get/Set | Data | ARRAY of one BYTE | 0x00 to 0x03<br><br>000000xx * binary |

Common Services - (**Instance #32**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x10 | Set_Attribute_Single | Modifies the contents of the specified attribute |
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

## * Format of Assembly Object, Instance #32 (2-Point Output), Attribute #3 (Data)

| Byte Number | Bit Number | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | DO 2 | DO 1 |

## Mapping of Assembly Object, Instance #32 (Static Outputs), Attribute #3 (Data), (See Class 09, Discrete Output Point Object)

| Bit Name | Class | | Instance | Attribute | |
|---|---|---|---|---|---|
| | Name | Number | Number | Name | Number |
| DO 1 | Discrete Output Point | 9 | 1 | Value | 3 |
| DO 2 | Discrete Output Point | 9 | 2 | Value | 3 |

Class=4, Instance=33, Attribute=3

Assembly Object **Instance #33** Attributes
(Instance #33 is type: 4-Point Output, and is used only when the device has 4 outputs. See instance #32 for devices with 2 outputs.)

| Attribute ID | Access Rule | Name | Data Type | Value Hex |
|---|---|---|---|---|
| 3 | Get/Set | Data | ARRAY of one BYTE | 0x00 to 0x0F<br><br>0000xxxx * binary |

Common Services - (**Instance #33**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x10 | Set_Attribute_Single | Modifies the contents of the specified attribute |
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

## * Format of Assembly Object, Instance #33 (4-Point Output), Attribute #3 (Data)

| Byte Number | Bit Number | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 0 | 0 | 0 | 0 | 0 | DO4 | DO3 | DO 2 | DO 1 |

## Mapping of Assembly Object, Instance #33 (Static Outputs), Attribute #3 (Data)), (See Class 09, Discrete Output Point Object)

| Bit Name | Class | | Instance | Attribute | |
|---|---|---|---|---|---|
| | Name | Number | Number | Name | Number |
| DO 1 | Discrete Output Point | 9 | 1 | Value | 3 |
| DO 2 | Discrete Output Point | 9 | 2 | Value | 3 |
| DO 3 | Discrete Output Point | 9 | 3 | Value | 3 |
| DO 4 | Discrete Output Point | 9 | 4 | Value | 3 |

## *Connection Object Class Code: 05(0x05)*

Connection Object **Class** Attributes

Implementation is based on revision 01 , Attributes are not supported

Common Services - (**Class**)

Services are not supported

There are two instances of the Connection Object in the device.
Instance #1 is assigned to the explicit messaging connection.
Instance #2 is assigned to the Polled I/O connection.
The tables below show the attributes and the predefined values where applicable.

Class=5, Instance=1, Attribute=1-17

Connection Object **Instance #1** Attributes
(Explicit Message Connection – Instance #1)

| Attr. ID | Access Rule | Name | Data Type | Value |
|---|---|---|---|---|
| 1 | Get | State | USINT | 0x00 0x03 or 0x05 |
| 2 | Get | instance_type | USINT | 0x00 (0 is explicit) |
| 3 | Get | transportClass_trigger | BYTE | 0x83 (server class3) |
| 4 | Get | produced_connection_id | UINT | 10x xxxx x011 binary<br>x xxxx x source –slave MacID |
| 5 | Get | consumed_connection_id | UINT | 10x xxxx x100 binary<br>x xxxx x destination-slave MacID |
| 6 | Get | initial_comm_characteristics | USINT | 0x21<br>(0x20 - Produce Group2 Msg.)<br>(0x01 - Consume Group 2 Msg.) |
| 7 | Get | produced_connection_size | UINT | 0x0007 (not fragmented Msg.) |
| 8 | Get | consumed_connection_size | UINT | 0x0007 (not fragmented Msg.) |
| 9 | Get/Set | expected_packet_rate | UINT | Application Dependent |
| 10 | N/A | N/A | N/A | Not Used |
| 11 | N/A | N/A | N/A | Not Used |
| 12 | Get/Set | watchdog_timeout_action | USINT | 0x01 (Auto Delete- default)<br>0x03 (Deferred Delete ) |
| 13 | Get | produced_conn_path_length | UINT | 0x0000 (default) |
| 14 | Get | produced_connection_path | Array USINT | <NULL><br>(always empty for explicit) |
| 15 | Get | consumed_conn_path_length | UINT | 0x0000 (default) |
| 16 | Get | consumed_connection_path | Array USINT | <NULL><br>(always empty for explicit) |
| 17 | Not Supp. | Production_inhibit_timer | UINT | (Server devices do not use this timer) |

Common Services - (**Instance #1** )

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |
| 0x10 | Set_Attribute_Single | Modifies the contents of the specified attribute |
| 0x05 | Reset | Reset Inactivity/Watchdog Timer, if connection is in “deferred delete” state changes to “established” state. |

Class=5, Instance=2, Attribute=1-17

Connection Object **Instance #2** Attributes
(Poll I/O connection - Instance #2)

| Attr. ID | Access Rule | Name | Data Type | Value |
|---|---|---|---|---|
| 1 | Get | State | USINT | 0x01 0x03 or 0x04 |
| 2 | Get | instance_type | USINT | 0x01 (1 is poll I/O) |
| 3 | Get | transportClass_trigger | BYTE | 0x82 (server class2) |
| 4 | Get | produced_connection_id | UINT | 011 11xx xxxx binary<br>xx xxxx source -slave MacID |
| 5 | Get | consumed_connection_id | UINT | 10x xxxx x101 binary<br>x xxxx x destination-slave MacID |
| 6 | Get | initial_comm_characteristics | USINT | 0x01<br>(0x00 - Produce Group1 Msg.)<br>(0x01 – Consume Group 2 Msg.) |
| 7 | Get | produced_connection_size | UINT | 0x0001 |
| 8 | Get | consumed_connection_size | UINT | 0x0001 |
| 9 | Get/Set | expected_packet_rate | UINT | Application Dependent |
| 10 | N/A | N/A | N/A | Not Used |
| 11 | N/A | N/A | N/A | Not Used |
| 12 | Get | watchdog_timeout_action | USINT | 0x00 (Time Out- default for I/O) |
| 13 | Get | produced_conn_path_length | UINT | 0x0006 |
| 14 | Get | produced_connection_path | STRUCT of | 0x20.0x04.0x24.0x04.0x30.0x03 |
| | | | | fields---------explaination---------- |
| | | segment type . format | USINT | 0x20 logical.classID.8bit address |
| | | value(logical.classID.8bit) | USINT | 0x04 (Class 4 - Assembly) |
| | | segment type .format | USINT | 0x24 logical.instanceID.8bit addr |
| | | value(logical.instanceId.8bit) | USINT | 0x04 (Instance #4 - 8 Inputs) |
| | | segment type . format | USINT | 0x30 logical.attributeID.8bit addr |
| | | value(logical.attributeId.8bit) | USINT | 0x03 (Attribute 3 - Data) |
| 15 | Get | consumed_conn_path_length | UINT | 0x0006 |
| 16 | Get | consumed_connection_path | STRUCT of | 0x20.0x04.0x24.0x21.0x30.0x03 |
| | | | | fields---------explaination---------- |
| | | segment type . format | USINT | 0x20 logical.classID.8bit address |
| | | value(logical.classID.8bit) | USINT | 0x04 (Class 4 - Assembly) |
| | | segment type .format | USINT | 0x24 logical.instanceID.8bit addr |
| | | value(logical.instanceId.8bit) | USINT | 0x21 (Instance #33 - 4 Outputs) |
| | | segment type . format | USINT | 0x30 logical.attributeID.8bit addr |
| | | value(logical.attributeId.8bit) | USINT | 0x03 (Attribute 3 - Data) |
| 17 | Not Supp. | Production_inhibit_timer | UINT | (Server devices do not use this timer) |

Common Services - (**Instance #2**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |
| 0x10 | Set_Attribute_Single | Modifies the contents of the specified attribute |
| 0x05 | Reset | Reset Inactivity/Watchdog Timer, if connection is in "Timed Out" state changes to "Established" state. |

## *Discrete Input Point Object Class Code: 08(0x08)*

Class=8, Instance=0, Attribute=1,2,6,7

Discrete Input Point Object **Class** Attributes

| Attribute ID | Access Rule | Name | Data Type | Description | Value |
|---|---|---|---|---|---|
| 1 | Get | Revision | UINT | Revision of this object | 0x0002 |
| 2 | Get | Max Instance | UINT | Max. instance created | 0x0008 |
| 6 | Get | Max ID of Class Attr. | UINT | Last attribute ID of Class | 0x0007 |
| 7 | Get | Max ID of Instance Attr. | UINT | Last attribute ID of Instance | 0x0003 |

Common Services - (**Class**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

Class=8, Instance=1,2,3,4,5,6,7,8, Attribute=3

Discrete Input Point Object **Instance #1 to Instance #8** Attributes

| Attribute ID | Access Rule | Name | Data Type | Description | Value |
|---|---|---|---|---|---|
| 3 | Get | Value | BOOL | Input Point Value<br>(Instance=1, DI 1)<br>(Instance=2, DI 2)<br>(Instance=3, DI 3)<br>(Instance=4, DI 4)<br>(Instance=5, DI 5)<br>(Instance=6, DI 6)<br>(Instance=7, DI 7)<br>(Instance=8, DI 8) | 0=Off<br>1=On |

Common Services - (**Instance #1 to Instance #8**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

## *Discrete Output Point Object Class Code: 09(0x0A)*

Class=9, Instance=0, Attribute=2

Discrete Output Point Object **Class** Attributes

| Attribute ID | Access Rule | Name | Data Type | Description | Value |
|---|---|---|---|---|---|
| 2 | Get | Max Instance | UINT | Max. instance created | 0x0004 |

Common Services - (**Class**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

Class=9, Instance=1,2,3,4, Attribute=3,5,7,8,10

Discrete Output Point Object **Instance #1 to Instance #4** Attributes

| Attr ID | Access Rule | Name | Data Type | Description | Value |
|---|---|---|---|---|---|
| 3 | Get/Set | Value | BOOL | Output Value during normal operation<br>(Instance=1, DO 1)<br>(Instance=2, DO 2)<br>(Instance=3, DO 3)<br>(Instance=4, DO 4) | 0=Off<br>1=On |
| 5 [9] | Get/Set | Fault Action | BOOL | Action taken on Output upon entering recoverable Fault state | 0=Change to Fault Value<br>1=Keep at Last Value (not used) |
| 6 [9] | Get/Set | Fault Value | BOOL | Fault value<br>(used when Attribute 5=0) | 0=Turn Output Off<br>1=Turn Output On (not used) |
| 7 [9] | Get/Set | Idle Action | BOOL | Action taken on Output upon entering Idle state | 0=Change to Idle Value<br>1=Keep at Last Value (not used) |
| 8 [9] | Get/Set | Idle Value | BOOL | Idle value<br>(used when Attribute 7=0) | 0=Turn Output Off<br>1=Turn Output On (not used) |
| 10 [9] | Get/Set | Flash | BOOL | Flash Output at periodic rate when output state is "ON" | 0=Do not Flash Output<br>1=Flash Output (not used) |

Common Services - (**Instance #1 to Instance #4**)

| Service Code (Hex) | Service Name | Description of service |
|---|---|---|
| 0x10 | Set_Attribute_Single | Modifies the contents of the specified attribute |
| 0x0E | Get_Attribute_Single | Returns the contents of the specified attribute |

[9] The Default Attributes Values as shown are implemented but are not visible or changeable, this is required for proper behavior of all instances of that class.