User's Guide

DeviceNet™

DN-IDS16

Rev. B.0

HURON NETWORKS

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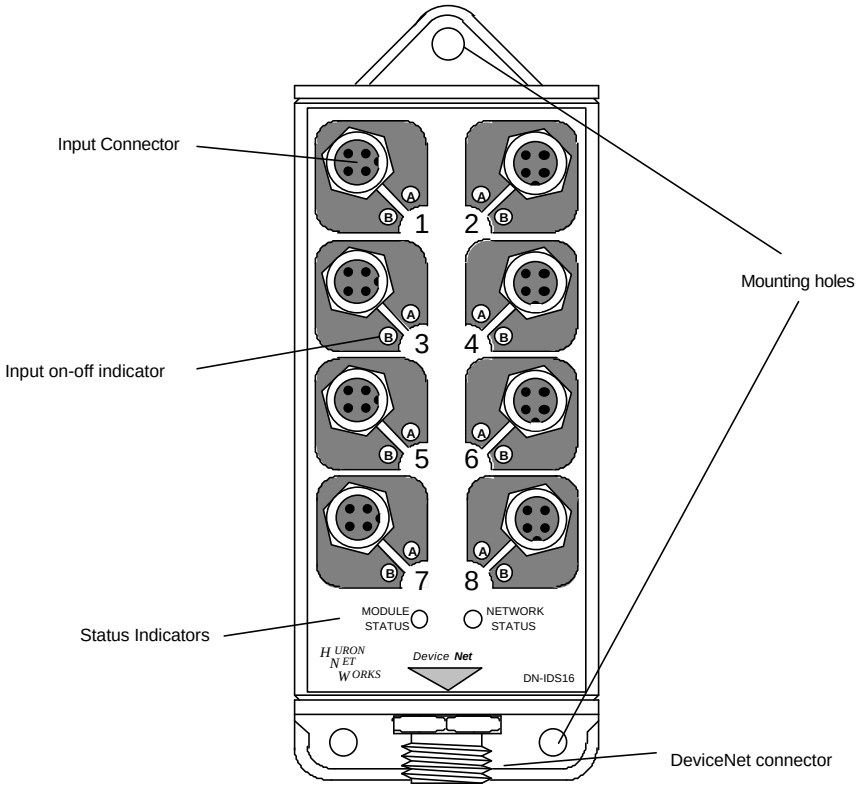
1. INTRODUCTION

The DN-IDS16 provides a convenient method of DeviceNet™ attachment and multiplexing of up to 16 different input devices such as proximity sensors, photo-electric sensors, limit switches, and other DC input devices. This provides an extremely low cost networking solution for such devices. The rugged construction allows the use of the DN-IDS16 in harsh environments without the need for expensive enclosures and cord grips. The micro-style (12M) connectors on the inputs and the mini-style (18M) DeviceNet connector allow for quick and easy system installation, troubleshooting, and sensor replacement.

The DN-IDS16 is fully powered by the DeviceNet network, so that no separate power supply is required. The network power is also used to provided power for sensors via the input connectors. Sensor power is turned off if overloaded. Power is automatically restored when the overload is removed. An overload indication is provided both on the Module Status LED as well as over the network.

Each input on the DN-IDS16 will automatically accept either sourcing (PNP) or sinking (NPN) output devices without configuration. This allows any mix of standard 3-wire 24 VDC sensors. On-off indication is provided for each of the inputs for local verification and diagnostics.



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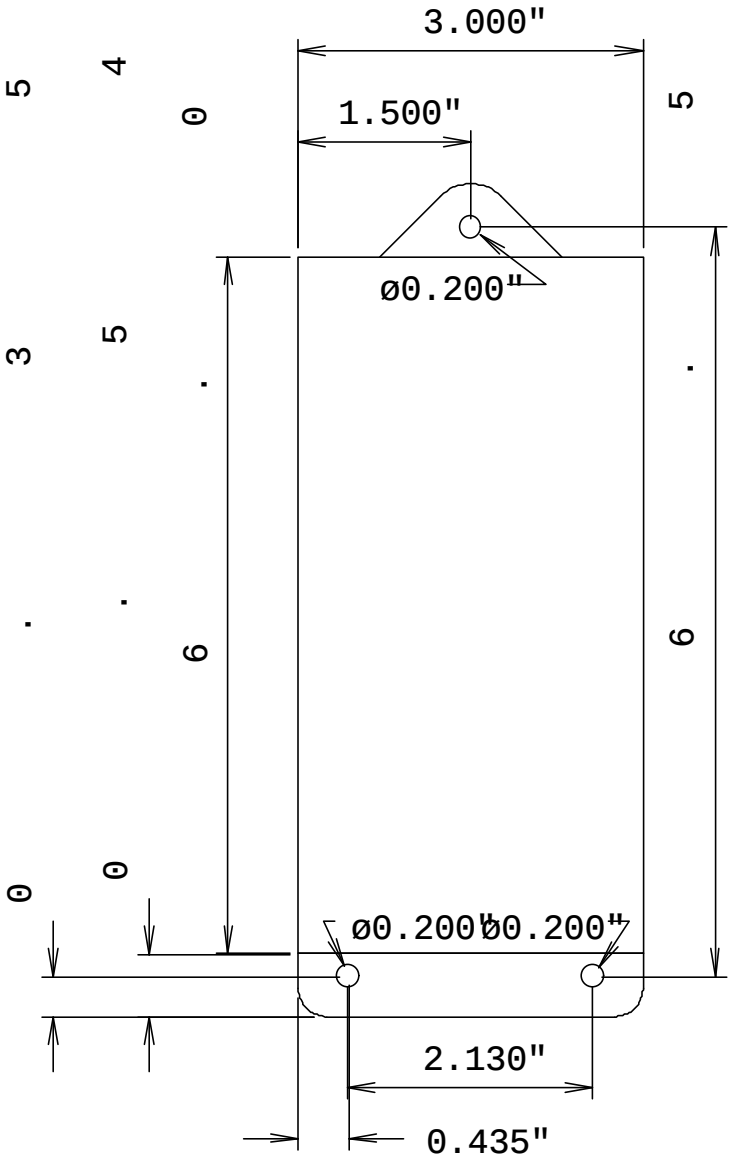
2. INSTALLATION

2.1. Mounting

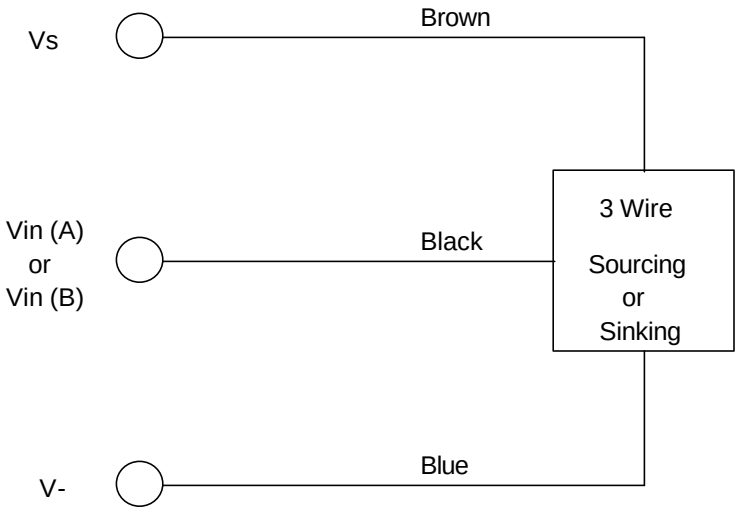
The DN-IDS16 outline and mounting hole dimensions are shown below



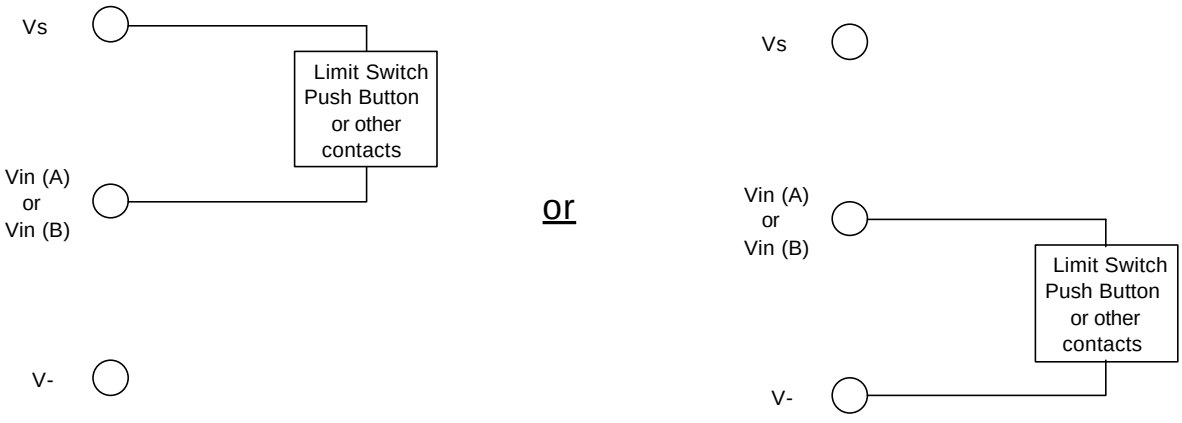
2.2. Wiring

Either pre-molded cordsets or field installed connectors can be used on either the input or the DeviceNet connectors.

Wiring for 3-Wire Sourcing (PNP) or Sinking (NPN) Devices:



Wiring for simple contact closure, limit switches, and push buttons:

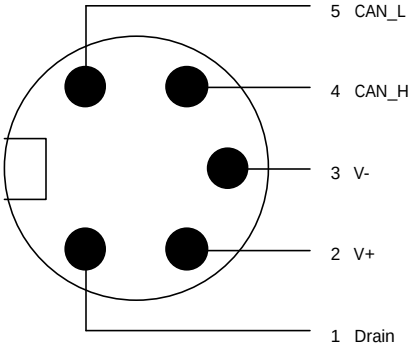


Since the V- input is connected to V- of the DeviceNet network, no local connection should be made to earth ground. If a grounded sensor is to be attached, external ground isolation should be added.

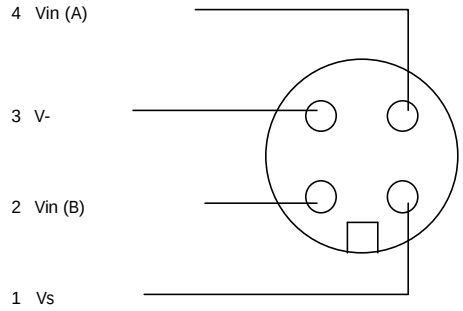
The DN-IDS16 may be attached to the DeviceNet network in any manner consistent with the DeviceNet Specification.

2.3. Connector Pin Out

The connector pin-outs are as follows:



DeviceNet Connector Pinout



Input Connector Pinout

3. CONFIGURATION

To configure the node address, or MAC ID, and the data rate, or baud rate, of the Device Net connection, a separate DeviceNet configuration tool is required. Several tools are available which will work and can be found via the Open DeviceNet Vendors Association (ODVA). The factory default values are 63 for the node address and 125 Kbaud for the data rate. Any modification of these values should be done before the DN-IDS16 is connected to the DeviceNet network. After the node address has been changed the DN-IDS16 will re-start. This can be observed on the Module and Network Status LEDs. The use of a newly set data rate will not happen until network power to the DN-IDS16 is removed and then re-applied.

4. SPECIFICATIONS

Overall Dimensions	
Width	3.00 in.
Length	7.24
Depth	1.95
Mounting flange thickness	0.188 in.
Weight	12 oz.
Environmental	
Operating temperature range	0 to 60 C
Storage temperature range	-20 to 85 C
Humidity	5 to 95% RH non-condensing
DeviceNet	
Data rates & configuration	125, 250, 500 set over network non-volatile storage factory default =125
Node address & configuration	0 to 63 set over network non-volatile storage factory default =63
Connector	5 pin mini male
Indicators	Module Status Network Status
Bus power consumption (not including sensor current)	140 ma max.
Protocol capabilities*	Group 2 only slave with Polled I/O and Explicit Messaging
Device type	0 (Generic)
Inputs	
Sensor supply (Vs) voltage	11 to 25 VDC (follows V+ on DeviceNet)
Sensor supply (Vs) current	60 ma max. each connector
On/Off threshold voltage for sourcing (PNP) devices	Vin = 2/3 Vs (min.) see input model
On/Off threshold voltage for sinking (NPN) devices	Vin = 1/3 Vs (max.) see input model

* For a more complete discription for the DN-IDS16 protocol capabilities see the DN-IDS16 Device Profile, Publication # 2200022. See below for Polled I/O message content.

Polled I/O Message Content:

There are zero bytes contained in the Poll Request Message. The Poll Response contains three bytes. The inputs are mapped into the Poll request bytes as shown below. A zero(one) indicates that the input is off(on). The fault bit is zero when there is no fault. If any of the sensor supply signals (Vs) becomes shorted to V-, the fault bit will become 1 and the Module Status will flash red. This condition will remain until the short or overload is removed.

Byte	7	6	5	4	3	2	1	0
0	8A	7A	6A	5A	4A	3A	2A	1A
1	8B	7B	6B	5B	4B	3B	2B	1B
2	0	0	0	0	0	0	0	fault

Input Model: