Functional Description

DeviceNet™

DN-A101

Rev. A.0

HURON NETWORKS

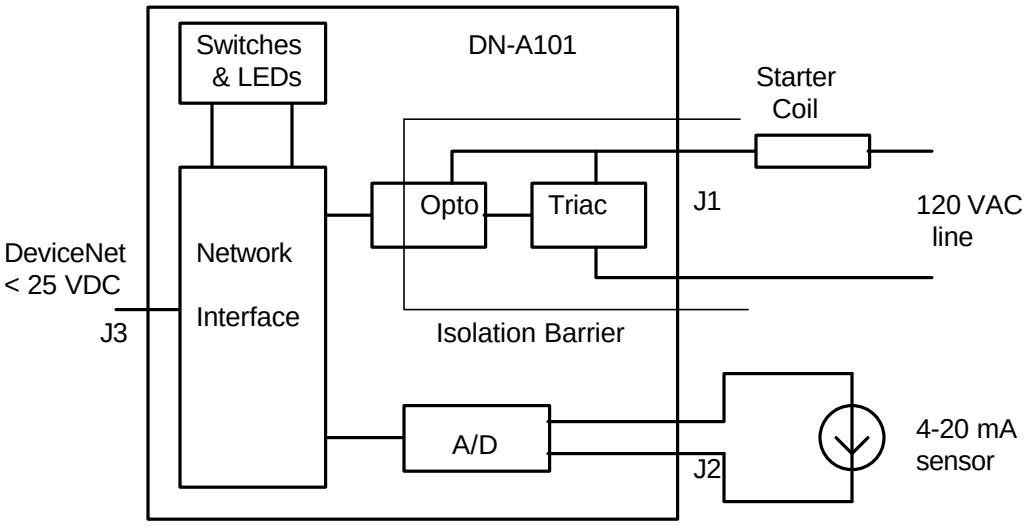
771 Airport Boulevard, Suite 2, Ann Arbor, Michigan 48108 Phone: (734) 995-2637 Fax: (734) 995-2876

1. INTRODUCTION

The DN-A101 is a DeviceNet interface module for a combination starter. It is designed specifically for use with Allen-Bradley bulletin 512 starters, but can be used with any motor starter with a 120 VAC coil.

An opto-isolated 120 VAC output switch is provided to control the starter coil. A 4-20 mA input is available for use with analog sensors for current or temperature. The DeviceNet bus power (11 - 25 VDC) is used for powering the input and network interface circutiry.

A block diagram of the module is shown below.



2. INSTALLATION

2.1. Mounting

Refer to DN-A101 mechanical drawings

DeviceNet is a trademark of ODVA.

2.2. Connector Wiring

Wiring to the combination starter should be done according to the manufacturers literature. J1-1 is wired to the starter coil. J1-3 is wired to the AC return.

Wiring to a 4-20 current loop sensor should be done according to the manufacturers literature. J2-1 is the positive terminal which sources protected loop power at DeviceNet bus voltage. J2-2 is connected to the internal load.

The DN-A101 may be attached to the DeviceNet network in any manner consistent with the DeviceNet Specification. The pluggable screw terminal connector provided allows a simple removable connection to the network.

Pinning for the DeviceNet connector, as well as for the input and output connectors, are labeled on the module.

3. CONFIGURATION

To configure the node address, or MAC ID, and the data rate, or baud rate, of the Device Net connection, the on-board DIP switch can be used, or a separate DeviceNet configuration tool can be used to program these values over the network. The DIP switch is labeled on the module indicating which switches are used for baud rate, and which are used for MAC ID. The binary value of the switches defines these values. For programming over the network, The baud rate switches must be set to a binary “11”. In this setting the unit will accept and store its baud rate and MAC ID. 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 module is connected to the DeviceNet network. After the node address has been changed the module will re-start. This can be observed on the Module/Network Status LEDs. The use of a newly set data rate will not happen until network power to the module is removed and then re-applied.

4. SPECIFICATIONS

Overall Dimensions	
Width	3.28 in.
Length	6.2 in.
Depth	1.14 in.
Weight	10 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 via DIP switch or over the network. Non-volatile storage factory default =125
Node address & configuration	0 to 63 Set via DIP switch or over the network. Non-volatile storage factory default =63
Connector	5 pin pluggable screw terminal
Indicators	Module/Network Status LED
Bus power consumption (not including sensor current)	30 ma avg. (receive) 80 ma max. (xmit)
Protocol capabilities*	Group 2 only slave with Polled I/O, and Explicit Messaging
Device type	0 (Generic)
Analog Input	
Type	4-20 mA current loop
Loop power source	protected DeviceNet bus voltage (11-25 VDC)
Load impedace	250 Ohms
Resolution	8 bits proportional to current Full scale = 20 mA
AC Output	
Voltage	120 VAC
Current	0.6 A RMS 6 A peak surge - 1 cycle @ 60 Hz

* For a more complete description for the DN-A101 protocol capabilities see the DN-A101 Device Profile, Publication # 2200066. See below for I/O message content.

I/O Message Content:

There is 1 byte contained in the Poll Request Message. The I/O Response also contains one byte. The output is mapped into the Poll Request byte and the input is mapped into the I/O Response byte as shown below. A zero(one) in the Poll Request bit 0 indicates that the input is to be turned off(on). The value of the A/D conversion is represented in the Poll Response byte

Poll Request format (outputs)

Byte	7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0	output

I/OResponse format (inputs)

Byte	7	6	5	4	3	2	1	0
0	AD7	AD6	AD5	AD4	AD3	AD2	AD1	AD0