Di80

SMART I/O™

DESCRIPTION

The Di80 is a digital I/O controller that provides 8 channels of optically isolated inputs or optically isolated transistor outputs.

Each I/O channel has an input and output circuit wired in parallel. Each channel is software configured to be an input or output without the use of hardware jumpers. Jumpers are available to disconnect the input circuitry for controlling low-current loads.

When used as an output, each channel can drive up to 1A at 40Vdc. The outputs are open-collector/emitter so they can be used as source-drive or sink-drive. An external power supply is used which can be different voltage than the node's power supply.

When used as an input, each channel requires 5 mA of current to drive the inputs at 24V. The inputs work with multiple types of sensors such as closed contact/open-collector (sink-driving) sensors or open-emitter (source-driving) type sensors.

Di80 modules are protected from reverse power supply wiring, over-voltages, and transients, and other common events, which can damage unprotected circuits.

APPLICATIONS

- Access Control
- Lighting
- Energy Management
- I/O Expansion
- Custom Applications

EXAMPLE WIRING DIAGRAM

IMPORTANT WIRING INFORMATION

1) Power supply input should always be properly earth grounded to provide reliable communication and sensor readings.
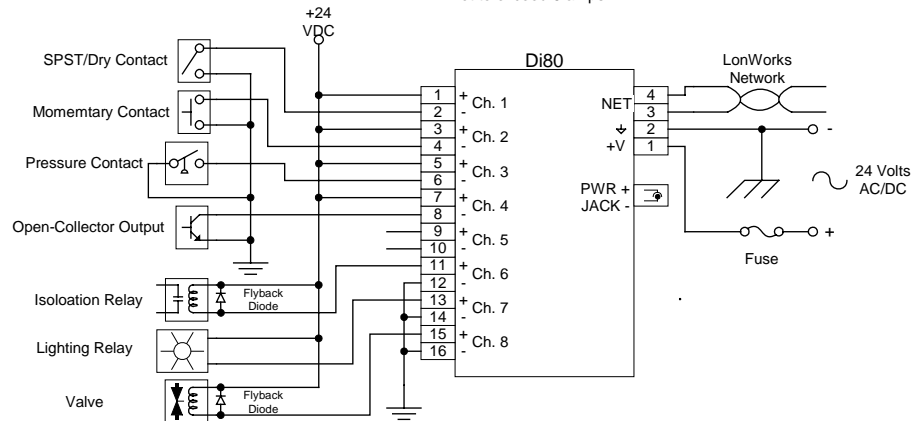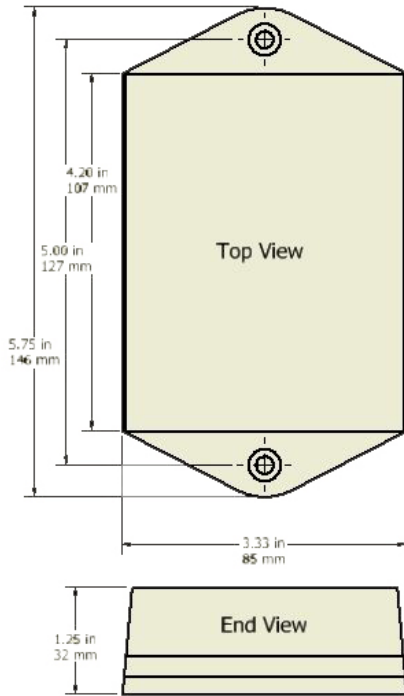2) External fuse not supplied. Size fuse according to application load and not to exceed 6 amps.

FEATURES

- LonTalk Protocol
- Free Topology Communication
- 8 channels of software selectable optically isolated digital inputs or open collector outputs
- Simple software and jumper settings for independent input or output channel configuration
- 64K byte FLASH Memory
- Enclosure includes flanges for each mounting.
- Pluggable connectors.
- Factory loaded with expansion I/O application
- Fully programmable
- 2 Year Limited Warranty

SELECTION GUIDE

S-Di80-F-E

STANDARD, Application Specific or Custom Programmable, 56k Flash Memory

DIMENSIONS

Top View

4.20 in
107 mm

5.00 in
127 mm

5.75 in
146 mm

3.33 in
85 mm

End View

1.25 in
32 mm

SPECIFICATIONS

General
Communication:	LONTALK™ Protocol
Transceiver:	TP/FT-10, Free Topology
Processor:	NEURON FT 3150 @ 5 MHz
Memory:	64K bytes FLASH Chip
	2K bytes SRAM (Neuron)
	0.5K bytes EEPROM (Neuron)

Power
Nominal Input Voltage:	24 VAC or VDC
Power Jack Input:	100mA,
	barrel postive, pin ground
Input Voltage Range:	8-28 VAC or 11-35 VDC
Maximum Consumption:	2 VA, does not include I/O loading

Environmental
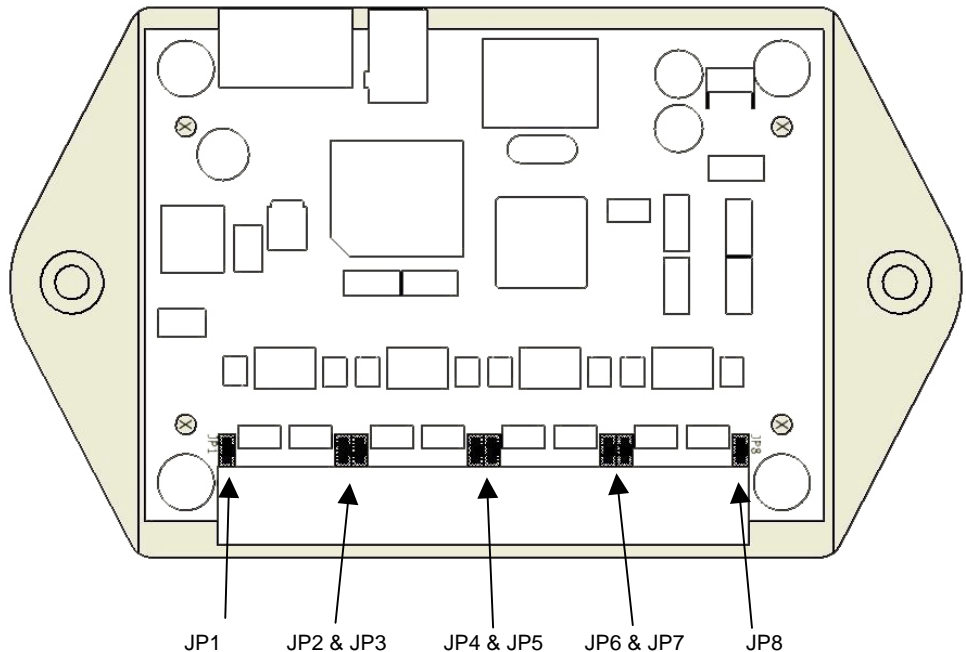|	
Operating Temperature:	-40 °C to +70 °C, -40 °F to 158 °F
Storage Temperature:	-40 °C to +85 °C, -40 °F to 185 °F
Relative Humidity:	10% to 90% (non-condensing)

Warranty
Period:	2 Years (Limited)

Inputs (Software Configurable - Default)
Number:	8
Digital:	Dry Contact, Open-Collector
Protection Circuitry:	Transient Over voltage, ESD

Outputs (Software Configurable)
Number:	8
Type:	Open Drain Sink Only
	1.0 A max @ 24 VDC
Protection Circuitry:	ESD

Enclosure
Dimensions:	L 146 x W 86 x H 32 mm
	(5.75" x3.33" x 1.25")
Cover:	High Impact ABS, UL94-HB rated
Base:	High Impact ABS, UL94-HB rated

CONTACT

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OPTION JUMPER SELECTION

JP1   JP2 & JP3   JP4 & JP5   JP6 & JP7   JP8
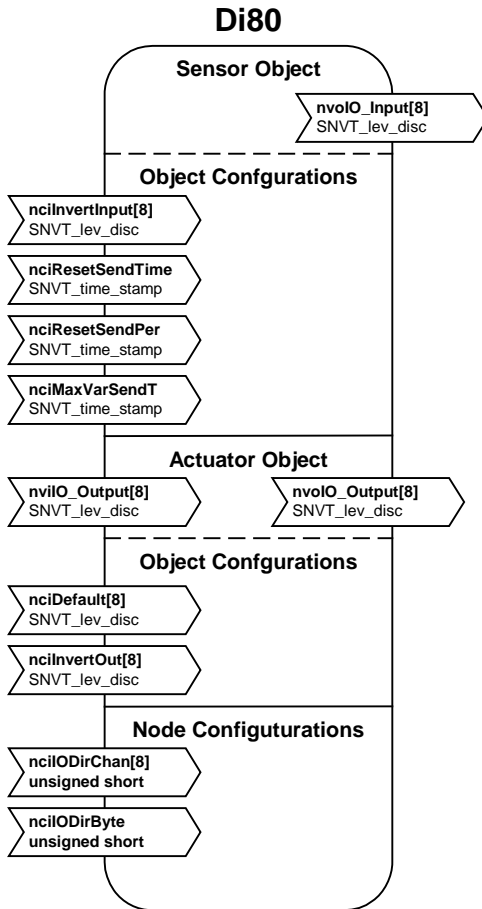
Each channel has a jumper that is used to connect the input circuit to the I/O connector. When the jumper is placed across the two pins the channel is set as an input. When the jumper is removed or left parked on one pin the channel is set as an output. JP1 corresponds to channel 1, JP2 to channel 2 and so on. The factory default setting is an input for all channels.

NETWORK VARIABLES

Di80

Sensor Object

nvoIO_Input[8]
SNVT_lev_disc

Object Confgurations

nciInvertInput[8]
SNVT_lev_disc

nciResetSendTime
SNVT_time_stamp

nciResetSendPer
SNVT_time_stamp

nciMaxVarSendT
SNVT_time_stamp

Actuator Object

nviIO_Output[8]
SNVT_lev_disc

nvoIO_Output[8]
SNVT_lev_disc

Object Confgurations

nciDefault[8]
SNVT_lev_disc

nciInvertOut[8]
SNVT_lev_disc

Node Configuturations

nciIODirChan[8]
unsigned short

nciIODirByte
unsigned short

nvoIO_Inputs[8] (*SNVT_lev_disc*): Values from hardware I/O (physical) inputs to be sent to another node: ST_ON for active (current flowing), ST_OFF for deactive (current not flowing).

nciInvertInput[8] (*SNVT_lev_disc*): Inverts the polarity of nvoIO_Input when set to a value other than ST_OFF.

NciResetSendTime (*SNVT_time_stamp*): The time to elapse after a reset before starting to broadcast the nvoIO_Input. Variables are sent one at a time with separation period nciResetSendPer. Disabling this variable will cause the node to look to nciMaxVarSendT for periodic reporting. Disabled by setting minute, second, and millisecond fields of the structure to zero. Day and Hour fields are ignored.

NciResetSendPer (*SNVT_time_stamp*): Provided that nciResetSendTime is NOT disabled, this is the period used in sending nvoIO_Input for the first time after a reset. The first time after a reset, nciResetSendPer is used, and nciMaxVarSendT is used thereafter. Disabling this variable causes them to be sent as fast as the Neuron is able. Disabled by setting minute, second, and millisecond fields of the structure to zero. Day and Hour fields are ignored.

NciMaxVarSendT (*SNVT_time_stamp*): This is the time between broadcasting nvoIO_Input[x] for each channel onto the network AFTER handling broadcasts due to nciResetSendTime and nciResetSendPer. Disabled by setting either 'nciMaxVarSendT.day = 65535' or all elements of the structure to zero.

nviIO_Output[8] (*SNVT_lev_disc*): Values received to control hardware outputs: ST_ON for on (current flowing), ST_OFF for off (blocking current).

nvoIO_OutputFb[8] (*SNVT_lev_disc*): Follows the states of the output. NOTE: The value is NOT affected by nciInvertOut[x].

nciDefault[8] (*SNVT_lev_disc*): Outputs will be set to this state after reset or power-up.

nciInvertOut[8] (*SNVT_lev_disc*): When ST_ON, the value sent to the physical outputs is inverted.

nciIODirChan[8] (*unsigned short*): I/O direction with an array index for each channel. 0 = input, 1 = output. Hardware outputs will momentarily turn off while the internal hardware directions are configured.

NciIODirByte (*unsigned short*): I/O direction as a byte that represents all 8 channels. LSB (bit 0) = channel 1, MSB (bit 7) = channel 8. 0 = input, 1 = output. Hardware outputs will momentarily turn off while the internal hardware directions are configured.