Di161

SMART I/O™

DESCRIPTION

The Smart I/O™ Di161 programmable controller incorporates 16 channels of cost effective digital inputs. The inputs are monitored and controlled by a Neuron 3150 chip with Free Topology communication over a LonWorks® network. The Di161 controller can be utilized in many custom or fixed distributed control applications.

The inputs of the Di161 make it perfect for a variety of monitoring applications. The wide operating temperature range, -20 to 70 °C, makes the Di161 well suited for many demanding applications.

The sixteen signal-isolated digital inputs can be used for a variety of functions such as alarms inputs, switch inputs, occupancy sensor inputs, or any other dry contact or open-collector input. The factory default application provided with the Di161 controller allows simple and easy monitoring of dry contact or similar digital inputs.

User defined algorithms and functions can be programmed using VisualControl™, NodeBuilder, LonBuilder or other third party LONWORKS programming tools. The application program can be downloaded over the free topology network and is stored in FLASH non-volatile memory so it is retained even after loss of power.

The Di161 controller is protected from reverse power supply input wiring, over-voltages, transients, and other common electrical events that can damage unprotected inputs.

The enclosure snaps right onto a 35mm DIN-rail for quick and easy mounting. The spring-loaded latching mechanism on the base plate allows for easy removal of the controller from a DIN rail.
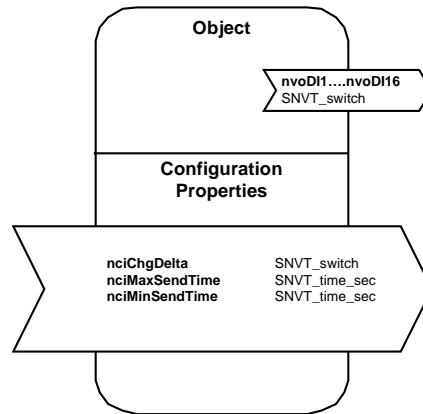
APPLICATIONS

- Pulse Metering
- Central Plant
- Access Control
- Security Contacts
- Push-Button Monitoring
- Lighting
- Alarming
- Digital Status
- Equipment Monitoring
- Production line Monitoring
- Custom Applications

FEATURES

- LonTalk Protocol
- Free Topology Communication (FTT-10)
- 16 digital inputs for dry contact or open-collector monitoring
- FLASH Memory
- DIN-rail mounting
- Compact Size for Minimal Panel Space
- Fully programmable
- 2 Year Limited Warranty

Application

Digital Input Monitor

Object

nvoDI1….nvoDI16
SNVT_switch

Configuration Properties

nciChgDelta	SNVT_switch
nciMaxSendTime	SNVT_time_sec
nciMinSendTime	SNVT_time_sec

nvoDI1….nvoDI16 (*SNVT_switch*): Value and state of the digital input (dry contact). Contact open is logic low (value = 0, state = 0) and contact closed is logic high (value = 200, state = 1).

nciChgDelta (*SNVT_switch*): Minimum change in Value or State to send an output update. A value of zero (0) will send an output update at the Minimum Send Time rate. The Minimum Send Time must expire before a change in output Value and State is updated. The Change on Delta controls all output network variables equally. The default Value and State is 100, 1 for a change on open (0) to close (1) or close (1) to open (0). Either or both quantities can be used to set the Change on Delta.
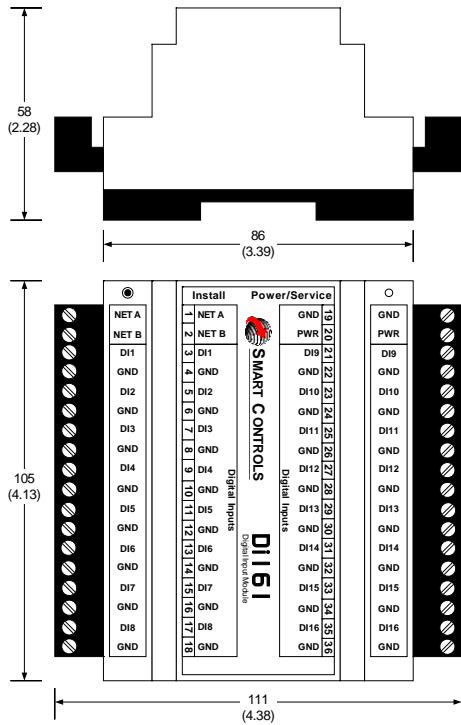
nciMaxSendTime (*SNVT_time_sec*): Defines the maximum period of time between output updates, regardless of the input value or minimum send time. This provides a heartbeat mechanism. The maximum send time controls all output network variables equally. To disable this input set to 0. The default time is 0 seconds, disabled.

SELECTION GUIDE

S-Di161P-F-B

- B - 56K Flash Memory Only
- F - Free Topology Communication (78Kb)
- P - Plug Connector
- S - Programmable Memory

DIMENSIONS

58 (2.28)

86 (3.39)

105 (4.13)

111 (4.38)

SMART CONTROLS

DI161
Digital Input Module

Digital Inputs | Digital Inputs

| Install | Power/Service |

NET A (1), NET B (2), DI1 (3), GND (4), DI2 (5), GND (6), DI3 (7), GND (8), DI4 (9), GND (10), DI5 (11), GND (12), DI6 (13), GND (14), DI7 (15), GND (16), DI8 (17), GND (18)

GND (19), PWR (20), DI9 (21), GND (22), DI10 (23), GND (24), DI11 (25), GND (26), DI12 (27), GND (28), DI13 (29), GND (30), DI14 (31), GND (32), DI15 (33), GND (34), DI16 (35), GND (36)

SPECIFICATIONS

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

Power
Nominal Input Voltage:	24 VAC
Input Voltage Range:	21-28 VAC or 21-39 VDC
Maximum Consumption:	6 VA

Environmental
Operating Temperature:	-20 °C to +70 °C, -4 °F to 158 °F
Storage Temperature:	-40 °C to +70 °C, -40 °F to 158 °F
Relative Humidity:	5% to 95% (non-condensing)

Inputs
Number:	16
Digital:	Dry Contact,
	Open-Collector
	(12V, sink 6 mA)
Protection Circuitry:	Transient Over voltage, ESD

Enclosure
Dimensions:	L 105 x W 86 x H 58 mm
	(4.13" x 3.39" x 2.28")
Cover:	Lexan 940, UL94-V0 rated
Base:	Noryl VO1550, UL94-V0 rated

Warranty
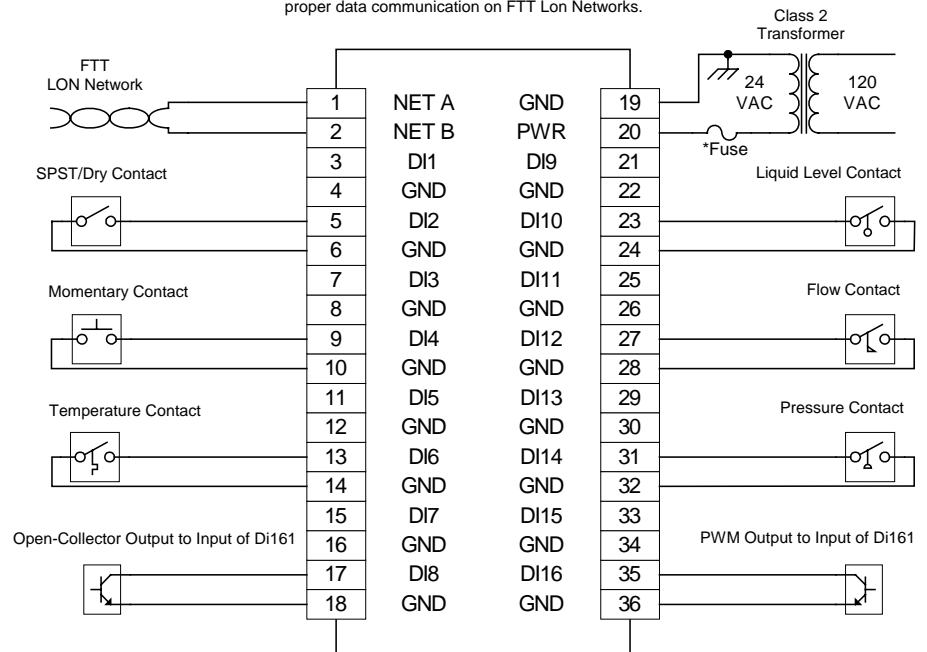|	
Period:	2 Years (Limited)

OPTION JUMPER SELCETIONS

There are no option jumpers on the Di161 that require jumpers for selection.

EXAMPLE WIRING DIAGRAM

IMPORTANT WIRING INFORMATON

1) Secondary of Class 2 transformer should always be earth grounded to provide reliable communication and input readings.

2) *External fuse not supplied. Size fuse according to application load and not to exceed 5 Amps.

3) Twisted-pair unshielded cable with proper wire gauge and termination should be used to maximize distance and provide proper data communication on FTT Lon Networks.

1	NET A	GND	19
2	NET B	PWR	20
3	DI1	DI9	21
4	GND	GND	22
5	DI2	DI10	23
6	GND	GND	24
7	DI3	DI11	25
8	GND	GND	26
9	DI4	DI12	27
10	GND	GND	28
11	DI5	DI13	29
12	GND	GND	30
13	DI6	DI14	31
14	GND	GND	32
15	DI7	DI15	33
16	GND	GND	34
17	DI8	DI16	35
18	GND	GND	36

FTT LON Network

SPST/Dry Contact

Momentary Contact

Temperature Contact

Open-Collector Output to Input of Di161

Class 2 Transformer — 24 VAC / 120 VAC

*Fuse

Liquid Level Contact

Flow Contact

Pressure Contact

PWM Output to Input of Di161

DI1, DI3, DI5, DI7, DI9, DI11, DI13, DI15 are not connected to any device in this example.

Document Number: 37-0256, ver. 1.1.0

CONTACT

SMART CONTROLS

Office:
10000 St. Clair Avenue
Fairview Heights, IL 62208
U.S.A.
Phone: 618-394-0300
Fax: 618-394-1575

E-mail:
sales@smartcontrols.com

Web site:
www.smartcontrols.com