



**PULSAFEEDER
DIGITAL INPUT NODE (NDIG)**

INSTALLATION & OPERATION MANUAL

SERIAL #: _____

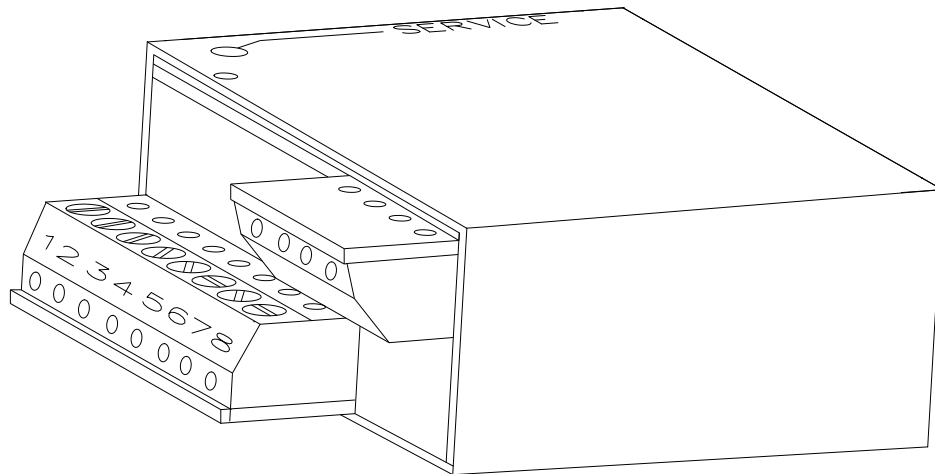


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PULSAblue NDIG

1 Introduction

NDIG

The Model NDIG Node is a LONWORKS[®]-compatible node that uses twisted pair communications. It accepts four digital inputs which can be tied into most 3300/3400 Series controllers. Up to two NDIG nodes may be installed on the 3300/3400 Series controller for a total of eight digital inputs.

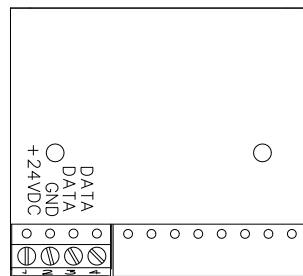
<p>NOTE: To use the NDIG with a 3300/3400 Series controller it must have the NIN option and contain Rel 98 Firmware. All controllers shipped after 1 June 98 will have Rel 98 firmware.</p>

Additional water meters and relay outputs.

After a NDIG is installed, not only will you be able to view external digital inputs you will also be available to control relays based on the external input. In addition the first node of the possible two that can be installed allows you to configure input 1 and 2 for water meters.

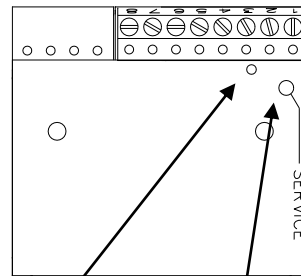
Specifications

Inputs	Four digital inputs. Channels one and two may be used as water meter inputs. Contacting head or open collector type meters may be used.
Network wiring distance	400 meters from furthest node
Power	24 VDC



Network and Power connections

Connection to NIN and other nodes as well as 24 VDC.



Service Light

Indicates status.

Service Pin

Installs node on network.

1.1 INSTALLATION

1.1.1 Checking

Inspect the shipping carton for obvious external damage. Note on the carrier's bill-of-lading the extent of the damage, if any, and notify the carrier. Save the shipping carton until your Node is started up.



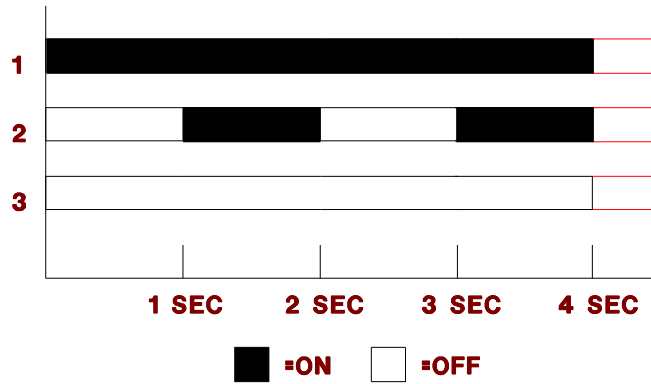
If shipping damage has occurred, call the Pulsafeeder Customer Service Department at (800) 333-6677 and return the controller to the factory in the original carton.

1.1.2 Connections

The NIN option is required on the 3300/3400 Series controller for the NDIG to operate. The NIN option provides power and two way communications to the NDIG. Refer to the drawings in the back of this manual for wiring details.

1.1.3 Service Light

The service light is used for installation of the node and for troubleshooting. Below is a chart of what the service light might indicate during operation.



Behavior	Description	Resolution
1	Bad Node	Replace Node
2	Node is unconfigured,	Install Node
3	Node is running normally	none
3	Node does not have power	Check power supply

Light will also be on while the service button is pressed.

1.2 Operation with 3300/3400 Series Controllers

Before it can be used, the NDIG must be installed into the software of the controller.

Under the **Main Menu**,

```

MAIN MENU
=====
3 CALENDAR TIMER
4 ALARMS
5 WATER METERS
6 4-20 MA OUTPUTS
7 SYSTEM SETUP
8 CLOCK
  
```

highlight **SYSTEM SETUP**, then press **ENT**. You should see the following screen:

```

SYSTEM SETUP
=====
1 PROCESS PARAMETERS
2 INITIALIZATION
3 DIGITAL INPUTS
4 FIRMWARE VERSIONS
5 SECURITY
  
```

6 DIAGNOSTICS
7 COMMUNICATIONS
8 NODE INSTALLATION

Highlight **NODE INSTALLATION**, then press **ENT**. You should see the following screen:

NODE INSTALLATION
=====

1 INSTALL A NEW NODE
2 DE-INSTALL A NODE

Highlight **INSTALL A NEW NODE**, then press **ENT**. You should see the following screen:

INSTALL A NEW NODE
=====

1 RELAYS 5-8
2 RELAYS 9-12
3 MAKEUP COND
4 REMOTE SENSOR
5 REMOTE SENSOR
6 REMOTE SENSOR
7 REMOTE SENSOR
8 ANOLOG INPUTS (4)
9 ANOLOG INPUTS (4)
10 DIGITAL INPUTS (4)
11 DIGITAL INPUTS (4)

Select which node to install.

NOTE: YOU MUST ASSIGN YOUR NDIG TO DIGITAL INPUTS (4).

The following screen should appear:

PRESS SERVICE PIN

PRESS ANY KEY

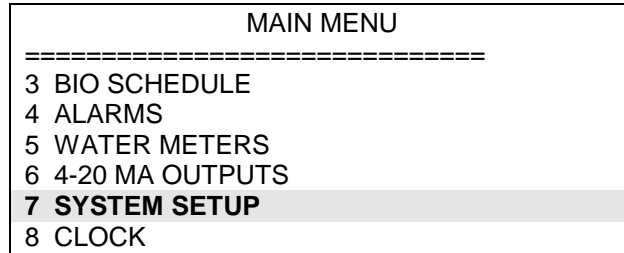
Momentarily press the Service Pin on the node to be installed. The Service Light should turn on while the Service Pin is pressed. After the Service pin is released press any key on the key pad and the node will be installed.

1.3 CONFIGURATION

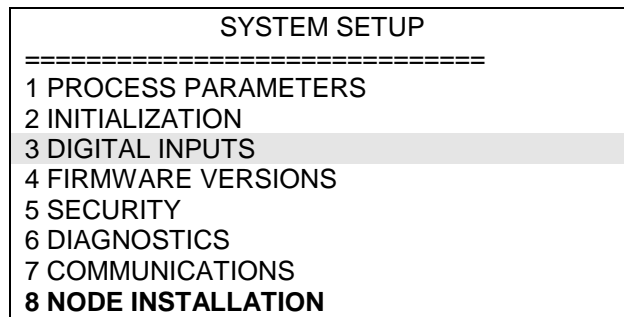
Configuration of Node

For the NDIG to work properly with different sensors it must be configured properly.

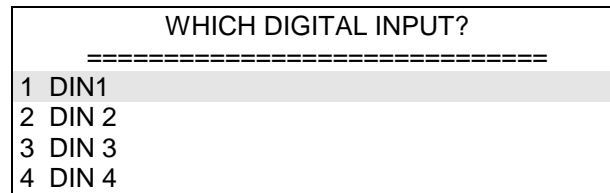
Under the **Main Menu**,



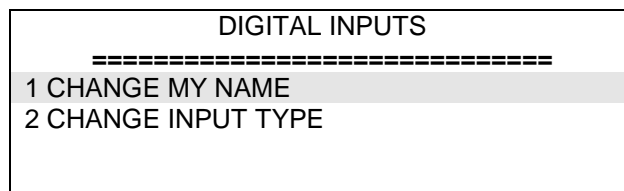
Highlight **SYSTEM SETUP**, then press **ENT**. You should see the following screen:



Highlight **DIGITAL INPUTS**, then press **ENT**. You should see the following screen:



Highlight the appropriate input and press **ENT**. You should see the following screen:



You may change the name of the input to be something other than DIG1. To do this select CHANGE MY NAME then press **ENT**.

OLD NAME=
DIN1

NEW NAME=
DIN1

Use the ↑ or ↓ keys to change the character. Press **ENT** to go to the next character.

DIGITAL INPUTS
=====

- 1 CHANGE MY NAME
- 2 CHANGE INPUT TYPE

Highlight **CHANGE INPUT TYPE** and press **ENT**. You should see the following screen:

CHANGE INPUT TYPE
=====

- 1 *ALARM INPUT
- 2 WATER METER

Highlight **ALARM INPUT** and press **ENT**. You will see the following screen:

ALARM INPUT

The digital input is configured to be an Alarm Input.

To configure for water meter input do the following:

CHANGE INPUT TYPE
=====

- 1 *ALARM INPUT
- 2 WATER METER

Highlight **WATER METER** and press **ENT**. You will see the following screen:

WATER METER

The digital input is configured to be a water meter input. Refer to your 3300/3400 Series instruction manual for configuring the water meter input.

1.3.1 Configuration of Node with Relays

The NDIG can be used to control relays in the 3300/3400 Series controller or the NRLY node.

Under the **Main Menu**,

```

                MAIN MENU
            =====
1 PROCESS
2 RELAYS
3 BIO SCHEDULE
4 ALARMS
5 WATER METERS
6 4-20 MA OUTPUTS
7 SYSTEM SETUP
8 CLOCK

```

highlight **RELAYS**, then press **ENT**. You should see the following screen:

```

                WHICH RELAY?
            =====
1 BLOW
2 RLY2
3 RLY3
4 RLY4

```

Highlight the appropriate relay , then press **ENT**. You should see the following screen:

```

                RLY2
            =====
1 DISABLE
2 SETPOINT
3 WATER METER
4 PERCENT BLOWDOWN
5 PERCENT OF TIME
6 CALENDAR TIMER
7 ALARM RELAY
8 CHANGE MY NAME
9 SCHEDULE LOCKOUT?

```

Highlight **ALARM RELAY** , then press **ENT**. You should see the following screen:

```

                WHICH ALARMS
            =====

```


- 1 CONTROLLER
- 2 RELAYS 5-8
- 3 RELAYS 9-12
- 4 MAKEUP COND
- 5 REMOTE SENSOR
- 6 REMOTE SENSOR
- 7 REMOTE SENSOR
- 8 REMOTE SENSOR
- 9 ANOLOG INPUTS (4)
- 10 ANOLOG INPUTS (4)
- 11 DIGITAL INPUTS (4)
- 12 DIGITAL INPUTS (4)

Highlight the appropriate Input , then press **ENT**. You should see the following screen:

- WHICH ALARMS?
=====
- 1 DIN1: CONTACT CLOSE
 - 2 DIN2: CONTACT CLOSE
 - 3 DIN3: CONTACT CLOSE
 - 4 DIN4: CONTACT CLOSE

Highlight the appropriate input, then press **ENT**. You should see a * placed next to the chosen input. Press **ENT** to remove the *. You may select any combination of inputs to actuate the relay.

1.4 Maintenance and Technical Service

1.4.1 Technical Service

Your PULSAblue is a state of the art microprocessor based controller. If you are experiencing a problem with your process control instrument, first consult the troubleshooting guide in this manual. If the problem is not covered or cannot be solved, contact Technical Services for assistance:

PULSAFEEDER INC. (SPO)
27101 AIRPORT ROAD

PUNTA GORDA, FL 33982

941-575-3800

Trained technicians are available to diagnose your problem and arrange a solution. Solutions may include purchase of replacement parts or returning the controller to the factory for inspection and repair. All returns require a Return Authorization number to be issued by Pulsafeeder. Parts purchased to correct a warranty issue may be credited after an examination of original parts by Pulsafeeder. Warranty parts returned as defective which test good will be sent back freight collect. No credit will be issued on any replacement electronic parts.

Any modifications or out-of-warranty repairs will be subject to bench fees and costs associated with replacement parts.

Warranty

Pulsafeeder, Inc. warrants control systems of its manufacture to be free of defects in material or workmanship. Liability under this policy extends for 24 months from date of shipment. Electrodes/probes are considered maintenance items and as such are warranted for six (6) months from the date of shipment of the controller. Electrodes/probes purchased as spare parts are warranted for 90 days from date of shipment. The manufacturer's liability is limited to repair or replacement of any failed equipment or part, which is proven defective in material or workmanship upon completion of the manufacturer's examination. This warranty does not include removal or installation costs and in no event shall the manufacturer's liability exceed the selling price of such equipment or part.

The manufacturer disclaims all liability for damage to its products through improper installation, maintenance, use, or attempts to operate such products beyond their functional capacity, intentionally or otherwise, or any unauthorized repair. The manufacturer is not responsible for consequential or other damages, injuries, or expense incurred through the use of its products.

The above warranty is in lieu of any other warranty, whether expressed or implied. The manufacturer makes no warranty of fitness or merchantability. No agent of ours is authorized to provide any warranty other than the above.