

## Nexus Base Wireless System Quick Start Guide



**CAUTION: Never operate without antenna.**

To avoid damaging the radio circuitry, never power up radios without an antenna. Also, *never* attach or remove an antenna while powered.

### 1. Connecting Controller Output to Gateway Inputs

If a controller was included with the initial assembly/installation, the station outputs of the controller will be pre-wired to the Gateway inputs via the relay module. If not, follow the steps listed below:

#### A. Conventional Wire Systems (24VAC Station Outputs) – Refer to Figure 1

- i. Connect the station output(s) from the controller to the input terminal(s) of the relay module. Stations 1-6 are used in the example shown in Figure 1.
- ii. Connect the COMMON from the controller to the common terminal of the relay. A six (6) input relay module is pictured in Figure 1. The output is pre-wired to the inputs of the wireless Gateway.

**NOTE:** The Nexus Base system supports up to six inputs/stations. Only the first six inputs on the relay module are to be used.

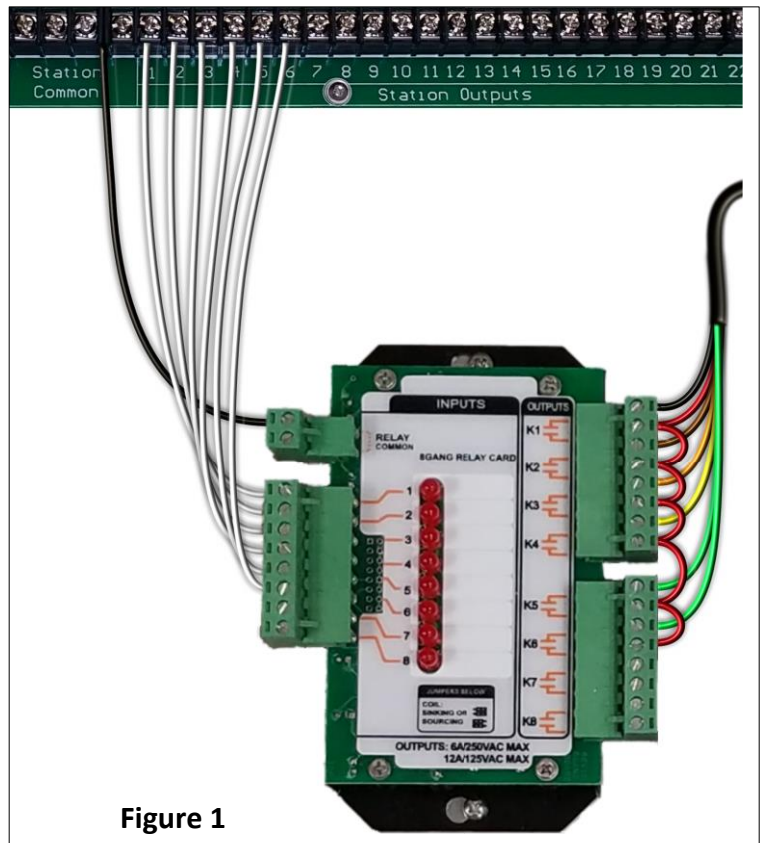
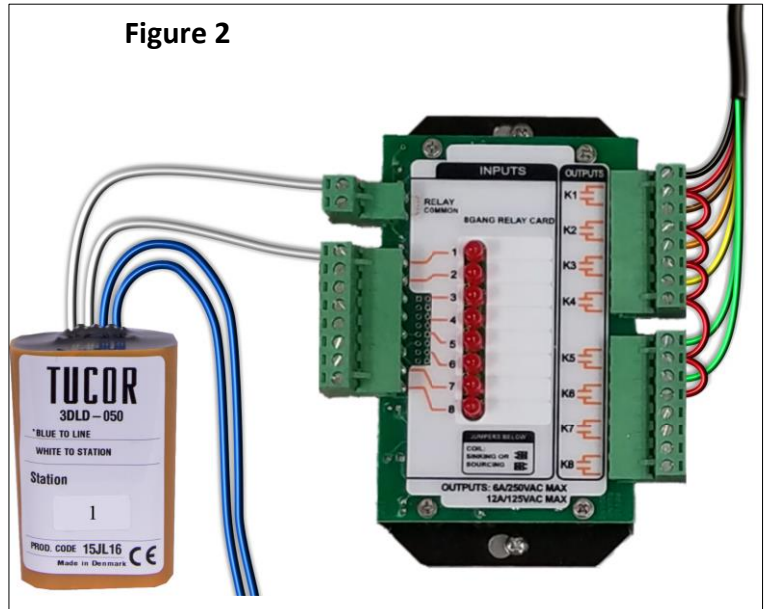


Figure 1

## B. Two-Wire Systems (Decoder Outputs)

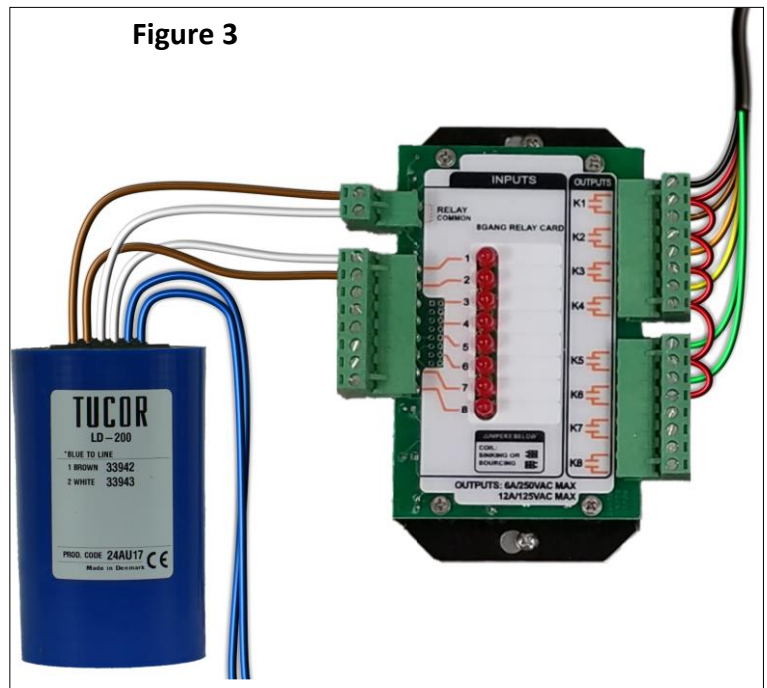
### i. Single-Station Decoder (Tucor P/N: 3D/RK/LD-050)– Refer to Figure 2

- a. Connect one of the decoder's output wires to an input terminal on the relay module.
- b. Connect the other output wire to the COMMON terminal on the relay module.



### ii. Multi-Station Decoder (Tucor P/N: LD-200/400/600) – Refer to Figure 3

- a. Connect one of the decoder's station output wires to an input terminal on the relay module.
- b. Connect the other wire from the same station to the COMMON terminal on the relay module.



### iii. Relay Output Board (Tucor P/N: \*NEW/TBD) – Refer to Figure 1

- Connect to the input terminals of the relay module using the instructions for conventional wire systems.

## 2. Apply Power

All Gateways and Receiver radios (except integrated battery powered) operate using 12-24 VDC. When powered-on, the green (left) LED will remain illuminated on all external-powered radios. The LEDs on radios with integrated batteries will flash according to the status of the radio. Refer to Section 3 for additional information.

### A. Gateway

#### i. Mains Power/Hardwired

- Supply 100-240 VAC 50/60 Hz to the AC/DC power supply.

### B. Receiver / Wireless Valve Radio (WVR)

#### i. Integrated Battery (3.6 VDC)

- Press & hold the left (#1) button for approx. 4 seconds until green LED illuminates.

#### ii. Mains Power/Hardwired

- Supply 100-240 VAC 50/60 Hz to the AC/DC power supply.

#### iii. Solar Power

- a. Connect a 12-24 VDC battery to the battery terminals of a solar charge controller.
- b. Connect the output from a 12-24 VDC solar panel to the charge controller.
- c. Connect the output of the charge controller to the power terminals of the radio.

## 3. Verify Communications

Refer to the table below for LED status information. When testing, verify radios are at least 6 feet (2 meters) apart or communications may fail.

LED 1	LED 2	Status
 Green ON, then  Green flashing		Run Mode
 Green flashing		Synchronized with Gateway
 Red solid		Gateway detected, searching for others
	 Yellow solid	Selecting suitable Gateway
	 Yellow flashing	Transmitting data
	 Red solid	Synchronizing with Gateway

#### 4. Conduct a Site Survey

Before fully securing the radios in their final location, verify signal strength and quality against the original field survey results. The results must be equal or better than the results recorded during the initial survey to maintain the factory warranty. Poor signal quality and strength dramatically affect battery life.

- A. Remove the rotary dial access cover.
- B. To check the status of Node (Receiver) 1, change the Gateway's right rotary dial to 1.
- C. The Gateway is now enabled to read the status of Node 1; the display scrolls through the Receiver's I/O status.
- D. Single-click button 1 to scroll across the menu levels until reaching the Site Survey (SITE) menu.
- E. Single-click button 2 to enter the Site Survey menu.
- F. Single-click button 2 to begin conducting a Site Survey with the Receiver selected in step B.
- G. Examine reception readings (M, R, Y, G) of the Gateway at various locations.

The Gateway analyzes the quality of the signal from the selected Receiver by counting the number of data packets it receives from the Node.

Site survey results display as a percentage. M represents the percent of missed packets while R, Y, and G represent the percent of received packets at a given signal strength. During the survey, press button #2 to pause/resume auto-scrolling the results. While paused, button #1 advances through the four signal strength categories:

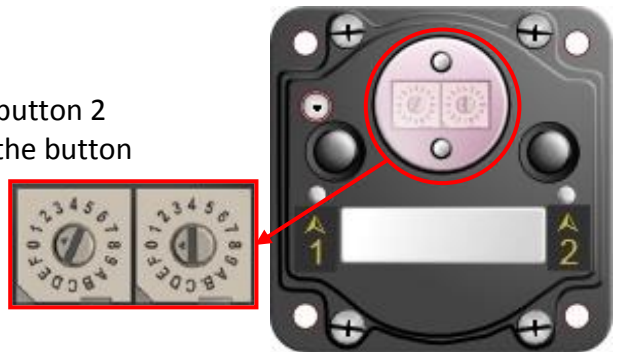
G/Grn = GREEN – excellent signal
Y/Ylw = YELLOW – good signal
R/Red = RED – marginal signal
M/Mis = MISSED – number of packets not received

- H. To conduct a Site Survey with another Receiver, change the Gateway's right rotary dial and repeat steps above.
- I. To end the Site Survey, double-click button 2.
- J. Change the Gateway's right rotary dial back to 0. The LCD displays the device readings for the Gateway.
- K. Double-click button 2 to move back to the top-level menu.
- L. Single-click button 1 to return to RUN mode.
- M. Install the rotary dial access cover.

## 5. Bind Radios

Binding (pairing) ensures the Wireless Data Radios only exchange data within their wireless network. Each radio must be bound and have a unique Radio ID communicate properly. All Receivers shipped with a Gateway will be pre-bound from the factory – no further action is required. If a replacement is required or additional radios are added to the network, perform the following actions:

- A. Apply power to the Gateway and Receivers.
- B. Enter binding mode on the Gateway.
  - If you have a two-button Gateway, triple-click button 2
  - If you have a one-button Gateway, triple-click the button
  - If you have a Gateway with no buttons, remove the rotary dial access cover and set both the right and left rotary dials to 0, then set both the right and left rotary dials to F.



The LEDs flash alternately when the Gateway is in binding mode. Any Receiver entering binding mode will bind to this Gateway.

- C. Enter binding mode on the Receiver.
  - If you have a two-button Receiver, triple-click button 2.
  - If you have a one-button Receiver, triple-click the button.
  - If you have a Receiver with no buttons, remove the top cover and set both the left and right rotary dials to F to enter binding mode.

The Receiver enters binding mode and locates the Gateway in binding mode.

For two LED models, the red LEDs flash alternately. After binding is complete, both LEDs are both solid red for a few seconds.

For one-LED models, the red and green LED flashes alternately while the Receiver searches for the Gateway. After binding is complete, the LED is red and green for four seconds (looks amber), then the red and green flash simultaneously (looks amber) four times.

The Receiver automatically exits binding mode, cycles its power, then enters RUN mode.

- D. Use the Receiver's rotary dials to assign a valid decimal Node Address (between 01 and 47). The left rotary dial represents the tens digit (0 through 4) and the right dial represents the ones digit (0 through 9) of the Node Address.
- E. Repeat steps 2 and 3 for all Receivers that will communicate to this Gateway.
- F. Exit binding mode on the Gateway.
  - If you have a two-button Gateway, single-click either button.
  - If you have a one-button Gateway, single-click the button.
  - If you have a Gateway with no buttons, change the Gateway's rotary dials to a valid Network ID.

Valid Network IDs are 01 through 32, in decimal, established using the rotary dials. The left dial may be set to 0, 1, 2, or 3. The right dial may be set from 0 to 9 when the left dial is at 0, 1, or 2; or set to 0 through 2 when the left dial is at 3. (Positions A through F are invalid network ID numbers.)

***For additional support, please contact Tucor directly:  
1-800-272-7472***

***www.tucor.com***