

**ALLIED ELECTRONICS, INC**

**NeXGen Controller**

**Installation and Start Up Guide**

Generic

NeXGen-to-Tokheim



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## 1 General Information

### 1.1 Installation Environment

1. The Allied Electronics NeXGen Controller (NeXGen) operates on 115 VAC @60Hz, 36 Watts. The NeXGen controller is supplied with approximately 8 feet of 115 VAC power cord, and should be connected to an approved isolated ground receptacle on its own dedicated circuit. The NeXGen must be installed in a temperature controlled environment (between 32<sup>0</sup> F and 100<sup>0</sup> F).
2. The controller must be installed in accordance with the National Electrical Code (NFPA 70), the Automotive and Marine Service Station Code (NFPA 30A), and all state and local electrical codes.
3. The controller must be installed indoors, above the Class 1, Division 2 Hazardous location.
4. The controller is designed for use with peripheral devices which are UL Listed.

### 1.2 Wiring

#### 1.2.1 Field Wiring

All field wiring (that is, all wiring connected directly to dispensing devices) should be oil and gas resistant, as required by Paragraph 501-13 of the NEC, and should be sealed in accordance with Article 500 of the NEC.

#### 1.2.2 Internal Wiring

##### 1.2.2.1 Introduction

- a. The purpose of this section is to provide a list of installation practices that we feel are crucial to ensure error-free communications.
- b. All cabling must comply with Local, State, and Federal building codes.
- c. Data connections between the Forecourt Controller (SSC or NeXGen) are to be made with CAT-5 Cable compliant with TIA/EIA-568-B or better.
- d. Proper cable installation techniques go a long way to preventing data loss.

##### 1.2.2.2 Planning

- a. Pull cables in continuous runs.
- b. Do not splice any communications cables.
- c. Separate all cables from fluorescent lighting ballasts and neon sign transformers by at least 4 feet.
- d. Separate all cables from electrical supply conductors by at least 2 feet.
- e. Provide extra wire for service loops at the termination points but do not leave more than is required.

### 1.2.2.3 Execution

- a. Maintain the natural twist of the cable.
  - i. The cables have four pairs of twisted wires that can very easily lose their ability to reject electromagnetic interference when unraveled.
  - ii. Pay-out cable from spools so that the spool rotates.
- b. Avoid kinking and over-stressing the cable.
  - i. Kinks not only pick up interference, but can cause the jacket to chafe and internal conductors to break.
  - ii. Never exert more than 25 pounds of tension when pulling a communications cable.
- c. Provide a generous bend radius whenever the cable turns a corner.
  - i. Never bend the cable more than 90 degrees.
  - ii. Limit the bend to a 3 inch radius.
  - iii. Use a 1 pound coffee can as a guide.
- d. Support all cabling in both horizontal and vertical planes.
  - i. Unsupported horizontal cable runs, especially above drop ceilings, are problematic.
  - ii. In the event that cable trays are not available, the cabling can be secured with zip-ties, hook clips, J-hooks, or plastic coated staples provided they are spaced no greater than 2' apart.
  - iii. Do not use utility piping or drop ceiling grid-work to secure or support communications cables.
- e. Protect the cable from mechanical damage and install appropriate fire blocking whenever cables pass through floors or walls.
- f. Install carefully all zip-ties ensuring that they do not bite into the cable through excessive force.
- g. Label both ends of all cables.
- h. Use the proper punch down tool and ensure it is set properly.
  - i. Remove as little of the jacket as possible.
  - ii. Untwist the conductors as little as possible.

### 1.2.2.4 Testing

- a. Inspect thoroughly all cables for damage after they are pulled and before they are bundled or otherwise secured.
- b. Perform a continuity test of all pairs.

### 1.3 Power and Data line protection

Allied Electronics recommends that the controller be installed with the appropriate power and data line protection devices in order to protect against power surges, transients, low voltage (brown outs), and lightning.

**Note:** Due to the magnitude of power that's contained within a lightning strike it's impossible to totally eliminate the possibility of damage, but we feel with the introduction of high quality protection devices the incidence of failure can be greatly reduced.

### 1.4 Warranty

The controller has a one year parts warranty only, from date of installation, which can either be phoned in or submitted using the warranty registration card enclosed with every controller. If the start up information is not registered with our office within thirty (30) days of installation, warranty will begin from the date of shipment. Allied will warrant the controller against defects but not against physical damage or improper installation. All controllers being returned "under warranty" must be accompanied with an Allied RMA number. When calling Allied for an RMA number, you will be asked for the controller serial number, located on the base unit, and a description of the problem.

### 1.5 FCC Warning

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class "A" computing device pursuant to Subpart B of Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## 1.6 Overview

The NeXGen controller interfaces to the following devices:

### Tokheim Dispensers & DPTs

1. Tokheim dispensers via the 12 volt serial interface channels of the 12V serial interface & RS485 4-port board, which is connected to the Model 98, or 67 Interface Boxes.
2. Tokheim DPTs, Graphic displays, debit modules (TED, TDS+) and Cash acceptors via the RS-485 channel of the 12V serial interface & RS4895 4-port board. The devices will connect to the Model 69 Interface box.

### Point - Of - Sale (POS)

1. Generic PC based Point -Of -Sale Computer via an RS-232 port or Ethernet port, supporting the ANDI protocol interface.

### Tank gauge

1. Veeder-Root TLS 250, 350 & 350R or equivalent tank gauge system via an RS-232 port.
2. Any Tank Gauge system that supports the Veeder Root protocol.

### Car Wash

1. Ryko III, Ryko IV, Unitec POS 4000, Unitec/Enterlink, Unitec Portal Ti, Unitec Smart Terminal, PDQ and Kesseltronics Car Wash controllers via a fully populated RS-232 board.
2. Ryko compatible controllers

### Fuel Price Sign

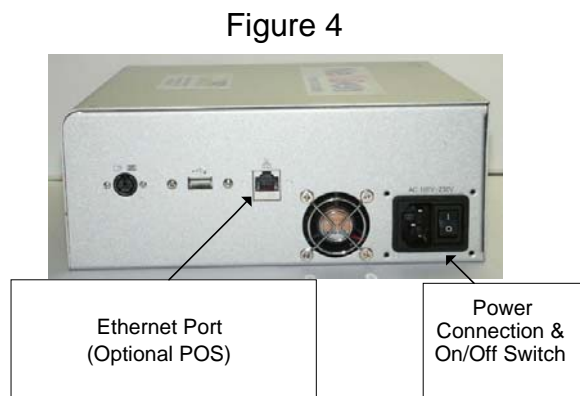
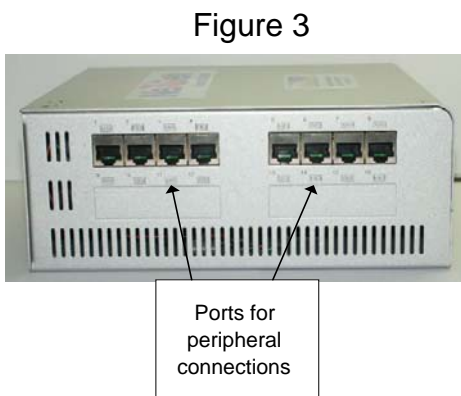
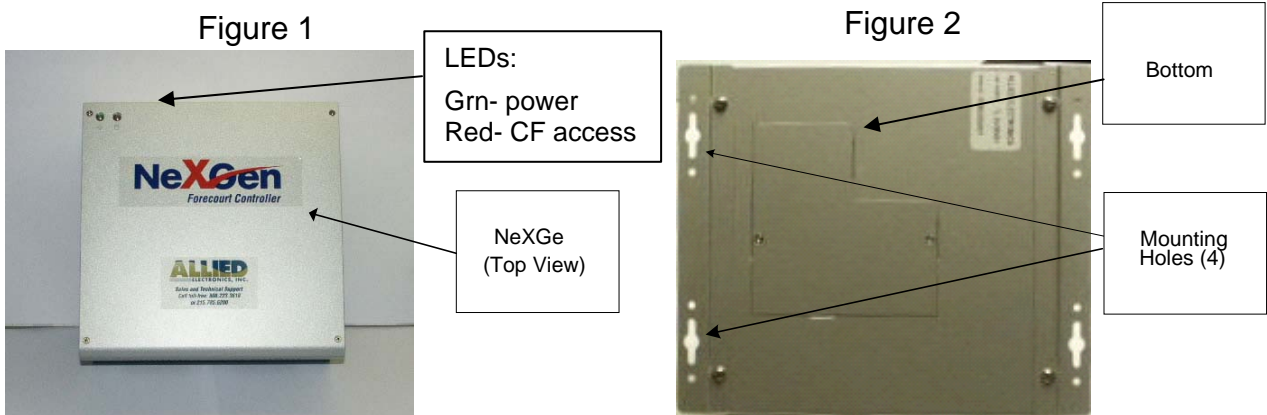
1. Daktronics, Future Media and PWM Price sign via a fully populated RS-232 board.

## 2 Installation Information

### 2.1.1 Procedures

#### 1. Hardware Installation

- a. Attach the two mounting brackets to the NeXGen controller as shown in figure 2.
- b. Mount the NeXGen controller unit to the mounting area using the mounting holes as shown in figure 2. Underwriters Laboratories (UL) requires that NeXGen be mounted horizontally to the floor on a shelf perpendicular to the wall. The bottom of the unit, with the CF access panel, should lay flat on the mounting surface. The mounting brackets secure NeXGen to the mounting surface.
- c. Route and connect all communication cables as labeled. Refer to “*Configuration Diagrams*” section (see figure 3).
- d. Apply AC power to unit by turning the power switch to the ON position (see figure 4).



## 2. Startup and System Beep Sequence

Once the NeXGen system is powered up, the controller will beep indicating the following events have been successful:

- a. One beep- the NXG operating system is starting up.
- b. Two beeps- the application software is loading.
- c. Three beeps- NXG has received an IP address from the DHCP server.

## 2. Programming steps

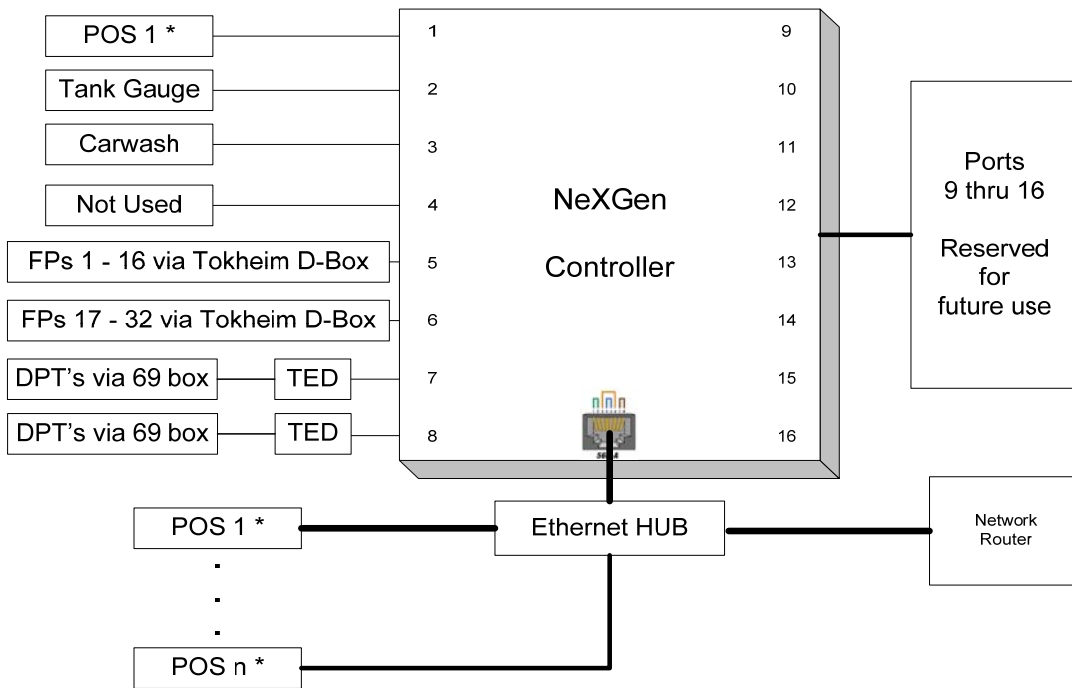
- a. Program the dispensers\*.
- b. Program the NeXGen controller via the POS\*\*.

**Note\*** - Dispenser programming is not within the scope of this manual.

**Note\*\*** - It is not within the scope of this manual to supply complete step-by-step POS programming instructions.

## 2.2 Configuration Diagram

### 2.2.1 NeXGen to Tokheim



This figure describes the NeXGen to Tokheim system installation.

\* Note: denotes alternative POS connectivity options (RS232 vs. Ethernet)

#### Communication Ports

CH 1- POS	.....	On board RS-232 port
CH 2- Tank Gauge (Optional)	.....	On board RS-232 port
CH 3- Carwash (Optional)	.....	On board RS-232 port
CH 4- Not Used or Reserved for Future Use		
CH 5- Dispenser	.....	Tokheim 12V serial interface port
CH 6- Dispenser (Optional)	.....	Tokheim 12V serial interface port
CH 7- Card Readers/ DPTs & Debit Module	...	3-wire RS485 port
CH 8- Card Readers/ DPTs & Debit Module	...	3-wire RS485 port
CH 9- TBD (Optional)	.....	Configurable Serial Port if present
CH 10- TBD (Optional)	.....	Configurable Serial Port if present
CH 11- TBD (Optional)	.....	Configurable Serial Port if present
CH 12- TBD (Optional)	.....	Configurable Serial Port if present
CH 13- TBD (Optional)	.....	Configurable Serial Port if present
CH 14- TBD (Optional)	.....	Configurable Serial Port if present
CH 15- TBD (Optional)	.....	Configurable Serial Port if present
CH 16- TBD (Optional)	.....	Configurable Serial Port if present
ETHERNET	.....	Network and POS

## 2.3 Communication Cable and RJ45 Pin Assignments

### 2.3.1 POS Communication

The NeXGen controller supports up to 8 POSs. The POS is a PC based computer which runs the Point-Of-Sale software. The serial port on the POS can be either a DB-25 or a DB-9 connector.

#### NeXGen (CH1) RJ45 adapter to POS (Serial Port, DB25)

*(Part #N9325-ADP)*

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	RJ45 Modular Jack Pins	POS DB25 Female Pins
DSR 2	----- Orange -----	2 (Org)	20 DTR
RXD 3	----- Wht/Grn -----	3 (Blk)	2 TXD
RTS 4	----- Blue -----	4 (Red)	5 CTS
TXD 5	----- Wht/Blu -----	5 (Grn)	3 RXD
CTS 6	----- Green -----	6 (Yel)	4 RTS
DTR 7	----- Wht/Brn -----	7 (Brn)	6 DSR
GND 8	----- Brown -----	8 (Wht)	7 GND

#### NeXGen (CH1) RJ45 adapter to POS (Serial Port, DB9)

*(Part #N9359-ADP)*

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	RJ45 Modular Jack Pins	POS DB9 Female Pins
DSR 2	----- Orange -----	2 (Org)	4 DTR
RXD 3	----- Wht/Grn -----	3 (Blk)	3 TXD
RTS 4	----- Blue -----	4 (Red)	8 CTS
TXD 5	----- Wht/Blu -----	5 (Grn)	2 RXD
CTS 6	----- Green -----	6 (Yel)	7 RTS
DTR 7	----- Wht/Brn -----	7 (Brn)	6 DSR
GND 8	----- Brown -----	8 (Wht)	5 GND

**2.3.2 Tokheim Dispenser Communication**

Up to two Tokheim 98 or 67 boxes may be connected on each dispenser communications Channel. Each box must have a 6-wire custom cable which terminates in a 16-position male CPC (Circular Plastic Connector).

This cable connects to CH5 or CH6 and supports up to 16 fueling positions.

**NeXGen (CH5 or CH6) RJ45 adapter to Tokheim Model 67 or 98 box**  
*(Part #N9303-ADP)*

NeXGen RJ45 Pins		CAT 5 Cable (T568B Spec.)		RJ45 Adapter Pins		Tokheim Circular Connector Pins
Signal GND 1	-----	Wht/Org	-----	1 (Blu)		<b>6 Signal GND</b>
Emergency Stop 3	-----	Wht/Grn	-----	3 (Blk)		<b>10 Emergency Stop</b>
RXD 4	-----	Blue	-----	4 (Red)		<b>3 RXD</b>
Drain 5	-----	Wht/Blu	-----	5 (Grn)		<b>16 Drain</b>
TXD 7	-----	Wht/Brn	-----	7 (Brn)		<b>2 TXD</b>
Emergency Stop 8	-----	Brown	-----	8 (Wht)		<b>11 Emergency Stop</b>

**2.3.3 Tokheim DPT Communication**

**NeXGen (CH7 or CH8) RJ45 adapter to Tokheim Model 69 box**  
*(Part #N9301-ADP)*

NeXGen RJ45 Pins		CAT 5 Cable (T568B Spec.)		RJ45 Adapter Pins		Tokheim 69 box J1 Connector Screws
Signal GND 3	-----	Wht/Grn	-----	3 (Blk)		<b>3 Signal GND</b>
RS485 (-) 4	-----	Blue	-----	4 (Red)		<b>1 RS485 (-)</b>
Drain 5	-----	Wht/Blu	-----	5 (Grn)		<b>4 Drain</b>
RS485 (+) 8	-----	Brown	-----	8 (Wht)		<b>2 RS485 (+)</b>

### 2.3.4 Tank Gauge Communication

The NeXGen uses Channel 2 to interface to a Veeder-Root or equivalent tank gauge system. Configure the tank gauge communication parameters as follows:

**Baud Rate: 9600    Parity: Odd    Stop Bits: 1    Data Bits: 7**

#### 2.3.4.1 Veeder Root TLS

On a TLS-250, the communication parameters are set using a rotary switch and DIP switches, (please refer to the TLS 250 manual).

On a TLS-350, the communication parameters are programmed via the TLS keyboard (please refer to TLS 350/350R manual).

#### NeXGen (CH 2) RJ45 adapter to the VR TLS *(Part #N9338-ADP)*

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	RJ45 Adapter Pins	TLS DB25 Male Pins
RXD 3	----- Wht/Grn -----	3 (Blk)	<b>2 TXD</b>
TXD 5	----- Wht/Blu -----	5 (Grn)	<b>3 RXD</b>
GND 8	----- Brown -----	8 (Wht)	<b>7 GND</b>

#### 2.3.4.2 Red Jacket ST

#### NeXGen (CH 2) RJ45 adapter to the Red Jacket “ST”

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	RJ45 Adapter Pins	Red Jacket DB9 Female Pins
RXD 3	----- Wht/Grn -----	3 (Blk)	<b>3 TXD</b>
TXD 5	----- Wht/Blu -----	5 (Grn)	<b>2 RXD</b>
GND 8	----- Brown -----	8 (Wht)	<b>5 GND</b>

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2.3.4.3 Omntec

NeXGen (CH 2) RJ45 adapter to the OMNTEC OEL 8000 II

NeXGen RJ45 Pins		CAT 5 Cable (T568B Spec.)		RJ45 Adapter Pins		OMNTEC DB9 Female Pins
RXD 3	-----	Wht/Grn	-----	3 (Blk)		2 TXD
TXD 5	-----	Wht/Blu	-----	5 (Grn)		3 RXD
GND 8	-----	Brown	-----	8 (Wht)		5 GND

2.3.4.4 OPW EECO

NeXGen (CH 2) RJ45 adapter to the OPW EECO #1500, 2000, 3000  
*(Part #N9396-ADP)*

NeXGen RJ45 Pins		CAT 5 Cable (T568B Spec.)		RJ45 Adapter Pins		EECO DB9 Male Pins
RXD 3	-----	Wht/Grn	-----	3 (Blk)		3 TXD
RTS 4	-----	Blue	-----	4 (Red)		8 CTS
TXD 5	-----	Wht/Blu	-----	5 (Grn)		2 RXD
GND 8	-----	Brown	-----	8 (Wht)		5 GND

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## 2.3.4.5 Incon Tank Sentinel

### NeXGen (CH 2) RJ45 adapter to the Incon Tank Sentinel

*(Part #N9389-ADP)*

<b>NeXGen RJ45 Pins</b>		<b>CAT 5 Cable (T568B Spec.)</b>		<b>RJ45 Adapter Pins</b>		<b>Incon/Comm 2 DB9 Female Pins</b>
<b>RXD 3</b>	-----	Wht/Grn	-----	3 (Blk)		<b>3 TXD</b>
<b>TXD 5</b>	-----	Wht/Blu	-----	5 (Grn)		<b>2 RXD</b>
<b>DTR 7</b>	-----	Wht/Brn	-----	7 (Brn)		<b>1 DCD</b>
<b>GND 8</b>	-----	Brown	-----	8 (Wht)		<b>5 GND</b>

**2.3.5 Car Wash Communication**

The NeXGen controller uses channel 3 to interface to the car wash controller. Six different car wash controller pinouts are listed in the section below:

- Ryko Code-A-Wash III
- Ryko Code-A-Wash IV (S/N less than 166600)
- Ryko Code-A-Wash IV (S/N 166600 or greater)
- Unitec POS 4000
- Unitec Portal Ti
- Unitec Enterlink
- Unitec Smart terminal
- Kesseltronics Standard
- Kesseltronics Advanced dual bay w/DB9 connection
- Kesseltronics Advanced dual bay w/RJ45 connection

**2.3.5.1 Ryko III and Kesseltronics Standard**

**NeXGen (CH 3) RJ45 adapter to the Ryko Code A Wash III and Kesseltronics Standard**  
*(Part #N9348-ADP)*

NeXGen RJ45 Pins		CAT 5 Cable (T568B Spec.)		RJ45 Adapter Pins		Car Wash DB9 Male Pins
RXD 3	-----	Wht/Grn	-----	3 (Blk)		<b>9 TXD</b>
TXD 5	-----	Wht/Blu	-----	5 (Grn)		<b>8 RXD</b>
GND 8	-----	Brown	-----	8 (Wht)		<b>7 GND</b>
						<b>1 CTS</b>
						<b>4 DCD</b>

**2.3.5.2 Ryko IV (S/N less than 166600), Unitec POS 4000 and Portal Ti**

**NeXGen (CH 3) RJ45 adapter to the Ryko Code A Wash IV and Unitec POS 4000**  
*(Part #N9344-ADP)*

NeXGen RJ45 Pins		CAT 5 Cable (T568B Spec.)		RJ45 Adapter Pins		Car Wash DB9 Female Pins
RXD 3	-----	Wht/Grn	-----	3 (Blk)		<b>3 TXD</b>
RTS 4	-----	Blue	-----	4 (Red)		<b>8 CTS</b>
TXD 5	-----	Wht/Blu	-----	5 (Grn)		<b>2 RXD</b>
DTR 7	-----	Wht/Brn	-----	7 (Brn)		<b>6 DSR</b>
GND 8	-----	Brown	-----	8 (Wht)		<b>5 GND</b>

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2.3.5.3 Unitec Enterlink, Smart terminal and Ryko IV (S/N 166600 or greater)

NeXGen (CH 3) RJ45 adapter to the Unitec/Enterlink  
(Part #N9352-ADP)

NeXGen RJ45 Pins		CAT 5 Cable (T568B Spec.)		RJ45 Adapter Pins		Enterlink DB9 Female Pins
RXD 3	-----	Wht/Grn	-----	3 (Blk)		3 TXD
TXD 5	-----	Wht/Blu	-----	5 (Grn)		2 RXD
GND 8	-----	Brown	-----	8 (Wht)		5 GND

2.3.5.4 PDQ

NeXGen (CH 3) RJ45 adapter to the PDQ  
(Part #N9352-ADP)

NeXGen RJ45 Pins		CAT 5 Cable (T568B Spec.)		RJ45 Adapter Pins		PDQ DB9 Female Pins
RXD 3	-----	Wht/Grn	-----	3 (Blk)		3 TXD
TXD 5	-----	Wht/Blu	-----	5 (Grn)		2 RXD
GND 8	-----	Brown	-----	8 (Wht)		5 GND

2.3.5.5 Kesseltronics Advanced dual bay via the MUX PAP isolator box

NeXGen (CH 3) RJ45 adapter to the Kesseltronics  
 “Advanced Dual bay” via MUX PAP isolator box /DB9  
 (Part #N9352-ADP)

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	RJ45 Adapter Pins	Kesseltronics ADB DB9 Female Pins
RXD 3	----- Wht/Grn -----	3 (Blk)	3 TXD
TXD 5	----- Wht/Blu -----	5 (Grn)	2 RXD
GND 8	----- Brown -----	8 (Wht)	5 GND

NeXGen (CH 3) RJ45 adapter to the Kesseltronics  
 “Advanced Dual bay” via MUX PAP isolator box /RJ45

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	Kesseltronics ADB RJ45 Pins
RXD 3	----- Wht/Grn -----	3 TXD
TXD 5	----- Wht/Blu -----	2 RXD
GND 8	----- Brown -----	4 GND

### 2.3.6 Fuel Price Sign Communication

The NeXGen controller uses an RS232 channel to interface to the Fuel Price Sign.

#### 2.3.6.1 Daktronics Fuel Price Sign

##### NeXGen (CH-RS232) RJ45 adapter to the Daktronics Fuel Price Sign (Part #N9443-ADP)

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	RJ45 Modular Jack Pins	Daktronics DB9 Female Pins
TXD 5	----- Wht/Blu -----	5 (Grn)	2 RXD
RXD 3	----- Wht/Grn -----	3 (Blk)	3 TXD
GND 8	----- Brown -----	8 (Wht)	5 GND
DSR 2	----- Orange -----	2 (Org) ]	
DTR 7	----- Wht/Brn -----	7 (Brn) ]	
RTS 4	----- Blue -----	4 (Red) ]	
CTS 6	----- Green -----	6 (Yel) ]	

#### 2.3.6.2 Future Media Displays Fuel Price Sign

##### NeXGen (CH-RS232) RJ45 adapter to the FMD Fuel Price Sign (Part #N9411-ADP)

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	RJ45 Adapter Pins	FMD DB9 Male Pins
RXD 3	----- Wht/Grn -----	3 (Blk)	2 TXD
TXD 5	----- Wht/Blu -----	5 (Grn)	3 RXD
GND 8	----- Brown -----	8 (Wht)	5 GND

#### 2.3.6.3 PWM Fuel Price Sign

##### NeXGen (CH-RS232) to the PWM Fuel Price Sign

NeXGen RJ45 Pins	CAT 5 Cable (T568B Spec.)	PWM CAT 5 Cable
DSR 2	----- Orange -----	Loop to DTR
DTR 7	----- Wht/Brn -----	Loop to DSR
RXD 3	----- Wht/Grn -----	5 TXD
RTS 4	----- Blue -----	2 CTS
TXD 5	----- Wht/Blu -----	4 RXD
CTS 6	----- Green -----	3 RTS
GND 8	----- Brown -----	1 GND

### 3 Programming

#### 3.1 Tokheim Addressing

##### 3.1.1 Tokheim Model #67 Interface boxes

Tokheim manufactures two model #67 interface boxes, model #67A and #67B. The 67B interface box must be “downgraded” to be a #67A in order for it to communicate to a NeXGen controller. The 67B interface box will not operate with any Allied interface systems.

The downgrade consists of the following changes:

1. Disconnect *J6* and *J8* from the interface motherboard (Part# 316386-1).
2. Disconnect *J3* from the interface power supply board (Part# 421483-1). This board is only in the 67B interface box.
3. *J3*, *J6* and *J8* make up a complete cable assembly. Discard the entire assembly.
4. Disconnect *J4* from the power supply board and connect it into *J6* on the motherboard.

**Note:** Once this “downgrade” is completed, the 67 box will communicate with the Allied interface.

**3.1.2 Tokheim Dispensers and DPTs**

Two Channels (5 and 6) have been designated to communicate with the Tokheim dispensers. Each Channel can accommodate up to 16 fueling positions. The address of the first fueling position on Channel 5 will be set to address “1”, the second to address “2” etc. If Channel 6 is used, the address of the first fueling position connected on this Channel will also be set to address “1”, the second to address “2” etc. See example.

Two Channels (7 & 8) have been designated to communicate with the Tokheim DPTs. The DPT device address must be the same as the fueling position number. Note: splitting the DPTs is optional in non-debit systems. It is required for Tokheim TED installations that involve greater than 16 DPTs. Each TED can only accommodate 16 DPTs. Therefore, (2) TEDs and (2) DPT channels must be used for installations of 17 – 32 DPTs.

**Example:**

Fueling Position	Fueling Positions		DPT	
	Address	NeXGen Channel	Tokheim/Address	NeXGen Channel
1	1	CH-5	1	CH-7/8
2	2	CH-5	2	CH-7/8
3	3	CH-5	3	CH-7/8
4	4	CH-5	4	CH-7/8
5	5	CH-5	5	CH-7/8
6	6	CH-5	6	CH-7/8
7	7	CH-5	7	CH-7/8
8	8	CH-5	8	CH-7/8
9	9	CH-5	9	CH-7/8
10	10	CH-5	10	CH-7/8
11	11	CH-5	11	CH-7/8
12	12	CH-5	12	CH-7/8
13	13	CH-5	13	CH-7/8
14	14	CH-5	14	CH-7/8
15	15	CH-5	15	CH-7/8
16	16	CH-5	16	CH-7/8
17	1	CH-6	17	CH-7/8
18	2	CH-6	18	CH-7/8
19	3	CH-6	19	CH-7/8
20	4	CH-6	20	CH-7/8
21	5	CH-6	21	CH-7/8
22	6	CH-6	22	CH-7/8
23	7	CH-6	23	CH-7/8
24	8	CH-6	24	CH-7/8
25	9	CH-6	25	CH-7/8
26	10	CH-6	26	CH-7/8
27	11	CH-6	27	CH-7/8
28	12	CH-6	28	CH-7/8
29	13	CH-6	29	CH-7/8
30	14	CH-6	30	CH-7/8
31	15	CH-6	31	CH-7/8
32	16	CH-6	32	CH-7/8

### 3.1.3 Tokheim Blending Dispensers

#### Variable Blenders

The NeXGen interfaces to the following types of Tokheim variable blenders:

- Premier Multi hose, multi product blender
- Single hose, multi product blender
- Single hose, multi product + diesel blender

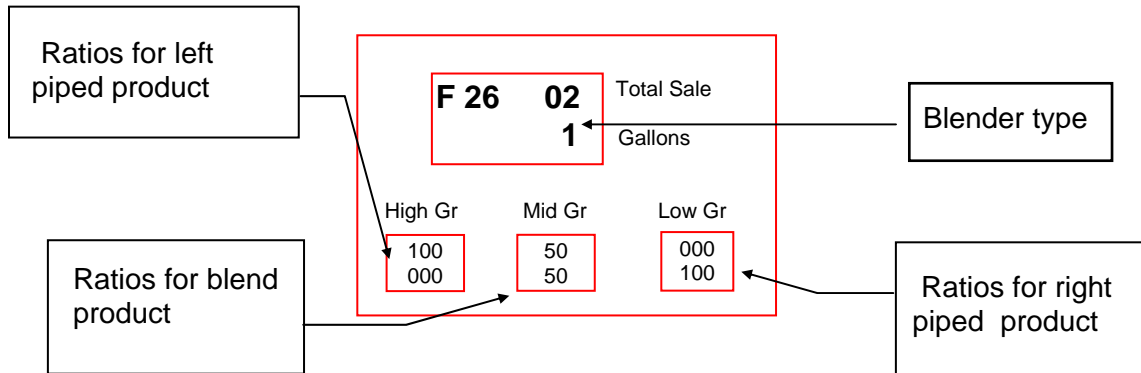
#### Fixed Blenders

The NeXGen interfaces to the following types of Tokheim fixed blenders:

- TCSA blender
- Premier Multi hose, multi product blender
- Premier single hose, muti product blender
- One of the above with diesel

**Dispenser Programming**

Mode 26 of the dispenser programming must be configured correctly for the blend ratios. The programming screen for the dispenser is shown below, for variable blenders.



1) In mode 26 on the right side of the gallon display window a **0 ,1 or 2** may be showing in the gallon window. This option sets the **Blender type**.

- 0 = Blender used without ratio verification\*
- 1 = Blender used with ratio verification\*
- 2 = Blender used with a controller that does not support blenders

\* **ratio verification** - The POS ratios must match the dispenser ratios. If the ratios do not match, an error message, “ **Blend Ratio Error**”, will be displayed on the dispenser card reader, if present, when the customer attempts to reset and begin fueling the blended product.

2) Set the blender ratios. Each product has two ratios which are displayed in the PPG windows:

- Top line = ratio of the left piped product
- Bottom line = ratio of the right piped product

As shown in the figure above, the left piped product has 100 % of the high grade and 0 % of the low grade. The right piped product has 0 % of the high grade and 100 % of the low grade.

The blend product allows the left (top) grade to be set, and automatically adjusts the bottom grade ratio so the sum of the ratios equals 100. The **Blended Fuels Ratios** settings in the POS must match the dispenser setting.

**Product to Position Mapping**

Tokheim dispensers do not require special product to position mapping in the POS **Fueling Point Configuration** menu. The products are set to positions 1 through 3 for a 3 product dispenser, positions 1 through 4 for a 4 product dispenser and positions 1 through 5 for a 5 product dispenser. The table below lists the proper product to position assignment for a 4 product dispenser.

The **blender type** setting for each fueling point must be set properly to one of the values listed below.

2 = Fixed blender

3 = Variable blender or Variable + 1 with the non blended products set as “non” in Mode 26

4 = Variable blender with the non blended product set as a ratio

5 = Variable blender + 1 with the non blended product set as a ratio

Position	Product
1	Low grade
2	Blended product
3	High grade
4	Diesel
5	Not assigned
6	Not assigned
7	Not assigned
8	Not assigned

***\* The low grade and the high grade products may be switched depending on the position of the dispenser and the installation of the product lines.***

**3.1.4 Tokheim Debit Keypad Modules**

The Tokheim Debit Keypad Modules must be ordered from Tokheim for a specific Network application. They should be configured by Tokheim for the location. There are no switches or jumpers to be set.

### **3.2 NeXGen Parameters Values and Options**

The NeXGen configuration is provided and sent to the controller by the POS. The POS has to download all required parameters to the NeXGen. The controller will start polling the dispensers, CRINDs and other peripheral devices only after the POS has downloaded all necessary station configuration data.

#### **Examples Of Parameters Downloaded from POS:**

- DPT Configuration
- Fuel Information
- Product Information
- Car Wash Information
- Cash / Credit Limits
- Mode of Service
- Default Price Level
- Sale Stacking
- Number of fueling points
- Network site specific parameters

### 3.3 Tokheim DPT Keypads

Please note that the keypads listed below are predefined within the controller. All other keypad types can be configured via the POS to NeXGen interface using the “DPT Configure Keyboard” command.

#### Type 1

1	2	3		Pay Outside Credit	
4	5	6	Pay Inside Cash	Pay Inside Credit	
7	8	9	No	Yes	S t a r t
Clear	0	Enter	Help	Cancel	

#### Type 2

Pay Inside		Pay Here	
Receipt No		Receipt Yes	
1	2	3	C l e a r
4	5	6	
7	8	9	E n t e r
Help	0	Cancel	

**Type 3**

1	2	3		Pay Outside	S t a r t
4	5	6		Pay Inside	
7	8	9	No	Yes	
Clear	0	Enter	Help	Cancel	

**Type 4**

1	2	3		Pay Outside	
4	5	6		Pay Inside	
7	8	9	No	Yes	
Clear	0	Enter	Help	Cancel	

**Type 5**

1	2	3		Pay Outside Credit	
4	5	6	Pay Inside Cash	Pay Inside Credit	
7	8	9	No	Yes	
Clear	0	Enter	Help	Cancel	

**Type 6**

1	2	3	Pay Outside Debit	Pay Outside Credit	
4	5	6	Pay Inside Cash	Pay Inside Credit	
7	8	9	No	Yes	S t a r t
Clear	0	Enter	Help	Cancel	

**Type 8**

1	2	3	Pay Outside		
4	5	6		Pay Inside	
7	8	9	Yes	Help	
Clear	0	Enter	No	Cancel	

		<b>Start</b>		
--	--	--------------	--	--

**Type 9**

1	2	3		Pay Inside	
4	5	6		Pay Here	
7	8	9	No	Yes	S t a r t
Clear	0	Enter	Help	Cancel	

**Type A**

1	2	3		Pay Outside	
4	5	6		Pay Inside	
7	8	9	No	Yes	S t a r t
Clear	0	Enter	Help	Cancel	

**Type B**

1	2	3	Pay Outside Debit	Pay Outside Credit	
4	5	6		Pay Inside	
7	8	9	No	Yes	S t a r t
Clear	0	Enter	Help	Cancel	

**Type C**

1	2	3		Pay Outside Credit	
4	5	6	Pay Outside Cash	Pay Inside	
7	8	9	No	Yes	S t a r t
Clear	0	Enter	Help	Cancel	

**Type D**

1	2	3	Pay Outside Debit	Pay Outside Credit	
4	5	6	Pay Outside Cash	Pay Inside	
7	8	9	No	Yes	S t a r t
Clear	0	Enter	Help	Cancel	

**Type E**

1	2	3	Yes	S t a r t
4	5	6	No	
7	8	9	Help	
Clear	0	Enter	Cancel	

**Type F**

**(Premier Graphics Keypad – Start button, Soft key, Cancel)**

*This keypad is supported regardless of keypad setting*

**Note: Outside Debit and Outside Cash is also supported**

1	2	3			
4	5	6			
7	8	9			
Clear	0	Enter			

Soft key	--- Pay Here Credit  --- Pay Inside  --- Yes  --- No                      Cancel ---	Soft key
Soft key		Soft key
Soft key		Soft key
Soft key		Soft key

		<b>Start</b>		
--	--	--------------	--	--

**Type G**

1	2	3	Outside Credit		
4	5	6	Outside Debit		
7	8	9	Yes	No	
Clear Cancel	0	Enter	Help		

**Type H (Premier C – Insight)**

	1	2	3	HELP	Y E S
	4	5	6	Cancel	
	7	8	9		N O
	Clear	0	ENTER		

**Type I**

1	2	3	Outside Debit	Outside Credit	
4	5	6		Pay Inside	
7	8	9	Yes	Help	
Clear	0	Enter	NO	Cancel	

**Type J (Canada)**

1	2	3	YES		
4	5	6	NO		
7	8	9	Checking		H E L P
Clear	0	OK	Savings	Cancel	

**Type K (Premier C – Insight)**

	1	2	3	HELP	Y E S
	4	5	6	Cancel	
	7	8	9		N O
	Clear	0	ENTER	DEBIT	

**Type L**

1	2	3	Pay Inside		
4	5	6	YES		
7	8	9	NO		
Clear	0	Enter	Help	Cancel	

### 3.4 Peripheral Devices

#### 3.4.1 Tank Gauge Systems

The NeXGen controller uses Channel 2 to interface to either the Veeder-Root tank gauge system or compatible system. The controller is connected to the serial board on a device and it may be connected to the DIM board on a TLS 350R.

When the controller is connected to the DIM board on a TLS 350R, it will send real-time fuel transaction data (i.e. sale started, sale complete, volume dispensed, meter reading etc.). This is accomplished by implementing the Veeder-Root Dispenser Interface Protocol (a proprietary interface defined by Veeder-Root for the TLS 350R). This will allow the TLS to utilize the AccuChart Automatic Tank Calibration feature for underground storage tank reconciliation.

Configure the TLS-250/350/350R or the Red Jacket communication parameters as follows:

**Baud Rate - 9600, Parity - Odd, Stop Bits - 1, Data Bits - 7**

**Notes:**

On a TLS-250, the communication parameters are set using a rotary switch and some DIP switches, (please refer to the TLS 250 manual).

On a TLS-350/350R, the communication parameters are programmed via the TLS keyboard (please refer to the TLS 350/350R manual).

No additional controller configuration is needed. The NeXGen will automatically check if it is connected to a DIM card. Otherwise, the controller will not send any Dispenser Interface commands to the TLS. Communicating with other devices requires POS programming.

**3.4.2 Car Wash Controllers**

The following requirements must be met in order for the Car Wash controllers to communicate to the NeXGen controller.

<b>Car Wash controller</b>	<b>Software Version</b>
Ryko Code A Wash III	“8B” or newer
Ryko Code A Wash IV	“V” <sup>(1)</sup>
Unitec POS 4000	“6.50” or newer <sup>(2)</sup>
Unitec Portal Ti	Any version
Unitec/Enterlink	Any version
Unitec Smart terminal	
Kesseltronics	Any version
PDQ	Any version

**Notes:**

1. The Ryko Code-A-Wash IV should communicate to the NeXGen using any version of software. However, Ryko recommends that the controller be upgraded to the latest version.
  
2. The Unitec software must be able to support External POS 1, 2 or 3. This information may be found either on the PROM label which is located inside the controller, or via the configuration report printed from the controller. There will be a line on the report indicating the “External POS” type.
  - a. The Unitec controller must be programmed to use the Ryko protocol. See section 6.2.10 in the External POS Menu of the Unitec manual. Set POS offset to “0”, Down. Set External POS type to “2”. Set baud rate to 9600.
  - b. If the Unitec hardware version is 6.1, a (SA1606) 9 pin adapter (which can be ordered from Unitec, if required) must be used to connect the serial port to the communication cable. If the hardware version is 6.2 or higher, the communication cable must be connected directly to the 9 pin serial port.
  - c. To distinguish the difference between 6.1 type hardware and 6.2 type hardware, look at the label attached to the base of the unit. If the Model field has “POS4000” then it unit is equipped with 6.1 hardware. If it has “POS4000/2” (or /3 etc.) then it is equipped with 6.2 or higher hardware. The 6.2 and higher cable pinouts are standard for a 9-pin DTE serial port, which is not the case for 6.1 units.
  
3. The Ryko Code A Wash II will not work with the NeXGen system. It can be upgraded to a Code A Wash III.

### 3.4.3 Fuel Price Signs

The NeXGen controller supports the Future Media Display (FMD) protocol. The use of the FMD electronic price sign is configurable and can be mapped to an available serial RS232 port via the Allied Diagnostic (ANDI\_DGS) utility.

For specific versions available with support for the FMD protocol, please visit the Allied Electronics, Inc. website and review the release notes for the system in question. The release notes can be found at the link noted below:

[http://www.alliedelectronics.com/Software\\_Release\\_Notes.html](http://www.alliedelectronics.com/Software_Release_Notes.html)

The following signs communicate with the NeXGen controller via the use of the ANDI protocol message set. These devices physically connect to an available POS RS232 for communications.

- PWM
- Daktronics

The controllers noted above may have specific software version requirements for the support of the ANDI protocol interface. Please contact the respective manufacturer for specific details.

Other sign integrations are currently under development. Please contact Allied Electronics, Inc. for up to date details regarding other possible signs that have integrated to the controller.