

# Pretoria - Tech Talk # 5

**Date:** 9/24/09

**Topic:** Configuring and Operation of the Programmable Configuration LED Interior Lighting System

Pretoria Transit Interiors has issued this Tech Talk to keep our customers informed on issues pertaining to the service and programming of Pretoria LED passenger interior light systems.

## **Pretoria LED Lighting Systems**

The Pretoria LED system may be utilized in transit bus applications in conjunction with the A/C ducting and the Pretoria Overhead Parcel Rack systems to provide seamless and trouble free lighting.

The interior LED lights are energized when the "Interior Lights" toggle switch is flipped to the ON position. When these switches are properly set, current flows through a Multiplexing module to complete the circuit and illuminate the LED's. Circuit diagrams for the interior lights and their controlling switches, relays, and circuit breakers, are shown on the applicable wiring diagrams in the OEM's Electrical Schematics Manual.

Please see Tech Talk #4 for instructions on servicing the Pretoria LED system. The document provides detailed instructions for removal of the lens, fixture end cap seals, LED carrier and LED driver.

## **Programmable Dimming Option**

Consist of the Standard Configuration plus an onboard programmable control Module (ILC interior lighting control) that enables the end user to define output parameters thus control the light output for each fixture from 0% through 100% output in three different run modes (day, overcast, night) for both open and closed door positions. The ILC is capable of controlling up to 20 fixtures and holds four output program scenarios, configuration 1, configuration 2, custom and default. Although program configurations 1 and 2 are preset at the factory per the properties specifications they are easily changed through a PC connection. The custom program allows for rapid modifications and can be saved to run as is. The ILC may also control the interior lighting "sleeper time" which is pre set at the factory per the properties specifications. The ILC also allows adjustment of the dwell time to ramp up or ramp down the light output, options range from 0 – 5 seconds, the ILC controls the optional photo sensor, indicates communication faults etc.



## **WARNING**

The LED lights in the interior lighting system operate on low voltage. Take care to avoid sustaining electrical shocks, which may cause personal injury or damage to the equipment. ALWAYS TURN OFF THE BATTERY DISCONNECT SWITCH before servicing the lighting system!

**Pretoria Interior Lighting Control (ILC)**

The Pretoria Programmable LED Configuration system utilizes a Interior Lighting Control (ILC) Module as shown below. The ILC may be located in the drivers / radio box located behind the driver other easily accessible area within the bus interior.



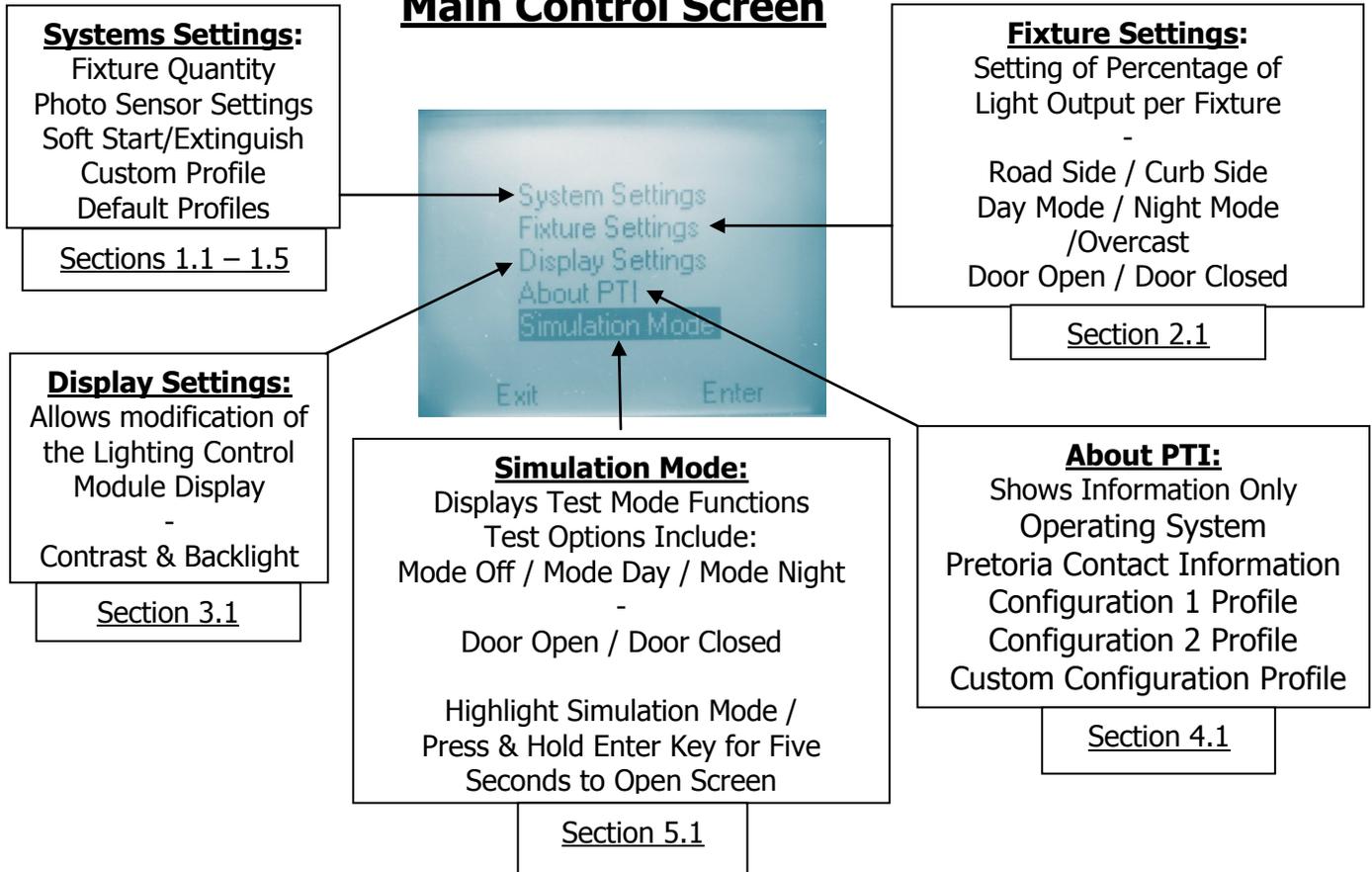
Scroll Up & Down Soft Keys

Screen Back Light On/Off

Function Hard Keys

The Interior Lighting Control (ILC) will store up to three different lighting profiles along with a factory default profile. The ILC is menu driven and is very easily manipulated. The below information, program profile chart samples and screen shot pictures will describe the system features and system settings.

**Main Control Screen**



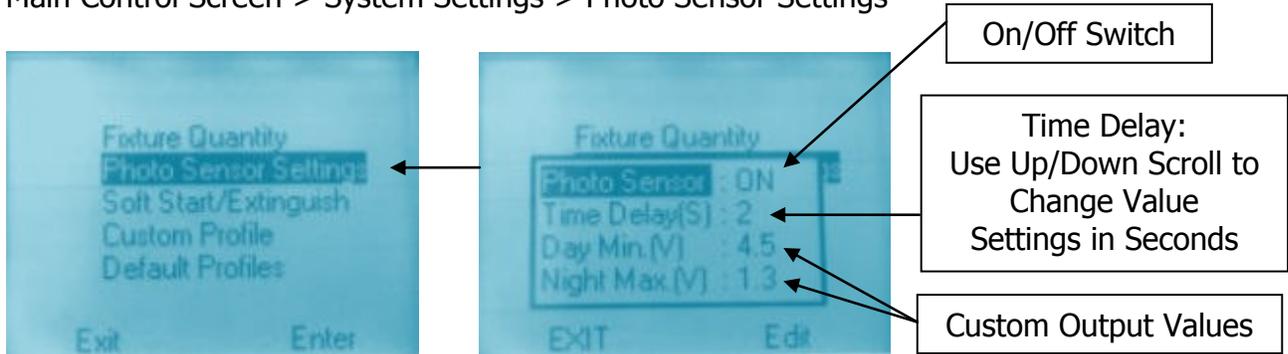
**Section 1.1** – Systems Settings: Fixture Quantity of the Vehicle  
From: Main Control Screen > System Settings > Fixture Quantity



Highlight a Side of the bus with the Up/Down Scroll Keys,  
Push Edit, Enter the Number of Fixtures, Push Save

Do this for both the R/S and C/S

**Section 1.2** – System Settings: Photo Sensor Settings  
From: Main Control Screen > System Settings > Photo Sensor Settings

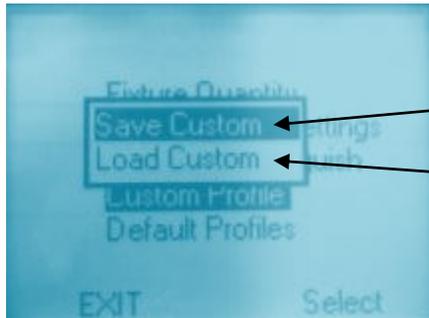


**Section 1.3** – System Settings: Soft Start/Extinguish  
From Main Control Screen > System Settings > Soft Start / Extinguish



**Section 1.4 System Settings: Custom Profile**

From Main Control Screen > System Settings > Custom Profile

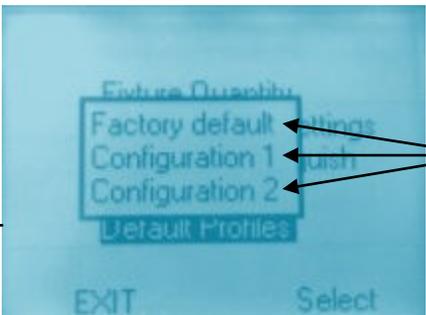


Saves Custom Profile -  
Saves Light Level and Other Parameter Entries

Loads Last Saved Custom Profile

**Section 1.5 System Settings: Default Profiles**

From Main Control Screen > System Settings > Default Profiles



Highlight and Select a  
Pre - Stored  
Configuration Profile for  
the System to Run

The Selected Profile will  
be High Lighted at the  
bottom of the  
About PTI Screen

**Section 2.1 Fixture Settings:**

From Main Control Screen > Fixture Settings

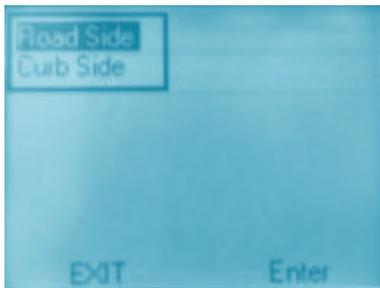
These steps allow storage of a specified percentage of light output for each Road Side and Curb Side fixture in the following a variety of run modes and door positions scenarios.

Entering a light % output entry to each fixture for each possible output mode and door position can be confusing; the use of a Profile Chart as shown on page 9 may be helpful.

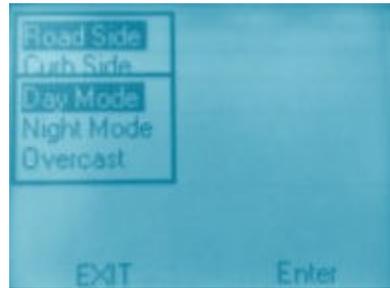
Example of steps required to set the light output percentage for the following parameters:

Desiring 90% output from the Front Road Side Fixture when the Door is Open with all other Fixtures having 100% output with the Door Open

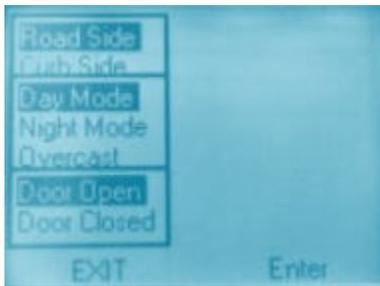
**Section 2.1** Fixture Settings – Continued from previous page



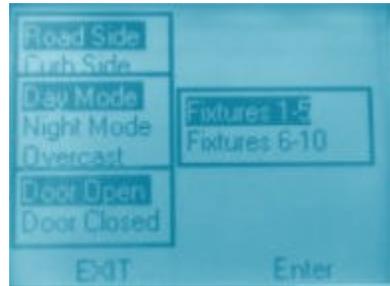
Step 1: Select Road Side



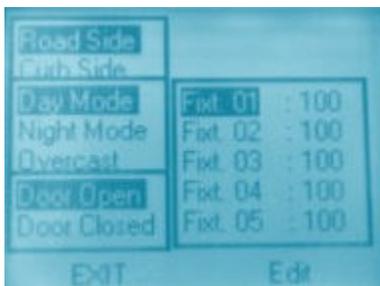
Step 2: Select Day Mode



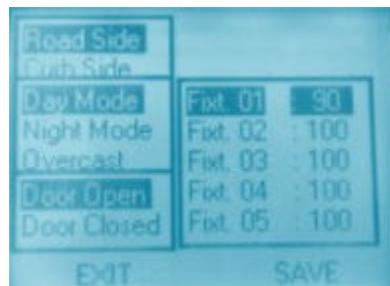
Step 3: Select Door Open



Step 4: Select Fixtures 1-5



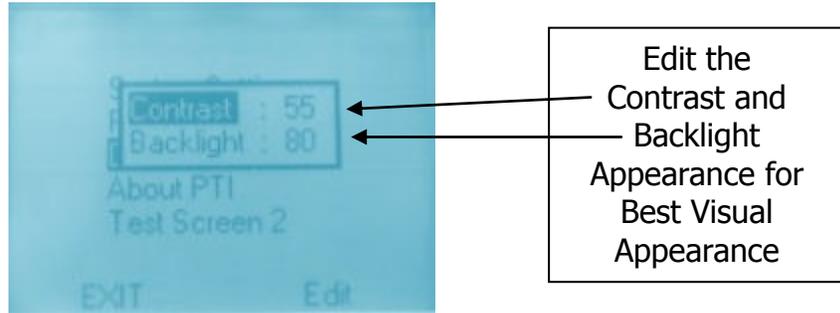
Step 5: Select Fixture to Adjust



Step 6: Use Up/Down Scroll Keys To Display the Desired %  
- Save and Exit

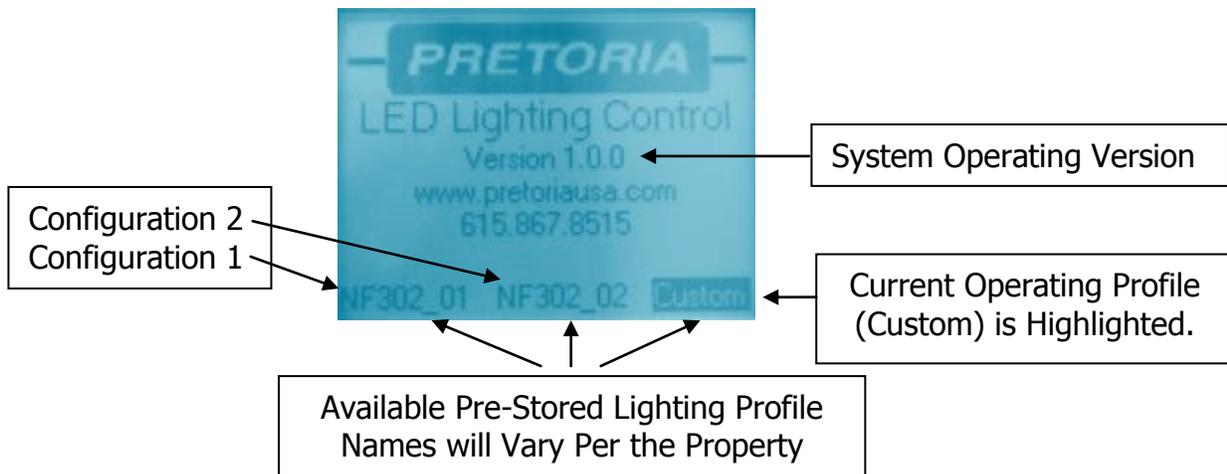
**Section 3.1** Display Settings:

From Main Control Screen > Display Settings



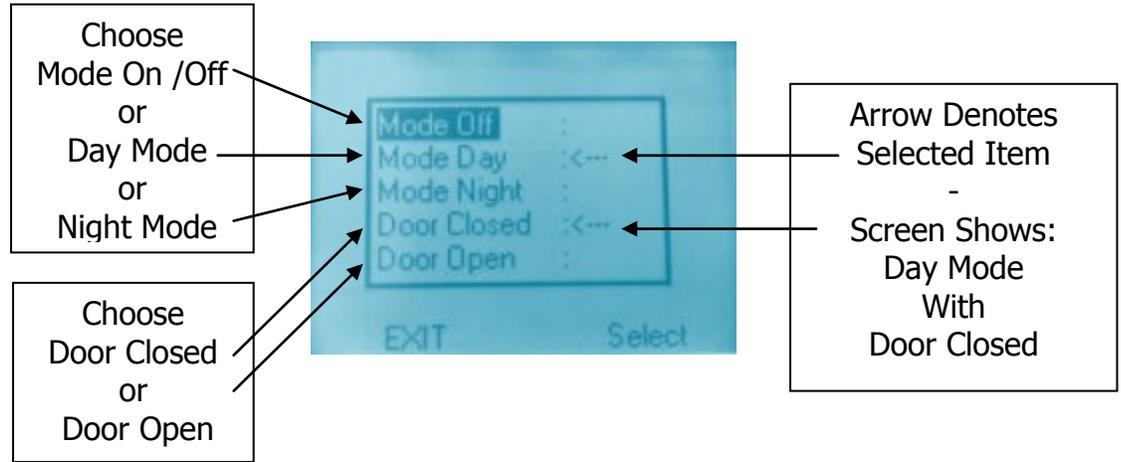
**Section 4.1** About PTI:

From Main Control Screen > About PTI  
(Information Screen Only)



**Section 5.1 Simulation Mode: (If Installed)**

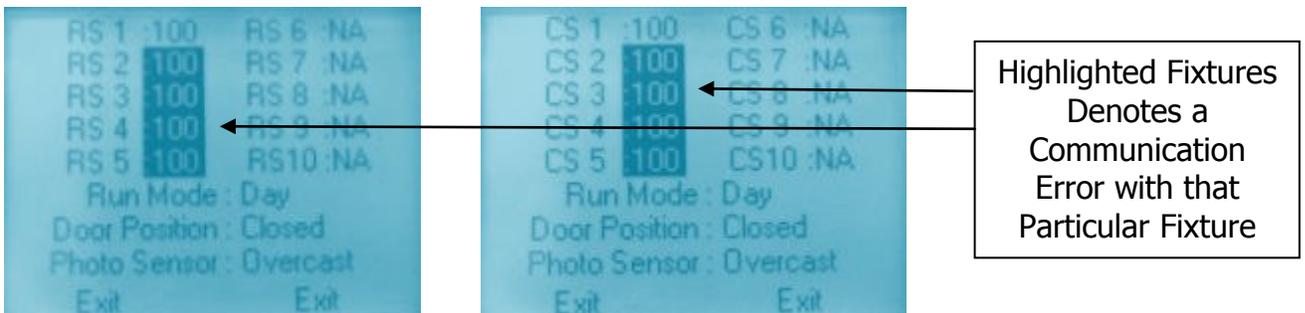
From Main Control Screen > Simulation Mode – Press & Hold Enter Key for Five Seconds to Open Screen Shown Below



Note: Once test screen has been used, system must be cycled off to reestablish connection to CAN bus. The test screen overrides the Can Bus connection for testing of the lights at different door positions etc.

**Section 6.1 Screen Display of the Current % Fixture Light Output and Other Information:**

Continued Entering of the Exit Key will Display the Current R/S & C/S Light Output % Settings per Fixture, Current Run Mode, Door Position, Photo Sensor Mode Output Levels and Communication Faults.



The manipulation of the Up/Down Scroll Keys will Joggle the Screen Between the Road Side and the Curb Side Screens

Sample Profile Chart– Typical 40’ LF with Five Fixtures  
Road Side of the Bus – (RS01 Denotes Front R/S Fixture)

| QTY:        | % Light Output |             |               |             |            |             |
|-------------|----------------|-------------|---------------|-------------|------------|-------------|
|             | Day Mode       |             | Overcast Mode |             | Night Mode |             |
| 5           | Door Open      | Door Closed | Door Open     | Door Closed | Door Open  | Door Closed |
| Street Side | %              | %           | %             | %           | %          | %           |
| Fixture     |                |             |               |             |            |             |
| RS01        | 90             | 40          | 80            | 60          | 100        | 0           |
| RS02        | 100            | 40          | 80            | 60          | 100        | 30          |
| RS03        | 100            | 40          | 80            | 60          | 100        | 80          |
| RS04        | 100            | 40          | 80            | 60          | 100        | 80          |
| RS05        | 100            | 40          | 80            | 60          | 100        | 80          |

Sample Profile Chart– Typical 40’ LF with Five Fixtures  
Curb Side of the Bus – (CS01 Denotes Front C/S Fixture)

| QTY:      | % Light Output |             |               |             |            |             |
|-----------|----------------|-------------|---------------|-------------|------------|-------------|
|           | Day Mode       |             | Overcast Mode |             | Night Mode |             |
| 5         | Door Open      | Door Closed | Door Open     | Door Closed | Door Open  | Door Closed |
| Curb Side | %              | %           | %             | %           | %          | %           |
| Fixture   |                |             |               |             |            |             |
| CS01      | 60             | 40          | 80            | 60          | 100        | 0           |
| CS02      | 60             | 40          | 80            | 60          | 100        | 10          |
| CS03      | 60             | 40          | 80            | 60          | 100        | 80          |
| CS04      | 60             | 40          | 80            | 60          | 100        | 80          |
| CS05      | 60             | 40          | 80            | 60          | 100        | 80          |

Light Output Percentage Work Sheet

| QTY:             | % Light Output |             |               |             |            |             |
|------------------|----------------|-------------|---------------|-------------|------------|-------------|
|                  | Day Mode       |             | Overcast Mode |             | Night Mode |             |
| <b>Road Side</b> | Door Open      | Door Closed | Door Open     | Door Closed | Door Open  | Door Closed |
| Fixture          | %              | %           | %             | %           | %          | %           |
| RS01             |                |             |               |             |            |             |
| RS02             |                |             |               |             |            |             |
| RS03             |                |             |               |             |            |             |
| RS04             |                |             |               |             |            |             |
| RS05             |                |             |               |             |            |             |
| RS06             |                |             |               |             |            |             |
| RS07             |                |             |               |             |            |             |
| RS08             |                |             |               |             |            |             |
| RS09             |                |             |               |             |            |             |
| RS10             |                |             |               |             |            |             |

| QTY:             | % Light Output |             |               |             |            |             |
|------------------|----------------|-------------|---------------|-------------|------------|-------------|
|                  | Day Mode       |             | Overcast Mode |             | Night Mode |             |
| <b>Curb Side</b> | Door Open      | Door Closed | Door Open     | Door Closed | Door Open  | Door Closed |
| Fixture          | %              | %           | %             | %           | %          | %           |
| CS01             |                |             |               |             |            |             |
| CS02             |                |             |               |             |            |             |
| CS03             |                |             |               |             |            |             |
| CS04             |                |             |               |             |            |             |
| CS05             |                |             |               |             |            |             |
| CS06             |                |             |               |             |            |             |
| CS07             |                |             |               |             |            |             |
| CS08             |                |             |               |             |            |             |
| CS09             |                |             |               |             |            |             |
| CS10             |                |             |               |             |            |             |

PHOTOSENSOR:

DEFAULT ON/OFF: ON/OFF

DELAY:

DAY MIN:

NIGHT MAX:

Soft Start:

Configuration

Version:

For

Numbers of Doors:

More

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This Tech Talk has been developed to assist maintenance personnel to use, diagnose and repair Interior Lighting Systems in the most efficient and effective manner. The tips and suggestions contained in this Tech Talk are the result of many years of combined experience by Pretoria and maintenance persons across North America. The suggestions and product information are based on information which is, in our opinion, reliable. However, since skill, judgment and quality of equipments and tools are involved, and since conditions and methods of using Interior Lights and parts thereof are beyond our control, the suggestions contained in this Tech Talk are provided with no guarantee. In no event shall Pretoria Transit Interiors, have any liability in any way related to or arising out of said suggestions and product data for direct, special, consequential or any other damages of any kind regardless whether such liability is based on breach of contract, negligence or other tort, or breach of any warranty express or implied.