

# SPECIFICATIONS

## 1 General

### 1.1 Introduction

This document provides the general specification, description and functional requirements for the Parking Intel and Management System also known as PIMS.

### 1.2 General Description

The Parking Intel & Management System (PIMS) is specifically designed to interface with the Signal-Tech RedStorm 2.0 Parking Guidance System (PGS). The RedStorm 2.0 PGS is a differential count system that provides real time space available counts to digital LED signage located to inform vehicle operators of available spaces and/or directing vehicle operators to parking levels with available parking spaces in a quick and efficient manner, thereby reducing driver frustration, traffic congestion and vehicle emissions.

PIMS was created to provide the same real time data and activity reporting capability to parking administrators/operators, facilities management and security personnel via a PC; allowing them to monitor current status and generate usage and traffic reports and facilitate proactive decision making, in addition to making Space Available counts available to patrons via internal and/or external networks.

PIMS is available in an optional network version, using TCP socket connection, to allow multiple users to monitor activity & operate the software. It also has the capability to 1) send automated email alerts reporting full conditions, 2) hourly space available counts or 3) both.

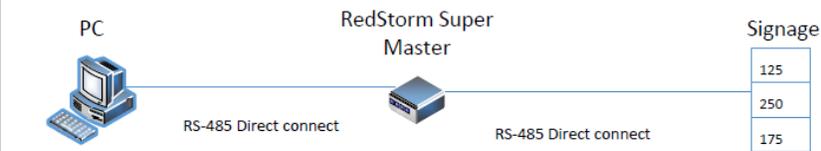
### 1.3 Description of the system

- A. Each PIMS monitored facility shall employ a RedStorm 2.0 Parking Guidance System installed in accordance with the most current version of the Signal-Tech RedStorm 2.0 PGS Installation and Operation Instruction.
- B. Each RedStorm PGS is controlled by a RedStorm Super Master Controller (RS-SM) or RedStorm Super Master Global (RS-SMG).
- C. The RS-SM/RS-SMG gathers the vehicle count data, controls communication sequencing and communicates the count information to all system signage.
- D. Space available count data is maintained by the RedStorm PGS Master until data is called for by PIMS.
- E. To collect data, Each RedStorm shall be connected directly to a PC or the end users network via a Network converter (RS485 to Ethernet).

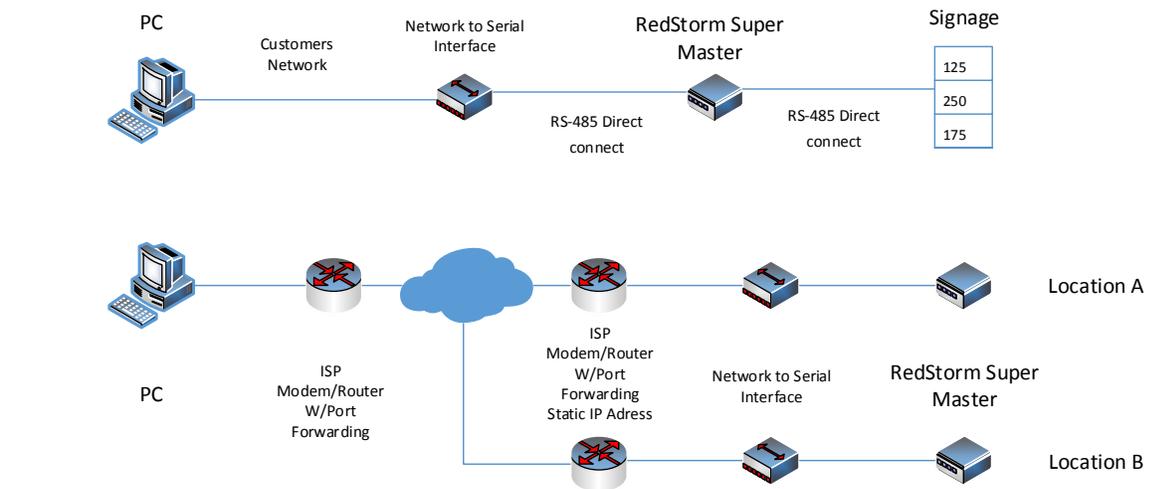
- F. Data may be communicated to the signs via the facility owner's network using the communication protocols established by the owners IT department in conjunction with acceptable network protocols supported by the parking count system installer.
- G. Each sign connected to the owner's network will require a Network converter (RS485 to Ethernet) converter unit to receive space available data from PIMS to display.
- H. Each Network converter (RS485 to Ethernet) shall have a static IP address.
- I. The PIMS software may run on a PC connected to the RedStorm Super Master or Super Master Global controller. This PC may be connected directly or over a private network operated and controlled by the owner/end user.
- J. An optional network version of PIMS is available. This version uses a TCP socket connection.
- K. PIMS will poll the Super Master (RS-SM) or Super Master Global (RS-SMG) controller for data. The data is stored by PIMS in a SQL "compact" database for easy retrieval and manipulation.
- L. Data can be exported in CSV, format for custom report generation.
- M. PIMS provides a visual representation of the status of all lots and decks.
- N. PIMS outputs data using pre-formatted reports.
- O. PIMS can communicate with up to 255 "Spaces Available" signs.
- P. PIMS provides the ability to adjust the physical counts from the PC.
- Q. PIMS as an option can export count information to a third party interface via SFTP in SML format.
- R. Automated email notification option is available. When enabled this option can send an email notification to multiple recipients. The Subject Line is configurable. Trigger Parameters include Hourly counts for a selectable time range, programmable lot occupancy or both.
- S. PIMSalaCloud is a browser based responsive interface and web server application to relay nearly real-time count information about a customer's monitored facility or facilities.
- T. PIMSalaCloud is available as a subnet of the PIMS Cloud or as a "Private Label" Site. This service is supplied on a subscription basis.

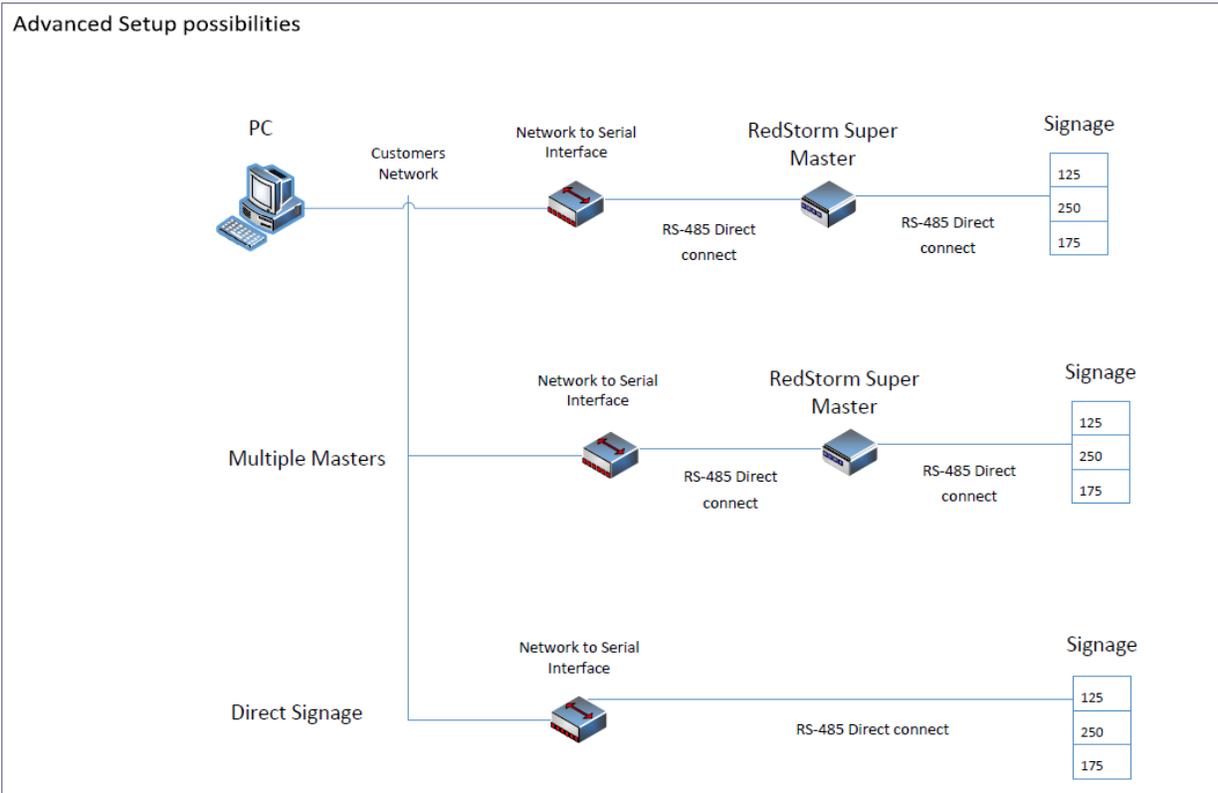
## 1.4 Network Configurations

Typical Communications Set Up



Possible Network Setups





## 1.5 Maintenance & Service

- A. The RedStorm PGS shall be maintained according to Signal-Tech RedStorm 2.0 Parking Guidance System Maintenance Manual.
- B. PIMS software and/or training and/or programming support; beyond initial dealer training and 90 day warranty period will be available on an hourly fee basis.

## 1.6 Warranty

- A. Software is fully supported for 90 days from the date of purchase.
- B. Extended PIMS software warranty to include training and software support will be made available through the installing dealer.
- C. Signal-Tech PGS and signs are completely covered under warranty from Signal-Tech (see the Signal-Tech Warranty statement). RedStorm 2.0 hardware is normally covered for 1 year. Signal-Tech tower signs are normally covered for 2 years.

## 2 Products

### 2.1 Manufacturers

- A. Signal-Tech RedStorm 2.0 Parking Guidance System
- B. Parking Intel and Management System (PIMS) from cramZ marketing services, Inc.
- C. Network Media converter (RS485 to Ethernet) such as Moxa Model 5232, Model 5150, or Model 6150 or equal as specified by owner/end user's IT department.

### 2.2 System Host

- A. The PC or virtual machine running the PIMS Software shall have the following minimum requirement features:
  - a. Intel I5 processor, dual core.
  - b. 4 GB Ram
  - c. 120 GB of disk storage
  - d. Windows 7 Pro or greater
  - e. Microsoft SQL Express or default installation Microsoft Compact Database 4.0
  - f. Serial RS-232 ports, number to match system requirements, for signs and master controllers.
  - g. RS 232 - RS-485 media converter for serial communications to Redstorm parking guidance system master controller.
  - h. Other media converter devices may also be necessary depending on the site infrastructure.

### 2.3 Printers

- A. Reports may be routed to any printer directly connected to the PC or to a networked printer.

### 2.4 Database Features

- A. Statistical data is stored in a SQL database for ease of retrieval.
- B. Data is exportable in CSV format.

### 2.5 Reports

- A. PIMS provides real time status reports for each facility monitored.
- B. PIMS includes pre-programmed reports:
  - a. Individual Level Count by Date.
  - b. Global Facility Count Report by Date.
  - c. Individual Entry/Exit Count Report.
  - d. Global Entry/Exit Count Report.
- C. PIMS as an option can export count information to a third party interface via SFTP.
- D. Custom report design is available through the installer at prevailing rates.
- E. PIMS Cloud

## **3 Installation**

### **3.1 General**

PIMS is a status reporting and report generator for the count data collected by the RedStorm Parking Guidance System.

- A. Installer shall verify that the RedStorm PGS is working properly
- B. Installer shall verify that the PIMS package is receiving accurate data from the RedStorm System.
- C. Installer shall verify that the space available counts supplied by PIMS to the Space Available signs accurately reflect the counts reported in the RedStorm PGS.

### **3.2 Installation & Testing**

- A. The RedStorm PGS shall comply with the most current version of the Signal-Tech RedStorm 2.0 Parking Guidance System Installation and Operation Instructions.
- B. Signal-Tech has established a Certification Program for Installation Technicians and Dealers. Use of certified installation companies and technicians is required.
- C. The Installer and network owner/end user are responsible for establishing network protocols and addresses.
- D. Network configuration and support are completely the purview of others. cramZ marketing services, Inc and/or Signal-Tech do not supply network hardware or support services.
- E. The installer or end user is responsible for creating the email server to distribute the automatic emails.
- F. Installer shall verify that the capacity of each monitored facility matched the physical count and that the count is properly entered in RedStorm and reported by PIMS.
- G. Installer shall verify that the remote update keypad is functioning correctly and that changes are properly reported by PIMS.

### **3.3 Training**

- A. Installer shall instruct the owner's representatives on the operation of the RedStorm 2.0 PGS and the PIMS Interface.
- B. Training shall include methods and steps for verifying counts in RedStorm, on the Space Available Signs and the PIMS status monitors and reports.
- C. End user training shall be conducted by the installation provider.
- D. Retraining and on-going support should be provided through the installation provider.
- E. In the event the installation dealer is no longer available as a resource, training and support will be provided by cramZ marketing services, Inc. at currently prevailing rates.