

DC 400 User Manual



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Symbol, Inc.
7361 Calhoun Place,
Suite 250
Rockville, MD 20855
Phone: (301) 610-6100
Fax: (301) 610-6101
<http://www.symbol.com/rfid>

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Disclaimer

While Symbol has committed its best efforts to providing accurate information in this document, we assume no responsibility for any inaccuracies that may be contained herein, and we reserve the right to make changes to this document without notice.

The DC-400 weighs 150 lbs (68.2 Kg) and has a robust design. However, proper equipment should be used to transport the DC-400 from one place to another. Please ensure that the DC-400 is securely mounted to the floor / ground. Symbol assumes no responsibility for any damage resulting from incorrect transportation / mounting.

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Chapter 1.

INTRODUCTION

1.1. Scope

The Symbol DC 400 User Manual provides the following information pertaining to Symbol DC 400 Portal solution:

- Features and Description
- Hardware Specifications and Hardware installation details.

1.1.1. Target Audience

This document is intended for:

- Field Support teams performing installation of DC 400, and
- For end customers for use as a brief product description.

Description for the RFID reader is detailed in the AR 400 User Manual and description of the utility is detailed in the TagVis product manual (see references below).

1.1.2. Assumptions

This manual assumes that the reader understands the basic working concepts of RFID, working knowledge of Symbol AR 400 reader and the following:

- Basic networking terms e.g. IP Address, DHCP, Protocol etc.
- Basic RFID terms e.g. Reader, Tag, Antennas, Read Point etc.

The manual is not intended to provide detailed information on the above-mentioned topics.

1.2. Document Organization




This document has been organized as described in the table below:


Chapter No.	Chapter Title	Information Contained in the Chapter
1	Introduction	An overview of what the Document contains, who the targeted audience is and how the document is organized.
2	DC 400 - A brief introduction	An introduction to DC 400, its components and configurations and overview of its features.
3	DC 400 - Installation	Step by Step procedures to help you setup the Hardware.
4	DC 400 LIB and Motion Sensor Wiring	Describes how to connect various DC 400 components to the Light Indicator Box (LIB)
5	Setup & Configuration With Motion Detector	Provides guidelines and necessary information that is required for working with DC 400 with a motion detector
Appendix - A	Hardware Specification	A brief description of DC 400 hardware and tabular representation of product specifications.

Chapter No.	Chapter Title	Information Contained in the Chapter
Appendix B	Software Specification	A Brief tabular specification of software commands which DC 400 accepts.

1.3. Document Conventions

The following Conventions have been used in this User Manual:

Document Convection	Version
▪ Bulleted List	Provides Grouped Action and non procedural steps
1. Numbered List	Procedural steps for performing an action.
	A Note / Focus point that the reader might be interested in knowing.
	A Warning Note.
	A Caution Note.

	Note: The use of colors in this document conveys information which may not be easily conveyed to readers who are using a grayscale version of the manual. Symbol recommends using colored Monitors / Printouts while reading this manual.
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1.4. Abbreviations

The Following acronyms and abbreviations have been used in the Manual:

Acronym / Abbreviation	Expansion / Explanation
RFID	Radio Frequency Identification
EPC	Electronic Product Code - industry-driven standard of identification scheme for RFID Tags.
Read Point	An individually addressable antenna
Read Point Class	Configuration Parameters that may be applied to one or more read points

1.5. Additional Documentation Available

The following additional documentation may be useful to the users of this manual:

- AR 400 User Manual (PN: 110003-001)
- API Programmer's Manual (PN: 110009-001).
- Symbol TagVis User Manual. (P/N: 110004-001)

- AR 400 Release Notes
- <http://www.matrics.com> (for FAQ and Product Updates)
- <http://www.symbol.com/rfid> (for FAQ and Product Updates)

Chapter 2 . DC 400 - A BRIEF INTRODUCTION

2.1. Introduction to DC 400

The DC 400, from Symbol Technologies is a fully assembled, turn-key solution that uses Radio Frequency Identification (RFID) for Asset identification and tracking of goods movement in Manufacturing plants, Cargo Logistics, Distribution Centers, Warehouses and Stores. This chapter describes some of the features that DC 400 offers.

2.2. Product Features

2.2.1. Pre-Assembled Solution reducing Procurement

The DC-400 comes pre-assembled RFID reader and high performance antennas for fast, accurate reading of RFID tags and all internal antenna-to-reader connections pre assembled. This makes DC-400 a true turn key solution for monitoring dock doors using RFID, reducing the procurement time and cost setup considerably.

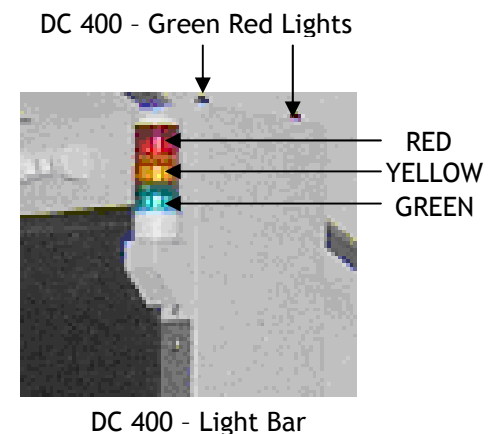
2.2.2. Support for Single and Dual Coverable

DC 400 can leverage two or more antennas for each dock door thus increasing the coverage and allowing a single system to cover a distance of up to two dock door helping you achieve easier management and lower cost.

2.2.3. DC 400 LEDs

The DC-400 comes with two different kinds of light indicators. These are:

- **Red-Green Lights situated on the top of the DC-400** - These are non-programmable lights indicating the hardware status. While green denotes that the hardware is powered on the red light denotes a hardware fault.
- **DC 400 Light Bar:** Red-Yellow-Green Lights situated on the top corner of side pannel of the DC 400. This is a programmable light indicator with Red, Yellow and Green lights. While the Yellow denotes tag reads and maps to the tag read light of the AR 400 reader the Red and Green are programmable via xml commands and remain off by default, except for power up when firmware illuminates all LEDs for approximately 5 seconds as a part of startup diagnostics.



2.2.4. Motion Detector (Optional Component)

The Professional version of DC-400 comes with a motion detector which is capable of initiating reads when movement is detected. This ensures that the antennas are reading tags only when tag movement occurs through the dock door i.e. when pallets are passed through the DC400 system.



2.2.5. Robust

The DC 400 is built to sustain minor non-direct pallet impact. It provides a bolted installation making it robust enough to be used in an industrial environment. It is designed to meet IP54 specifications for dust and water resistance and ensures better uptime in harsh industrial environments. The DC 400 can work in temperatures varying from -20^o C to 70^o C and humidity of 5% to 95% RH Non Condensing.

2.3. The DC 400 Configurations

The DC 400 comes in multiple configurations. A Left, right and dual DC 400 configuration is available for monitoring different types of dock doors. Also available are the Professional and Standard versions that give better cost options and components to businesses depending on their exact requirement.

This section describes the various models available and how these models can be used individually and collectively to meet your business requirements.

The DC 400 comes in two editions. These are:

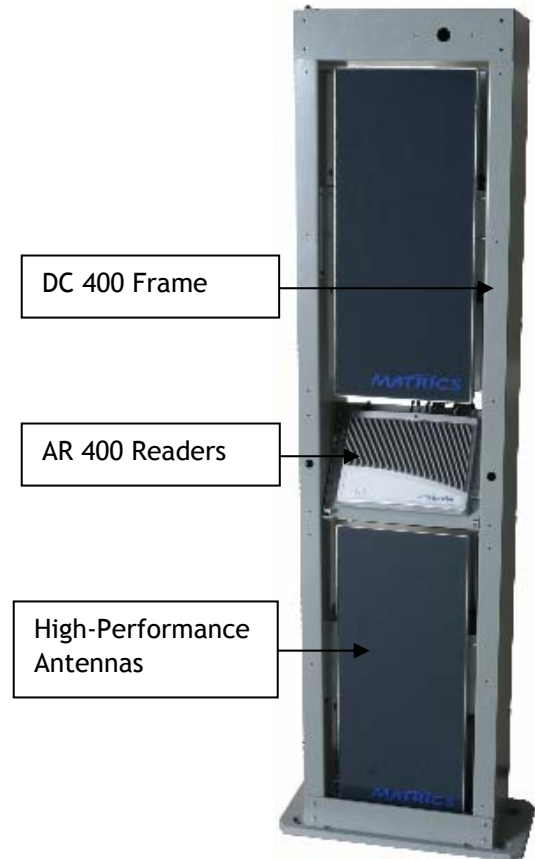
- Standard Edition
- Professional Edition.

The subsections that follow describe these editions in detail.

Standard Edition

The standard edition of DC 400 offers models to choose from. These models with their functionality have been described in detail in the following section. However, all models of the Standard edition usually come with the following components:

- **DC 400 Dock Door Frame** → The Dock door frame provides a bolted installation and is used to house the AR 400 reader and high performance antennas.
- **1 AR 400 RFID Reader** → Symbol RFID Advanced Reader. For more information on AR 400 please refer to the AR 400 User Manual.
- **High Performance Antennas** → that can be connected to the AR 400 allowing users to read tags in the Read range. For Dual models the DC 400 ships with 4 high performance antennas and for left and right models DC 400 ships with 2 High performance antennas.



2.3.1. Professional Edition

The professional editions of DC 400 come with **all components that are offered in the standard editions plus the following additional components:**

- **Light Indicator Bar** → The professional edition of DC400 comes with two different types of light indicators. The first indicator is located at the top of the reader and consists of non-programmable green and red light. While a green light denotes that the device has been powered on, a red light denotes a hardware fault. The second light indicator is located at the top of the side panel and contains green, red and amber lights. While the amber light denotes tag reads the red and green are customer configurable and programmable via xml commands and remain off by default, except for power up when the firmware illuminates all the lights for 5 seconds as a part of AR 400's diagnostic.
- **Motion Sensor** → Activates tag reads when pallets are detected in motion.

2.4. DC 400 Models

All DC 400 Editions that have been described above offer 3 different models. These are as follows:

2.4.1. 2L Models

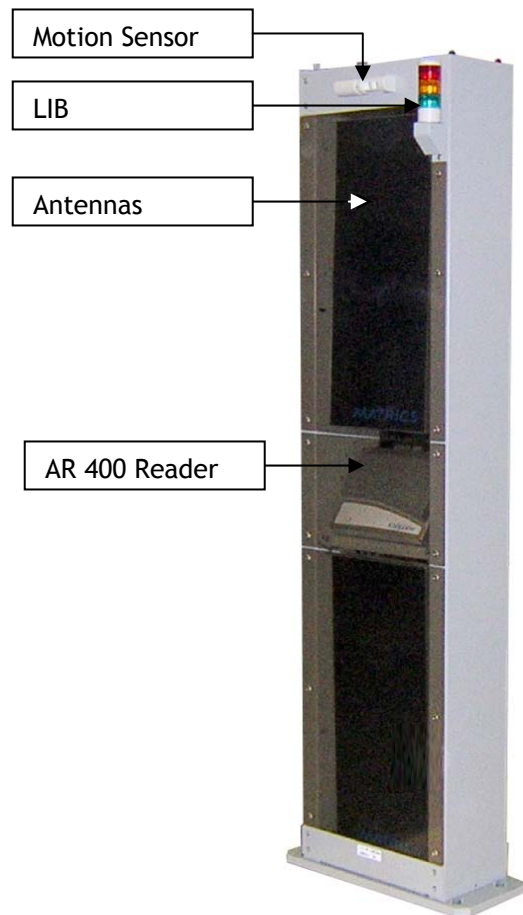
The DC 400 2L models come with two high performance antennas mounted on a single compact frame that can be placed on the left side of the Dock door. It comes in both standard and professional editions but is primarily mounted as a paired system with either a DC400-4 (Dual) Model or a DC400-2R (Right) Model.

2.4.2. 2R Models

The DC 400 2R models come with two high performance antennas mounted on a single compact frame that can be placed on the right side of the Dock door. It comes in both standard and professional editions but is mainly used to be mounted as a paired system with either a DC400-4 (Dual) Model or a DC400-2L (Left) Model.

2.4.3. 4 (Dual) Models

The DC400-4 (Dual) model comes with 4 high performance antennas mounted on a single compact frame that can be placed on the middle of two Dock door. It comes in both standard and professional editions but is primarily mounted as a paired system with either a DC400-2R (Right) Model or a DC400-2L (Left) Model or both.





Left



Dual



Right

The professional Dual models come with “1 Red and 1 Green” status light indicator and 2 Programmable Red, Amber and Green light indicators (i.e. - 1 on each side). Having a light indicator on each side helps identify which side of the dual DC 400 a tag is passing.

2.5. What’s shipped (Summary of components shipped with different models)

Model Name and Number	Symbol Part Number	Old Part Number	Quantity	Description
DC 400 Dual Standard (DC-400-4-US-STD)	[TBD]	250032-001	1	DC 400 Standard Dual Model.
		201538-001	1	DC Dock Door Frame Assembly (Dual Model)
		201510-001	1	AR 400 Reader

Model Name and Number	Symbol Part Number	Old Part Number	Quantity	Description
		210523-001	1	High Performance Antennas
DC 400 Dual Professional (DC-400-4-US-PRO)		250033-001	1	DC 400 Professional Dual Model.
		201538-001	1	DC Dock Door Frame Assembly (Dual Model)
		201510-001	1	AR 400 Reader
		201523-001	4	High Performance Antennas
		250100-001	1	I/O Box Kit
		250101-001	2	Light Bar Kits
		250102-001	2	Motion Sensor Kits
DC 400 Standard Right Model (DC-400-2R-US-STD)		250034-001	1	DC 400 Standard Right Model
		201538-003	1	DC-400 DOCK FRAME RIGHT SINGLE ASSY
		201510-001	1	AR 400 Reader
		210523-001	2	Area Antennas
DC 400 Professional Right (DC-400-2R-US-PRO)		250035-001	1	DC 400 Professional Right Model.
		201538-003	1	DC-400 DOCK FRAME RIGHT SINGLE ASSY
		201510-001	1	AR-400 Reader
		201523-001	2	High-Performance Area Antennas
		250100-001	1	I/O Box Kit
		250101-001	1	Light Bar Kit
		250102-001	1	Motion Sensor Kit
DC 400 Standard Left (DC-400-2L-US-STD)		250036-001	1	DC 400 Standard Left Model
		201538-002	1	DC-400 Dock Door Frame - Left Single Assembly
		201510-001	1	AR-400 Reader
		210523-001	2	High-Performance Area Antennas
DC 400 Professional Left (DC-400-2L-US-PRO)		250037-001	1	DC 400 Professional Left Model
		201538-002	1	DC-400 DOCK FRAME LEFT SINGLE ASSY

Model Name and Number	Symbol Part Number	Old Part Number	Quantity	Description
		201510-001	1	AR-400 Reader
		201523-001	2	High-Performance Area Antennas
		250100-001	1	I/O Box Kit
		250101-001	1	Light Bar Kit
		250102-001	1	Motion Sensor Kit

Chapter 3.

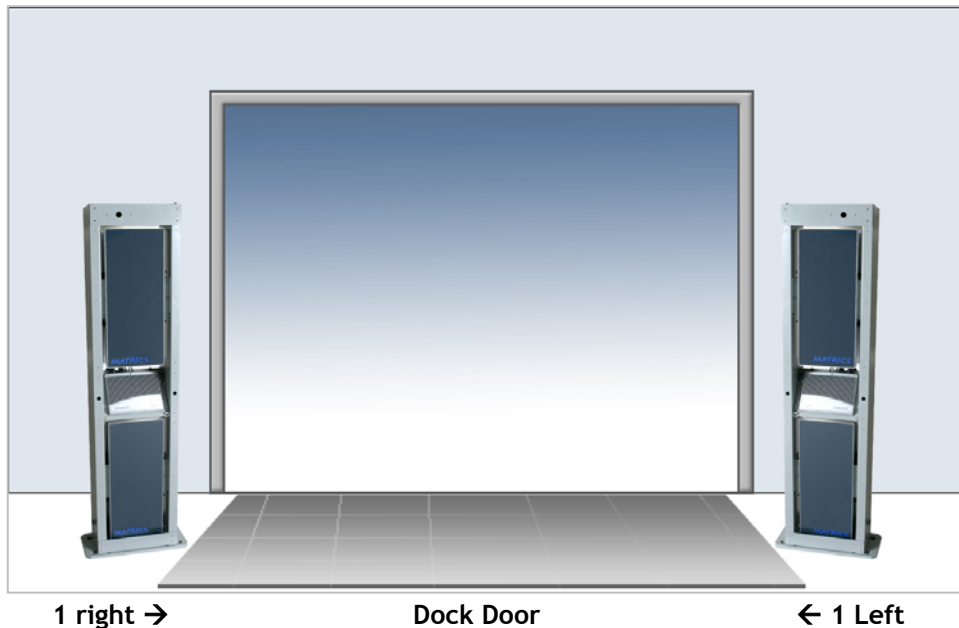
DC 400 INSTALLATION

DC 400 is a true turn-key solution and provides an easy bolt and use solution. This chapter describes how the hardware and various components can be installed making the DC 400 ready to use.

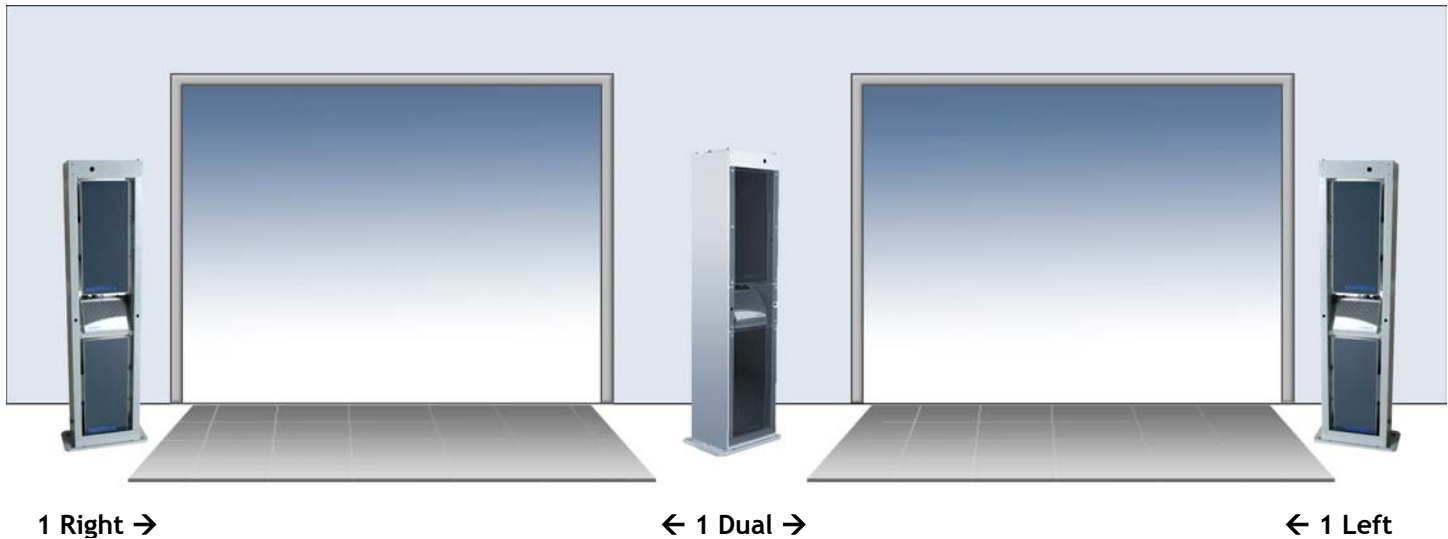
3.1. Possible Arrangements

The different DC 400 models can be arranged in different configurations as per the user requirements to help lower cost and increase ROI, thus providing the maximum benefit to the user. This section describes how different models of DC 400 can be used together to provide better performance and lower cost.

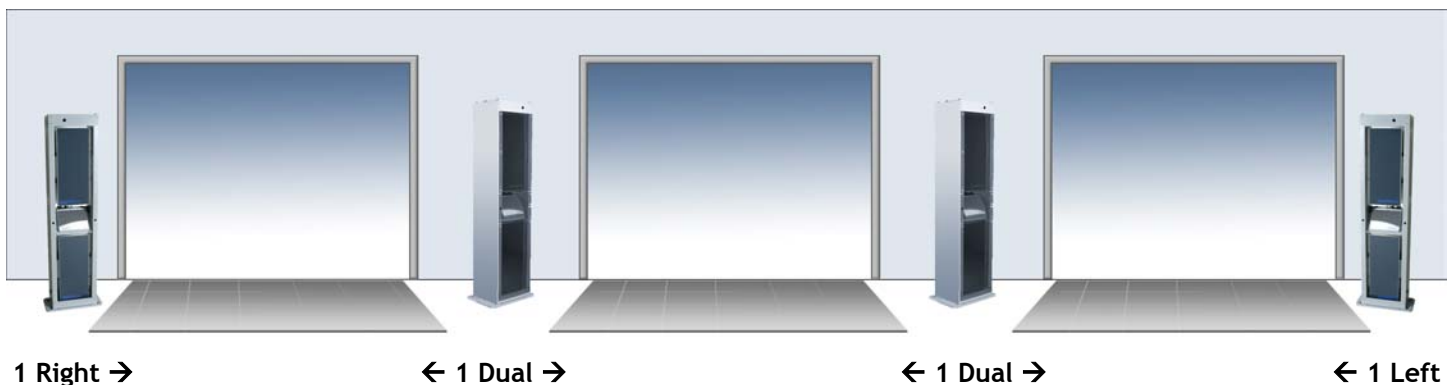
- **1 Left 1 Right** → if your requirement consists of a single dock door you might consider a combination of 1 DC400 right and 1 DC 400 left model



- **1 Dual with 1 Left and 1 Right** → This arrangement is the most economical and effective configuration when working with 2 dock doors right next to each other. The following diagram illustrates:



- **(N - 1) Duals with 1 Left and 1 Right** → This arrangement is to be the most economical and effective configuration when working with multiple (n) dock door right next to each other. The following diagram illustrates:



3.2. Installing Power cables and Ethernet cables

The side panel contains the input points for power and Ethernet for the AR400 which is pre-installed in the DC 400. To power the DC400 you will need to open the side panel. The following procedure describes how the side panel can be opened to power up the DC400 and connect the Ethernet cable to it:

1. Unscrew the screw that secures the side panel to the base plate on the floor panel.
2. Push the side panel towards the DC400 frame and slide it upward to open the side panel.

- Slide in the power cables and the Ethernet cables into the side panel using the holes on top of DC 400 edge which have been specially design to allow power and Ethernet cables to pass.
- With the side panel now open; look for Regular power and Ethernet input. The Diagram below illustrates where the regular power and Ethernet input can be located:



Regular Power And Ethernet inputs for DC 400.

- Once the power cable and the Ethernet cable is secure close the left panel and secure it with the floor panel using a screw driver.

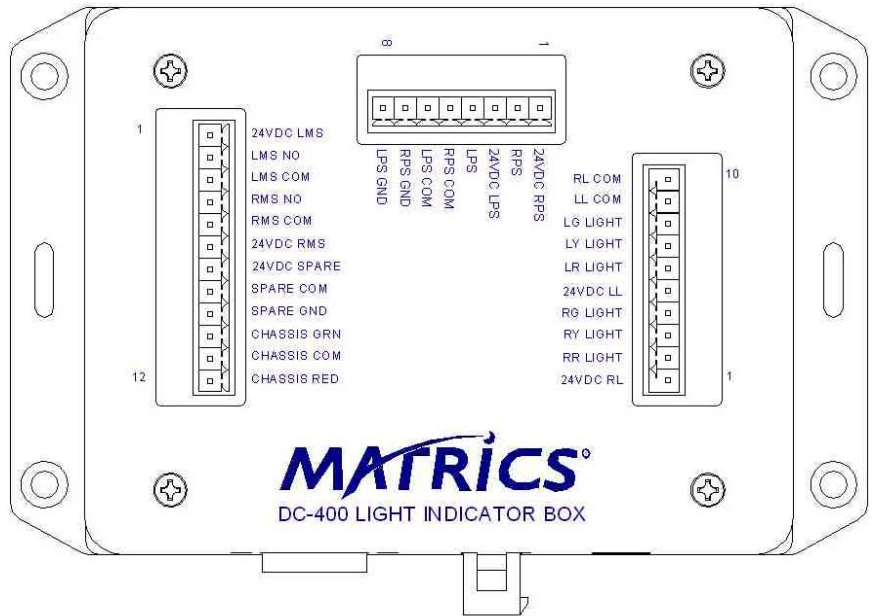
3.3. Mounting the DC-400 to the Floor

The DC 400 comes with a base plate (See ‘Physical Dimensions of Base Plate’ in Appendix A for more details) which has 4 holes which allow the DC400 to be bolted to the floor. Pre-drill bolt holes into the ground location that align with the exiting holes in the DC 400 base plate using ½ inch bolts. Install included bolts through DC 400 base plate and secure into floor.

Chapter 4. DC 400 LIB AND MOTION SENSOR WIRING

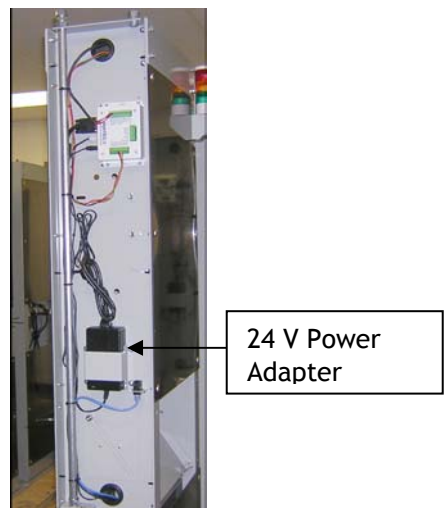
The Professional Version of the DC 400 comes with a Light Indicator Box (LIB) which connects the Motion Detector, Light Bars and AR 400 to the DC 400 to enable it to act as a complete integrated system. This chapter describes how the Light Indicator Box (LIB) is connected with other DC 400 components.

The below diagram depicts a typical LIB with general wiring.



4.1. LIB Power Wiring

To expose the LIB open the right panel of the DC 400. The DC 400 can be powered using the 24 V Power Adaptor that is also located on right panel of the DC 400. The Below Diagram illustrates. Once powered, the power can also be routed to the AR 400.





Note: The DC 400 comes pre-configured with the wiring described in the rest of this chapter. This information has been provided for user reference only.

4.2. LIB to DC 400 Connections

The DC 400 is pre connected to the light indicator bar using the following configuration:

- DC400 LIB is connected to the AR400 using a 15 Pin VGA Style cable.
- 2 Patlite Light Bars are wired to the 10 Pin Pluggable Terminal Block on the LIB as outlined in Table below.

Terminal Block Pin Number	Patlite Light Bar Wire Color	DC400 LIB Label
1	Black	24VDC RL
2	Red	RR Light
3	Yellow	RY Light
4	Green	RG Light
5	Black	24VDC LL
6	Red	LR Light
7	Yellow	LY Light
8	Green	LG Light

4.3. Standard DC 400 Red and Green LEDs to LIB Connection Information

DC400 LIB is connected to the AR400 using a 15 Pin VGA Style cable. The LIB to DC 400 Rack Wires is connected using the following configuration:

Pin #	DC400 LIB Label	DC400 Rack Wires
10	CHASSIS_GRN	Green LED Black wire
11	CHASSIS_COM	Red and Green LED's Red Wires (2 wires)
12	CHASSIS_RED	Red LED Black wire

4.4. Motion Detector to the DC 400 Connection Information

The motion detector is secured to the front plate on the top panel of the DC 400. The wires are arranged to neatly pass through the hole on the right panel. The following diagram illustrates:



As illustrated by the following diagram the wires are connected to the DC 400 LIB. The table that follows gives the specifications for wiring:



The motion sensor is connected to the DC 400 using the 12 Pin Pluggable Terminal Block as outline in Table below:

Motion Sensor Terminal Block Pin Number	Bosch DS150i Motion Sensor Wire Color Code	DC400 LIB Label
1	2 - Red	24VDC LMS
2	4 - Violet	LMS NO
3	3 - Yellow	LMS COM
4	7 - Green	RMS NO
5	6 - Gray	RMS COM
8	1 - Black	SPARE COM

For information on Motion Sensor Pin outs refer to Motion Sensor Pin outs section in Appendix A of this document

4.5. Further configurations for Motion Sensor

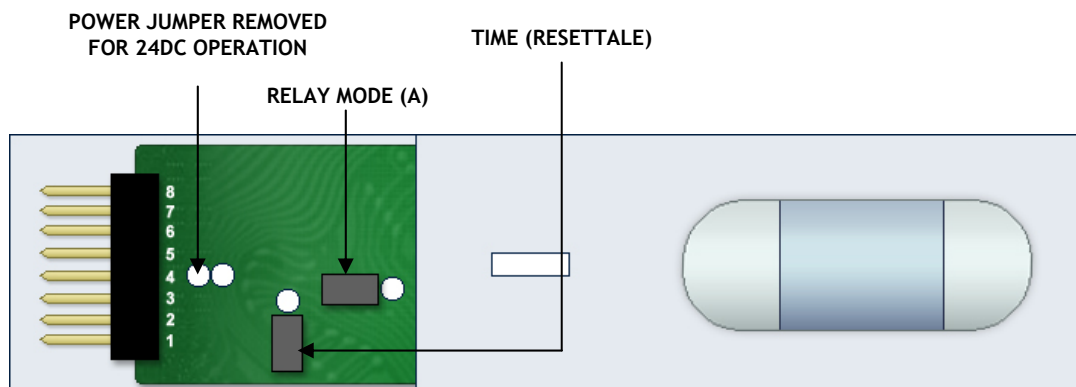
Symbol ships Bosch Model DS150i Motion Sensor as a default motion sensor in all the DC 400 professional models. The latch time of the Bosch Model DS150i Motion Sensor is adjustable from 0.25 to 60 seconds via a potentiometer located on the PCB of the Motion Sensor. The factory preset latch time is set to the fastest setting of 0.25 seconds. However this can be changed by turning the potentiometer counter clock wise until it stops rotating.

4.6. Motion Sensor Jumper Settings

The jumpers on the Bosch DS150i Motion Sensor are configured as indicated in the figure below.

The Motion Sensor configuration is as follows:

1. Power Jumper removed for "24VDC" Operation.
2. Relay Mode set to Mode "A."
3. Timer Mode set to "Resettable"



Chapter 5. SETUP & CONFIGURATION WITH MOTION DETECTOR

This chapter describes how the AR-400 should be configured to work with the DC-400 when using a **motion sensor**. It does not provide step by step procedures of how the web based administrator console should be used. To learn how you can use the web based administrator option refers to the AR-400 user manual.

This chapter also describes how the antennas should be installed physically and then grouped logically using the firmware to avoid any problems while deploying a DC400 with a motion sensor.

The recommended motion sensor is the **Bosch DS150i Motion Sensors**. However, other Manufacture's motion sensors may be used provided they meet the requirements outlined in Appendix A.

5.1. Basic Antenna Setup and Configuration for Polling with Motion Detector

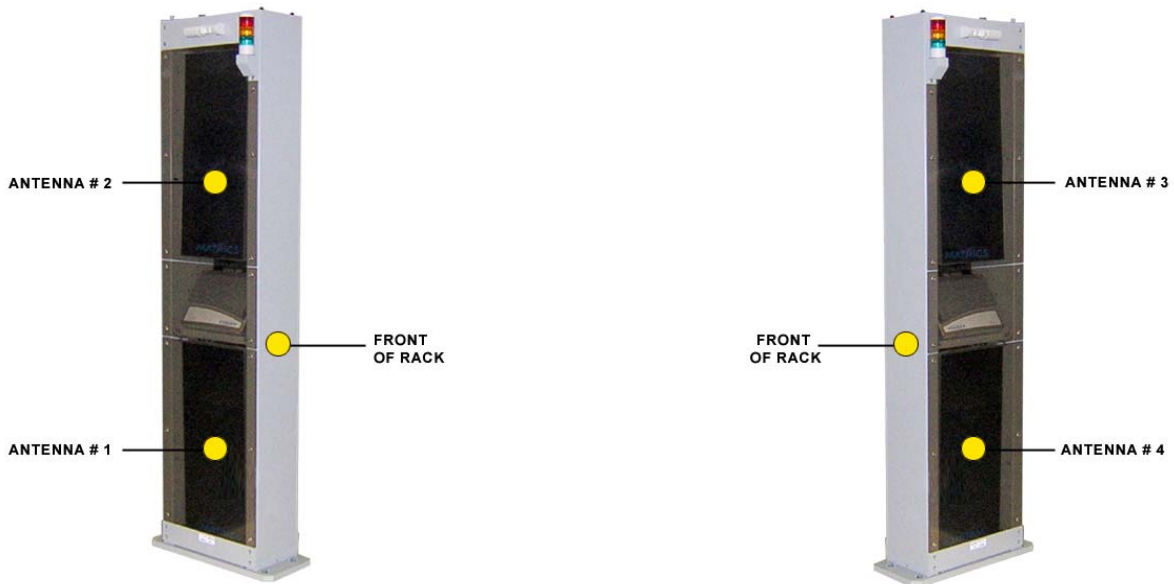
To use the motion detector with DC 400 you should ensure that the, **Use Motion Detector** option is enabled using the web based administration console of the AR-400 firmware. To learn how this option can be enabled refer to the AR-400 user manual.



Warning: Motion Sensor is tied to the antennas that are connected to the side of DC 400 where motion sensor is installed. It is for this reason that the system treats antenna 1 and 2 as a pair and should be treated as a combined pair. Similarly antenna 3 and 4 should be treated as a combine pair. Once the antenna ports are combined as specified, the host application must **only** command the 1st and 3rd port. Any other pairing or reconfiguration in this setup will result in erroneous operation.

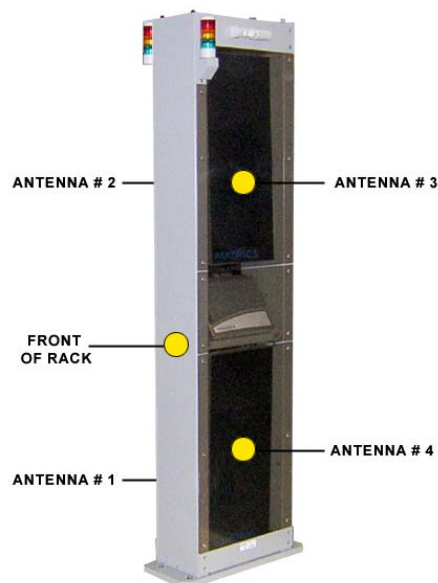
Below are configurations of how the antennas may be arranged within your DC 400 while using a motion detector. Avoid all other configurations while installing DC 400 other than the configurations described below:

5.1.1. Single Sided Shelf With Two Antennas



While using a single sided shelf (left / right) with a motion detector use antenna pairs of either Antennas 1 and 2 or Antennas 3 and 4 depending on the shelf that you are using. **Also make sure that the antennas are mounted on the correct side of the shelf as indicated by the diagram and combined into a group before you start reading tags.**

5.1.2. Dual Shelf

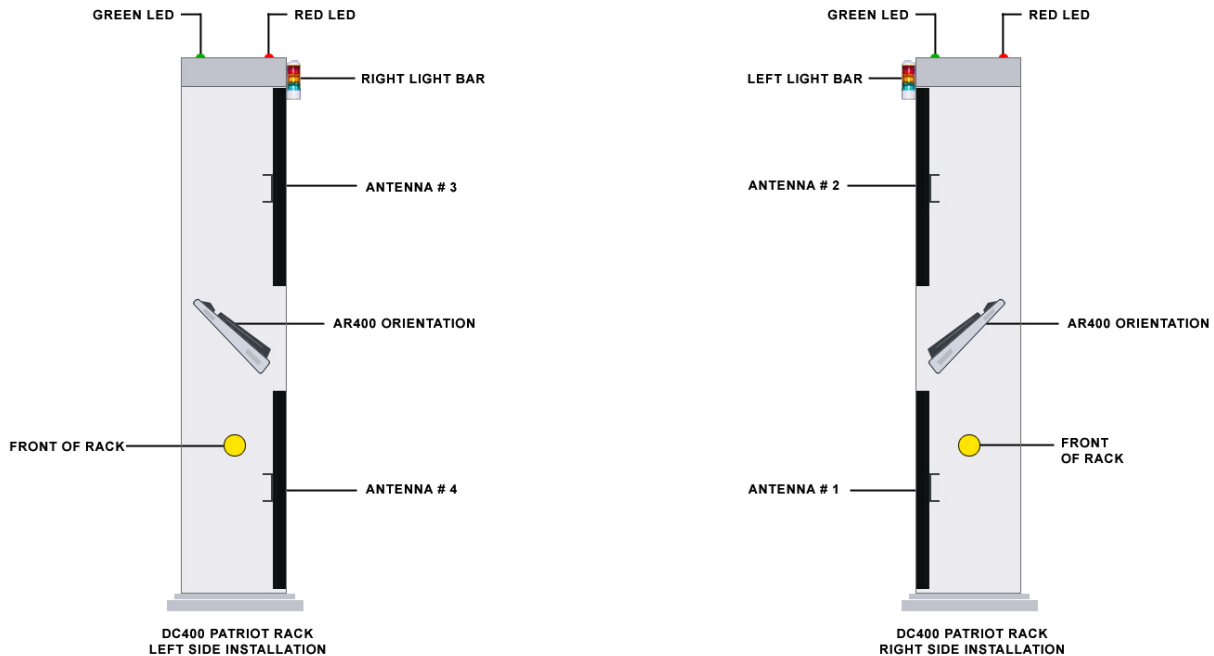


While using a dual shelf, with motion sensors and deploying all 4 antennas you need to ensure that antenna 1 and 2 are stacked on 1 side (with the left light indicator bar) and combined and antenna 3 and 4 are stacked on the other side (with the right light indicator bar) and combined into groups. i.e. Antenna 1 and 2 combined as group 1 and Antenna 3 and 4 combined as group 2.

5.2. Light Indicator Bar Configuration

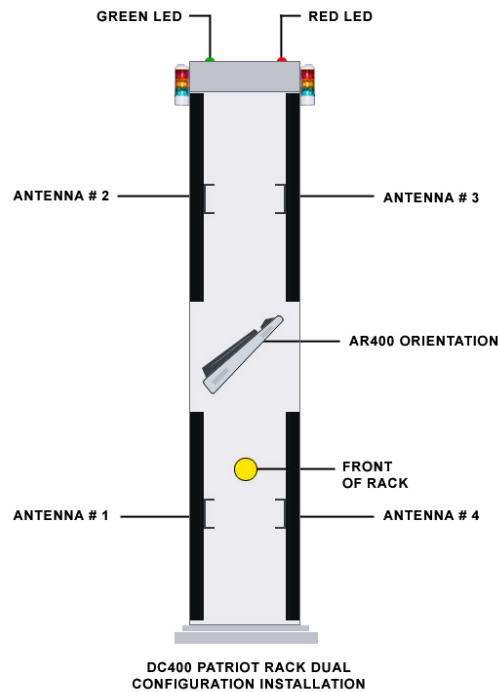
The below sections describe how the antennas should be stacked and how the Light indicator bars should be connected to ensure proper working of the DC 400 with motion detector.

5.2.1. Single sided installation



For a left side installation, as illustrated by the above diagrams ensure that you connect antenna 3 and antenna 4 to the right light indicator bar. In case of a right side installation ensure that you connect antenna 1 and antenna 2 to the left light indicator bar. Also ensure that the antenna 1 and 2 pair and antenna 3 and 4 pair are combined as different groups.

5.2.2. Dual installation



For a dual installation, as illustrated by the above diagrams ensure that you connect antenna 3 and antenna 4 to the right light indicator bar and connect antenna 1 and antenna 2 to the left light indicator bar. Also ensure that antenna 1 and antenna 2 are combined as group 1 and antenna 3 and antenna 4 are combined as group.

Appendices



Appendix A.

MECHANICAL AND ELECTRICAL SPECIFICATIONS

This section describes in details the Mechanical specifications of DC 400.

A.1. Mechanical Specifications

Dimensions	
Frame Envelope:	18.2 in. W x 9.0 in. D x 75.3 in. H (46.2 cm W x 23.3 cm D x 191.3 cm H)
Base Plate:	26.6 in W x 9.9 in D x 0.8 in H (60.0 cm W x 25.1 cm D x 1.9 cm H)
Weight:	150 lbs (68.2 Kg)
Humidity	5-95% R.H. Non Condensing
Operating Temperature Range	-20 ^D to 70 ^D C (- 4 ^D F to 158 ^D F)
Storage Temperature Range	-40 ^D to 85 ^D C (-40 ^D to 185 ^D F)

A.2. Electrical

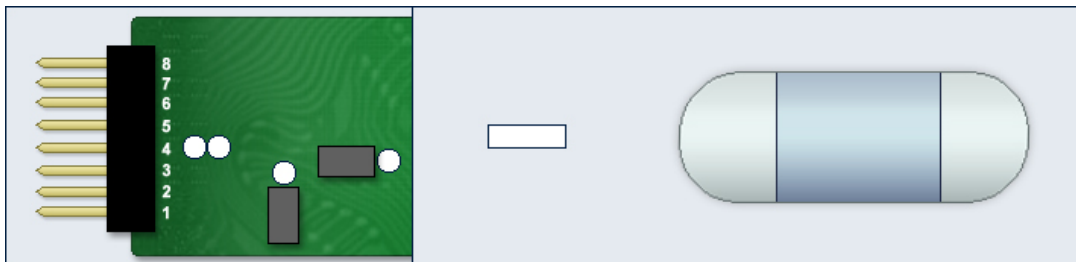
Sending	Passive Infrared (relay closure or NPN type)
Maximum Power Input	100-120 volts AC, 50/60 Hz, 2.6 Amps
Connector	Conduit of 0.5 in Φ

A.3. GPIO Signals For DC 400 Light Indicator Box (LIB)

LIB Port Names	AR-400 DCM Signal	LIB Type	Description
AI5	EXT_IN0	O	Spare
AI4_LMS	EXT_IN1	O	Left Motion Sensor Output from LIB
AI3_RMS	EXT_IN2	O	Right Motion Sensor Output from LIB
AI2_LPBK_TEST	EXT_IN3	O	Test Loopback
AI1_RIGHT_SENSOR	EXT_IN4	O	Right Photoelectric Sensor from LIB
AI0_LEFT_SENSOR	EXT_IN5	O	Left Photoelectric Sensor from LIB
AX5	EXT_OUT0	I	Spare

LIB Port Names	AR-400 DCM Signal	LIB Type	Description
AX4	EXT_OUT1	I	Spare
AX3	EXT_OUT2	I	Spare
AX2_DIN	EXT_OUT3	I	Serial Data Input to LIB
AX1_LCLK	EXT_OUT4	I	Latch Clock to LIB
AX0_CLK	EXT_OUT5	I	Serial Shift Clock to LIB

A.4. Motion Sensor (Pin outs)



1	GND connects to either LMC COM or RMC COM of the DC-400 LIB
2	24VDC connects to either 24VDV LMS or 24VDC RMS of the DC-400 LIB
3	Relay COM connects to either LMC COM or RMC COM of the DC-400 LIB
4	Relay NO connects to either LMC NO or RMC NO of the DC-400 LIB
5	8 Unused Pins

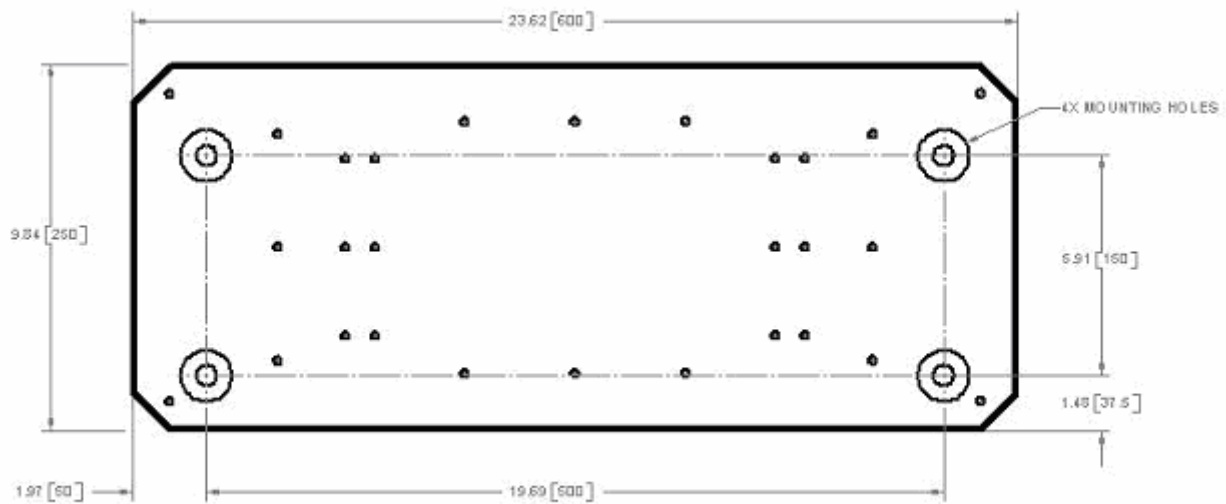
A.5. Other Technical Specifications for Motion Detector

Alarm Output	2 Form “C” relay contacts
Enclosure Design	
Material	High impact ABS Plastic Enclosure
Dimensions (HxWxD)	1.5 in x 6.25 in x 1.5 in (3.8 cm x 15.9 cm x 3.8 cm)
Environmental Considerations	
Operating Temperature	-20 ^D F to +120 ^D F (-29 ^D C to +49 ^D C)
Indicators	1 activation LED
Radio Frequency Interference (RFI) immunity	No Alarm or setup on critical frequencies in the range from 26 MHz to 1000MHz at 50 v/m.

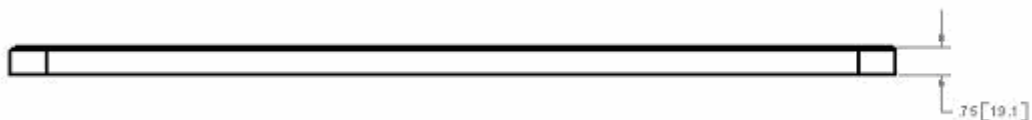
Mounting	
Location	Mounted on the panel of DC-400
Power Loss Default	Programmable Fail safe or fail secure modes.
Power Requirements	12V or 24 VAC, 12 or 24 VDC, 26 mA @ 12 VDC
Relay Launch Time	Adjustable 60 seconds
Timer Mode	Programmable resettable (accumulative) or non-resettable (counting) mode.
Trim Plate	Light Grey.

A.6. Base Plate - Physical Dimensions

Top View



Side View



Appendix B.

ADDITIONAL SOFTWARE COMMANDS

B.1. XML Commands for Controlling LEDs.

Function	Description
rred	Turns on the Right Light Bar RED LED
rrto	Sets the timeout of the Right RED LED
rgreen	Turns on the Right Light Bar GREEN LED
rgto	Sets the timeout of the Right GREEN LED
lred	Turns on the Left Light Bar RED LED
lrto	Sets the timeout of the Left RED LED
lgreen	Turns on the Left Bar GREEN LED
lgto	Sets the timeout of the Left GREEN LED

- **Example1:** Assuming that the IP address of the reader is 192.168.127.254, the following command turns off the Right RED LED:
<http://192.168.127.254/cgi-bin/dataProxy?oper=setLightIndicator&rred=off>
- **Example2:** The following command Turns on the Right RED LED indefinitely and turns on the Left GREEN LED for 1 second:
<http://192.168.127.254/cgi-bin/dataProxy?oper=setLightIndicator&rred=on&rrto=0&lgreen=on&lgto=10>



Note: The timeout parameter is in 100ms intervals, for example lgto=10 sets the timeout 1000ms or 1 second.

- Repeat xml commands for each of the colors in the Light Bar and for each light bar, ie. Left and Right.



Note: XML Commands only control the RED and GREEN LEDs in the Light Bars.