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ExpressPass LPR

INSTALLATION MANUAL

KIT PART NUMBER #100-0343

Document #101-0293
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HARDWARE INSTALLATION

This manual assumes that all required wiring is already in place (as shown on page 8).

1) Mount the LPR camera at least 28ft back from the pay station, but no more than 40ft.

If these distances are not attainable, you will experience a potential decline in license plate readability. Route Ethernet cable (Cat6 preferred) from the kiosk conduit to the pole through either the square base opening (underside of pole base) or through the round hole at the bottom of the vertical pole.

FIGURE 1

Side view: pole location.

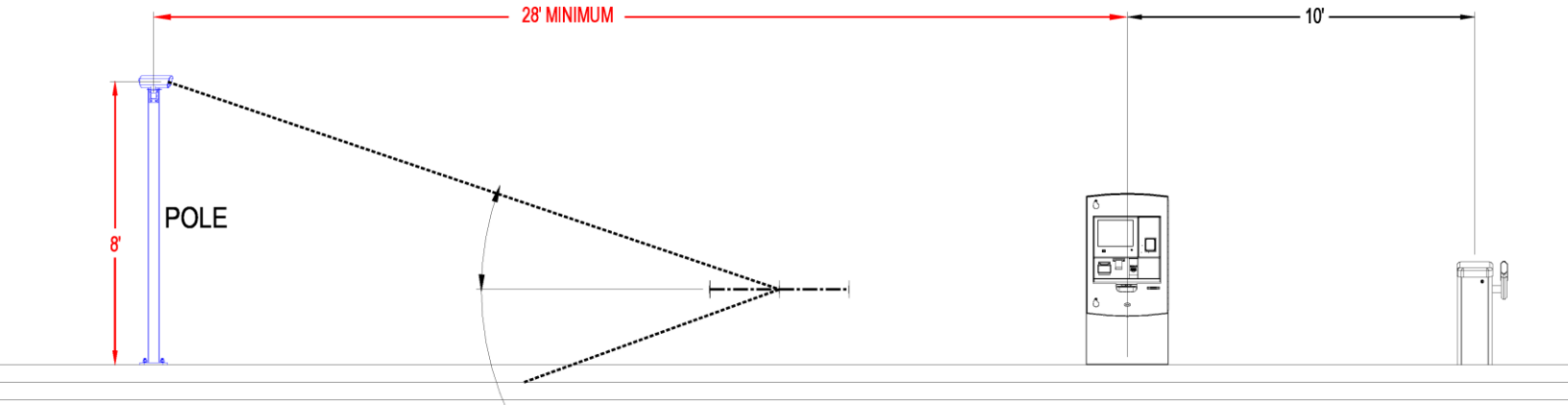


FIGURE 2

Bolt pattern for pole base.

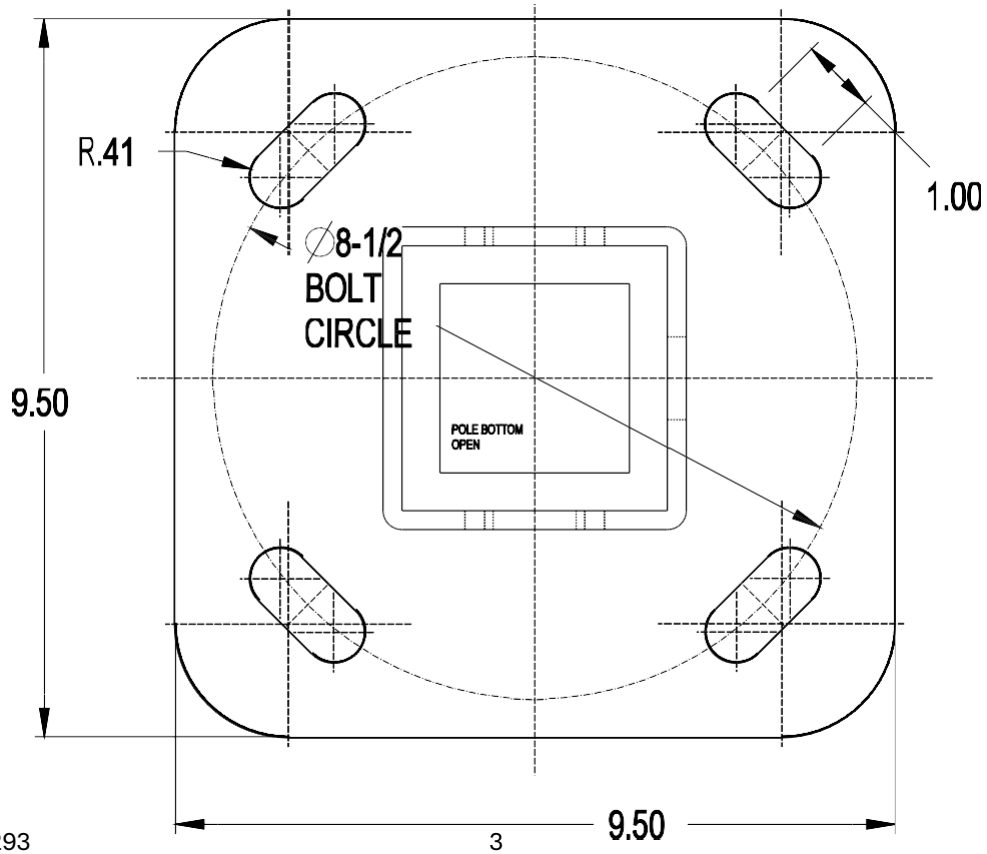


FIGURE 3

Overhead lane view showing a two-pole LPR setup for lanes 11ft wide or greater.
Lanes less than 11ft wide, two cameras can be mounted on a single pole centered between both lanes.

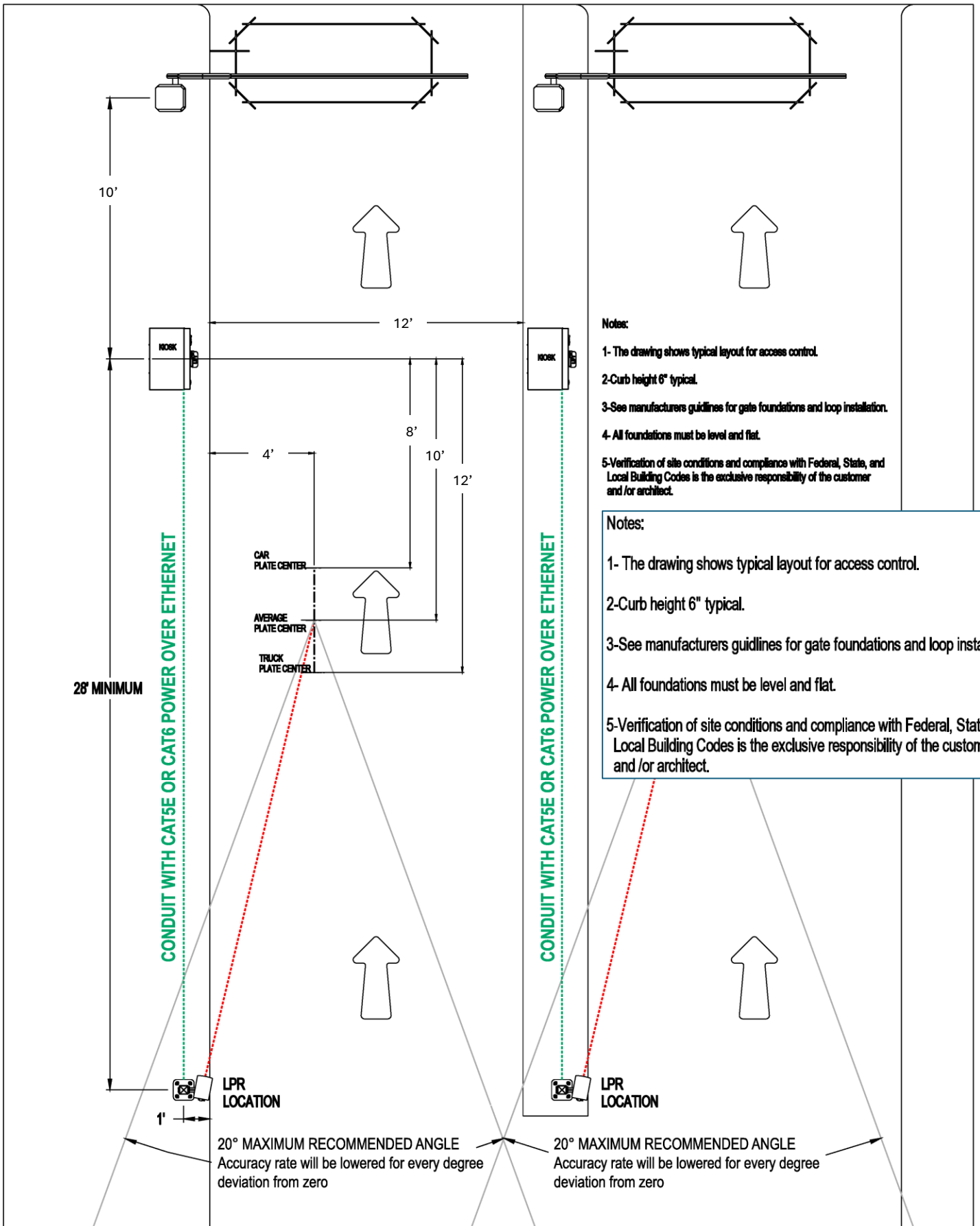
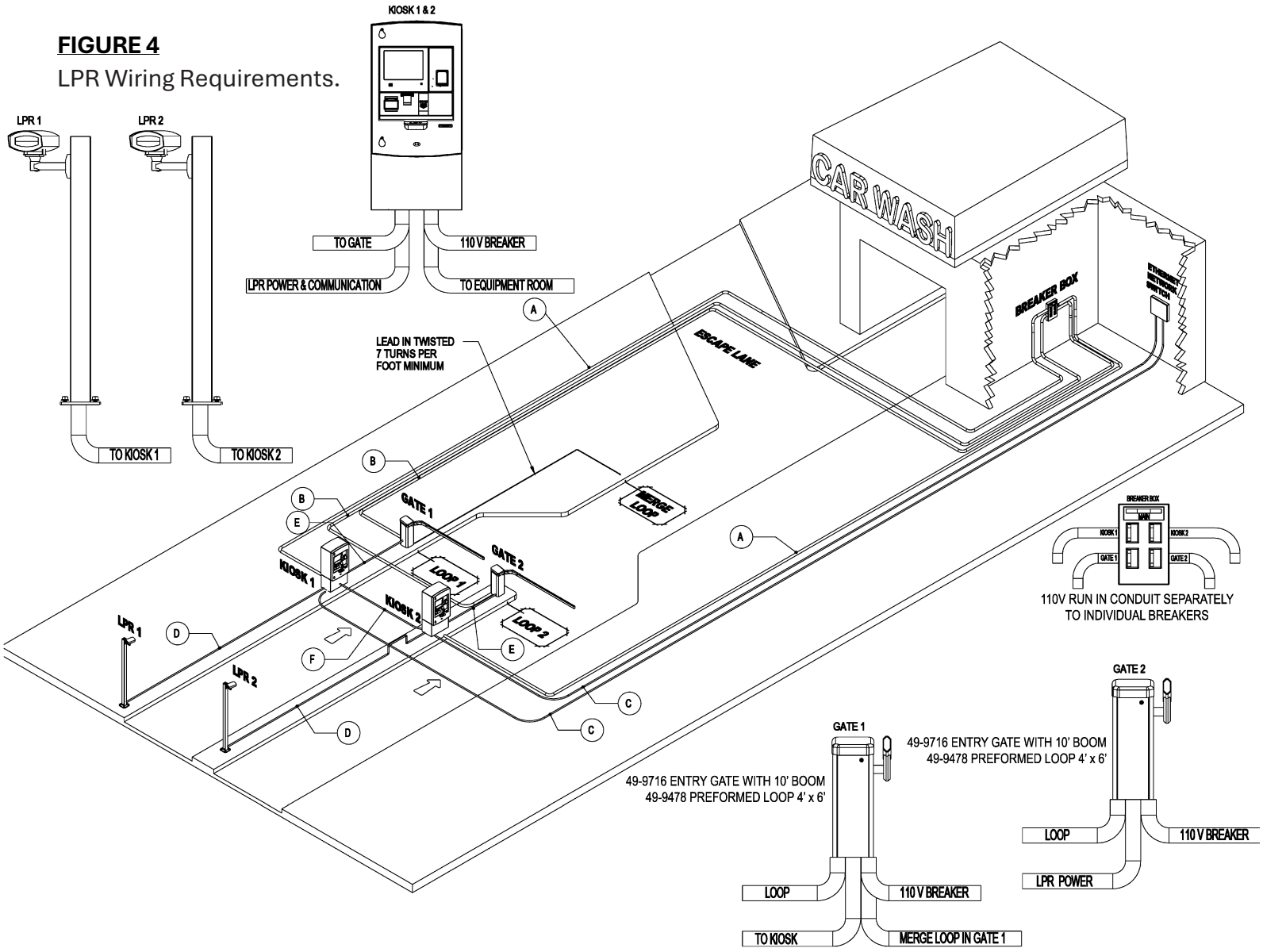


FIGURE 4

LPR Wiring Requirements.



MULTI-LANE CONFIGURATION WITH LPR SYSTEM		
A	POWER FOR KIOSK	1 - 14 AWG MINIMUM-HOT - BLACK 1 - 14 AWG MINIMUM-NEUTRAL - WHITE 1 - 14 AWG MINIMUM-HOT - GREEN
B	POWER FOR GATE	1 - 14 AWG MINIMUM-HOT - BLACK 1 - 14 AWG MINIMUM-NEUTRAL - WHITE 1 - 14 AWG MINIMUM-HOT - GREEN
C	COMMUNICATION TO KIOSKS FROM EQUIPMENT ROOM	1 - CAT5 ETHERNET CABLE 1 - 20 AWG MINIMUM-24V WASH IN SERVICE HOT 1 - 20 AWG MINIMUM-24V WASH IN SERVICE NEUTRAL *ADDITIONAL LINES MAY BE REQUIRED* 8-20 AWG MINIMUM-VEND 1-20 AWG MINIMUM-COMMON
D	LPR POWER & COMMUNICATION	1 - CAT5E OR CAT6 ETHERNET CABLE
E	COMMUNICATION BETWEEN KIOSK & GATE (WITH MERGE LOOP)	1 - 20 AWG MINIMUM - GATE UP SIGNAL 1 - 20 AWG MINIMUM +24VDC FROM GATE 1 - 20 AWG MINIMUM - SAFETY LOOP STATUS SIGNAL 1 - 20 AWG MINIMUM - MERGE LOOP STATUS SIGNAL
F	MERGE LOOP COMMUNICATION	1 - 20 AWG MINIMUM-24V HOT 1 - 20 AWG MINIMUM-N.O.
NOT SHOWN	OPTIONAL GATE OVERRIDE	1 - 20 AWG- 1 - 20 AWG- FROM GATES TO SWITCHES 1 - 20 AWG-

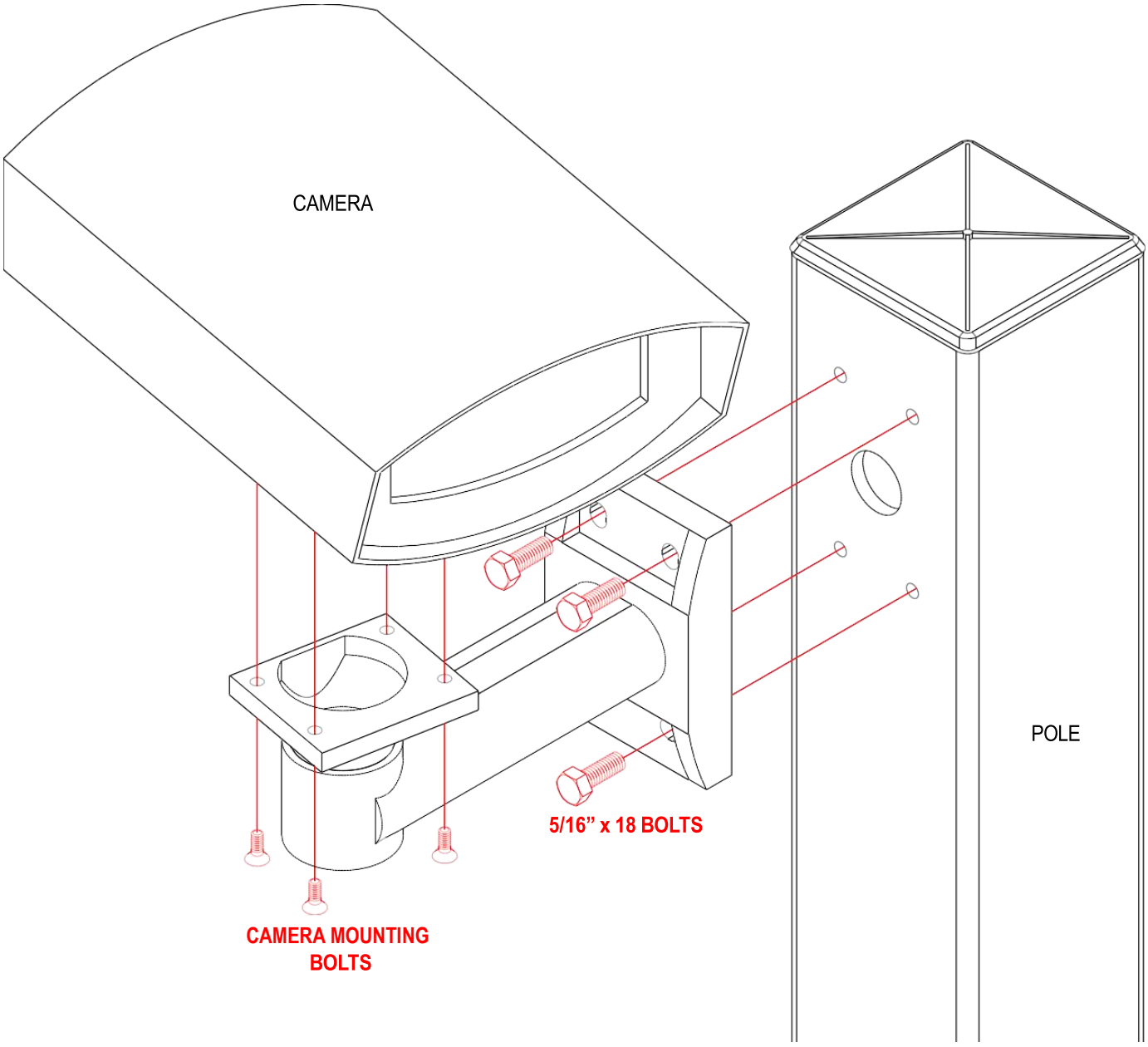
2) **Towards the top of the pole, remove the panel plug between the four mounting holes.**

3) **Attach the universal camera mount to the pole using four (4) 5/16” x 18 screws (provided).**

4) **Mount the LPR camera on the universal mount using the four (4) screws provided. Angle the camera down the lane to the approximate position where a license plate will be when using the pay station (further adjustments will be made in the Camera Configuration section).**

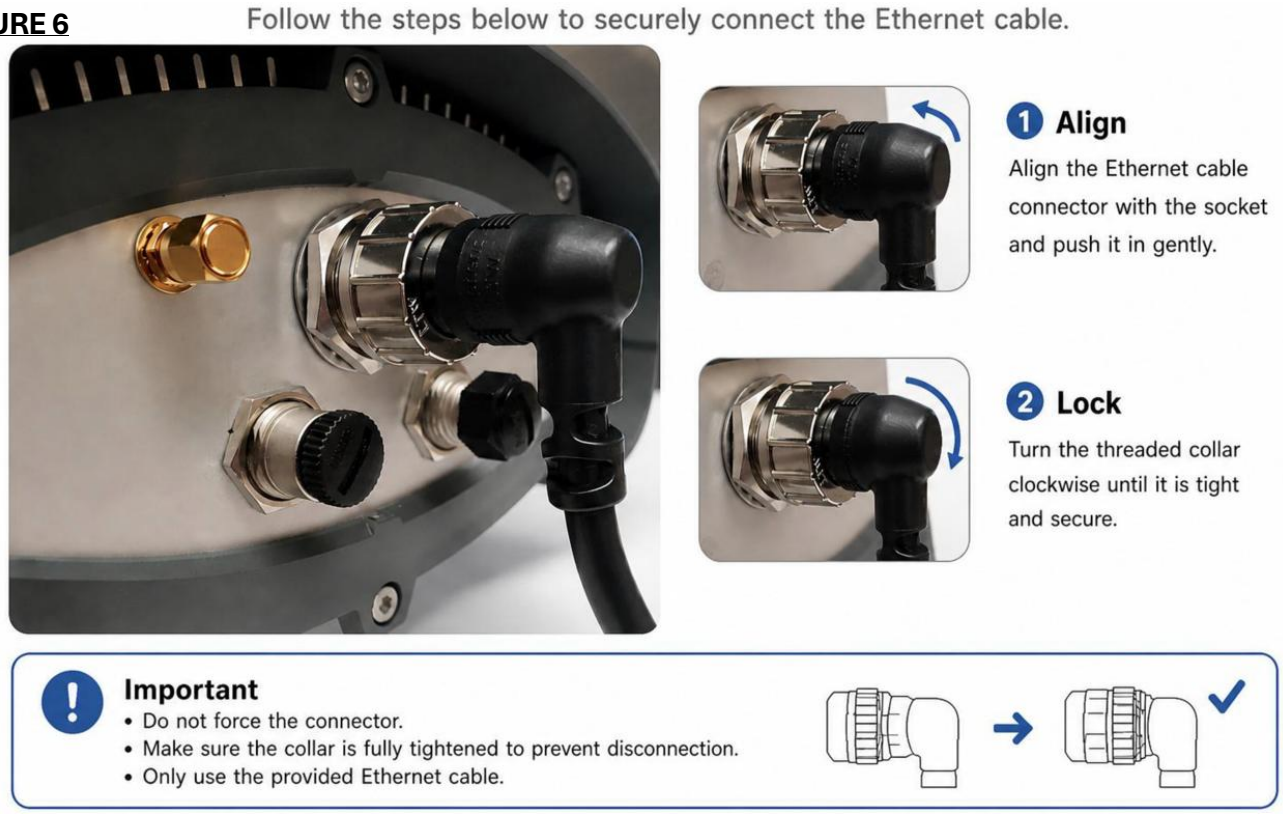
FIGURE 5

Mounting for the camera and camera mount.



5) **Connect the included 90-degree Ethernet cable to the back of the camera using its watertight connector (gland). It is extremely important to establish a firm seal on the gland – it must be properly seated and sealed to provide solid contact and insulation against the elements. This must fit tightly to prevent water infiltration and keep the cable from sliding inside.**

FIGURE 6



6) **Mount the POE++ (Power Over Ethernet) and network switch assembly:**

The POE++ hardware kit is expected to be mounted inside the relevant pay station that will be using the LPR camera. Most current Hamilton equipment already has a metal rail mounted on the inside of the cabinet wall for mounting the gray switch and POE++ hardware.

If yours doesn't have a rail (or a place to mount one), find an area inside the pay station cabinet where the new hardware is least likely to be disturbed. Plug the connected cord into the 120V connector located on the top of the pay station power supply.
The included document, #101-0311, provides more detailed information on the POE++ installation.

7) **Insert the Internet Ethernet cable (coming from the conduit) into any port on the gray switch.**

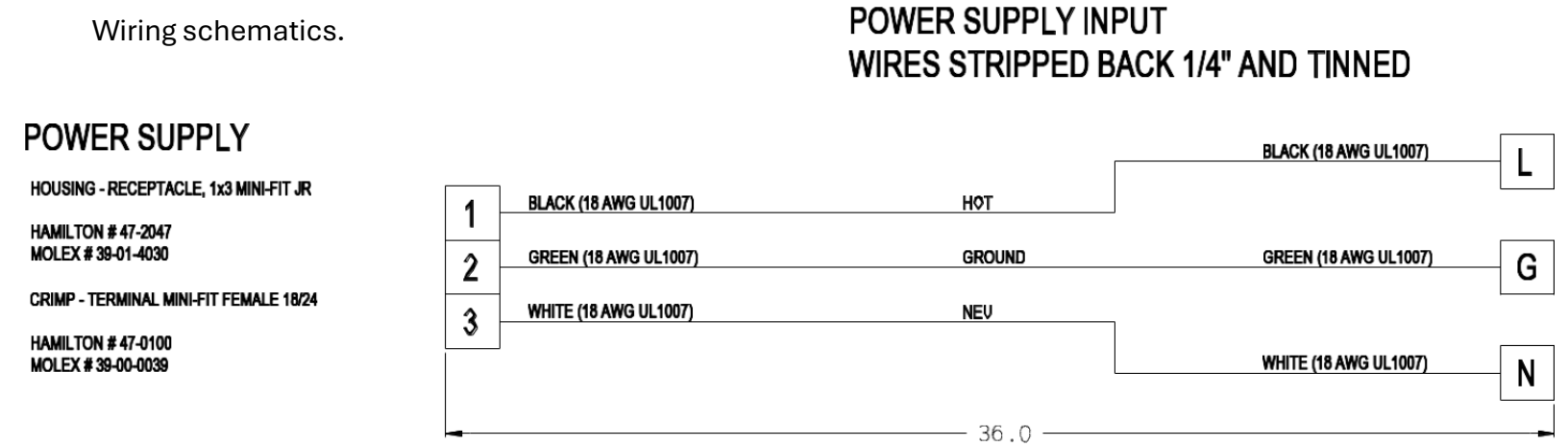
Plug the pay station controller's Ethernet cable into an open port on the gray switch as well.

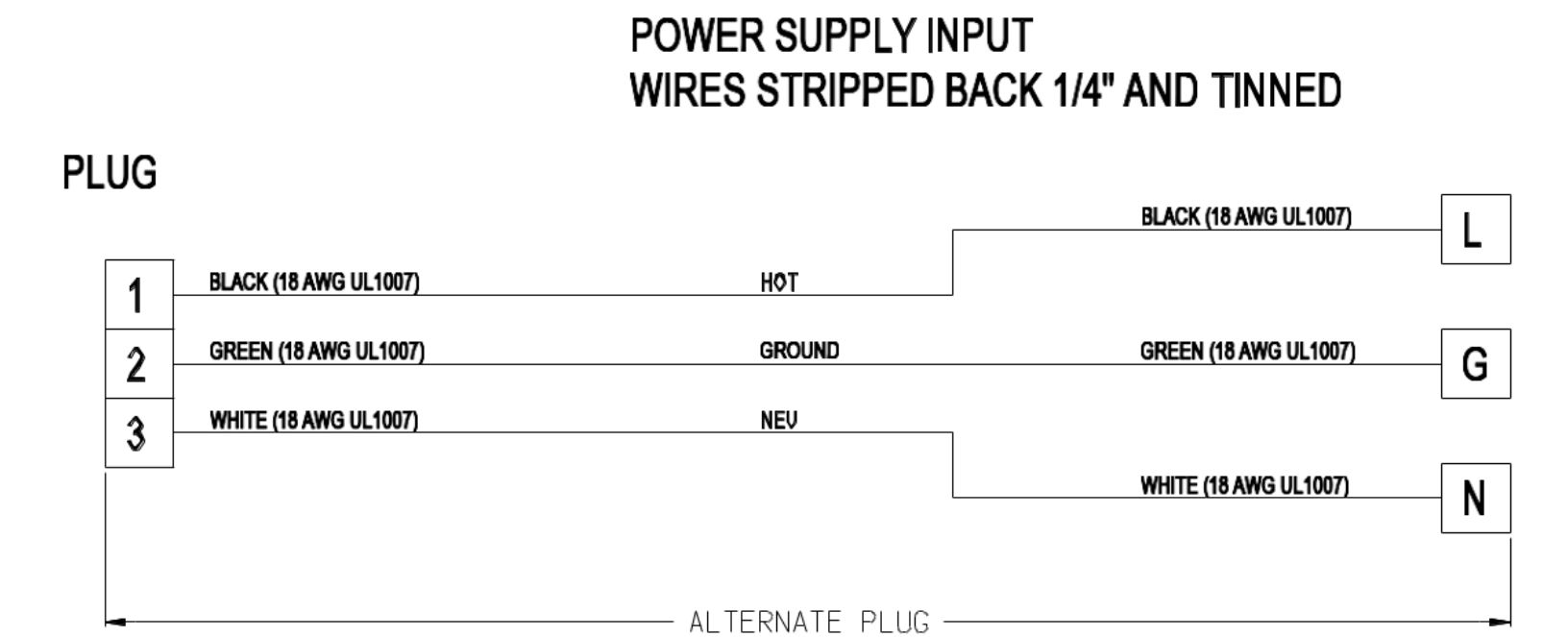
Plug a short Ethernet cable into the gray switch, then into the DATA IN port on the POE++.

Insert the camera connection into the "DATA/POE OUT" port on the POE++.

FIGURE 7

Wiring schematics.





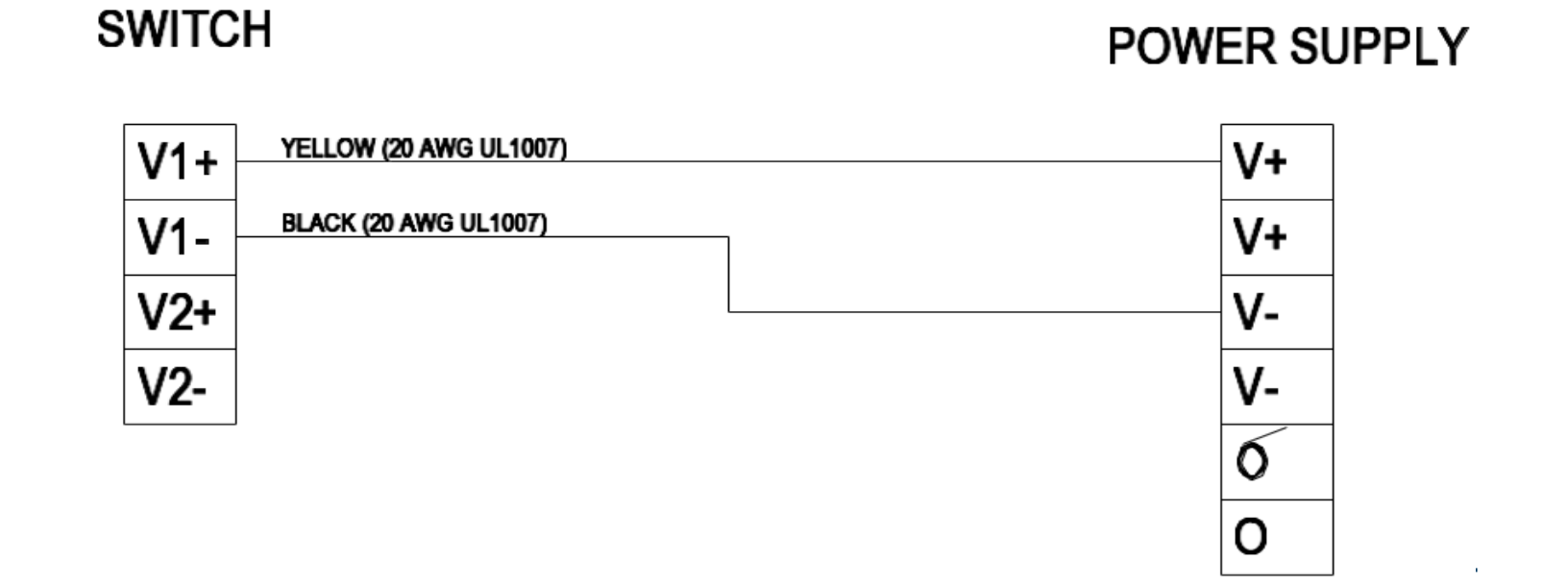


FIGURE 8

POE++ & its power supply assembly (#49-9772A).

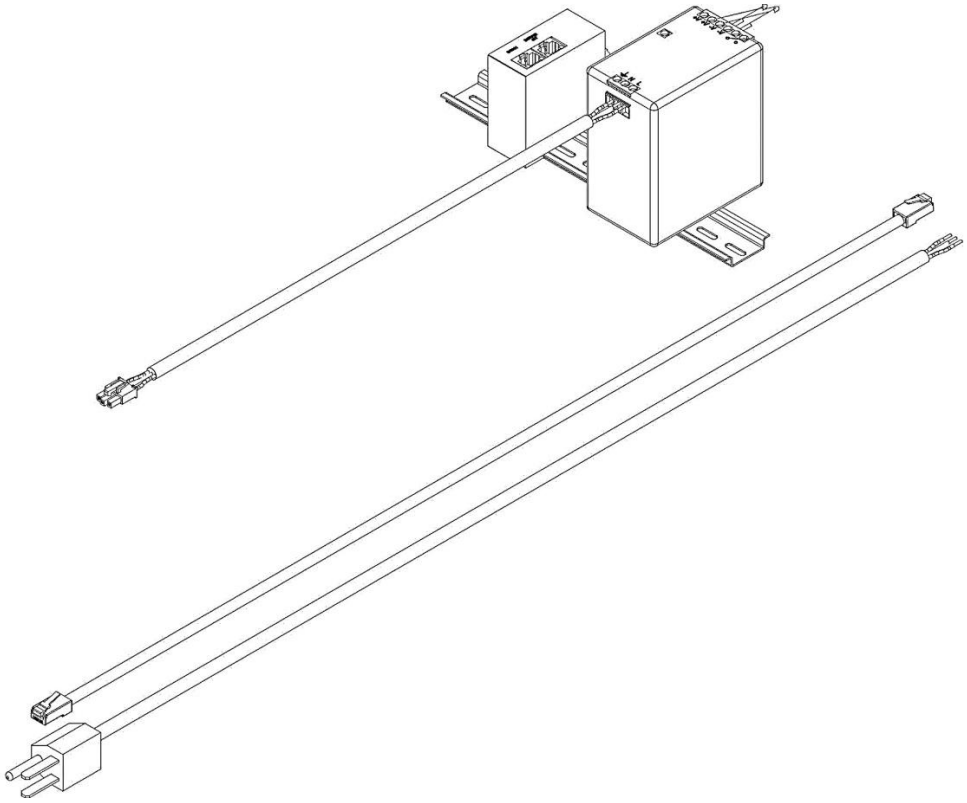


FIGURE 9

Manual camera adjustment using an Allen wrench. This adjustment is best performed after the camera is on the network and broadcasting images.

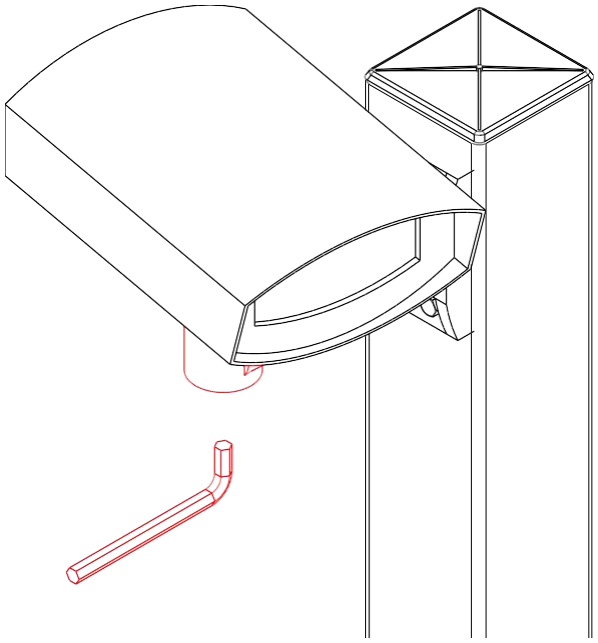
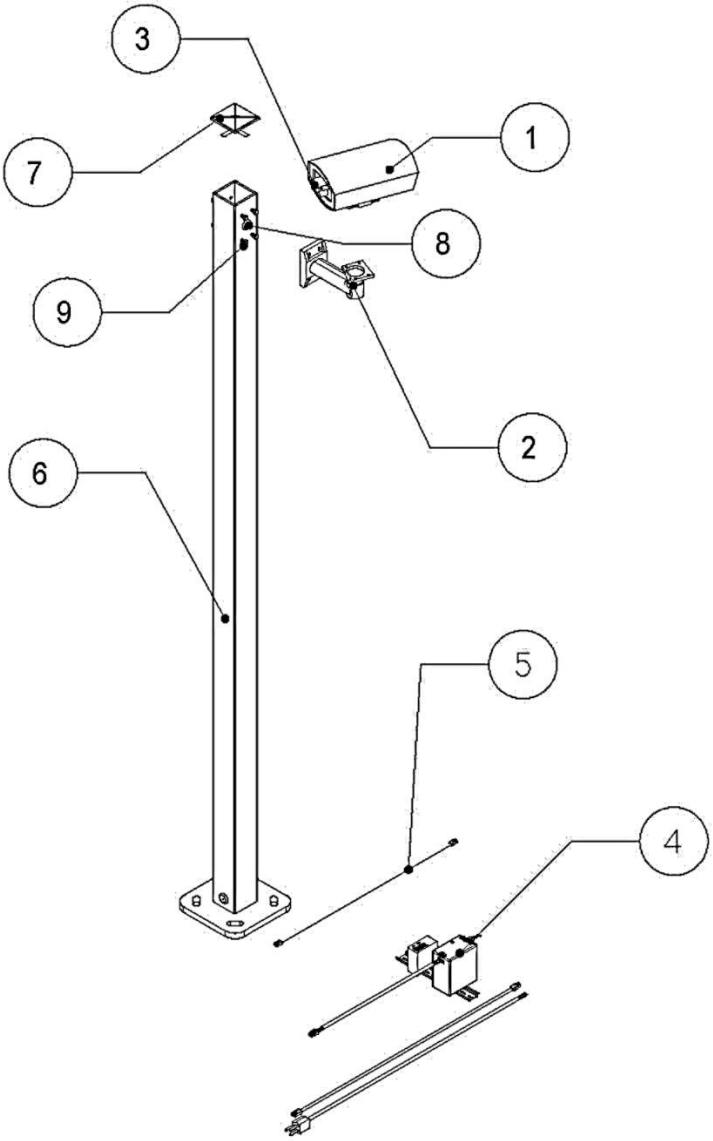


FIGURE 10

LPR system components provided in kit part #100-0343.



ITEM#	PART#	DESCRIPTION	QTY.
9	90-0279	CAP SCREW 5/16 X 18	8
8	47-3354	PANEL PLUG 1 3/32	3
7	47-3359	PLUG SQUARE FINISHING	1
6	61-3621	LPR CAMERA POLE	1
5	48-3373	PATCH CABLE RED 3'	1
4	49-9772A	POE++ INJECTOR ASSEMBLY	1
3	47-3360	IP67 SEALED RJ 45	1
2	49-9733	LPR CAMERA UNIVERSAL MOUNTING	1
1	49-9732	LPR CAMERA ALL IN ONE	1

LPR PARTS

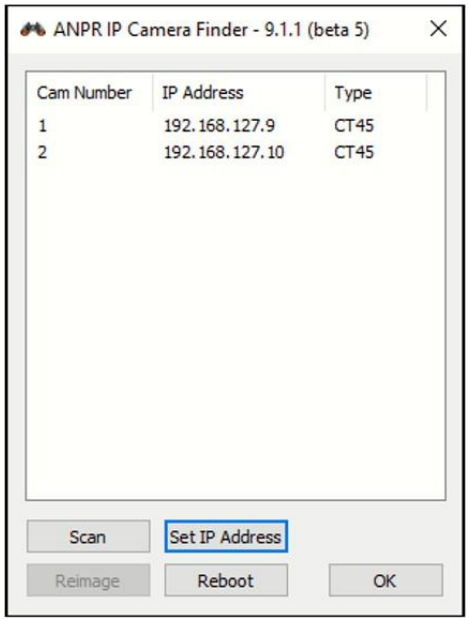
SETTING THE CAMERA IP STRUCTURE

The following steps will require access to the Hamilton D.A.N. system.

1) **Log out of the USER 1 side of the D.A.N. by pressing CTRL + ALT + DELETE on your keyboard at the same time and then choosing SIGN OUT.**

2) **Double-click anywhere on the Windows background screen to see available accounts to sign into. Of the two (2) options (User1 or Hamilton Administrator), click Hamilton Administrator.**

   Enter the password: 51You92Up (case-sensitive).



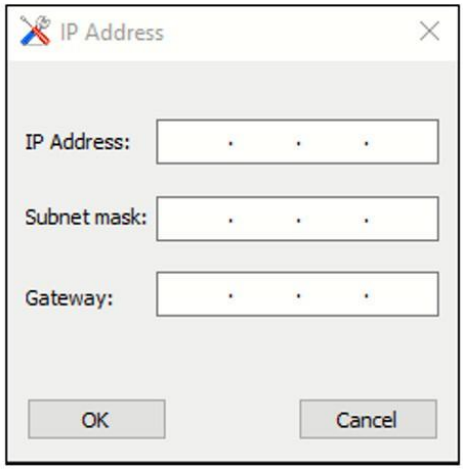
3) **You are now logged into the administrative side of the Windows application.**

   On the desktop, double-click the TagMaster app icon. This will open an application that lists any cameras it finds on your network, along with their current IP Addresses.

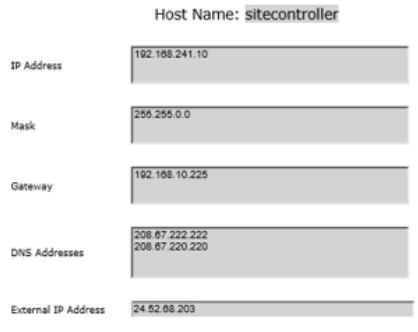
***NOTE:** Your application may look different, or there may be newer versions of the Tagmaster applications available on the D.A.N. desktop. While they all function basically the same, it is recommended to use the **TMCamera Updater** application as of this document version.

4) **In the new window, set an IP for the camera on your network. Typically, Hamilton sets the LPR cameras to use an IP address structure ending in ".70" (e.g., .71, .72, .73).**
   - **Add the Subnet Mask and Default Gateway information, then click OK.**

   Repeat this process for all cameras.



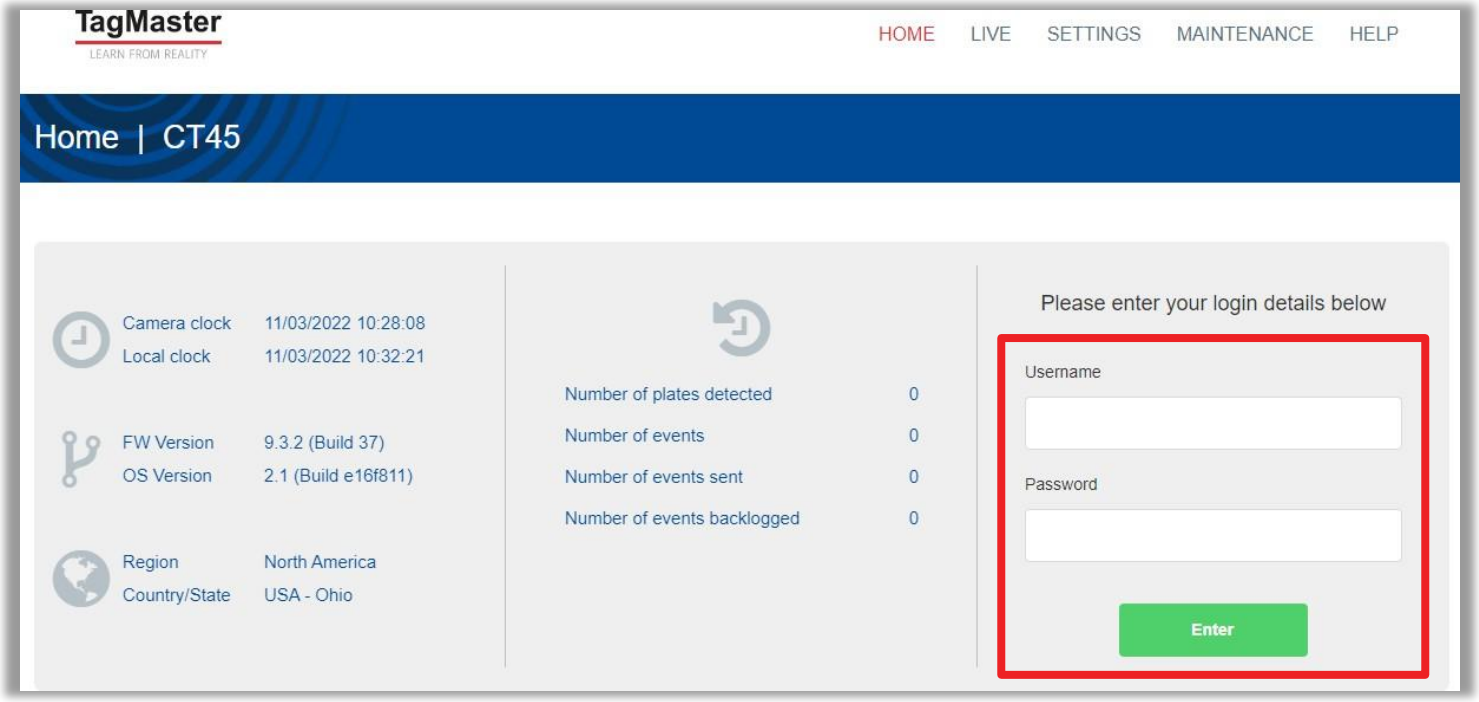
NOTE: for easy access to your network settings, navigate to Setup > Network Information in the D.A.N. prior to starting this process.



CAMERA CONFIGURATION

Setup for the LPR camera is performed through a web interface hosted by the camera itself.

1) **To begin, enter the camera's IP address in a web browser such as Chrome, Firefox, or Edge. This will take you to a page that looks like:**



Use the following credentials to log in:

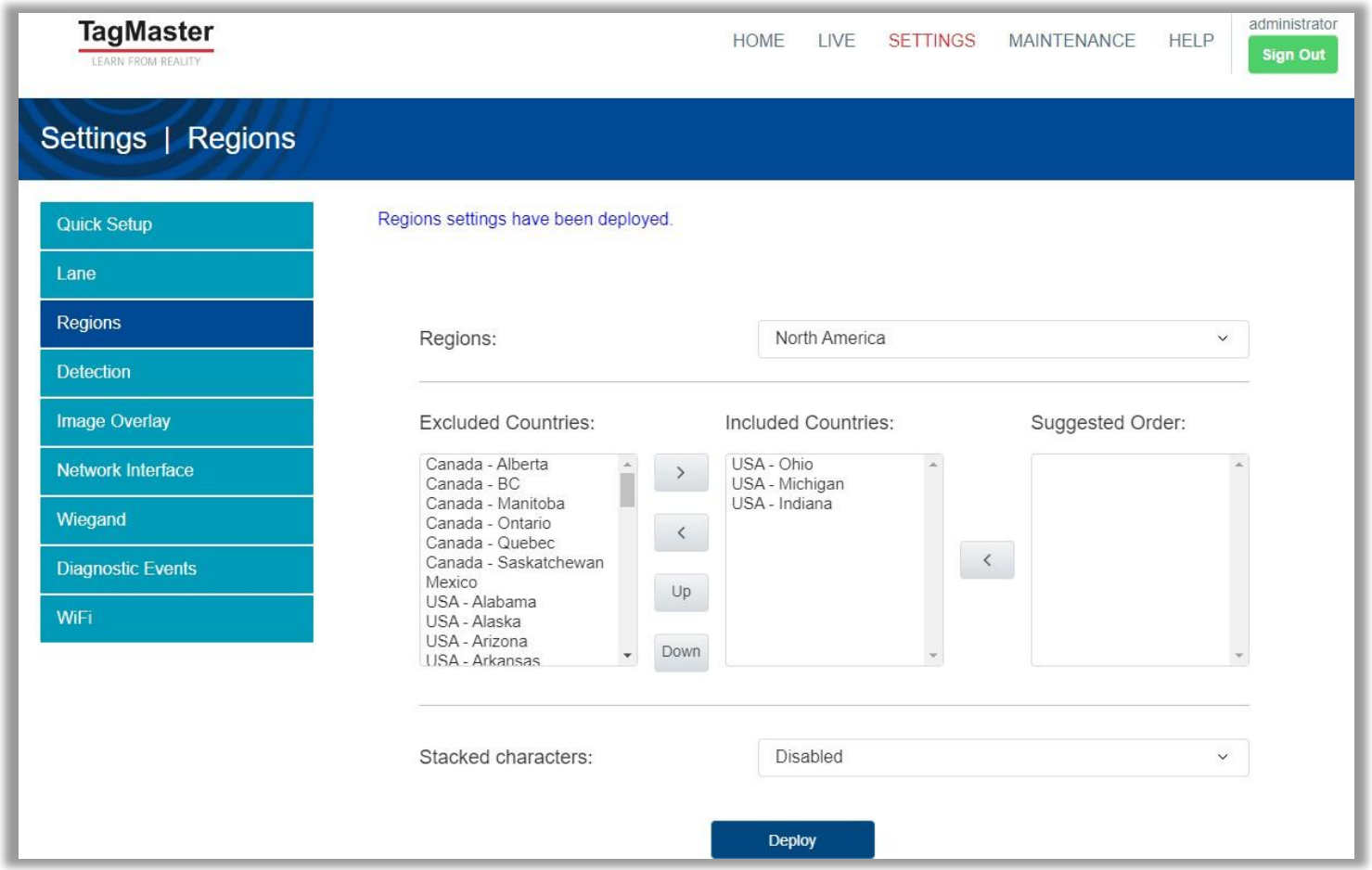
Username: Administrator
Password: citysync

Once logged in, click on **SETTINGS** in the upper-right corner of the web interface:

2) Define the type of license plates you want to read in the REGIONS menu.

It is recommended that you select **ALL** the states/provinces your business expects to encounter. This will help optimize the Optimal Character Recognition (OCR) software.

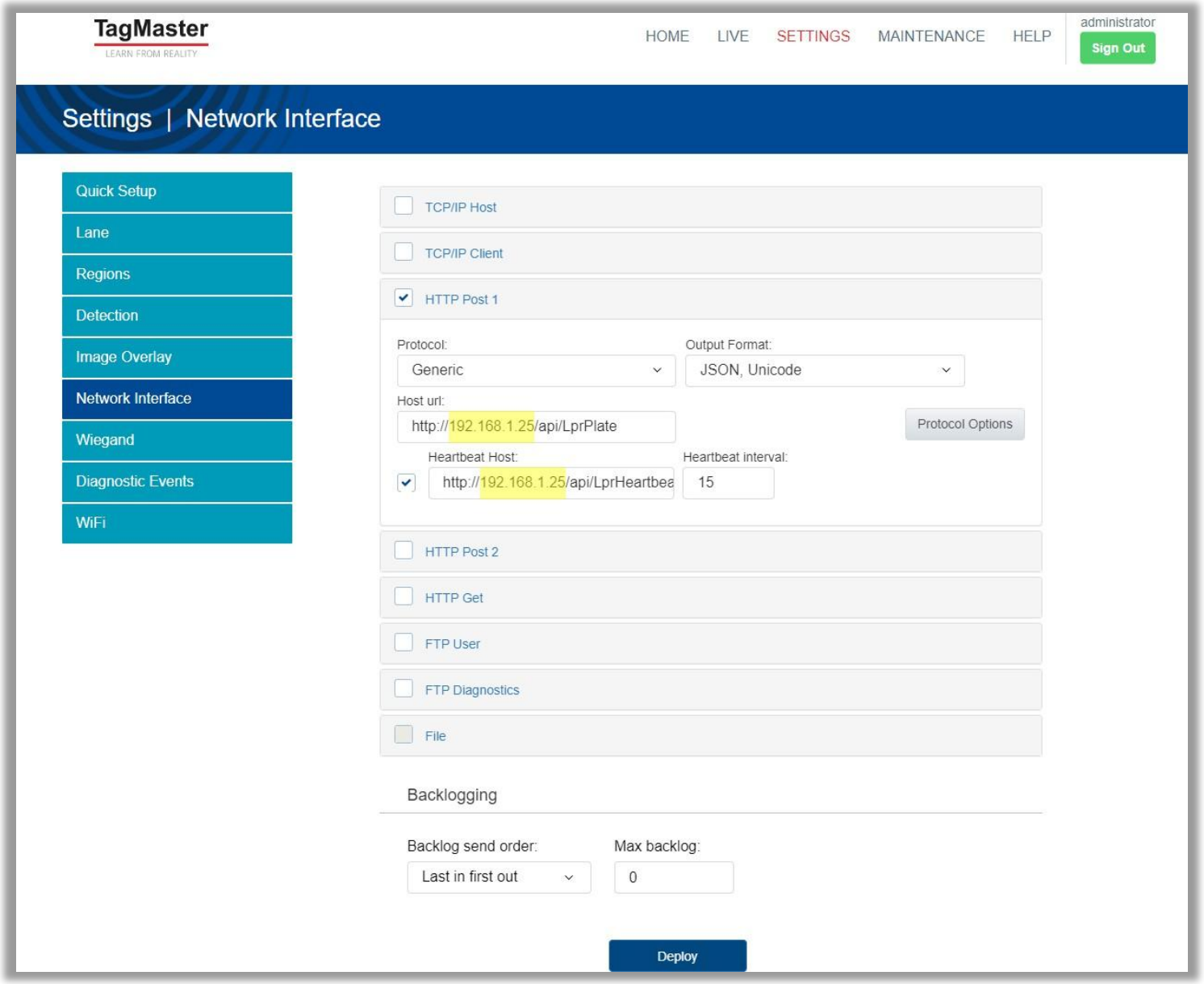
For example, if you are based in Toledo, Ohio, but also have traffic from Michigan and Indiana, you would create a hierarchy like so:



Confirm that **STACKED CHARACTERS** is set to **DISABLED**.

When done, click **DEPLOY** to save all changes.

3) Click the NETWORK INTERFACE button on the left menu. Expand the HTTP POST 1 option. Replace the default IP address in the HOST URL and HEARTBEAT HOST with the statically assigned IP address of the pay station and the LPR camera it will be using.



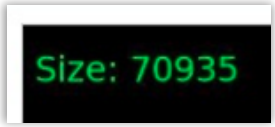
Click **DEPLOY** to save all changes.

4) Park a vehicle in the lane as if you are a customer at the pay station. Once the vehicle is in position, click on the LIVE link at the top of the web page.

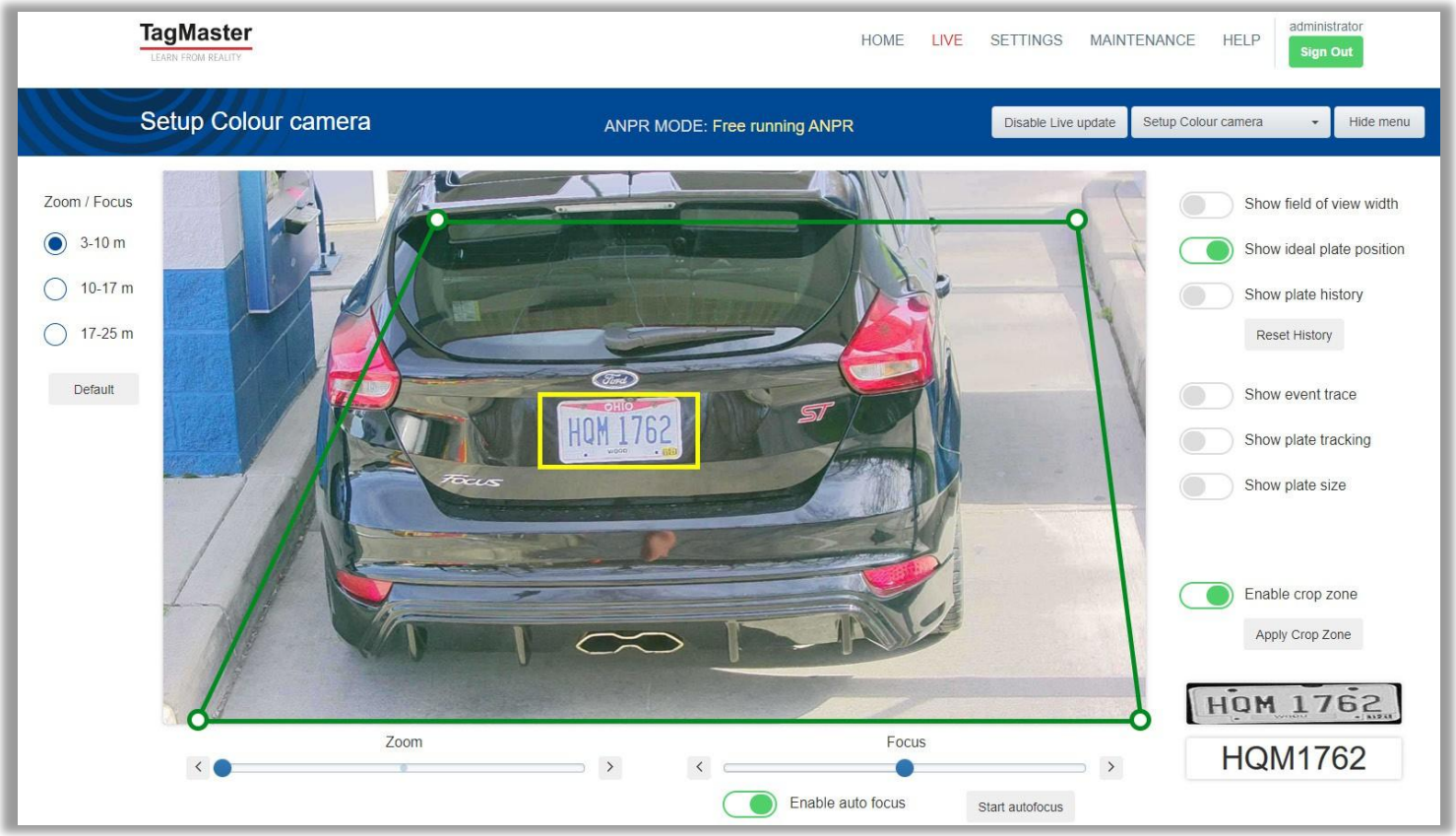
From the drop-down menu on the upper-right of the page, select **SETUP COLOUR CAMERA**. Ensure the **SHOW IDEAL PLATE POSITION** and **ENABLE CROP ZONE** toggles are turned **ON** (green).

Adjust the yellow box (IDEAL PLATE POSITON) so that it targets the plate area of the parked vehicle.
Then, use the white circles in the corner of the green crop zone box to adjust it.
The camera will read any plate that enters your designated green crop zone.
Ensure the crop zone does not enter a second lane or capture vehicles already inside the wash bay.
Eliminate areas where a vehicle plate will not be present – this will reduce the amount of redundant data the camera must process, thereby optimizing its performance.

Once the color camera has been configured, repeat this process for the mono camera by selecting **SETUP MONO CAMERA** from the drop-down.
***NOTE:** If the camera view is not like the example below, your camera(s) will need to be physically adjusted on the pole to have better line-of-sight to the vehicles it's trying to monitor.



When a plate is in the camera's view, its size will be displayed in the upper-left corner:
Ensure the plate size is at least 10,000 px when a vehicle is positioned in the ideal plate reading area.



Adjust the zoom level of both the Mono and Color cameras as needed to achieve proper plate size.
Leave all other settings at their defaults unless instructed by a TagMaster or a Hamilton representative.

LIMITED WARRANTY AGREEMENT OF HAMILTON MANUFACTURING CORP.

Hamilton Manufacturing Corp., an Ohio Corporation, ("Seller") warrants to Purchaser that all new equipment shall be free from defects in material and factory workmanship for a period of one (1) year from the original shipping date. Hamilton Manufacturing Corp. further warrants that if any part of said new equipment, in Seller's sole opinion, requires replacement or repair due to a defect in material or factory workmanship during said period, Seller will repair or replace said new equipment. Purchaser's remedies and the liabilities and obligations of Seller herein shall be limited to repair or replacement of the equipment as Seller may choose, and Seller's obligation to remedy such defects shall not exceed the Purchaser's original cost for the equipment. The Purchaser EXPRESSLY AGREES this is the EXCLUSIVE REMEDY under this warranty. There are no other express or implied warranties which extend beyond the face hereof. All warranty repair services must be performed by either a Factory Trained Service Representative or HAMILTON MANUFACTURING CORP., 1026 Hamilton Drive, Holland, Ohio 43528 PHONE (419) 867-4858 or (800) 837-5561, FAX (419) 867-4867.

The limited warranty *for new equipment* is conditioned upon the following:

1. The subject equipment has not, in the Seller's sole opinion, been subjected to accident, abuse, misuse, vandalism, civil disobedience, riots, acts of God, natural disaster, acts of war or terrorism.
2. The Seller shall not be liable for any expense incurred by Purchaser incidental to the repair or replacement of equipment and Purchaser shall assume full responsibility for any freight or shipping charges.
3. The coverage of this warranty shall not extend to expendable parts.
4. Purchaser shall have a warranty registration card on file with Seller prior to any claim for warranty protection to apply.
5. No warranty coverage is applicable to any equipment used for currency other than that specified at the time of the purchase.
6. The Seller expressly disclaims any warranty that counterfeit currency will not activate said equipment.
7. The Seller expressly disclaims any warranty for any losses due to bill manipulation or theft or loss of cash under any circumstances.
8. Use of the equipment for anything other than its intended and designed use will void the Limited Warranty Agreement. Use of equipment for anything other than its intended and designed use includes, but is not limited to, downloading software/applications not certified by Seller such as e-mail, spyware, screen savers, viruses, worms, third-party software, web search engines, cookies, spam, desktop applications, games, web surfing, etc.

The Seller further warrants all repair or service work performed by a factory-trained representative or Hamilton Manufacturing Corp. for a period of ninety (90) days from the date the repair or service work was performed. Purchaser's remedies and the liabilities and obligations of Seller herein shall be limited to repair or replacement of equipment as Seller may choose, and Seller's obligation to remedy such defects shall not exceed the Purchaser's depreciated value of the equipment. Purchaser EXPRESSLY AGREES this is an EXCLUSIVE REMEDY under this warranty.

There are no other express or implied warranties on repair or service work performed by a factory-trained representative or Hamilton Manufacturing Corp. which extend beyond the face hereof.

The limited warranty *for repair and service work* is conditioned upon the following:

1. The subject equipment has not, in the Seller's sole opinion, been subjected to accident, abuse, misuse, vandalism, civil disobedience, riots, acts of God, natural disaster, acts of war or terrorism.
2. The Seller shall not be liable for any expense incurred by Purchaser incidental to the repair or replacement of equipment and Purchaser shall assume full responsibility for any freight or shipping charges.
3. The coverage of this warranty shall not extend to expendable parts.
4. Purchaser shall have a warranty registration card on file with Seller prior to any claim for warranty protection to apply.
5. No warranty coverage is applicable to any equipment used for currency other than that specified at the time of the purchase.
6. The Seller expressly disclaims any warranty that counterfeit currency will not activate said equipment.
7. The Seller expressly disclaims any warranty for any losses due to bill manipulation or theft or loss of cash under any circumstances.
8. No person or entity other than a factory-trained representative or Hamilton Manufacturing Corp. has performed or attempted to perform the subject repair or service.
9. Using equipment which has been serviced or repaired for anything other than its intended or designed use, such as downloading software applications not certified by the Seller, will void the Limited Warranty Agreement. This includes software/applications such as e-mail, spyware, screen savers, viruses, worms, third-party software, web search engines, cookies, spam, desktop applications, games, web surfing, etc.

THIS AGREEMENT IS MADE WITH THE EXPRESS UNDERSTANDING THAT THERE ARE NO IMPLIED WARRANTIES THAT THE EQUIPMENT SHALL BE MERCHANTABLE, OR THAT THE GOODS SHALL BE FIT FOR ANY PARTICULAR PURPOSE. PURCHASER HEREBY ACKNOWLEDGES THAT IT IS NOT RELYING ON THE SELLER'S SKILL OR JUDGMENT TO SELECT OR FURNISH EQUIPMENT SUITABLE FOR ANY PARTICULAR PURPOSE AND THAT THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THAT WHICH IS DESCRIBED HEREIN.

The Purchaser agrees that in no event will the Seller be liable for direct, indirect, or consequential damages or for injury resulting from any defective or non-conforming new, repaired, or serviced equipment, or for any loss, damage, or expense of any kind, including loss of profits, business interruption, loss of business information, or other pecuniary loss arising in connection with this Limited Warranty Agreement, or with the use of, or inability to use, the subject equipment regardless of Seller's knowledge of the possibility of the same.

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