WashMAX™

POWERED BY INTELiO

# Hardware Installation Manual
# For Use With:

## Activa Gate System
**(Multiple Activas with gate entry control and car wash activation.)**

Revision 1-Adam Fanello, September 2007

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# Introduction

## *Tools Needed*

- The following are specialty tools that are needed in addition to your normal range of hand tools. (i.e. screwdrivers, pliers, etc….)

  - Fish Tape (250 ft)
  - Dikes (diagonal cutting pliers)
  - *CAT5e stripper (optional)
  - *RJ-45 crimping tool
  - Gobs of other things!!

  (*-These items are available in the Intelio Distributor Kit. Contact any Intelio representative for details.)

- A roll of 2-sided mounting tape will also be needed.

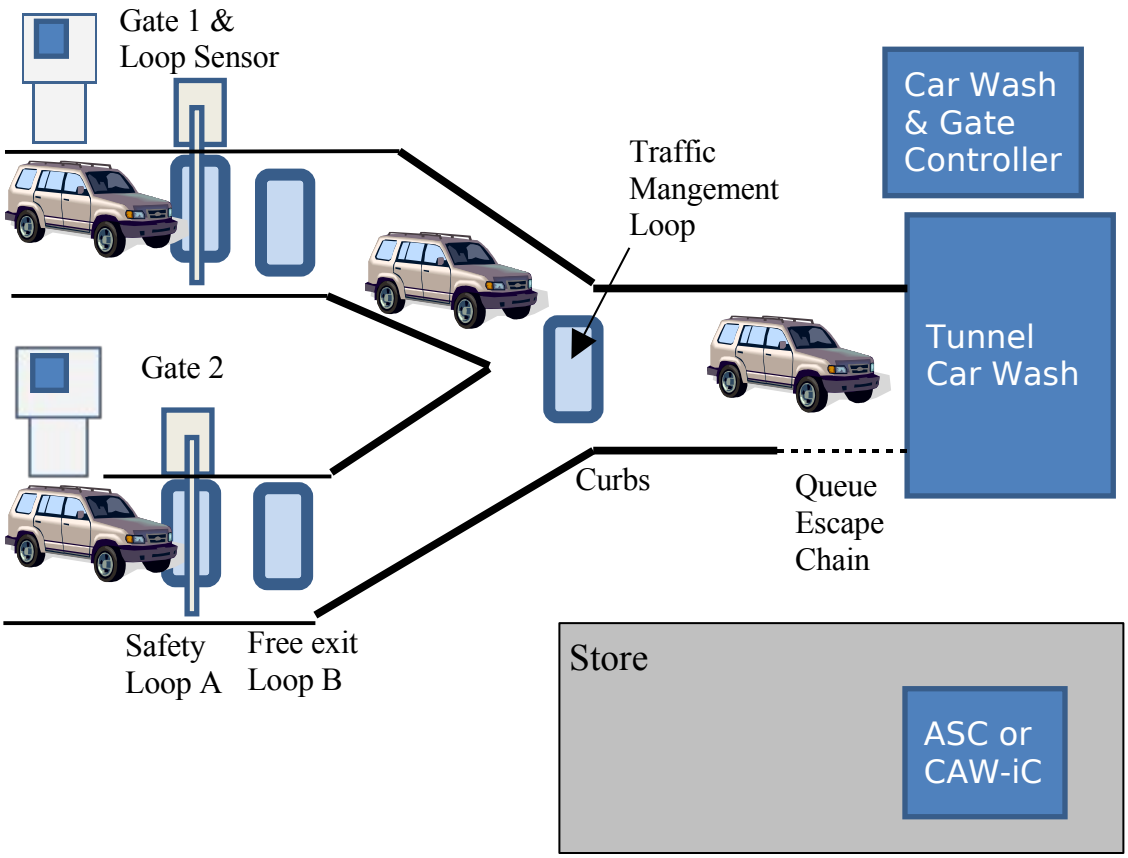
## *Parts Needed*

- Two to Four Intelio Activa Activation Units.
- A Magnetic Automation Corp MIB30R-C100 gate system *per Activa*.
- One Intelio Activa Site Contoller or Ryko CAW-iC.
- One Magnetic Automation Corp MIDIE-800 Single Channel Loop Detector, 24VDC.
- One Intelio Car Wash & Gate Controller unit, consisting of:

  - One NEMA rated enclosure with weatherproof connections.
  - One KIT108 Serial I/O Module with 12 VDC power source.
  - One Moxa nPort 5110 with 12 VCD power source.
  - One straight through 9-pin DIN serial cable, any length, male to female.
- Induction and relay signal wire. (14 gage?)
- Cat5e network wire.
- Electrical Wire.
- Gobs of other things!!

# Hardware Installation

## *Physical Placement*



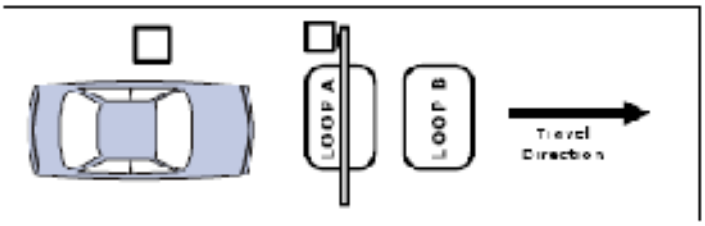

## *Activa Hardware Installation*

Each Activa hardware unit is installed like any ordinary Activa. See *other* document.

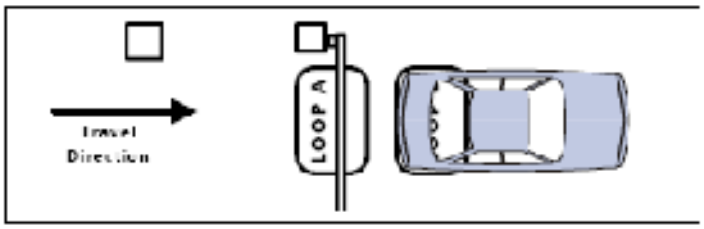
## Gate Hardware Installation

The gate system includes the Safty Loop (called Loop A) and Free exit Loop (called Loop B). These work together as shown below:

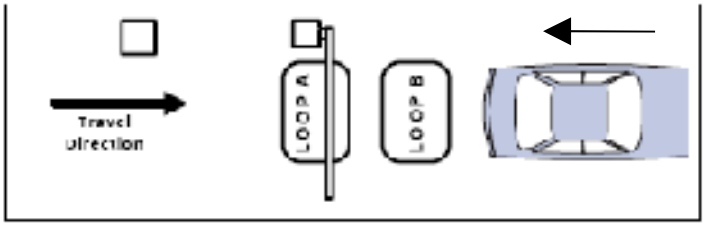
Normal Operation




Once the gate opens, it will close after a car passes Loop A or a timeout *and* nothing is on Loop A.

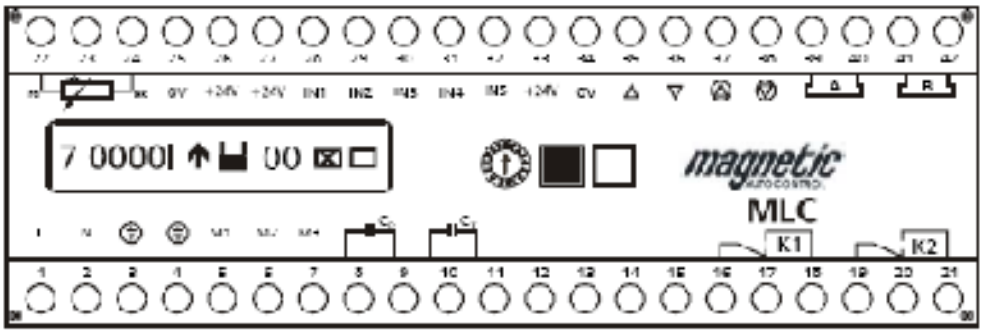



If a car backs up onto Loop I the gate will open to allow it to exit. *This is not normal operation*, but is permitted to prevent damage to the gate.




Please refer to the Magnetic Automation MIB 30 Traffic Barrier manual, Chapter 2, for details on how to install each gate. Refer to chapter 15 of the same manual for information on installing the induction loops.

The gate Programmable Logic Controller is attached to the inner door of the gate and looks like this from the top:



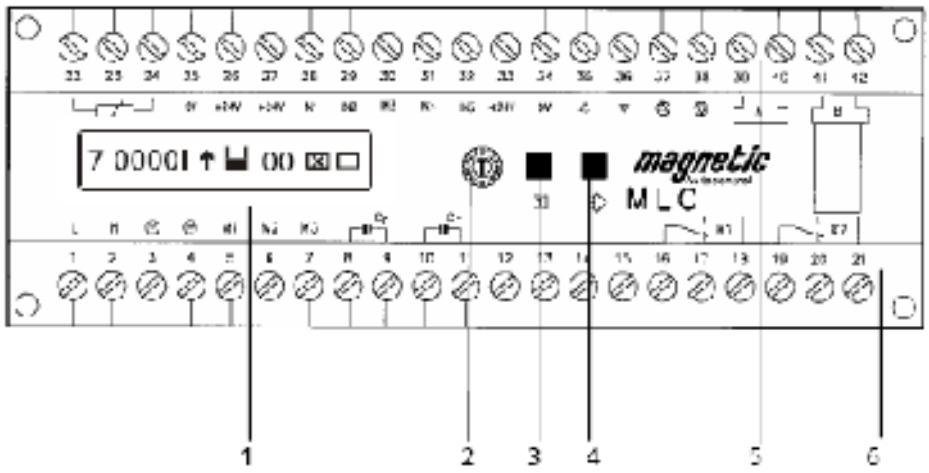

The gate comes from the factory wired up for operation, but requires some customization.

Attach new wires:

- Attach the wires for Loop A to terminals 39 and 40.
- Attach the wires for Loop B to terminals 41 and 42.
- Attach a short "jumper" wire between terminals 32 and 33.
- Attach a wire to terminal 27 which will run to the Car Wash & Gate Controller's Serial I/O Module output #1 on the NO terminal.
- Attach a wire to terminal 28 which will run to the Car Wash & Gate Controller's Serial I/O Module output #1 on the C terminal.

Wires going out of the gate assembly must be run through the white plastic loops so that they will not get in the way of closing the hatch.

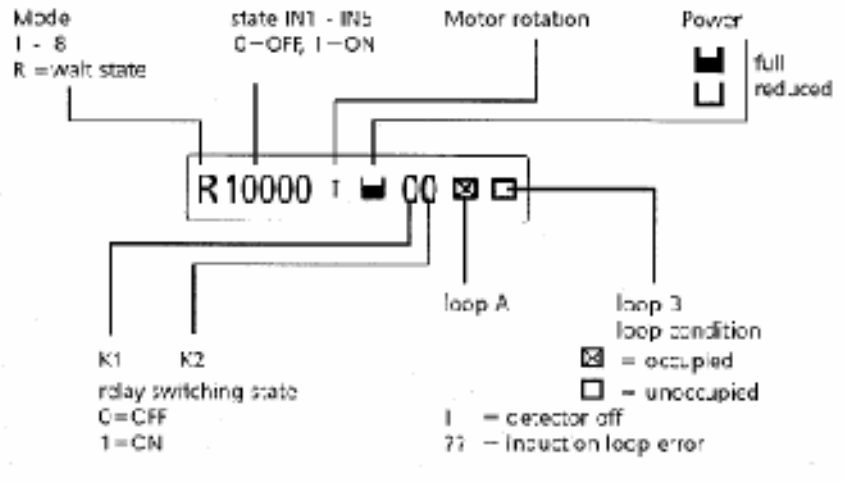
## Gate PLC Setup




1 16- digit liquid crystal display (LCD) for indicating operational and programmed data
2. Rotary selector switch to select operating and setup modes
3. Black button open/scroll/save (operating mode/programming mode)
4. White button close/enter (operating mode/programming mode)
5. Terminal strip – control voltage side
6. Terminal strip – Motor and relay output

### *Display information*

Normal operating mode, rotary switch set to '0'. Following information is displayed:




### *Settings*

To check a setting, simply turn the rotary switch to the indicated position.

To change a setting, turn the rotary switch to the indicated position and then press and hold both the black and white buttons down, a cursor will appear below the current value, release both buttons. Then press the black button until the desired value appears. Finally, press the white button. The PLC will then request confirmation to save the change; press the black button to save, or the white button to cancel.

Once all settings have been set, turn the rotary switch back to position 0 for normal operation.

| Rotary Position | Setting Name | Value to set | Manual Chapter | Notes |
|---|---|---|---|---|
| 1 | Program Number | 6 | 6 | |
| 3 | Hold-Open timer | 035 | 7 | Auto-gate close timeout period, in seconds. |
| 4 | Sensitivity A | 5 | 8 | Adjust as needed to detect vehicles of all sizes. |
| 5 | Sensitivity B | 5 | 8 | Adjust as needed to detect vehicles of all sizes. |
| 6 | Mode Loop A | 2 | 9 | |
| 7 | Mode Loop B | 2 | 9 | |

## *MIDIE-800 Single Channel Loop Detector Installation*

One of the gate systems includes an additional blue box next to the PLC; this is the Loop Detector sonsor for the Traffic Management Loop (where the lanes merge). It must be rewired as follows:

- Wire PLC terminal 33 to Sensor terminal "24V".
- Wire PLC terminal 34 to Sensor terminal "0V".
- Wire Sensor terminal 16 to Sensor terminal "24V".

- Wire Sensor terminal 15 underground to the Car Wash & Gate Controller's Serial I/O Module input #3 on the "+" terminal.
- Wire PLC terminal 34 underground to the Car Wash & Gate Controller's Serial I/O Module input #3 on the "-" terminal.

Set the Dip Switches to right, left, left, right, as shown in the picture to the right.

The top two switches are the sensitivity setting for the loop. Adjust this so that it will detect vehicles of all sizes.

Settings are:

1. Low – Left Left
2. Mid-low – Right Left
3. Mid-High – Lift Right
4. High – Right Right

## *Car Wash & Gate Controller*

Mount within the NEMA box the KIT108 Serial I/O Module and the Moxa nPort 5110. Connect the two using the serial cable and provide 24 VDC power to each. (Bring normal 120 VAC power to the box and use the supplied "power brick" transformers.) Mount the entire NEMA box someplace near the car wash – such as in an adjacent equipment room or within the car wash bay if absolutely neccessary. Use water-proof connectors for all wiring into the NEMA box.

### I/O Module Connections

Now attach wires to the Serial I/O Module's Relay Outputs side that run as follows:

| Output # | Terminal Label | Other End Location | Purpose |
|---|---|---|---|
| 1 | NO | Gate #1 PLC terminal 27 | Open gate #1 |
| 1 | C | Gate #1 PLC terminal 28 | Open gate #1 |
| 2 | NO | Gate #2 PLC terminal 27 | Open gate #2 |
| 2 | C | Gate #2 PLC terminal 28 | Open gate #2 |
| 3 | NO | Gate #3 PLC terminal 27 | Open gate #3 (if exist) |
| 3 | C | Gate #3 PLC terminal 28 | Open gate #3 (if exist) |
| 4 | NO | Gate #4 PLC terminal 27 | Open gate #4 (if exist) |
| 4 | C | Gate #4 PLC terminal 28 | Open gate #4 (if exist) |
| 5 | NO | Depends on car wash | Arm wash type 1 |
| 5 | C | Depends on car wash | Arm wash type 1 (common) |
| 6 | NO | Depends on car wash | Arm wash type 2 |
| 6 | C | Depends on car wash | Arm wash type 2 (common) |
| 7 | NO | Depends on car wash | Arm wash type 3 |
| 7 | C | Depends on car wash | Arm wash type 3 (common) |
| 8 | NO | Depends on car wash | Arm wash type 4 |
| 8 | C | Depends on car wash | Arm wash type 4 (common) |

Now attach wires to the Serial I/O Module's Relay Inputs side that run as follows:

| Input # | Terminal Label | Other End Location | Purpose |
|---|---|---|---|
| 1 | + | Depends on car wash | Car wash in-use signal (24 volts max!!!!) |
| 1 | - | Depends on car wash | Car wash in-use signal – common. |
| 2 | + | Depends on car wash | Car wash fault signal (24 volts max!!!!) |
| 2 | - | Depends on car wash | Car wash fault signal – common. |
| 3 | + | Loop Sensor terminal 15 | Traffic Management loop sensor. |
| 3 | - | Gate PLC terminal 24 of the gate containing the extra loop sensor. | Traffic Management loop sensor. |
| 4 | + | | unused |
| 4 | - | | unused |

**Moxa Connections**

The Moxa nPort 5110 connects to the Serial I/O module via a straight through (not null-modem) serial cable. On the other end, it connects to the same local area network that the Site Controller is on. (See next section.)

## *Activa Site Controller or Ryko CAW-iC*

The Site Controller is installed in the site's store or office and contains the Intelio Edge running in a virtual machine. It must be connected on an Ethernet network with the Intelio Car Wash & Gate Controller and the Activas. It may also connect to the Activa's via an Echelon network.

The site controller is configured in normal fashion, as described in other manual.

# Edge Configuration

The edge must be configured with the `gatedtunnel-activa` profile. If the car wash does not have a fault signal, add the site.properties setting of:

```
carwash-relay.fault.relay = 0
```

If the car wash has a fault signal, but a high signal indicates a fault condition, then add the site.properties setting of:

```
carwash-relay.fault.state = true
```