ICS® Entrance Management Sign with 120 VAC Air Conditioner

Installation Guide
Version 2.0
Installation Overview

This document was written for technicians and electricians installing the ICS Entrance Management Sign and integrating it with the network system. A thorough understanding of electrical wiring, installation, codes, and safety protocols is required. No prior experience installing the Entrance Management Sign is necessary.

System Components Included

- ICS® Entrance Management Sign base and display
- Cat 6 Shielded Network Cable

**NOTE:** The ICS Entrance Management Sign is not a stand-alone system. The Entrance Management Sign requires WashConnect® Management System and a connection to the network.

This guide should be supplied to the electrician prior to the installation of conduits and wiring to ensure the ICS Entrance Management Sign is installed properly. Faulty installations are the major cause of system malfunctions. The ICS Entrance Management Sign must be installed exactly as described in this manual to ensure its reliability and safe operation. By reading the information and performing the procedures in this installation guide, you should be able to install the following:

- Entrance Management Sign base and display
- Entrance Management Sign system-level wiring
- Entrance Management System communications wiring

**WARNING:** Failure to properly install the Entrance Sign will void the warranty.

Site Planning

Careful planning for the layout of the site will help eliminate possible problems with the start-up of your system and will ensure continued, reliable system operation. In determining the location stage, keep the following objectives in mind:

- Determine the site layout.
- The ICS® Entrance Management Sign must be located so that conduit connections can be easily made.
- Enough clearance is needed for the door to open easily without interfering with entrance and exit from the equipment room. This clearance should be available both in front of the door which opens from the back of the unit, as well as to the right of the unit. This minimum will give enough clearance for the door to swing out and be fully opened.

**WARNING:** A minimum clearance of 36” is recommended for the door swing.

Related Documents

The following document is available for further reference:

- WashConnect Web Help (StackNControl Menu only)
Hardware Specs

Figure 1. Interior Detail

An industry-leading 46" display, that is fully readable in bright daylight.
The touch screen display is a 1,920 × 1,080 color monitor.
The hinged panel design is mounted on a base that is bolted to the concrete floor.
If looking at the front of the unit, hinges are on the right-side. The door swings open in the back of the unit from left to right.
Dedicated universal power supply (UPS): 1500VA/865 Watts output capacity.

Preparing for Installation

- Prepare to have all the necessary tools and parts.
- Ensure permanent connections are performed by a licensed electrician who must comply with all the National and Local recommended standards. Wiring can be contained in rigid PVC conduit or metal conduit.
- High-voltage (AC) and low-voltage (DC) must not be combined in a common conduit, junction box, or wire trough.
- Power for the ICS® Entrance Management unit and any peripherals must come from the dedicated UPS, as supplied by ICS, and must be properly grounded.
- Check through all shipping containers before disposing of them looking for possible manuals, cables, connectors, etc.

Warning Markings

See the specification label and marking on the inside of top left enclosure door from the interior service area.

The symbol on the left is labeled on equipment and hardware to indicate one should consult accompanying documentation before proceeding.
Equipped Dimensions

When mounting the unit, minimum clearances must meet local recommended standards.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Measurement</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>31”</td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>75 3/4”</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>15 1/4”</td>
<td></td>
</tr>
<tr>
<td>Viewable Touch Screen</td>
<td>46”</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>286 lbs.</td>
<td></td>
</tr>
<tr>
<td>Operating Temp. Range</td>
<td>-20° F to 120° F / -28° C to 48° C</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>50/60 Hz</td>
<td></td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>120 VAC</td>
<td></td>
</tr>
<tr>
<td>Max. Current</td>
<td>6 Amps @ 120 V AC / 10 Amps @ 120 V AC</td>
<td>Power for the Entrance Management System / Air Conditioner / Heater</td>
</tr>
<tr>
<td>Power Supply</td>
<td>20 Amps</td>
<td>Power must come from a dedicated 20 Amp breaker.</td>
</tr>
<tr>
<td>IPX RATING</td>
<td>NEMA 4X</td>
<td>Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water from water jets at any direction; and that will be undamaged by the external formation of ice on the enclosure. Including protection against corrosion.</td>
</tr>
</tbody>
</table>

**NOTE:** Every tunnel setup varies, but typically, a minimum of 44” from the inside edge of the conveyor to the edge of the ICS Entrance Management base plate is necessary to allow safe clearance for the oversized vehicles with oversized mirrors from the equipment.

*Figure 3. ICS® Entrance Management Location of Base*
Mounting

When mounting the unit, minimum clearances must meet local recommended standards.

1. Locate the actual template you received with your ICS® Entrance Management Sign.
2. On the template, cut out along the dotted lines which is the open space that the conduits will pass through.
3. Place the template over the conduits, and adjust to the center line shown on the template.
4. After securing the template to the concrete pad with tape, mark the centers of the of the six holes with a nail, drill bit, or marker so that when the template is removed, some type of mark will be left behind identifying the center of the hole.
5. Drill the appropriate holes necessary for the anchor bolts used.
6. Install the anchor bolts.
7. Run the wires up through the opening in the base of the ICS Entrance Management Unit.
8. Place the ICS Entrance Management Sign onto the anchor bolts and secure it with washers and nuts.

Power Requirements

- Power for the ICS Entrance Management comes from a dedicated 120V circuit from the ICS power distribution box.
- An additional dedicated 120V circuit powers the air conditioner and heater. This additional circuit comes from the site’s main service electrical panel and not from the ICS power distribution box.
- The ICS® Entrance Management unit must be properly grounded.

Conduit Run Guidelines

- Use wiring channels inside ICS® Entrance Management Sign unit (left and right sides) to contain the wires.
- Run a 14/3 cable from a UPS output to the 120 V AC terminal block. The terminal block is labeled with L for Line and N for Neutral. There is a mechanical ground lug located in the lower-right corner near the AC terminal block within the box. It is labeled with the universal ground symbol.
- All conduit runs should meet national and local recommended standards. Conduits shall be properly connected and securely fastened to the units with listed conduit hubs, and should be tightened to the torque specs of the manufacturer.
- Tighten all wires on the circuit board terminal blocks to 15 inch-pounds. Over-torquing may cause breakage.
- All conduit must be rigid PVC or metal.
- The ICS Entrance Management Sign has been designed with environmental controls to operate inside the wash tunnel.
Site Grounding Considerations

The ICS® Entrance Management Sign and peripheral equipment must be properly grounded.

Recommended and Accepted Grounding Methods

Proper system grounding is an extremely important part of the system installation. Grounds for all system devices should be wired to the main service electrical panel ground bus bar which, in turn, should be grounded to a ground rod. A conduit ground does not provide a sufficient ground. It is recommended that the neutral and ground bus bars be bonded together when it is not prohibited by local codes.

The universal ground symbol identifies the grounding lug connector located inside the lower-right hand corner of the ICS® Entrance Management Sign unit. A second ground is marked. This is the dedicated 120 V line for the heat exchanger.

WARNING: Improper grounding will void equipment warranty.

Ground wire must be connected to the ground lug. Failure to properly ground the unit could result in unit failure and/or bodily injury.

Wire Gauge and Conduit Size

When planning the orientation of the wiring runs, follow the applicable ICS wiring diagrams and consider the layout of the components at the site. To determine conduit size needed, see the table below for more information.

<table>
<thead>
<tr>
<th>Wire Gauge</th>
<th>1/2</th>
<th>3/4</th>
<th>1</th>
<th>1 1/4</th>
<th>1 1/2</th>
<th>2</th>
<th>2 1/2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWG 14</td>
<td>13</td>
<td>24</td>
<td>39</td>
<td>69</td>
<td>94</td>
<td>154</td>
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<td>—</td>
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<tr>
<td>AWG 12</td>
<td>10</td>
<td>18</td>
<td>29</td>
<td>51</td>
<td>70</td>
<td>114</td>
<td>164</td>
<td>—</td>
</tr>
<tr>
<td>AWG 10</td>
<td>6</td>
<td>11</td>
<td>18</td>
<td>32</td>
<td>44</td>
<td>73</td>
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<td>160</td>
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<td>3</td>
<td>5</td>
<td>9</td>
<td>16</td>
<td>22</td>
<td>36</td>
<td>51</td>
<td>79</td>
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<td>1</td>
<td>2</td>
<td>6</td>
<td>11</td>
<td>15</td>
<td>26</td>
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<td>AWG 4</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>9</td>
<td>16</td>
<td>22</td>
<td>35</td>
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<tr>
<td>AWG 3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>13</td>
<td>19</td>
<td>29</td>
</tr>
<tr>
<td>AWG 2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>11</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>AWG 1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td>12</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 1: Number of Wires (THHN) in a Given Conduit Size

High-voltage (AC) and low-voltage (DC) must not be combined in a common conduit, junction box, or wire trough.
Power Wiring and Communication Plan

This section includes information on power wiring and low-voltage communications wiring for the ICS Entrance Management System (EMS). See your individualized ICS System Installation Drawings for your car wash layout. Communications equipment signal wires must be run in separate rigid PVC or metal conduit, separate from any power conduits. The following is only a sample layout of the Low Voltage wiring for the EMS.

![Wiring Diagram](image)

Figure 5. Wiring Layout

Technical Support

Innovative Control Systems® provides a toll-free number for customers and installers who have questions pertaining to the installation:

800-246-3469
AC Power Terminations

- The terminal contains a power adapter and one Amp @ 120 V AC breakers, ground, and neutral block for termination.
- An Air Conditioner is installed inside of the Entrance Sign door.

ICS Entrance Sign

AC Power Terminations

**CONDITIONED 120 VAC SYSTEM POWER INPUT**
Located inside the unit near the lower right corner.

ICS SUPPLIED 14/3 SHIELDED

TO APPROPRIATE BREAKER WITHIN THE ICS POWER DISTRIBUTION BOX.

**UNCONDITIONED 120 VAC AIR CONDITIONER / HEATER POWER INPUT**
Located inside the unit near the lower right corner.

SITE SUPPLIED 3 – 12 Ga. THHN FROM A 20 AMP BREAKER IN THE SITE’S MAIN SERVICE ELECTRICAL PANEL PROVIDING AN INDIVIDUAL LINE, NEUTRAL, AND GROUND TO THE POWER TERMINAL BLOCK FOR THE HEAT EXCHANGERS.

**GROUND NEUTRAL LINE**

Figure 6. AC Power Terminations inside Sign

Heater

Air Conditioner

Figure 7. Heater

Figure 8. Air Conditioner
Parts Identification

This section is for part identification of the ICS® Entrance Management Sign components.

Front View

Exterior of Door Panel

Interior of Door Panel

Figure 9. Entrance Instructions

Figure 10. Air Conditioner on Exterior of Door

Figure 11. Interior of Door

Motherboard

Network Port on Motherboard

Figure 12. Motherboard

Figure 13. Network Port on Motherboard
Using the Entrance Management Sign

The Entrance Management Sign plays an Entrance Management video on what to do after driving on the conveyor. It also has the ability to control the Stack Management on the Touch Screen. At the bottom of the screen, the customer can view the wash services purchased.

See WashConnect Web Help for more Stack Management information.

Figure 14. Stack Management Screen on the Entrance Management Display
YOUR BEST CHOICE
for car wash success.

MISSION STATEMENT:

It is our passion to leverage our experience as car wash operators, our position as a Market Leader, and our ability to incorporate advanced technology into Visionary products, which enables our Customers to differentiate their operations, achieve a distinct competitive advantage, and maximize their earnings.