ICS® Exit Management Sign with 230 VAC Air Conditioner

Installation Guide
Version 1.5

Defining the World of Car Wash Technology
Installation Overview

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

System Components Included

- Exit Sign Base and Display
- Cat 6 Shielded Network Cable

**NOTE:** The Exit Management System is not a stand-alone system. Tunnel Master wbc and a connection to the network are required.

This guide should be supplied to the electrician prior to the installation of conduits and wiring to ensure the Exit Management Sign is installed properly. Faulty installations are the major cause of system malfunctions. The Exit 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:

- Exit Sign System base and display
- Exit Management System-level wiring
- Exit Management System communications wiring

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. See Figure 1.
- The ICS® Exit Sign must be located so that conduit connections can be easily made.

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

- 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 to allow the door to swing out and be fully opened without obstructions.

![Figure 1. Exit Management Location](image-url)
Hardware Specs

- The 46” screen is fully readable in bright daylight.
- The display is a 1,920 × 1,080 color monitor.
- The Exit Management unit is designed to be located in all types of conditions, cold, wet, or hot.
- The hinged panel design is mounted on a base that is bolted to the concrete floor.
- If looking at the front of the unit, the 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.
- The ICS® Exit Sign must be located so that conduit connections can be easily made.

Planning 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 Exit Management sign 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.

Support

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

800-246-3469

Warning Markings

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

This symbol is labeled on equipment and hardware to indicate one should consult accompanying documentation before proceeding.
## Equipment Dimensions

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

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Measurements</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>31 in (78.7 cm)</td>
<td>—</td>
</tr>
<tr>
<td>Height</td>
<td>75 3/4 in (192.4 cm)</td>
<td>—</td>
</tr>
<tr>
<td>Depth</td>
<td>15 1/4 in (38.7 cm)</td>
<td>—</td>
</tr>
<tr>
<td>Viewable Screen</td>
<td>46 in (116.8 cm)</td>
<td>—</td>
</tr>
<tr>
<td>Weight</td>
<td>286 lbs (129.7 kg)</td>
<td>—</td>
</tr>
<tr>
<td>Operating Temp. Range</td>
<td>-20° F to 120° F</td>
<td>-28° C to 48° C</td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 Hz</td>
<td>—</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>230 VAC</td>
<td>Intended for permanently connected supply.</td>
</tr>
<tr>
<td>Max. Current</td>
<td>6 Amps @ 120 V AC</td>
<td>Exit Management Power</td>
</tr>
<tr>
<td></td>
<td>6 Amps @ 230 V AC</td>
<td>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>

*Table 1: ICS Exit Management Sign Equipment Dimensions, Measurements, and Ratings*
Mounting the ICS Exit Sign

1. Locate the actual template you received with your ICS® Exit Management System.
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 Exit Sign.
8. Place the ICS Exit Sign onto the anchor bolts and secure it with washers and nuts.

Power Requirements

- Power for the ICS Exit Management Sign comes from a dedicated 120 V circuit from the ICS power distribution box.
- A dedicated 230 V AC circuit powers the heater and air conditioner unit. The additional circuit comes from the site’s main service electrical panel and not from the ICS power distribution box. It may require the use of a step up transformer.
- The ICS® Exit Management Sign must be properly grounded.

Conduit Run Guidelines

- Use wiring channels inside ICS® Exit Management System 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.
- Run an additional 230 V line from the main panel breaker to the 230 V AC terminal block. The terminal block is labeled with L for Line. This line is needed for the air conditioner.
- 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 Exit Management System has been designed with environmental controls to operate outside the wash tunnel.
Site Grounding Considerations

The Exit Management System 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® Exit Management System 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></th>
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<th>1 1/4</th>
<th>1 1/2</th>
<th>2</th>
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<tbody>
<tr>
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<td>13</td>
<td>24</td>
<td>39</td>
<td>69</td>
<td>94</td>
<td>154</td>
<td>—</td>
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<td>10</td>
<td>18</td>
<td>29</td>
<td>51</td>
<td>70</td>
<td>114</td>
<td>164</td>
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<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>5</td>
<td>9</td>
<td>16</td>
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<td>2</td>
<td>6</td>
<td>11</td>
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<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>
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<td>1</td>
<td>3</td>
<td>6</td>
<td>8</td>
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<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>

*Figure 5. 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 Plan and Communications Cable

This section includes information on power wiring and low-voltage communications wiring for the ICS Exit Management Sign (EMS). The following is only a sample drawing of the Low Voltage wiring for the 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.

**OPTIONAL EQUIPMENT:**

**Exit Management System**

This equipment is optional. If you are unsure if your site has this equipment, contact your salesperson.

**DIMENSIONS**

286 lbs / 130 kg  
Viewable Screen: H- 40" x W– 22 ½" x 46" Diagonal  
Overall: H– 75 ¼" x W– 31" x D– 15 ¼"  
Base: H- 26 ¾"

**WARNING** Supply Voltage: 230 VAC

The Exit Management System increases tunnel throughput, minimizing damage claims, and improving the wash experience.

The Exit Management displays an animated countdown video with instructions to assist customers in exiting the tunnel. Environmental controls allow the Exit Management System to be used within the wash tunnel. Instructions assist customers in exiting the tunnel, and locating a different area on your property such as vacuums and the directions to Exit your wash property.

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**WARNING:** Allow 24 hours for the ICS EXIT SIGN to stand upright before powering on so the Air Conditioning units can settle.

*** THIS DRAWING IS ONLY INTENDED TO SHOW THE TYPES OF WIRING THAT MUST BE RUN BETWEEN PIECES OF ICS EQUIPMENT. THE INDIVIDUAL RUNNING THE WIRING MUST ENSURE THAT AMPLE WIRE IS AVAILABLE AT EITHER END TO FACILITATE TERMINATION. THE TERMINATION POINTS OF THE CABLES ARE NOT SHOWN ON THIS DOCUMENT. ALL PERMANENT SITE WIRING CONNECTIONS MUST BE PERFORMED BY A LICENSED ELECTRICIAN THAT MUST COMPLY WITH ALL NATIONAL AND LOCAL RECOMMENDED STANDARDS.***
AC Power Terminations

- The terminal contains a power adapter and a 6 amp breaker 120 V AC, ground, and neutral block for termination.
- The Air Conditioner is installed inside the door.

Site supplied 3 – 12 Ga. THHN from a 20 Amp breaker 230 VAC in the site main service electrical panel providing an individual line, neutral, and ground to the circuit breaker for the Air Conditioner/Heater.
Changing the Preset Cooling Thermostat

**NOTE:** The air conditioner comes with a presest temperature. If necessary, you can change the air conditioners thermostat, if you delay for more than a few seconds between each step, the letters “Esc” will be displayed and the unit will return to normal operating conditions without saving your setting.

Under normal operating conditions, the display on the air conditioner unit will display the temperature inside the Sign.

- When the °F button is illuminated, then the temperature on the display is shown in Fahrenheit. Press the °F button to view in Fahrenheit.
- When the °C button is illuminated, then the temperature on the display is shown in Celcius. Press the °C button to view in Celcius.

![Image of a temperature display showing current temperature](image)

*Figure 10. Current temperature inside the Entrance Sign shows on the air conditioner display (in Fahrenheit)*

1. Press and hold the SET button for 5 seconds until the display shows St, and then release the button. Press the SET button again momentarily, and release.

![Image of a temperature display showing current temperature](image)

*Figure 11. SET button*

2. The preset cooling temperature is now displayed (85° is recommended.)
   When the Sign rises to the preset cooling temperature, the air conditioner automatically turns on and cools the Sign down to the preset temperature.

![Image of a temperature display showing current temperature](image)

*Figure 12. Preset Temperature (Recommended)*

3. Press either the °C button or the °F button momentarily until Cod is displayed. You are now in the Enter Code mode.

![Image of a temperature display showing current temperature](image)

*Figure 13. Enter Code Mode*
4. Press °C button continuously and set the count to 22.
   
   **NOTE:** The C button is used to increase. The F button is used to decrease. If you go higher than 22, use the F button to lower the number back down. Then press SET momentarily again.

![Figure 14. Count 22](image1)

5. The display shows the preset cooling temperature again. To modify the preset cooling temperature, press the °F button to increase the preset temperature, or press the °C button to decrease the preset temperature.
   - Preset 85 °F
   - Preset 29 °C

![Figure 15. Preset Temperature](image2)

6. Press and hold the SET button again for 5 seconds until Acc is displayed (Accepted).

![Figure 16. Acc](image3)

7. After a few seconds, the temperature inside the Sign is displayed and remains on as long as powered up.
   
   The preset Cooling temperature is complete.

![Figure 17. Entrance Sign Temperature Displays](image4)

**Heater Thermostat is Preset**

The heater does not have a manual thermostat that you can adjust. Instead it comes from the factory with a preset thermostat that automatically turns the heater on when the temperature falls to 59 °F, and then turns the heater off when it gets to 70 °F.
Parts Identification

This section is for part identification of the ICS® Exit Management System components.

Front View

Interior of Door Panel

Exterior of Door Panel

![Figure 18. Exit Instructions](image)

![Figure 19. Interior of Door](image)

![Figure 20. Air Conditioner on Exterior of Door](image)

Motherboard

Network Port

![Figure 21. Motherboard](image)

![Figure 22. Network Port](image)
Using the Exit Management Digital Sign

The Exit Management Sign plays a video when the vehicle is near the exit of the tunnel and the driver needs to prepare to drive the vehicle. The video consists of a countdown timer and then directions to the vacuums or exiting the wash property.

The start time of the Exit Sign video is automatically calculated in the Tunnel Master WBC software. By entering a few WBC settings for the Exit Sign, the WBC automatically calculates when to play the Exit video so that the count down begins at the exact time the driver should prepare to exit the tunnel, and then is instructed to put the car in drive and pull away. The WBC will automatically calculate this value based on its conveyor speed and will adjust itself as the conveyor speed changes.

See the Tunnel Master WBC User Manual to configure the Exit Sign Output.

Simply, the Exit Management Sign plays the Exit video when the car reaches the correct position in the tunnel. When the video ends, a still image appears on the screen to thank them for visiting the car wash.

Figure 23. Drive Away Thank You Image

We welcome your feedback and want to assure you that ICS® will always remain the industry leader in car wash controller and management systems.
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.