ICS® Digital Menu
with 120 VAC Air Conditioner

Installation Guide
Version 2.0
Installation Overview

This document was written for technicians and electricians installing the ICS® Digital Menu. A thorough understanding of electrical wiring, installation, codes, and safety protocols is required. No prior experience with the ICS® Digital Menu is required.

**WARNING:** Failure to properly install the ICS® Digital Menu system will void the warranty and could result in serious injury or death.

System Components Included

- Digital Menu Sign Base and Display
- Cat 6 Shielded Network Cable

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

- Install the ICS® Digital Menu base and display
- Install the ICS® Digital Menu 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.
- Prepare to have all the necessary tools and parts.
- Ensure permanent connections are installed by a licensed electrician who must comply with all the National and Local Recommended Standards.
- The ICS® Digital Menu must be located so that conduit connections can be easily made.
- Clearance is 36” for the ICS Digital Sign door. 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.

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

---

*Figure 1. Interior Detail*  
*Figure 2. ICS Digital Menu*
Planning for Installation
- All permanent site wiring connections must be performed by a licensed electrician that must comply with all local and national 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® Digital Menu and any peripherals must come from the dedicated UPS, as supplied by ICS.
- The ICS® Digital Menu and peripheral equipment must be properly grounded.
- Check through all shipping cartons 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.

Hardware Specs
- The 46” screen is fully readable in bright daylight.
- The Digital Menu is a 1,920 × 1,080 color monitor that clearly displays the videos or images of your wash menus and promotions.
- The Digital Menu 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.
- The unit has a hinged-panel door. 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.

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

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Amount</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>Including the width of the air conditioning unit.</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</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>120 VAC</td>
<td></td>
</tr>
<tr>
<td>Max. Amps.</td>
<td>6 Amps @ 120 V AC</td>
<td>ICS Digital Menu Sign Power</td>
</tr>
<tr>
<td></td>
<td>10 Amps @ 120 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, hose-directed water, and will be undamaged by the external formation of ice on the enclosure. Including protection against corrosion. Protected against water jets from any angle.</td>
</tr>
</tbody>
</table>

Table 1: ICS Digital Menu Dimensions, Measurements, and Ratings
Mounting the ICS® Digital Menu

1. Locate the actual ICS® Digital Menu template you received with your ICS® Digital Menu.
2. On the template, cut out along the dotted line 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 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. Place the ICS Digital Menu onto the anchor bolts and secure it with washers and nuts.

Power Requirements

- A dedicated 120V circuit is required for the menu sign air conditioner / heater. The additional circuit comes from the site’s main service electrical panel and not from the ICS power distribution box.
- Power for the ICS Digital Menu comes from a dedicated 120V circuit from the ICS power distribution box.
- The ICS® Digital Menu unit must be properly grounded.

Conduit Run Guidelines

- Use wiring channels inside ICS® Digital Menu box (left and right sides) to contain 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 120 V line from the main panel breaker to the 120 V AC terminal block. The terminal block is labeled with L for Line. This line is needed for the unit’s air conditioner.
- All conduits runs should meet local and national codes. Conduits shall be properly connected and securely fastened to the boxes 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.
Site Grounding Considerations

The ICS® Digital Menu 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 breaker 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® Digital Menu box.

**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>
<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>
<td>—</td>
<td>—</td>
</tr>
<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>
<td>104</td>
<td>160</td>
</tr>
<tr>
<td>AWG 8</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>16</td>
<td>22</td>
<td>36</td>
<td>51</td>
<td>79</td>
</tr>
<tr>
<td>AWG 6</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>11</td>
<td>15</td>
<td>26</td>
<td>37</td>
<td>57</td>
</tr>
<tr>
<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>
</tr>
<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 2: 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 Communications Cable Layout

This section describes low-voltage communications and power wiring for the ICS® Digital Menu. Communications equipment signal wires must be run in separate rigid PVC or metal conduit, separate from any power conduits.

ICS POWER DISTRIBUTION BOX

ICS SUPPLIED 14/3 SHIELDED CABLE FROM A 5 or 6 AMP BREAKER 120VAC

MAIN SERVICE ELECTRICAL PANEL

16-PORT 100 BASE-T WALL PLATE AT SERVER COMPUTER

SITE SUPPLIED 3 – 12 Ga. THHN FROM A 20 AMP BREAKER IN THE SITE MAIN SERVICE ELECTRICAL PANEL PROVIDING AN INDIVIDUAL LINE, NEUTRAL, AND GROUND TO THE CIRCUIT BREAKER FOR THE AIR CONDITIONER / HEATER 120VAC

Figure 4. ICS Digital Menu Power Wiring and Communication Cable Layout
AC Power Terminations

- An air conditioner/heater is installed on the door of the ICS® Digital Menu.
- 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 the exterior of the menu door.

**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**

Heater

*Figure 6. Heater on Interior of Door*

Air Conditioner

*Figure 7. Air Conditioner on Exterior of Door*
Parts Identification

This section is for part identification for the components of the ICS® Digital Menu.

Network Port

Motherboard

Exterior of Door

Interior of Door

Figure 8. Network Port

Figure 9. Motherboard

Figure 10. Exterior of Door

Figure 11. Interior of Door
Using the ICS Digital Menu

The ICS Digital Menu is the next step in the evolution of the car wash menu, and features a 46" display that is sunlight-readable. The Digital Menu supports graphics, animations, and motion video and is fully customizable. Positioned at the payment terminals, the Digital Menu can fully animate your menu as well as promote upgrades, gift cards, club programs, other site locations, and other revenue-generating services.

At this time, the ICS Digital Menu does not interact with WashConnect management software. It currently runs as a standalone device playing a video that is setup to automatically and continuously repeat.

Who To Contact: Contact ICS at 1-800-642-9396 and ask for the A/V Specialist on the Graphics Design Team to begin the design process. Or, contact your Sales Representative for more information on the ICS Digital Menu.

What Files are Needed: Please supply the car wash logo, menu/package information, and any artwork you wish to be incorporated into the design. For best results, images should be created in vector format or at 600 PPI (pixels per inch).

File Formats: Acceptable file formats are, in order of preference: AI, EPS, PDF, and PSD. Images created specifically for websites are typically low resolution and will not look well, so please do not send web images. If you are using Photoshop, please do not flatten the files before submitting the artwork.

Fonts: If your artwork contains special fonts please indicate which font to use. If it is not a commonly used font, or is only available commercially, please email it to us. If we are required to purchase the font for your artwork there will be an additional charge. Alternatively, we can use a font that is similar, where possible.

Timeframes & Deadlines: The timeframe required for developing the video for the ICS Digital Menu will vary based on the complexity of the design and the number of revisions requested during the design process.

ICS recommends contacting the custom Graphics Design Team 8-10 weeks prior to the scheduled installation date for the ICS equipment in order to prevent any delays.

The Digital Menu Sign video is created concurrently with your other customized car wash graphics, e.g. on-screen graphics, decals, Entrance/Exit Management System, etc.

ICS Digital Menu Video Screen Shots Sample

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

Support

Innovative Control Systems® provides a toll-free number for customers and installers who have questions pertaining to the installation: 1-800-246-3469
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.