



Cooler is **Better!**TM

IC



Intelligent Control and Alarm System

American Panel Corporation
5800 S.E. 78th Street, Ocala, Florida 34472-3412
Phone: (352) 245-7055 Fax: (352) 245-0726
E-mail: service@americanpanel.com

Thank you, and congratulations on your purchase of an American Panel Intelligent Control. We take great pride in engineering and manufacturing each of our products. With the goal of providing the highest accuracy and quality possible, our state-of-the-art manufacturing and quality control facility enables us to continually explore new technologies so that we can provide you with the finest equipment in the industry.

Because of our commitment to your satisfaction, we have developed this Owner's Manual to guide you through the complete installation process, and to help you maintain your equipment properly. Familiarization and compliance with this manual will ensure you years of trouble-free operation.

On occasion, situations can arise and will require the help of the factory, whether it be technical information, service or replacement of parts. We have a highly trained Customer Service and Parts Department available to help when these situations arise. We also offer a national network of service agencies that may be contacted for warranty and out-of-warranty service.

When contacting the factory, please refer to the equipment serial number which can be located on the identification plate positioned on the interior of the door frame.

Thank you once again for your purchase of American Panel equipment.

"Our reputation rests on the steadfast pursuit of your satisfaction".



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1 Introduction and Features

Intelligent Controller IC was designed by American Panel Corporation to control various walk-in door devices and to monitor the temperature of the walk-in cabinet.

IC features:

- Temperature monitoring
- High and low temperature alarm with onboard buzzer and alarm time delay
- Door frame heater and window heater control
- Electronically controlled light switch with light On indicator
- Automatic light off
- External switch connection for CAL-OSHA back-to-back light control (Optional)
- Adaptive setting

1.1 Temperature Monitoring

IC monitors the walk-in cabinet temperature via a probe mounted in the warmest part of the cabinet which is near the door. The alarm delay will ensure that the alarm does not go off during normal door openings.

For an accurate air temperature reading do not restrict the airflow over the temperature probe. To monitor the air temperature at a different location an extended temperature probe is available for purchase.

1.2 Temperature Alarms

If the temperature inside the walk-in cabinet goes above the high alarm threshold or below the low alarm threshold, the temperature reading on the display will blink indicating that the alarm time delay has been triggered. If the temperature does not return to normal limits within the delay time, the buzzer will go off and the display will show the alarm message “AH” alternating with the temperature reading. The buzzer can be silenced by pressing the alarm mute button.

The alarm’s set points and delay times are fully programmable to user’s needs.

Default set points:

	High Alarm Trigger Point (AH)	Low Alarm Trigger Point (AL)	Alarm Delay (AD)
Cooler	45°F	32°F	40 Minutes
Freezer	20°F	-25°F	
Beer Cooler	34°F	30°F	

Door Frame Heater and Window Heater Control

IC controller switches on the door frame heater and the window heater (if so equipped) when the air temperature drops below the preset threshold of 45°F and then cycle them on and off based on a time cycle. On coolers, by default, the heaters stay on for 35% of a 6-minute cycle and then will stay off for 65%, the cycle will repeat. On freezers, by default, controller keeps the heaters on until the temperature of the cabinet goes above 45°F. The alarm’s set points and delay times are fully programmable to user’s needs.

Default set points:

	Heaters On (Pr)	Heaters Off	Heaters switched on below: (tP)
Cooler	35% of a 6-minute cycle	65% of a 6-minute cycle	45°F
Freezer	100% of a 6-minute cycle	0% of a 6-minute cycle	
Beer Cooler	65% of a 6-minute cycle	35% of a 6-minute cycle	

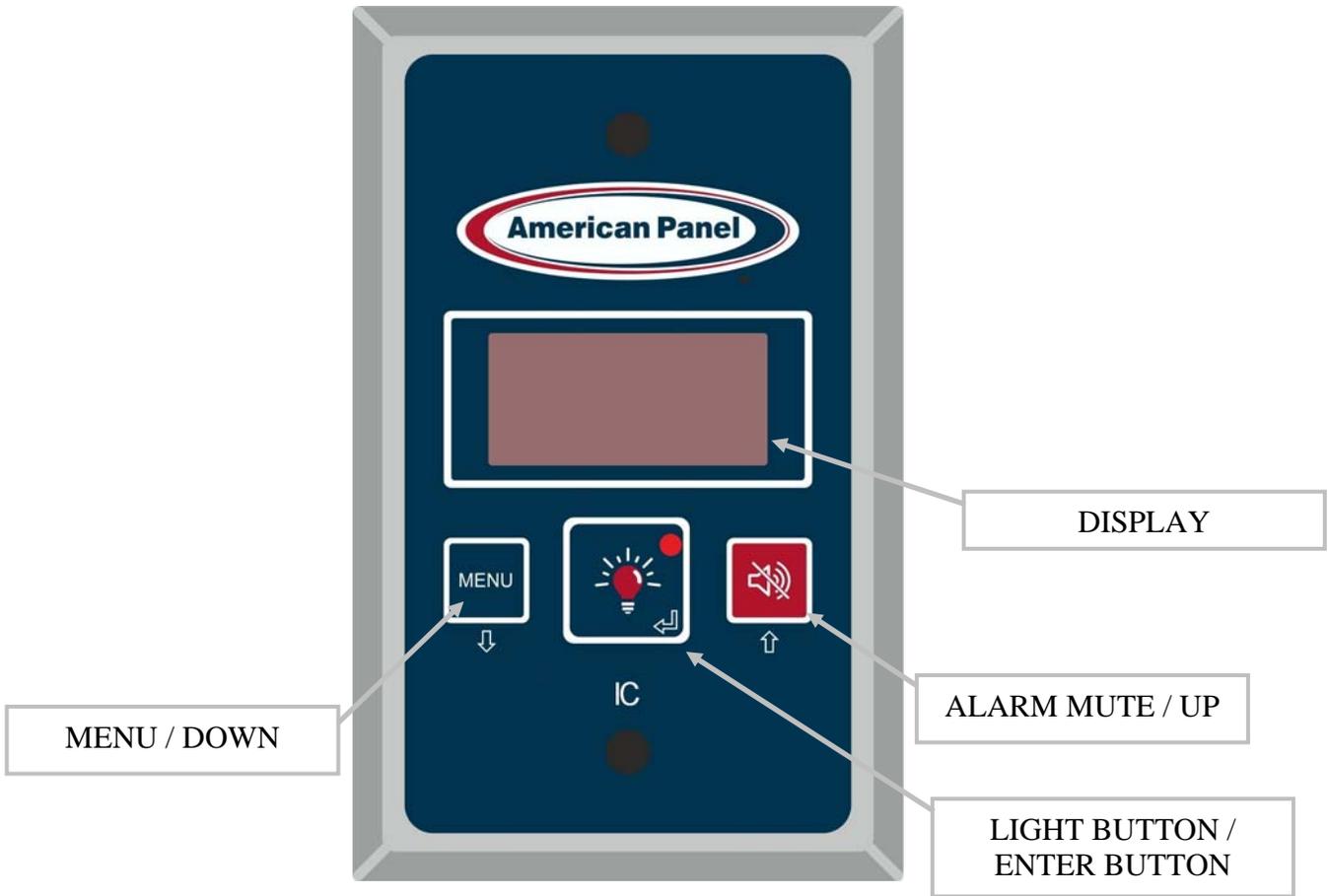
1.3 Electronically Controlled Light Switch and Automatic Light Off

The cabinet light can be switched on and off from the IC controller. The integrated light button is equipped with an LED light to display the ON/OFF status of the light.

The Automatic Light Off feature of IC enables the user to save energy. The amount of time the light will stay on can be set from 1 minute to 60 minutes or can be set for manual shut off only. As default, the automatic light off feature is disabled.

Back-to-back light control is provided as an optional feature.

2 IC User Interface



3 Parameter Programming

On powering up, IC will run through a procedure to adjust its settings based on the type of room it is installed within, user input is not required. The procedure may take up to 12 hours of continuous operation, during this time the controller will not display any temperature alarm. The user may change any of the default settings.

Note: During the programming steps, any delay longer than one minute before pushing the next button will cause the controller to revert to the normal operation state. To avoid this, the following instructions should be carefully reviewed, and the desired settings should be determined before proceeding.

The instructions below contain screens with the exact messages displayed by the controller during the programming procedure. Follow the notes located to the left of these screens.

Press the MENU button.

The display will show:



The access code is **055**, use UP or DOWN button to change the blinking character and press ENTER to confirm.

High Air Alarm Setting

The display will alternate between



and the value



This setting indicates the high temperature threshold, if the cabinet temperature goes above this setting, the alarm will go off.

Use UP or DOWN buttons to set the desired value and press ENTER to confirm.

Low Air Alarm Setting

The display will alternate between



and the value



This setting indicates the low temperature threshold, if the cabinet temperature goes this this setting, the alarm will go off.

Use UP or DOWN buttons to set the desired value and press ENTER to confirm.

Alarm Delay

The display will alternate between



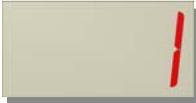
and the value



This setting indicates the amount of time in minutes the controller will delay the temperature alarm.

Use UP or DOWN buttons to set the desired value and press ENTER to confirm.

Door Frame Heater and Window Heater Settings

The display will alternate between  and the value 

This setting will enable or disable the door frame and window heaters.

- 1 – heaters enabled
- 0 – heaters disabled

Note: If you set the flashing value to “0”, the heaters will be disabled and the controller will skip the heater settings. If the flashing value is set to “1”, the heaters will be enabled and the controller will guide you through the heater settings.

Use UP or DOWN buttons to set the desired value and press ENTER to confirm.

The display will alternate between  and the value 

This setting indicates the walk-in temperature at which the controller will engage the door and window heaters.

Use UP or DOWN buttons to set the desired value and press ENTER to confirm.

The display will alternate between  and the value 

This value indicates the percentage the heater will stay on out of a 6-minute cycle.

Note: If condensation occurs on the door frame or on the window increase the percentage the heater is on.

IMPORTANT!

ON COOLERS THIS SETTING MUST NOT EXCEED 80%.

Use UP or DOWN buttons to set the desired value and press ENTER to confirm.

Automatic Light Off Setting

The display will alternate between  and the value 

This value indicates the amount of time in minutes that the light will stay on before it will automatically turn off.

Note: “no” setting indicates that the light will stay on until it is turned off manually.

Use UP or DOWN buttons to set the desired value and press ENTER to confirm, the controller will return to normal operation mode.

4 Air Temperature Probe Offset

As standard, the air temperature probe is located on the door frame, inside the walk-in. The IC will display the air temperature at that location **ONLY**. However, IC can be adjusted to estimate the temperature of a remote location inside the walk-in.

4.1 Calculating the Probe Temperature Offset

- Establish the location inside the walk-in where you want to monitor the air temperature. Ex: Return Air Temperature (behind the evaporator)
- Using a calibrated thermometer, measure the air temperature at that location. $T_{MEASURED}$
- Read the air temperature on the display of IC. T_{IC}
- The temperature difference between the two temperatures is the temperature offset. T_{OFFSET}

Ex: Return Air Temperature (measured behind the evaporator) 37°F
 IC Displayed Temperature 40°F
 The Temperature Offset will be: $(37^{\circ}\text{F}) - (40^{\circ}\text{F}) = -3^{\circ}\text{F}$

4.2 Adjust the Probe Temperature Offset

Press and hold ALARM MUTE button for ten seconds.

The display will alternate between  and the value 

Use UP or DOWN buttons to set this value to the temperature offset calculated in the previous step (T_{OFFSET}) then press ENTER to confirm, the controller will return to normal operation mode.

The display will reflect the air temperature at the desired location.

Note:

The air probe temperature offset is not to be used to make up for undersized or defective refrigeration systems. If a different temperature is desired inside the walk-in, contact a refrigeration technician to adjust your refrigeration system.

Special care should be taken when adjusting the air probe temperature offset. You should never adjust the air probe temperature offset for more than 5°F.

American Panel Corporation is not responsible for any losses such as food spoilage resulted from misusing the air probe temperature offset.

5 Load Standard Settings

Press and hold UP and DOWN buttons, simultaneously, for ten seconds.

The display will alternate between  and the value 

Use UP button to set this value to “1” then press ENTER to confirm.

The display will show: 

Enter the access code **055**, use UP or DOWN button to change the blinking character then press ENTER to confirm.

The display will alternate between  and the value 
or 
or 
or 

This value sets the cabinet type, use UP or DOWN buttons to choose “co” – cooler, “Fr” – freezer, “br” – beer cooler, or “Aut” – automatic selection.

If the cabinet type is set to cooler, freezer, or beer cooler the unit will return to normal operation mode and all the alarm and door heater parameters will be set to default, see chapter 1.

If the room type is set to automatic selection, user will have to set the detection time in hours.

The display will alternate between  and the value 

Set a low value (1hr) if the cabinet is already at the desired temperature, set a higher value (12hrs) if the cabinet is pulling down such as during the initial start-up.

6 Troubleshooting

Issue	Possible Cause	Action
IC controller display is flashing on and off a number.	IC controller detected cabinet temperature higher or lower than the preset limits. The flashing number is the measured temperature inside the cabinet. The alarm will not go off until the alarm delay time expires.	Make sure all the doors are closed and check the temperature after few minutes to make sure it goes back to the normal range.
The IC beeps and the display alternates between  and a number.	The high air alarm went off, the temperature inside the cabinet is above the preset limit. The flashing number is the measured temperature inside the cabinet.	To silence the alarm, press the alarm mute button. Check to make sure the refrigeration system works properly.
The IC beeps and the display alternates between  and a number.	The low air alarm went off, the temperature inside the cabinet is below the preset limit. The flashing number is the measured temperature inside the cabinet.	To silence the alarm, press the alarm mute button. Check to make sure the refrigeration system works properly.
Condensation on the door frame and/or the window.	The setting for the door heater is too low.	Increase the percentage the door heater stays on, see Parameter Programming (chapter 3).

7 Field Wiring

Note: All field wiring must be done by a licensed electrician in compliance with the national and local electrical codes.

Note: Electrician must provide seal-offs at every conduit entry on the warmer side of panels. Seal inside and around all conduits where passing through panels.

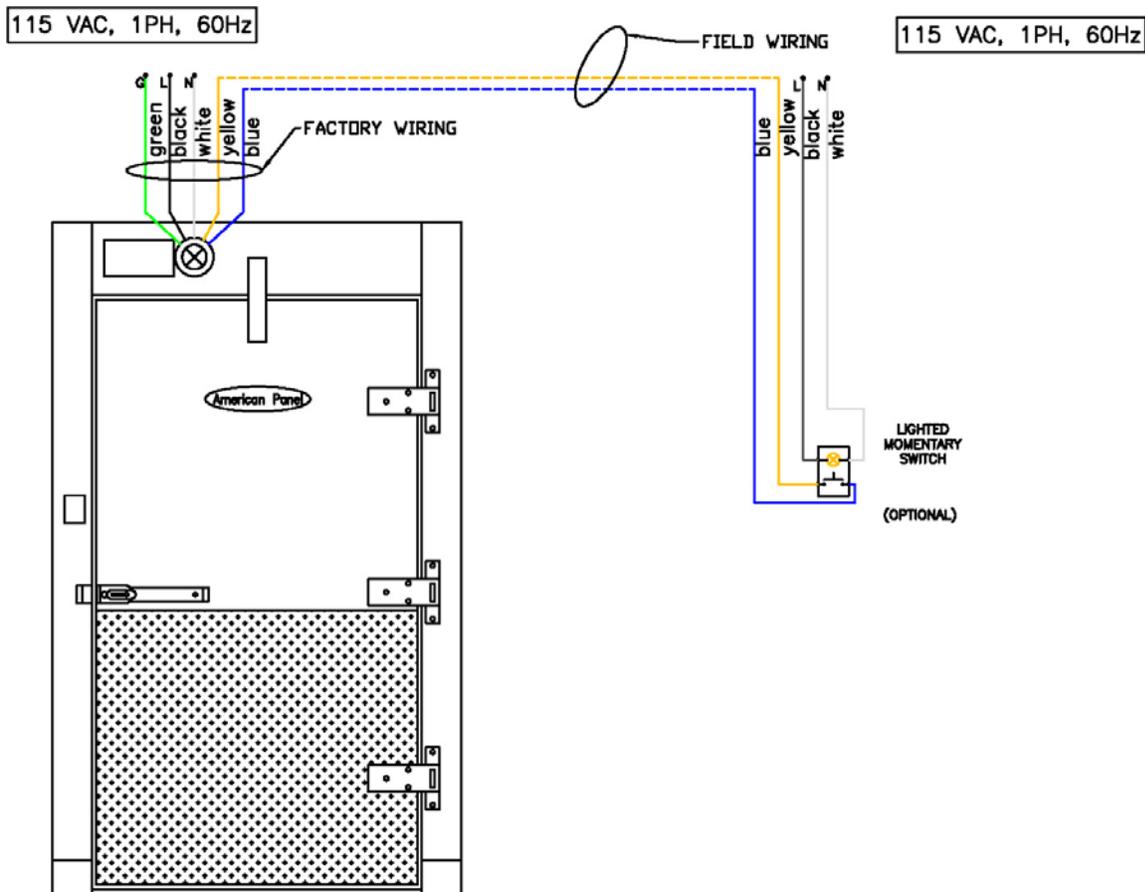
Make all the connections inside the vapor proof light fixture located on the door frame inside the walk-in.

If an electrical stub-out construction was requested, all the connection wires will be stubbed-out thru the ceiling. In this case, the field connections will be made in a junction box provided by the installer.

7.1 Remote Light Button Connection

Note: Check the blue print to find out which IC controller connects to the remote button.

Remote Light Switch Connection



THE ABOVE DIAGRAM IS MEANT TO SHOW
EXTERNAL CONNECTIONS ONLY!
ALL INTERNAL WIRING IS DONE ACCORDING
TO PRODUCTION SPECIFICATIONS.

\\Storage\d\DWG\Wiring Diagrams\ic & ic+\98080.dwg



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