

Operations Manual

IC - Intelligent Control and Alarm System

MODELS COVERED:

IC - Intelligent control and alarm system



*Please read this manual
before installing or
operation of this equipment.*



Versatile, Dependable Walk-Ins & Blast Chillers

5800 SE 78th St. Ocala, FL 34472 • 352.245.7055 • service@americanpanel.com



Contents

Introduction & Features	3
Temperature Monitoring.....	3
Temperature Alarms	3
Door Frame Heater and Window Control	4
Electronically Controlled Light Switch	4
Automatic Light Off Controls.....	4
IC User Interface	5
Parameter Programming	6
Low Air Alarm Setting	7
Alarm Delay	7
Door Frame Heater and Window Heater Setting.....	8
Automatic Light Off Setting.....	9
Air Temperature Probe Offset.....	9
Calculating the probe Temperature Offset.....	9
Adjust the Probe Temperature Offset	10
Load Factory Standard Settings.....	10
Troubleshooting.....	12
Field Wiring.....	12
Remote Light Button Connection.....	13
Electrical Diagram	14

Contacts and Information

Customer service - +1(800) 327-3015 *or* +1(352) 245-7055

Service department. - service@americanpanel.com

Parts department. - parts@americanpanel.com

Website - www.americanpanel.com



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 on-board 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

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.

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 Temp: (tP)
Cooler	30% of 6-minute cycle	65% of 6-minute cycle	45°F
Freezer	100% of 6-minute cycle	0% of 6-minute cycle	
Beer Cooler	65% of a 6-minute cycle	35% of a 6-minute cycle	

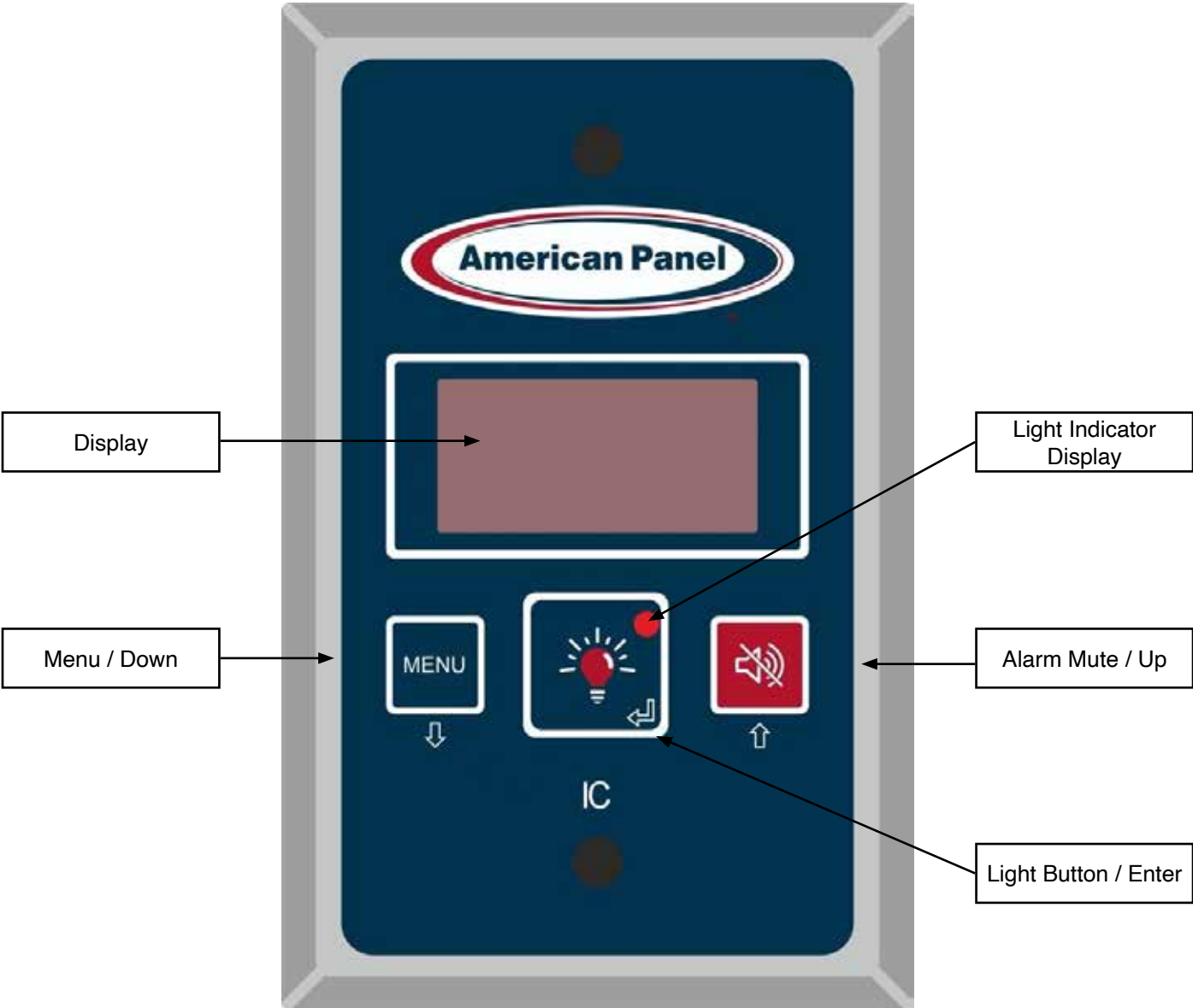
Electronically Controlled Light Switch and Automatic Light Off

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.

IC User Interface



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 related to these screens.

Press the **MENU** button.



The display will show:

Enter access code **055**

Use the **UP** or **DOWN** button to change the blinking character to the correct number 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 **AL** and the value

This setting indicates the low temperature threshold, if the cabinet temperature goes below 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 **Ad** 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

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

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

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



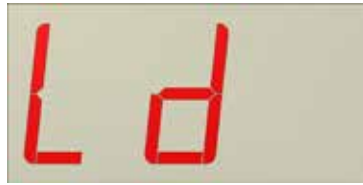
Note: If condensation occurs on the door frame or on the window increase the percentage the heater is on.



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.

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.

Calculating the Probe Temperature Offset

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

Ex: Return Air Temperature (37°F) - IC Displayed Temperature (40°F) = Temperature offset (-3°F)
 (37°F) - (40°F) = - 3°F

Adjust the Probe Temperature Offset

Press and hold **ALARM MUTE** button for ten seconds.



The display will alternate between

Use **UP** or **DOWN** buttons to set this value to the temperature offset calculated in the previous step (TOFFSET) 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.*

Load Standard Settings

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



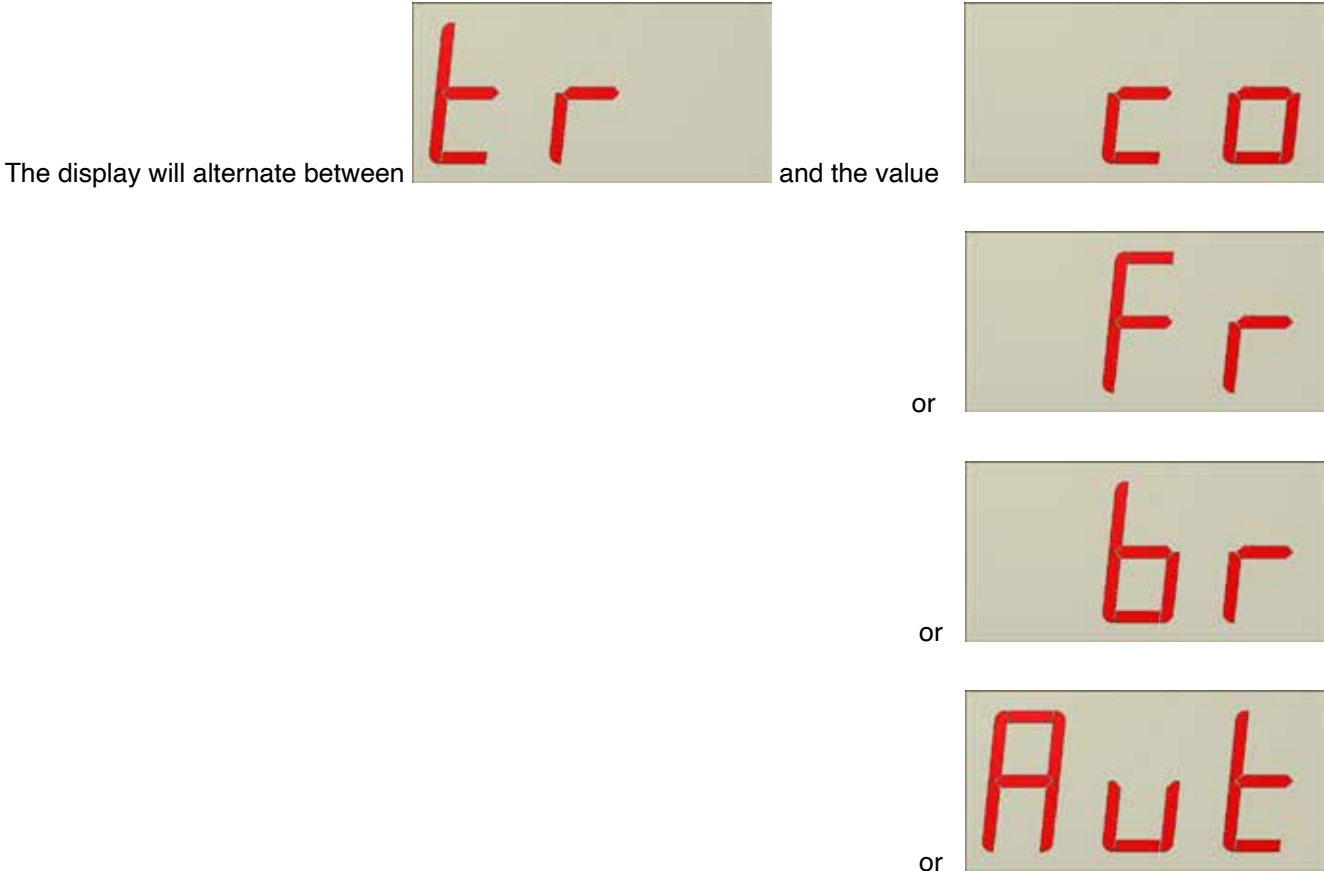
The display will alternate between

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.



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 section 1.



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



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.



Troubleshooting

Issue	Possible Cause	Action
IC controller display is flashing 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 a few minutes to make sure it goes back to the normal range.
IC controller has audible beep and the display alternates between  and a number	The high air temp. alarm has gone 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 is working properly.
IC controller has audible beep 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 (pg. 6)

Field Wiring



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



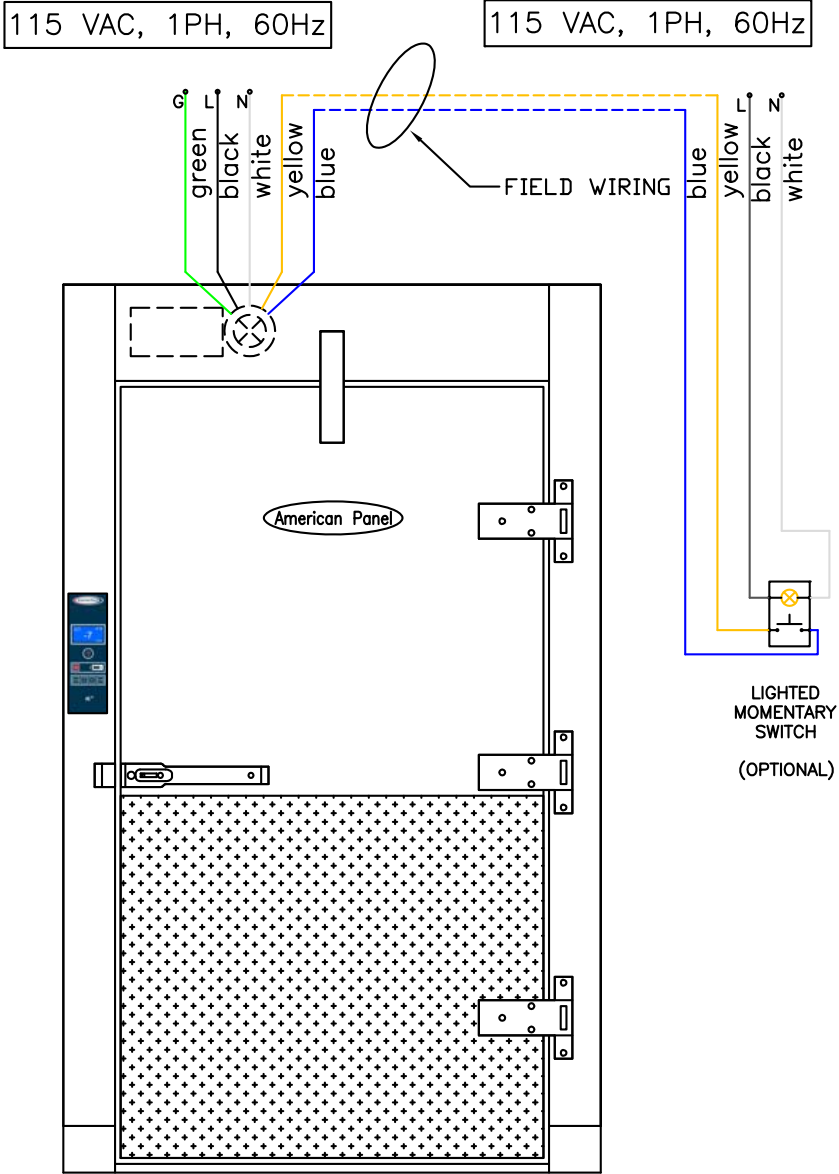
Note: Electrician must provide seal-offs at every conduit entry on the warmer side of panels. Seal inside and around all conduits where passing through panels.

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.

Remote Light Button Connection

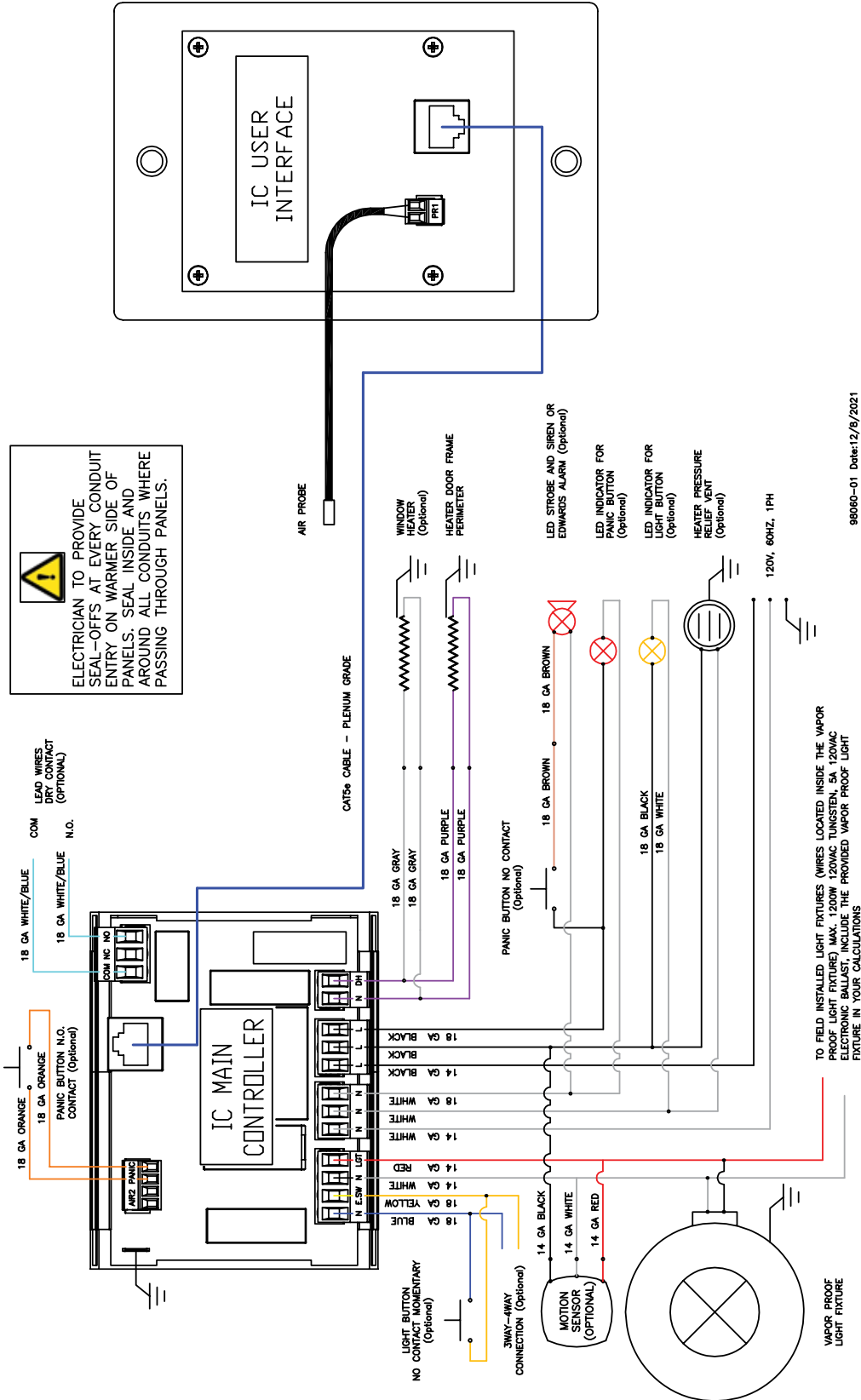
Note: Check the blue print to find out which IC controller connects to the remote button.



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



Electrical Diagram



This page intentionally left blank.





Versatile, Dependable Walk-Ins & Blast Chillers



American panel is your trusted manufacturer for all your cold storage, blast chilling and shock freezing needs. Building on a 57-year family owned and operated heritage, American panel provides versatile, dependable custom crafted walk-in coolers, freezers, combination cold rooms and blast chillers.

Find out more at www.americanpanel.com