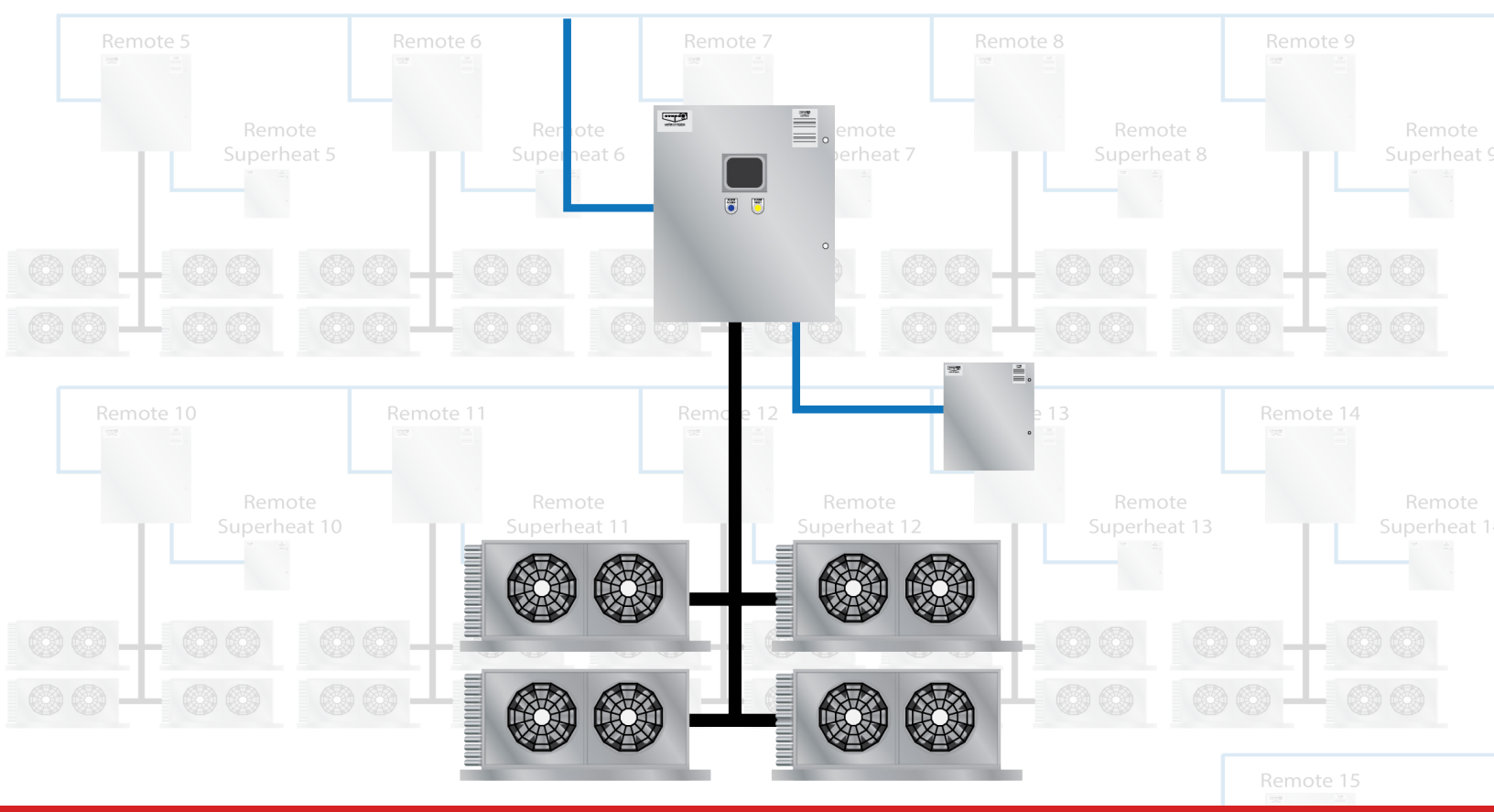
EvapCORE™

evapco selectTECH




# Evaporator

## Standard Control Solution

# Standard Evaporator Control System

## SUMMARY

The EvapCORE Evaporator Control System is a modular and configurable control system that can control multiple different configurations of evaporators. The EvapCORE Evaporator Control System controls up to 40 or 64 zones. The system uses an Allen-Bradley PLC, a user-friendly Allen-Bradley Standard PanelView for the 40 zone system or an Allen-Bradley Performance PanelView for the 64 zone system. The PanelView HMIs allow the operator to configure each Evaporator Zone, add additional panels, and tailor the system for present and future needs. All panels within the system are built to UL508A standard and come with a UL508A Rating. While the control can be standalone, it is designed to easily implement into a new or existing supervisory system. Multiple EvapCORE Control Systems can be used for any facility needs beyond 40 or 64 Zones. A custom Engineered To Order (ETO) can be quoted upon request.

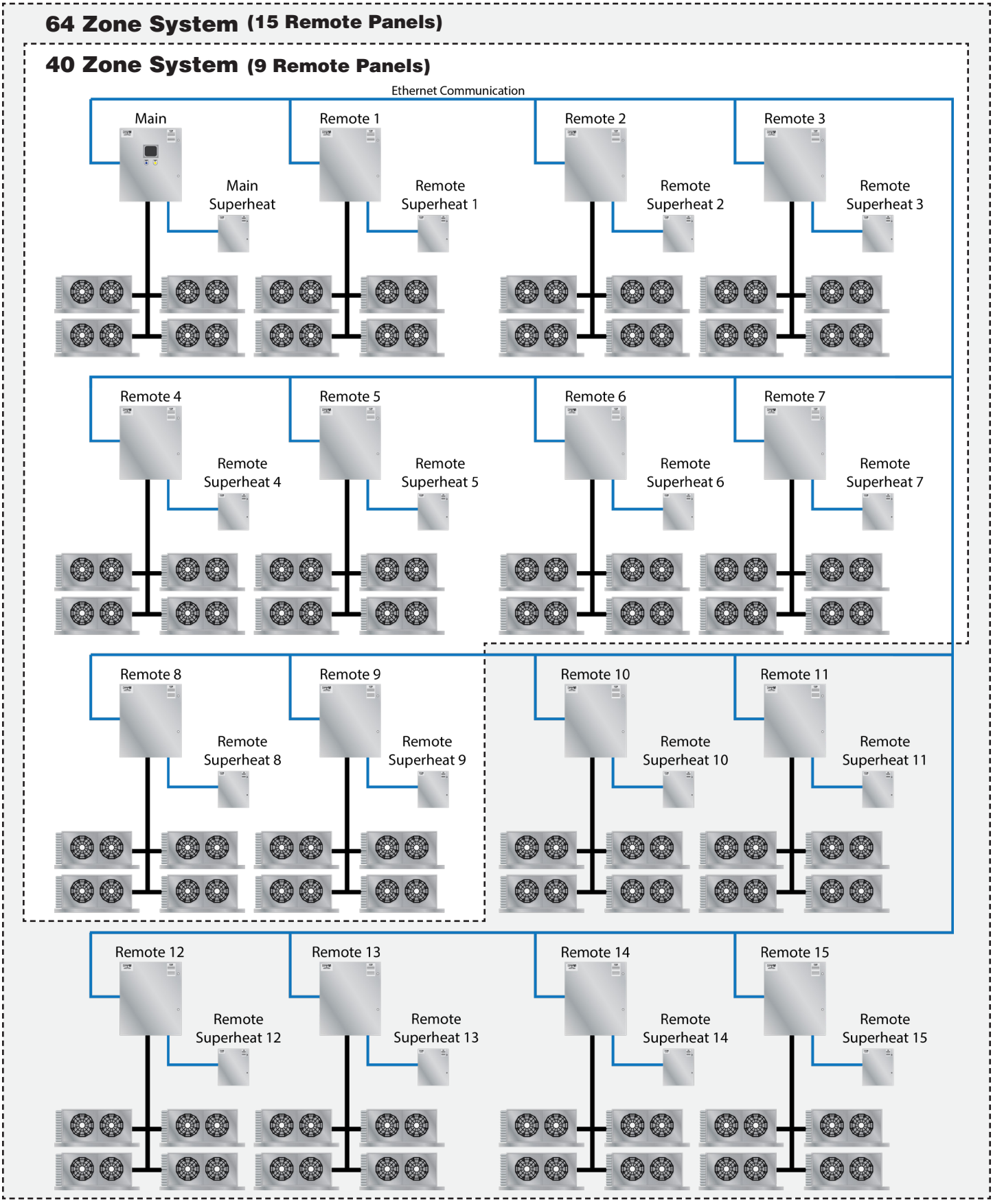
## 40 ZONE SYSTEM

- Main Superheat Panel services Zones 1 – 4
- Remote & Superheat Panel #1 Services Zones 5 – 8
- Remote & Superheat Panel #2 Services Zones 9 – 12
- Remote & Superheat Panel #3 Services Zones 13 – 16
- Remote & Superheat Panel #4 Services Zones 17 – 20
- Remote & Superheat Panel #5 Services Zones 21 – 24
- Remote & Superheat Panel #6 Services Zones 25 – 28
- Remote & Superheat Panel #7 Services Zones 29 – 32
- Remote & Superheat Panel #8 Services Zones 33 – 36
- Remote & Superheat Panel #9 Services Zones 37 – 40

## 64 ZONE SYSTEM

- Main Superheat Panel services Zones 1 – 4
- Remote & Superheat Panel #1 Services Zones 5 – 8
- Remote & Superheat Panel #2 Services Zones 9 – 12
- Remote & Superheat Panel #3 Services Zones 13 – 16
- Remote & Superheat Panel #4 Services Zones 17 – 20
- Remote & Superheat Panel #5 Services Zones 21 – 24
- Remote & Superheat Panel #6 Services Zones 25 – 28
- Remote & Superheat Panel #7 Services Zones 29 – 32
- Remote & Superheat Panel #8 Services Zones 33 – 36
- Remote & Superheat Panel #9 Services Zones 37 – 40
- Remote & Superheat Panel #10 Services Zones 41 – 44
- Remote & Superheat Panel #11 Services Zones 45 – 48
- Remote & Superheat Panel #12 Services Zones 49 – 52
- Remote & Superheat Panel #13 Services Zones 53 – 56
- Remote & Superheat Panel #14 Services Zones 57 – 60
- Remote & Superheat Panel #15 Services Zones 61 – 64

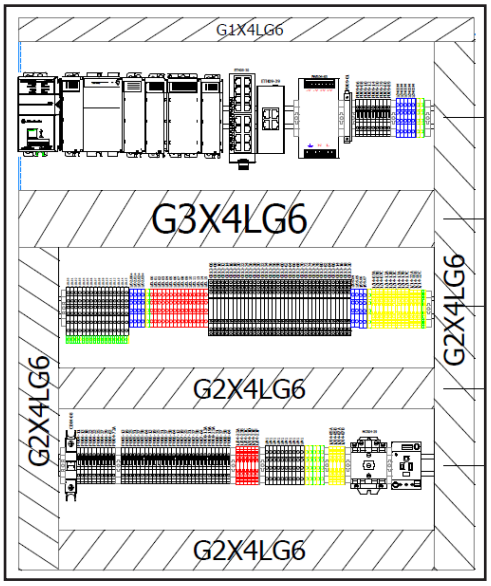
# Standard Evaporator Control System



# Standard Evaporator Control System

## MAIN PANEL

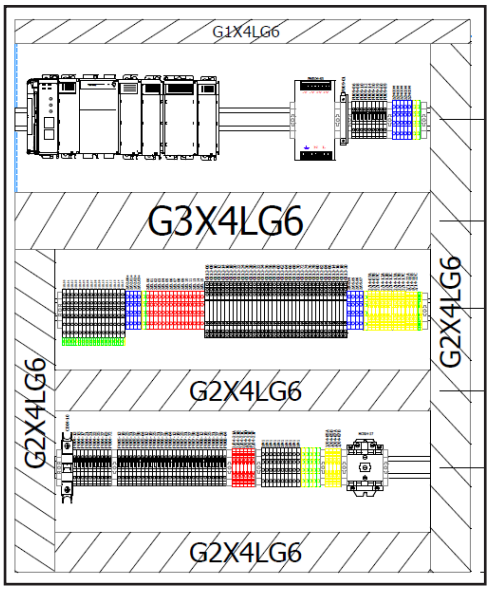
- Allen-Bradley PLC
- Allen-Bradley PanelView HMI
- Industrial Gateway – eWON COSY+
  - Local Area Network of equipment
  - Pre-programmed IP Addresses
  - NAT routing configuration to facility network
  - Remote VPN connectivity for support and remote viewing
- Controls up to 4 configurable Evaporator Zones
- Hard-wired safety circuit to shut down Main Panel Evaporators
  - Provides electrical cutout of Zone outputs with exception to safety indicators and suction valves
  - Intended for:
    - Gas detection hard-wired contacts such as CTI-EM2
  - Can be used for:
    - Emergency Stops (Local and Remote)
    - Fire Detection
    - BMS
- Digital Input to support entire system shutdown (Non-Hard-Wire)
  - Intended for:
    - Fire Detection
    - BMS




**Main Panel**

## REMOTE PANEL

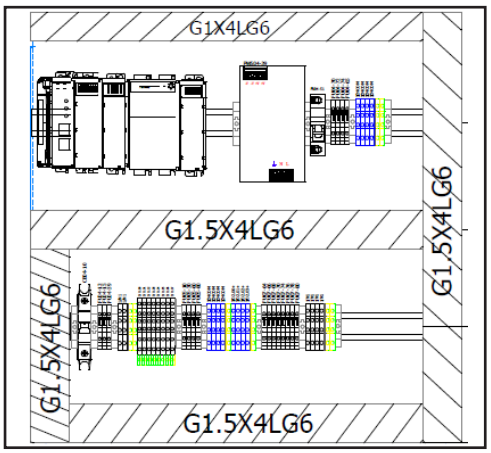
- Allen-Bradley Remote I/O
- No PLC, HMI, or eWON
- Cost savings from Main to Remote Panels as more Remote Panels are added, the cost per Evaporator Zone decreases
- Controls up to 4 additional configurable Evaporator Zones per panel
- Hard-wired safety circuit (Same as Main Panel)
- 40 Zone System
  - Up to 9 add-on remote panels, for a total of 40 Zones.
- 64 Zone System
  - Up to 15 add-on remote panels, for a total of 64 Zones
- Off-the-shelf design
- Plug and Play connectivity to Main Panel using Ethernet connection and easy 3-dial IP Address system




**Remote Panel**

## SUPERHEAT PANEL

- Allen-Bradley Remote I/O
- DX (Superheat) Control for up to 4 Zones per panel
  - Liquid Modulating Valve
  - Pulse Valve – Redundant Outputs available for all Pulse Valves for increased longevity
- Superheat Panels dedicated to specific Main and Remote Panel Zones as shown in the 40 and 64 Zone System Network Layout in this document
- Off-the-shelf design
- Plug and Play connectivity to Main Panel using Ethernet connection and easy 3-dial IP Address system




**Superheat Remote Panel**

# Standard Evaporator Control System

## NETWORK CONNECTIVITY

- Local Network
  - 40 Zone System: 16-port Ethernet switch for all Remote panels to be plugged in via Ethernet to the Main Panel
  - 64 Zone System: 16 and 8-port Ethernet switch for all Remote panels to be plugged in via Ethernet to the Main Panel
  - Superheat Panels to be plugged in via Ethernet to dedicated Main or Remote panel as shown in the 40 and 64 Zone System Network Layout in this document
  - Remote panel Ethernet module equipped with two Ethernet ports, one to be plugged in to the Main panel and one to be plugged in to the dedicated Superheat panel via Ethernet
- Operators can log in to the HMI and configure the number of Remote & Superheat Panel(s) in the system
- eWON provides NAT Routing capabilities to allow for Customer integration into the facility network
- Pre-programmed IP Addresses for the Remote & Superheat Panel(s)
  - Table of pre-programmed IP Addresses to be provided on drawings
  - Plug and Play connectivity to Main Panel using Ethernet connection and easy 3-dial IP Address system
- VNC Capable HMI for remote viewability and setpoint entry

## DATA COLLECTION

- Ethernet/IP map for easy integration into a facility SCADA system or PLC controller:
  - Each Zone can be remotely monitored
    - All analog, status, and setpoint data is available per the Ethernet/IP map for data collection on a supervisory system for trending or reporting
- Local data logging to .CSV files on a customer provided USB stick for all analog data:
  - Provided in date-stamped files in 3-minute intervals
    - Separate data files per day on active zones

## EVAPORATOR SYSTEM CONFIGURATIONS

- Multiple valve train configurations supported:
  - Suction Valves configurable per the status of the Zone
  - Soft Hot Gas Valves configurable
  - More valve configurations available per an ETO order
- All Refrigerants supported for Non-DX Control
- Refrigerants supported for DX Control:
  - NH3
  - CO2
  - Other Refrigerants available upon request
- Zone Cooling types supported:
  - Standard (Flooded or Recirculated)
  - DX Control
    - Available with dedicated Superheat Panel(s)
    - Pulse valve (120VAC) or Modulated valve (4-20mA Output)
    - Stepper Drivers available upon request
    - EJET Compatible
- Zone Heating types supported:
  - Humidity Reheat Coils / Electric Reheat
    - This panel not intended to power Electric Reheat, only enable the reheat contactor
  - Dock Heat on single coil design
- Fan types supported:
  - ATL (Across the line)
  - NEMA (VFD)
  - EC (Requires 500Ω Resistor), this converts the signal from 0-20mA to 0-10VDC, set within HMI
- Zone Defrost types supported:
  - Air Defrost
  - Hot Gas
  - Electric
- Configurable gas detection for Zone PPM Shutdown:
  - Can support up to one PPM Sensor per Zone
  - User-adjustable to group as many Zones together as necessary, per sensor, with a maximum of four detectors per panel
  - Software configurable PPM detection levels
  - One PPM alarm output per sensor, with a maximum of four outputs per panel
  - For horn, strobe and building notification
- User-adjustable naming to allow operator to match PSMs
  - Evaporators
  - Valves

# Standard Evaporator Control System

## EVAPORATOR SYSTEM I/O

### Main & Remote Panel(s)

- Analog Inputs:
  - Zone Air Temperature
  - Humidity
  - PPM
- Analog Outputs (Optional):
  - Fan(s)
    - NEMA / VFD (0-20mA / 4-20mA signal)
    - EC (500Ω resistor added for 0-10V signal)
- Digital Inputs:
  - Fan(s) Running Signal
  - Remote Enable/Disable
  - Remote Defrost
- Digital Outputs:
  - Fan(s)
    - Enable/Disable for ATL or NEMA / VFD
  - Liquid Solenoid
  - Suction #1 Solenoid
  - Suction #2 Solenoid
  - Soft Hot Gas Solenoid / Electric Defrost Circuit #1
  - Hot Gas Solenoid / Electric Defrost Circuit #2
  - Bleed Solenoid / Electric Defrost Circuit #3
  - Reheat Output
  - PPM Alarm Contact for Horn & Strobe per PPM sensor
  - System Evaporator High Temp Alarm Output

### Superheat Panel(s)

- Analog Inputs:
  - Suction Temperature
  - Suction Pressure
- Analog Outputs:
  - Liquid modulating valve (4-20mA signal)
- Digital Outputs (Optional):
  - Pulse valve (120VAC solid-state output)
- All System I/O for Main, Remote and Superheat Panel(s) are allocated and dedicated whether used in the application or not. Unused I/O cannot be re-assigned or used unless requested in an ETO Order.
- At the end of this document there is a listed I/O map for each panel

# Standard Evaporator Control System

## EVAPORATOR CAPABILITIES & FEATURES

- Start-up Sequence on power-up after a power outage or system shutdown to avoid a large in-rush current
- Fan Control:
  - Fixed speed or variable speed (If EC or NEMA / VFD)
  - Fan Off, On, and Sample (Off / On time adjustable) selections available for satisfied temperature operation
- Cooling Modes:
  - 5 different cooling modes of operation
    - Off, Mode-1, Mode-2, Mode-3, Remote, Schedule
  - Schedule Mode allows 5 mode changes per day
  - Remote Mode allows a Supervisory/Remote PLC to change the mode
- Defrost Modes:
  - Manual defrost (HMI Button)
  - Liquid Runtime
    - Defrost grouping available for Zones
  - Defrost schedule
    - 8 configurable defrost per day
  - Remote defrost via Ethernet IP messaging
  - Digital Input Defrost Enable
  - Defrost Termination once defrost has started
- Smart Hot Gas & Smart Bleed:
  - Zone can terminate hot gas defrost step once the Zone Temperature has reached a user-adjustable temperature setpoint (Hot Gas or Electric)
  - If a superheat panel is selected and a suction pressure sensor is used, the bleed step of defrost can be ended at a set suction pressure setpoint
- Forced Cooling:
  - Satisfied Zones can be selected to go into Forced Cooling whenever a hot gas Zone goes into defrost during a low load situation
- Customizable User Access (HMI Security):
  - User levels for access and control
- Miscellaneous Sensors
  - Limited to (4) per panel, up to (10) per system for a 40 Zone, and (20) in a 64 Zone System, depending on how many spare analog inputs are available per panel(s) in the system. Intended to be used for:
    - Room Temperatures
    - Underfloor Temperatures
    - Strictly used for monitoring purposes.
- Configurable High, Low, and Sensor Fault alarms
  - These alarms will be logged but will not affect the control of the system
  - System Evaporator High Temperature Alarm Output for safety and notification purposes

# Standard Evaporator Control System

## SENSOR & HARDWARE OPTIONS[1]

- Sensor options per individual Evaporator: (All analog sensors are 4-20mA)
  - Normal Air Temperature Sensor (Air Temperature greater than -40°F)
  - Extreme Air Temperature Sensor (Air Temperature less than or equal to -40°F)
    - Can be used for Suction Temperature on outside of pipe.
  - Immersion Well Temperature Sensor (Well lengths: 2.5",S 4", 6")
  - Humidity Sensor
  - Pressure Transducer
  - Gas Detection Sensor (Polycarbonate & Stainless-Steel Options)
  - Current Switch
- Panel options:
  - Painted is the default standard (Ambient Temperature Rating: 45° - 80° Fahrenheit)
  - Stainless Steel (Ambient Temperature Rating: 45° - 80° Fahrenheit)
  - Heat/Filter Fan Kit for outdoor panel(s)[2]
    - Heater 120VAC, Ambient Temperature Rating: 0° - 80° Fahrenheit
    - Filter Fan Kit, Ventilation Fan 300CFM, Ambient Temperature Rating: 45° - 104° Fahrenheit
- Industrial Gateway – eWON COSY+:
  - If no eWON is requested a deduct is provided
    - Panel(s) to be standalone
    - An IP Address change option can be purchased if panel(s) need to be added to a facility network
- PanelView upgrade option:
  - 7" is the default standard
  - 10" upgrade with price adder
  - 15" upgrade with price adder
- Miscellaneous Hardware:
  - Emergency Stop
  - Switch Boxes
  - Horn & Strobes
  - Entrance Monitors
- Ethernet Network Repeaters for Ethernet runs greater than 300' including vertical and horizontal runs
  - Fiber Kit available for Fiber to Ethernet
- Drawings:
  - Table provided to reference Zone PSM labels
  - Drawings can be updated with price adder
- Remote Display PanelView Panel (Indoor Use Only):
  - 7" is the default standard
  - 10" upgrade with price adder
  - 15" upgrade with price adder

1 Please see the price list document for more information regarding these Sensor & Hardware Options.

2 All panels are NOT to be mounted in direct sunlight, washdown areas or outside the specified Temperature Ratings. For these types of applications, please contact ESTI Sales (sales@evapcoselect.com) for a custom solution.

## STARTUP OPTIONS

- Onsite Startup
- Remote Startup (VPN or Active eWON required)

## CUSTOM SOLUTIONS

- Power Solutions
  - Custom standalone or integrated power solutions are available upon request
- Supervisory Control and Data Acquisition (SCADA)
  - Integration services for new and existing facilities are available upon request
- Panel Solutions
  - Custom panel sizes, layouts, and environmental conditions are available upon request
- Drawings / Documentation
  - Custom drawings with equipment name and tag identifiers are available upon request
- Electrical Installation
  - Turnkey electrical installation solutions available upon request

## CONTACT INFORMATION

- Email: sales@evapcoselect.com
- Phone: (616) 866.6700

## POST SERVICE SOLUTIONS

- Evapco SelectTech and CTI (Calibration Technologies) are working together to provide customers with exceptional post service solutions! Contact our sales team today to coordinate discounted CTI services as well as PSM report documents on the services provided.
  - CTI Onsite Tech Startup Calibration Services
  - CTI Onsite Tech Annual Calibration Services
  - Gas Detector Repair & Service

## STANDARD EVAPORATOR CONTROL SYSTEM CLARIFICATIONS

- The Allen-Bradley PLC is pre-programmed and specifically set up to be configured per the Inputs and Outputs (I/O) listed in the I/O Map section of this document. The only user customizable I/O of this product, as standard, are the spare analog inputs used for the miscellaneous sensors.
  - Customizing I/O may result in the loss of “plug-and-play” functionality and the need to order custom for future panels
- This panel is intended to control stand-alone evaporators, with independent valve groups, with no coordination to an Engine Room or Rack system. If this is needed, an ETO order will need to be quoted. Please contact sales@evapcoselect.com for this inquiry.
- The Main Panel of the system comes with a 7” PanelView as standard. Upgrades to larger screens are available and listed in the Hardware & Sensor Options section of this document.
- The Main Panel of the system comes with an eWON COSY+ as standard. This can be used as a NAT router to communicate with the facility network. The eWON COSY+ comes with a 12-month free account once activated by the end customer, which is limited to 3GB of VPN data per month. After this period has passed, the customer will need to purchase a light or pro account from HMS Systems directly to get continued VPN capability. The NAT routing capability will still work without a subscription and if routed to the facility network, a facility VPN can be used to access the system remotely.
- Removal of the eWON in the system will remove the “plug-and-play” ability to to add more panels to the system. New panels will require a custom IP address. This will also limit the ability for remote support if a customer VPN is not provided as an alternative to the eWON connection.

## MAIN PANEL I/O MAP

- Analog Inputs:
  - Slot 1
    - Pt.00: Zone A, Air Temperature
    - Pt.01: Zone A, Humidity Sensor
    - Pt.02: Zone B, Air Temperature
    - Pt.03: Zone B, Humidity Sensor
    - Pt.04: Zone C, Air Temperature
    - Pt.05: Zone C, Humidity Sensor
    - Pt.06: Zone D, Air Temperature
    - Pt.07: Zone D, Humidity Sensor
    - Pt.08: PPM Sensor A
    - Pt.09: PPM Sensor B
    - Pt.10: PPM Sensor C
    - Pt.11: PPM Sensor D
    - Pt.12: Spare Analog Input*
    - Pt.13: Spare Analog Input*
    - Pt.14: Spare Analog Input*
    - Pt.15: Spare Analog Input*

- Digital Inputs:
  - Slot 2
    - Pt.00: Zone A, Remote Enable
    - Pt.01: Zone A, Remote Defrost
    - Pt.02: Zone A, Fan AUX Running
    - Pt.03: Zone B, Remote Enable
    - Pt.04: Zone B, Remote Defrost
    - Pt.05: Zone B, Fan AUX Running
    - Pt.06: Zone C, Remote Enable
    - Pt.07: Zone C, Remote Defrost
    - Pt.08: Zone C, Fan AUX Running
    - Pt.09: Zone D, Remote Enable
    - Pt.10: Zone D, Remote Defrost
    - Pt.11: Zone D, Fan AUX Running
    - Pt.12: Panel Safety Shutdown
    - Pt.13: Facility Shutdown Input
    - Pt.14: Panel Alarm Reset
    - Pt.15: Panel Alarm Silence

- Digital Outputs:
  - Slot 3
    - Pt.00: Zone A, Fan(s) Enable / Disable
    - Pt.01: Zone A, Liquid Sol
    - Pt.02: Zone A, Suction Sol #1
    - Pt.03: Zone A, Suction Sol #2
    - Pt.04: Zone A, Soft Hot Gas Sol / Electric #1
    - Pt.05: Zone A, Hot Gas Sol / Electric #2
    - Pt.06: Zone A, Bleed Sol / Electric #3
    - Pt.07: Zone A, Reheat Output
    - Pt.08: Zone B, Fan(s) Enable / Disable
    - Pt.09: Zone B, Liquid Sol
    - Pt.10: Zone B, Suction Sol #1
    - Pt.11: Zone B, Suction Sol #2
    - Pt.12: Zone B, Soft Hot Gas Sol / Electric #1
    - Pt.13: Zone B, Hot Gas Sol / Electric #2
    - Pt.14: Zone B, Bleed Sol / Electric #3
    - Pt.15: Zone B, Reheat Output
    - Pt.16: Zone C, Fan(s) Enable / Disable
    - Pt.17: Zone C, Liquid Sol
    - Pt.18: Zone C, Suction Sol #1
    - Pt.19: Zone C, Suction Sol #2
    - Pt.20: Zone C, Soft Hot Gas Sol / Electric #1
    - Pt.21: Zone C, Hot Gas Sol / Electric #2
    - Pt.22: Zone C, Bleed Sol / Electric #3
    - Pt.23: Zone C, Reheat Output
    - Pt.24: Zone D, Fan(s) Enable / Disable
    - Pt.25: Zone D, Liquid Sol
    - Pt.26: Zone D, Suction Sol #1
    - Pt.27: Zone D, Suction Sol #2
    - Pt.28: Zone D, Soft Hot Gas Sol / Electric #1
    - Pt.29: Zone D, Hot Gas Sol / Electric #2
    - Pt.30: Zone D, Bleed Sol / Electric #3
    - Pt.31: Zone D, Reheat Output
  - Slot 4
    - Pt.00: PPM Sensor A, Alarm Output
    - Pt.01: PPM Sensor B, Alarm Output
    - Pt.02: PPM Sensor C, Alarm Output
    - Pt.03: PPM Sensor D, Alarm Output
    - Pt.04: System Evaporator High Temp Alarm Output
    - Pt.05: Spare Digital Output**
    - Pt.06: Panel Alarm Light

- Analog Outputs:
  - Slot 5 (Optional)
    - Pt.00: Zone A, VFD/EC Fan(s)
    - Pt.01: Zone B, VFD/EC Fan(s)
    - Pt.02: Zone C, VFD/EC Fan(s)
    - Pt.03: Zone D, VFD/EC Fan(s)

## REMOTE PANEL I/O (COMMON FOR ALL)

- Analog Inputs:
  - Slot 1
    - Pt.00: Zone A, Air Temperature
    - Pt.01: Zone A, Humidity Sensor
    - Pt.02: Zone B, Air Temperature
    - Pt.03: Zone B, Humidity Sensor
    - Pt.04: Zone C, Air Temperature
    - Pt.05: Zone C, Humidity Sensor
    - Pt.06: Zone D, Air Temperature
    - Pt.07: Zone D, Humidity Sensor
    - Pt.08: PPM Sensor A
    - Pt.09: PPM Sensor B
    - Pt.10: PPM Sensor C
    - Pt.11: PPM Sensor D
    - Pt.12: Spare Analog Input*
    - Pt.13: Spare Analog Input*
    - Pt.14: Spare Analog Input*
    - Pt.15: Spare Analog Input*

- Digital Inputs:
  - Slot 2
    - Pt.00: Zone A, Remote Enable
    - Pt.01: Zone A, Remote Defrost
    - Pt.02: Zone A, Fan AUX Running
    - Pt.03: Zone B, Remote Enable
    - Pt.04: Zone B, Remote Defrost
    - Pt.05: Zone B, Fan AUX Running
    - Pt.06: Zone C, Remote Enable
    - Pt.07: Zone C, Remote Defrost
    - Pt.08: Zone C, Fan AUX Running
    - Pt.09: Zone D, Remote Enable
    - Pt.10: Zone D, Remote Defrost
    - Pt.11: Zone D, Fan AUX Running
    - Pt.12: Panel Safety Shutdown
    - Pt.13: Spare Digital Input**
    - Pt.14: Spare Digital Input**
    - Pt.15: Spare Digital Input**

- Digital Outputs:
  - Slot 3
    - Pt.00: Zone A, Fan(s) Enable / Disable
    - Pt.01: Zone A, Liquid Sol
    - Pt.02: Zone A, Suction Sol #1
    - Pt.03: Zone A, Suction Sol #2
    - Pt.04: Zone A, Soft Hot Gas Sol / Electric #1
    - Pt.05: Zone A, Hot Gas Sol / Electric #2
    - Pt.06: Zone A, Bleed Sol / Electric #3
    - Pt.07: Zone A, Reheat Output
    - Pt.08: Zone B, Fan(s) Enable / Disable
    - Pt.09: Zone B, Liquid Sol
    - Pt.10: Zone B, Suction Sol #1
    - Pt.11: Zone B, Suction Sol #2
    - Pt.12: Zone B, Soft Hot Gas Sol / Electric #1
    - Pt.13: Zone B, Hot Gas Sol / Electric #2
    - Pt.14: Zone B, Bleed Sol / Electric #3
    - Pt.15: Zone B, Reheat Output
    - Pt.16: Zone C, Fan(s) Enable / Disable
    - Pt.17: Zone C, Liquid Sol
    - Pt.18: Zone C, Suction Sol #1
    - Pt.19: Zone C, Suction Sol #2
    - Pt.20: Zone C, Soft Hot Gas Sol / Electric #1
    - Pt.21: Zone C, Hot Gas Sol / Electric #2
    - Pt.22: Zone C, Bleed Sol / Electric #3
    - Pt.23: Zone C, Reheat Output
    - Pt.24: Zone D, Fan(s) Enable / Disable
    - Pt.25: Zone D, Liquid Sol
    - Pt.26: Zone D, Suction Sol #1
    - Pt.27: Zone D, Suction Sol #2
    - Pt.28: Zone D, Soft Hot Gas Sol / Electric #1
    - Pt.29: Zone D, Hot Gas Sol / Electric #2
    - Pt.30: Zone D, Bleed Sol / Electric #3
    - Pt.31: Zone D, Reheat Output
  - Slot 4
    - Pt.00: PPM Sensor A, Alarm Output
    - Pt.01: PPM Sensor B, Alarm Output
    - Pt.02: PPM Sensor C, Alarm Output
    - Pt.03: PPM Sensor D, Alarm Output
    - Pt.04: System Evaporator High Temp Alarm Output
    - Pt.05: Spare Digital Output**
    - Pt.06: Spare Digital Output**

- Analog Outputs:
  - Slot 5 (Optional)
    - Pt.00: Zone A, VFD/EC Fan(s)
    - Pt.01: Zone B, VFD/EC Fan(s)
    - Pt.02: Zone C, VFD/EC Fan(s)
    - Pt.03: Zone D, VFD/EC Fan(s)

**Superheat Panel (COMMON FOR ALL)**

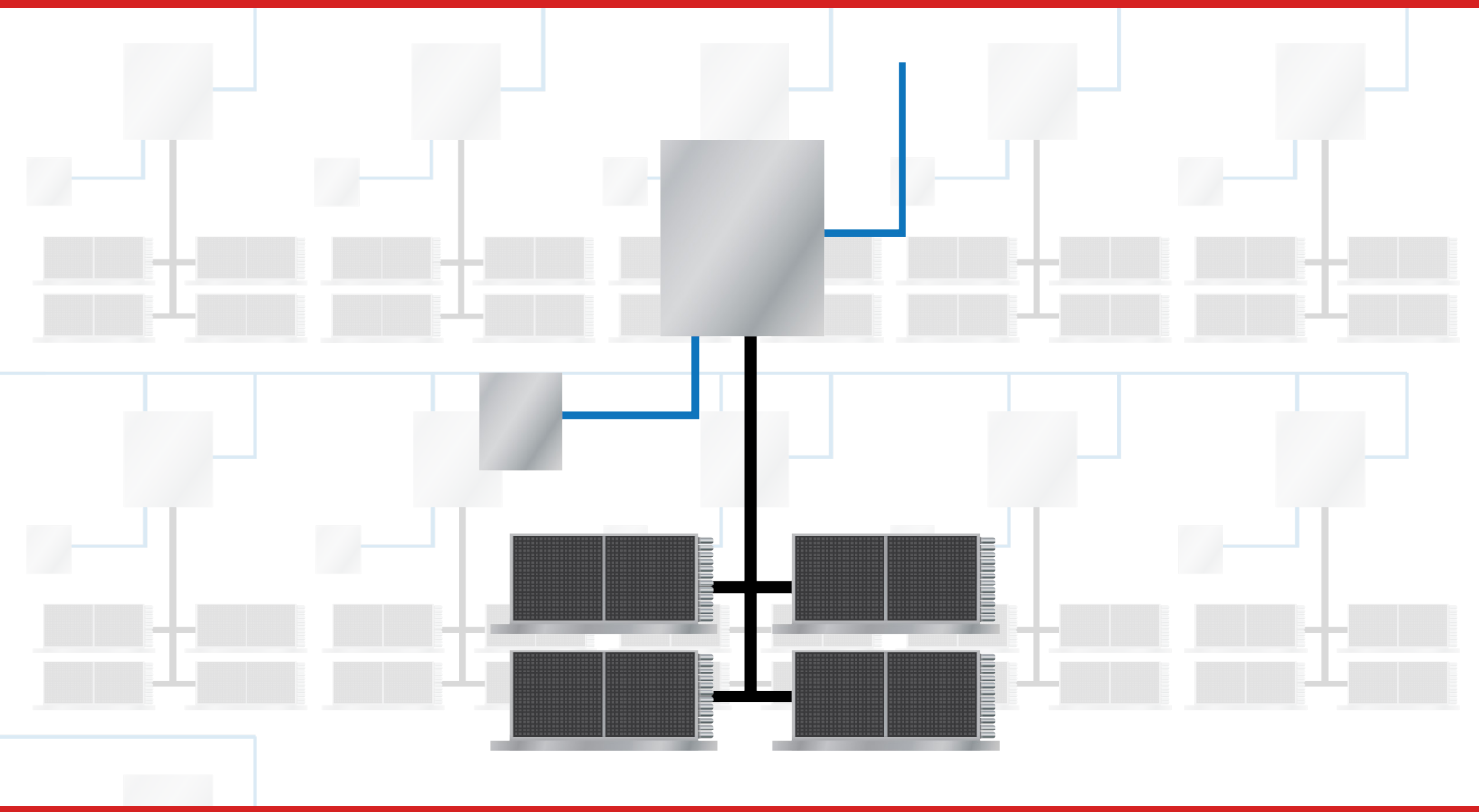
- Analog Inputs:
  - Slot 1
    - Pt.00: Zone A, Suction Temperature
    - Pt.01: Zone A, Suction Pressure
    - Pt.02: Zone B, Suction Temperature
    - Pt.03: Zone B, Suction Pressure
    - Pt.04: Zone C, Suction Temperature
    - Pt.05: Zone C, Suction Pressure
    - Pt.06: Zone D, Suction Temperature
    - Pt.07: Zone D, Suction Pressure

- Analog Outputs:
  - Slot 2
    - Pt.00: Zone A, Modulating Liquid Valve
    - Pt.01: Zone B, Modulating Liquid Valve
    - Pt.02: Zone C, Modulating Liquid Valve
    - Pt.03: Zone D, Modulating Liquid Valve

- Digital Outputs (Optional):
  - Slot 3
    - Pt.00: Zone A, Pulse Valve
    - Pt.01: Zone B, Pulse Valve
    - Pt.02: Zone C, Pulse Valve
    - Pt.03: Zone D, Pulse Valve
    - Pt.04: Zone A, Pulse Valve (Reduntant Output)
    - Pt.05: Zone B, Pulse Valve (Reduntant Output)
    - Pt.06: Zone C, Pulse Valve (Reduntant Output)
    - Pt.07: Zone D, Pulse Valve (Reduntant Output)

*Spare I/O that is configurable within the HMI and can be used for Miscellaneous monitoring points.

**Spare I/O that is not allocated but cannot be used without an ETO Order.



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