



# GENESIS INTERNATIONAL, INC.

## Wizard

### Two Zone Evaporator / Defrost Control System NEMA 4X (WEC-2ZN-4)



#### 2 Zone Wizard Evaporator Defrost Control NEMA 4X (WEC-2ZN-4) Part #88-0648-00

The Wizard Industrial Control System (WEC-2ZN-4) was designed to incorporate the functions necessary to control up to two different valve groups in one or more large refrigerated spaces into a compact, simple to install package. A single WEC-2ZN-4 can replace the following items:

- Evaporator Valve Group Status Monitor
- Multi-Function Defrost Clock
- Temperature Control
- Temperature Monitoring and Alarming
- Load Shedding Control
- System Shutdown
- Temperature Recorder
- Alarm System

**NEMA 4X Compliant Enclosure** - This enclosure is intended for either indoor or outdoor use, 0 to 50 °C, to provide a degree of protection against corrosion, windblown dust and rain, splashing water, and hose directed water.

#### Specifications (*Master & Slave*)

- Dimensions** 14.0 x 12.0 x 7.0 (356 x 305 x 178)  
Inches (mm)
- Power** 100 to 240vac, 50/60 hz, 2.5 Amps
- Inputs** Up to Three (3) NTC Thermistor  
Sensors, Per Zone  
Three dry contacts -- *Force Defrost,  
Shutdown, Load Shedding.*
- Outputs** Fourteen (14) SPDT, 1 Form C,  
250Vac, 3.15Amp relays.
- Alarms** System Alarms (2 relay)  
Low & High Temperature  
Termination Failure / Coil Recovery
- Display** 2 lines by 20 characters  
Alphanumeric LCD with back light.  
Evaporator Control Status LEDs --  
indicates Control Operating Status of  
Evaporator Controls Circuits  
Alarm Status LEDs -- indicates  
Alarm Status
- Keypad** 5 tactile pushbuttons: Scroll up,  
Scroll down Select/Edit/Change,  
Force Defrost Start/Advance
- Alarm Indicators**
  - LCD** Name, description, and current  
reading of alarming sensor
  - Buzzer** piezo-electric, 90db @10ft,  
silenceable
  - Status LED** Two on front panel of control.  
Indicates alarm status of the System  
Alarm
  - Optional Strobe Light** Mounted on the enclosure,  
activates during any alarm condition.
- Optional** Dual Variable speed control relay,  
(Fans, Compressors, Etc.)
- Listings**
  - ETL, Conforms to UL Std. 61010-1
  - Certified to CAN/CSA, C22.2 Std. No. 61010-1
- Warranty** 15 Month Limited

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**Temperature Control & Alarming** - Each Wizard is equipped with a temperature sensor for monitoring and controlling temperature in a refrigerated room with 2 systems or add a second temperature sensor for individual control of temperature of 2 separate systems. The control monitors and alarms to both high and low levels, each having its own programmed delay. The Wizard can monitor up to three independent temperature sensors for temperature control, coil temperature, and an auxiliary temperature for each zone.

**Defrost Control** - The Wizard is an electronic control and time clock which can operate up to 12 defrost cycles per day with three separate defrost schedules as well as manual defrost. The defrost can be gas, electric, water or off-time defrost. During a defrost cycle the Wizard will sequence solenoids, valves, fans & heaters as required.

Electric Defrost								
Defrost Step	Step Name	Range	Relay / Valve / Circuit					
			Liquid Line Solenoid	Evaporator Fan	Suction Stop	Electric Defrost Pre-Heat Stage (Defrost #1)	Electric Defrost (Defrost #2)	Equalizer Valve
1	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed
2	Pump Down	0-250 min	Closed	On	Open	Closed	Closed	Closed
3	Pre-Heat Cycle	0-250 min	Closed	Off	Closed	Open	Closed	Closed
4	Defrost Cycle	0-250 min	Closed	Off	Closed	Closed	Open	Closed
5	Drip Cycle	0-250 min	Closed	Off	Closed	Closed	Closed	Closed
6	Equalizing Cycle	0-250 min	Closed	Off	Closed	Closed	Closed	Open
7	Fan Start Delay	0-250 min	Open / Cycling	Off	Open	Closed	Closed	Closed
8	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed

Hot Gas Defrost								
Defrost Step	Step Name	Range	Relay / Valve / Circuit					
			Liquid Line Solenoid	Evaporator Fan	Suction Stop	Soft Gas Valve (Defrost #1)	Hot Gas Valve (Defrost #2)	Equalizer Valve
1	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed
2	Pump Down	0-250 min	Closed	On	Open	Closed	Closed	Closed
3	Soft Gas	0-250 min	Closed	Off	Closed	Open	Closed	Closed
4	Defrost Cycle	0-250 min	Closed	Off	Closed	Open	Open	Closed
5	Drip Cycle	0-250 min	Closed	Off	Closed	Closed	Closed	Closed
6	Equalizing	0-250 min	Closed	Off	Closed	Closed	Closed	Open
7	Fan Start Delay	0-250 min	Open / Cycling	Off	Open	Closed	Closed	Closed
8	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed

Water Defrost								
Defrost Step	Step Name	Range	Relay / Valve / Circuit					
			Liquid Line Solenoid	Evaporator Fan	Suction Stop	Water Defrost Stage #1 (Defrost #1)	Water Defrost Stage #2 (Defrost #2)	Equalizer Valve
1	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed
2	Pump Down	0-250 min	Closed	On	Open	Closed	Closed	Closed
3	Water Stage Cycle	0-250 min	Closed	Off	Closed	Open	Closed	Closed
4	Defrost Cycle	0-250 min	Closed	Off	Closed	Open	Open	Closed
5	Drip Cycle	0-250 min	Closed	Off	Closed	Closed	Closed	Closed
6	Equalizing Cycle	0-250 min	Closed	Off	Closed	Closed	Closed	Open
7	Fan Start Delay	0-250 min	Open / Cycling	Off	Open	Closed	Closed	Closed
8	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed

**Defrost Termination** - A defrost cycle can be terminated by clicks-on thermo-disk, temperature termination sensor, suction pressure switch or time.

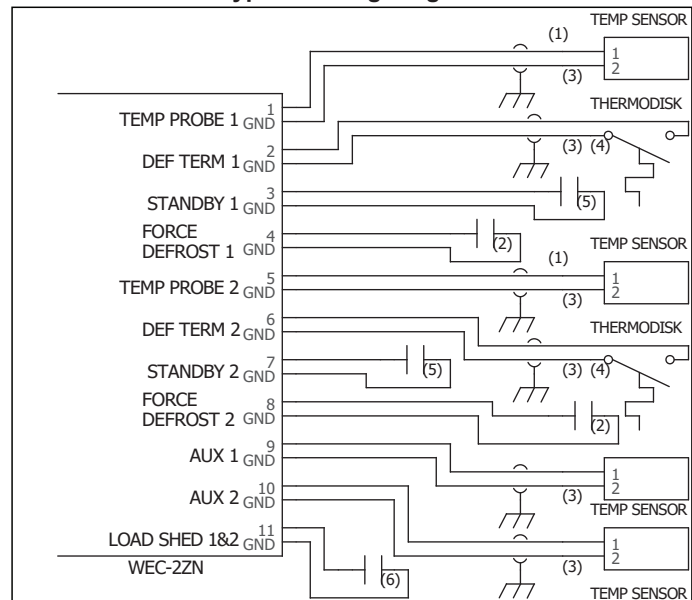
**Remote Communications & Data Logging** - GenCom Communications software allows the computer operator to access and change the Wizard within a facility via a PC connection. The Wizard will record up to 1500 temperature log entries into its internal memory.

**Load Shedding / Temperature Control Setback** - The Wizard system allows the user to change the temperature control setpoint to a higher value in order to reduce energy demand.

**Shutdown (Standby)** - The Wizard can be configured to shutdown the system on a daily schedule, during off-season or maintenance periods.

Off-Time Defrost								
Defrost Step	Step Name	Range	Relay / Valve / Circuit					
			Liquid Line Solenoid	Evaporator Fan	Suction Stop	Water Defrost Stage #1 (Defrost #1)	Water Defrost Stage #2 (Defrost #2)	Equalizer Valve
1	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed
2	Defrost Cycle	0-250 min	Closed	On	Open	Closed	Closed	Closed
3	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed

Typical Wiring Diagram



- (1) USE BELDEN 8770, 2-18 AWG, TWISTED SHIELDED
- (2) MOMENTARY DRY CONTACT SIGNAL ONLY. FORCE DEFROST UPON CLOSURE. CAN BE CONNECTED TO A GANG DEFROST CLOCK FOR SEQUENCING OF MULTIPLE WIZARD CONTROLS.
- (3) FOR CABLE RUNS OF 0 TO 250FT USE BELDEN 8451, FOR CABLE RUNS OF 250 TO 1000FT USE BELDEN 9154, 22/2 WITH SHIELD OR 20/2 WITH SHIELD
- (4) A "MAKE ON RISE" CLICKS-ON THERMODISK.
- (5) DRY CONTACT SIGNAL ONLY. SYSTEM SHALL GO INTO STANDBY MODE UPON CLOSURE OF CONTACT. SYSTEM SHALL RETURN TO NORMAL MODE IMMEDIATELY UPON OPENING OF CONTACT.
- (6) DRY CONTACT SIGNAL ONLY. SYSTEM SHALL GO INTO LOAD SHEDDING MODE UPON CLOSURE OF CONTACT. SYSTEM SHALL RETURN TO NORMAL MODE IMMEDIATELY UPON OPENING OF CONTACT.
- (7) MAKE ALL SPLICES WITH 3M 'UR' CONNECTORS OR ANOTHER CORROSION RESISTANT CRIMP.



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