



GENESIS INTERNATIONAL, INC.

Wizard

Single Zone Evaporator / Defrost Control System with Sherlock Refrigerant Leak Detection NEMA 4X (WEC-L-4)



Wizard Evaporator Defrost Control (WEC-L-4)

Part #88-0346-00

The Wizard Industrial Control System in a NEMA 4X ABS watertight housing (WEC-L-4) was designed to incorporate the functions necessary to control one valve group in a large refrigerated spaces into a compact, simple to install package. The WEC-L-4 is compliant with ASHRAE 15-2019 and MECHANICAL CODE requirements for refrigerant gas monitoring with the addition of a Sherlock refrigerant gas sensor. A single WEC-L-4 can replace the following items:

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

MODEL #	NEMA/IP RATING	ELECTRICAL CATEGORY	POLLUTION PROTECTION
WEC-L-4	4x / Ip67	II	3

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

- Housing** NEMA 4X, ABS
- 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 Temperature Sensors
One (1) **SHERLOCK** Refrigerant Sensor *Cmos, Infrared or Electro-Chemical*
Three dry contacts -- *Force Defrost, Shutdown, Load Shedding.*
- Outputs** Twelve (12) SPDT, 1 Form C, 250V AC 5.0 Amp relays.
- Optional VSD** Dual Variable Speed Drive control relay, (Fans, Compressors, Etc.)
- Alarms** System Alarms (2 relay)
Low & High Temperature
Termination Failure / Coil Recovery
Refrigerant Gas Leak Alarm, Two (2) alarm levels (2 SPDT Relays per level)
- 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.

Listings

ETL, Conforms to UL Std. 61010-1
Certified to CAN/CSA, C22.2 Std. No. 61010-1

Warranty 15 Month Limited

Temperature Control & Alarming - Each WEC-L-4 is equipped with a temperature sensor for monitoring and controlling temperature. The control monitors alarms both high and low levels, each having its own programmed delay. The WEC-L-4 can also monitor coil temperature, and an auxiliary temperature.

Defrost Control - The WEC-L-4 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.

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 WEC-L-4 within a facility via a PC connection. The WEC-L-4 will record up to 1500 temperature log entries into its internal memory.

Load Shedding / Temperature Control Setback - The WEC-L-4 allows the user to change the temperature control setpoint to a higher value in order to reduce energy demand.

Shutdown (Standby) - The WEC-L-4 can be configured to shutdown the system on a daily schedule, during off-season or maintenance periods.

Refrigeration Leak Monitoring - The WEC-L-4 makes a room code compliant with the addition of a Sherlock refrigerant sensor (Solid State CMOS, Infrared or Electro-Chemical). The WEC-L-4 will activate alarms based upon two alarm level threshold setpoints energizing alarm indication equipment and any additional safety procedures as required by local codes. The WEC-L-4 gives the user an option to pump down, then isolate the evaporator coil should the leak concentration exceed level two.

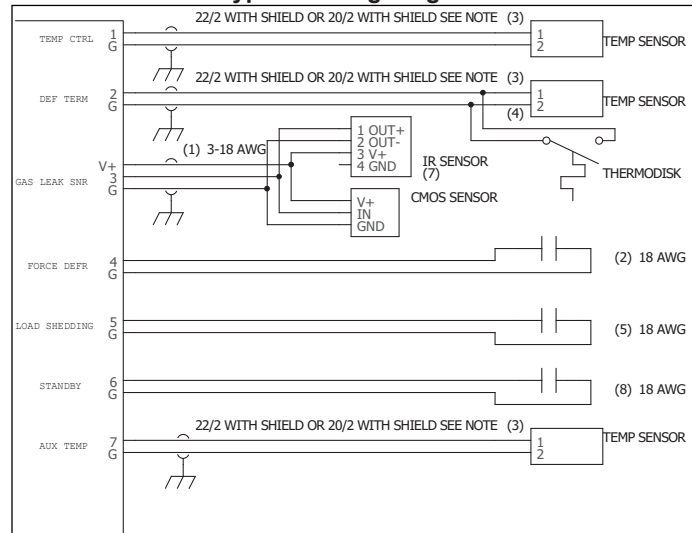
Electric Defrost								
Defrost Step	Step Name	Range	Relay / Valve / Circuit					
			Liquid Line Solenoid	Evaporator Fan	Suction Stop	Electric Defrost Pre-Heat Stage (Defrost #1)	Electric Defrost (Defrost #2)	Equalizer Valve
1	Normal Refrigeration		Cycling	On	Open	Closed	Closed	Closed
2	Pump Down	0-250 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

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



- WIZARD EVAP CTRL INPUT
- USE BELDEN 8770, 3-18 AWG, TWISTED SHIELDED
 - MOMENTARY DRY CONTACT SIGNAL ONLY. FORCE DEFROST UPON CLOSURE. CAN BE CONNECTED TO A GANG DEFROST CLOCK FOR SEQUENCING OF MULTIPLE WIZARD CONTROLS.
 - FOR CABLE RUNS OF 0 TO 250FT USE BELDEN 8451, (FOR PLENUM INSTALLATIONS 83552) FOR CABLE RUNS OF 250 TO 1000FT USE BELDEN 8760, (FOR PLENUM INSTALLATIONS 83652).
 - DEFROST CYCLE CAN BE TERMINATED BY EITHER A TEMPERATURE SETPOINT AND PROBE, A "MAKE ON RISE" CLICKS-ON THERMODISK, OR BOTH.
 - 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.
 - MAKE ALL SPLICES WITH 3M 'UR' CONNECTORS OR ANOTHER CORROSION RESISTANT CRIMP.
 - USE EITHER SHERLOCK CMOS SENSOR OR SHERLOCK IR SENSOR
 - 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.



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