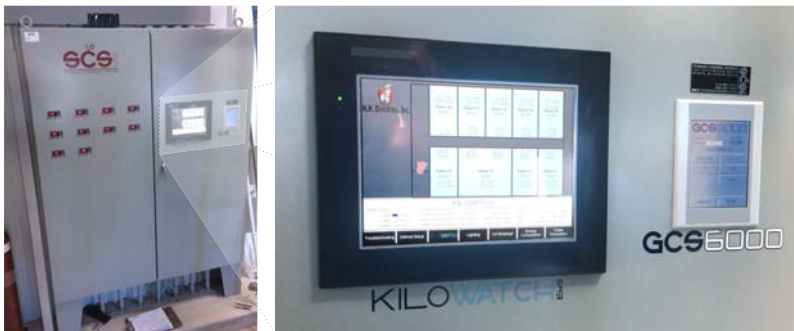


KILOWATCH^{EMS} ENERGY MANAGEMENT



Remarkable energy savings are attained using our Kilowatch Energy Management System™. The Kilowatch system uses real-time energy usage monitoring combined with an abundance of energy saving features that translate to significantly reduced operating costs. With demand limiting, intelligent defrost control, dynamic stirring, facility lighting, and compressor management, the system provides up-to-the-minute operating cost reports which allow the operator to understand fully where their energy is being used.

This system keeps you connected. With daily status reports and alarm notification by SMS and email, you remain on top of your operation. You can also login and view the system and make adjustments in real-time from your PC or smartphone as if you were standing in front of the interface. The system also carries data logging capabilities that store years of temperature and atmospheric data from your facility.

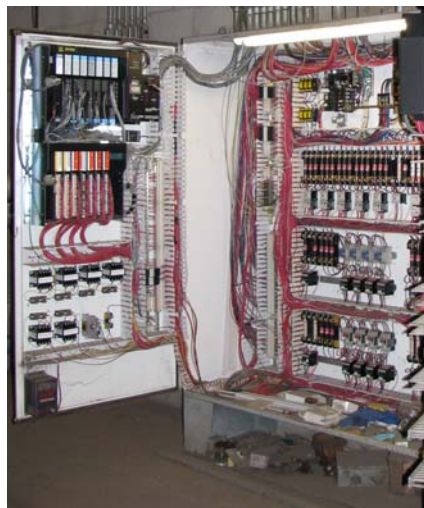


This system has traditionally been offered with new construction systems. Recently SCS has expanded their offerings to include retrofit systems for traditional direct expansion ammonia and Freon-based systems. Incredibly fast payback periods can be realized with the improved compressor management, defrost management, and demand limiting.

New Kilo Watch Installation



Before Kilo Watch Retrofit



Before Kilo Watch Retrofit



After Kilo Watch Retrofit



After Kilo Watch Retrofit

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KILOWATCH^{EMS} ENERGY MANAGEMENT

KILOWATCH^{EMS}

Room 5: 33.0°F, CO2: 0.0%
 Room 7: 34.0°F, CO2: 0.2%
 Room 9: 39.3°F, CO2: 0.7%
 Room 4: 34.0°F, CO2: 2.5%
 Room 6: 34.3°F, CO2: 2.5%
 Room 8: 34.3°F, CO2: 0.0%

System Status:
 Outside: 44.7°F, 98.9% Humidity
 Chiller Status: Enabled, Current Room Supply: 25.2°F, System Pressure: 27.0 psi
 Load: 180 GPM, Current Room Flow: 180 GPM, Pump Speed (com): 33%, Defrost Status: Idle
 Inlet: 28.8°F, Room Flow Demand: 130 GPM, East ΔP Valve: 42%, Boiler Inlet: 67°F
 Outlet: 21.6°F, Chiller Flow Demand: 84 GPM, West ΔP Valve: 49%, Boiler Outlet: 77°F

Main KiloWatch[™] Overview Screen

Room	Temp	Front	Back	Side	Mode	Core	CO2	CO2	CO2	CO2	CO2	CO2
Room 80	32.5°	33.4°	32.8°	32.7°	32.8°	32.8°	1.80%	1.76%	1.76%	1.65%	1.35%	1.35%
Room 81	33.0°	34.8°	33.6°	33.4°	33.4°	33.4°	1.72%	1.30%	1.65%	1.35%	1.35%	1.35%
Room 82	32.5°	34.7°	32.1°	32.3°	32.1°	32.2°	1.76%	1.17%	1.55%	1.25%	1.25%	1.25%
Room 83	32.5°	34.1°	32.4°	32.0°	32.3°	32.3°	1.77%	1.19%	1.45%	1.45%	1.45%	1.45%
Room 84	32.5°	33.4°	32.5°	32.3°	32.7°	32.6°	1.76%	1.23%	1.65%	1.35%	1.35%	1.35%
Room 85	32.5°	33.8°	32.6°	32.6°	32.4°	32.3°	1.56%	1.25%	1.65%	1.35%	1.35%	1.35%
Room 86	32.5°	34.2°	33.0°	32.9°	32.9°	32.8°	1.65%	1.20%	1.65%	1.35%	1.35%	1.35%
Room 87	32.5°	34.3°	32.6°	32.3°	33.8°	35.2°	1.55%	1.25%	20.5%	0.1%	0.1%	0.1%
Room 88	32.5°	34.3°	33.1°	34.0°	32.9°	33.1°	1.58%	1.17%	1.65%	1.35%	1.35%	1.35%
Room 89	33.0°	34.0°	33.0°	33.3°	33.2°	33.4°	1.66%	1.31%	1.65%	1.35%	1.35%	1.35%

By-pass: 0%
 Boiler Status: Idle
 Boiler Inlet: 55°F
 Boiler Outlet: 57°F

Current Controlled Atmosphere Room Conditions

Energy Report & Monitoring

Current (A): 92.6
 Voltage (V): 477.5
 Power (kW): 70.6

Current - A: 119.6 A
 Current - B: 87.7 A
 Current - C: 71.1 A
 Current - Average: 71.1 A
 Current 24hr Average: 63.9 A
 Current 24hr Max: 146.0 A
 Current 24hr Min: 13.9 A

Volts A-B: 477.5 V
 Volts B-C: 476.3 V
 Volts A-C: 478.4 V
 Volts Average L-L: 477.4 V
 Volts 24hr Average: 481.5 V
 Volts 24hr Max: 488.7 V
 Volts 24hr Min: 474.7 V
 Volts A-N: 276.9 V
 Volts B-N: 274.5 V
 Volts C-N: 275.5 V
 Volts Average L-N: 275.6 V

kW - A: 29.30 kW
 kW - B: 22.36 kW
 kW - C: 18.73 kW
 kW - Real Power: 70.58 kW
 kW 24hr Average: 48.41 kW
 kW 24hr Max: 115.49 kW
 kWh Cost: \$0.0850
 24hr kWh Usage: 1,161.91 kWh
 Estimated Cost: \$98.76
 Lifetime kWh: 227,853 kWh

Frequency: 60.0 Hz
 Power Factor: 0.92

Energy Report & Monitoring

Chiller Monitoring & Control

Chiller Alarm Status: OK
 Chiller Setpoint Temp: 28.0°F (Set: 28.0°F)
 Circuit Inc. Step Delay: 360 sec (Set: 360 sec)
 Circuit Dec. Step Delay: 120 sec (Set: 120 sec)
 Limit Compressor Rotation: 0 (Set: 0)

Circuit	Running	Idle	Idle	Idle	Idle
Circuit 1	Running	Idle	Idle	Idle	Idle
Circuit 2	Idle	Idle	Idle	Idle	Idle
Circuit 3	Idle	Idle	Idle	Idle	Idle
Circuit 4	Idle	Idle	Idle	Idle	Idle
Circuit 5	Idle	Idle	Idle	Idle	Idle

Water Temp: 20.7°F
 Flow: 105.6 gpm
 Return Temp: < 28.4°F

Chiller Monitoring & Control

Room Defrost Control

Room 1: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No
 Room 2: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No
 Room 3: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No
 Room 4: 48.0 hrs, Man. Mode, Time Since Last: 37.5 Hrs, No
 Room 5: 48.0 hrs, Man. Mode, Time Since Last: 21.2 Hrs, No
 Room 6: 48.0 hrs, Man. Mode, Time Since Last: 75.2 Hrs, Yes
 Room 7: 48.0 hrs, Man. Mode, Time Since Last: 54.7 Hrs, Yes
 Room 8: 48.0 hrs, Man. Mode, Time Since Last: 23.7 Hrs, No
 Room 9: 99.9 hrs, Man. Mode, Time Since Last: 5.9 Hrs, No
 Room 10: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No
 Room 11: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No
 Room 12: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No
 Room 13: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No
 Room 14: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No
 Room 15: 99.9 hrs, Man. Mode, Time Since Last: 0.0 Hrs, No

Defrosting Room Return Temp: 45.1°F
 Jog to Next Step in Defrost: [Jog]
 Run Pump if Manual Defrost?: No
 Auto-Defrost If Return Temp Below: 35.5°F
 Skip Defrost If Return Temp Above: 39.9°F
 Hycool Temp: 66.7°F
 Hycool Pump: 77.2°F

Room Defrost Control

Room Cooling & Defrost History

Time	Room 7	Room 8	Room 9	Room 10	Room 11	Room 12	Room 13	Room 14	Room 15	Room 16	Room 17	Room 18	Room 19	Room 20
12/01/2015	5.57	5.15	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/02/2015	7.82	6.35	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/03/2015	5.13	4.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Times are in Hours

Room Cooling & Defrost History

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