

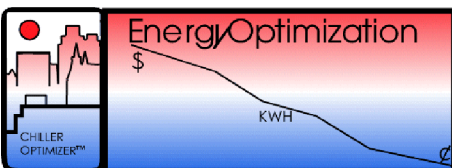
INTRODUCING...

THE NEW MILLENNIUM SERIES CHILLER OPTIMIZER WITH ELECTRA™ SOFTWARE

This new fourth generation modular DDC control system provides factory-programmed *ELECTRA* software to control all centrifugal, screw, reciprocating, and absorption chillers. The Millennium Series Chiller Optimizer combines the highest quality state-of-the-art hardware with custom *ELECTRA* software with specialized chiller control algorithms developed after hundreds of Chiller Optimizer installations and 35 years of chiller experience.

There is NO compromise in comfort of a building's tenants or guests or to chiller performance, only improvements in operational efficiency and energy savings. The Millennium Chiller Optimizer utilizes the sophisticated decision making capabilities of the *ELECTRA* program to provide automated control and Optimization of any chiller. A modular design concept allows control and Optimization of one to eight chillers with or without an EMS or BAS control. The result is a major reduction in energy consumption with an improvement in temperature control.

TM---ELECTRA is a trademark of Energy Optimization Americas, Inc..



CHILLER OPTIMIZER

Millennium Series



Master Control Unit, Series C

NEW FEATURES...

The Millennium Series Chiller Optimizer offers features never before offered in any retrofit chiller control system. These features include:

1. Compatible with the following communications formats: TCP/IP (Internet), BACNet, LonWorks, and WAP.
2. Remote access for retrieval of operational data, performance, or to make control adjustments.
3. Internal diagnostics program.
4. Interface with existing EMS or BAS products which are now in use but typically do not improve chiller efficiency.
5. Records energy consumption data and generates selected reports to provide monitoring and validation (M&V) capabilities for the demonstration of actual energy savings. Includes KW and kWh metering.
6. Eight analog inputs to record chiller temperature or pressure operating parameters or weather conditions which may affect chiller performance or maintenance requirements.
7. Modular design to sequence up to eight (8) chillers.
8. Control On/Off of chiller pumps and cooling towers.
9. Superior surge protection built-in.
10. Load shed function linked to modem.
11. Maximum Demand controller with 30 minute interval.
12. Alarm features.
13. C/F temperature settings with partial degree indicators.
14. Archives by day, month, or year.
15. Logging and trending features.
16. Windows based graphs for consumption, MD, OSA, CWS, CWR, Faults, Alarms, and Tariffs for peak/off peak MD
17. Secured access levels.
18. Auto by-pass function.
19. Plant manager – chillers, pumps, air handling units, fans, boilers, and cooling towers.

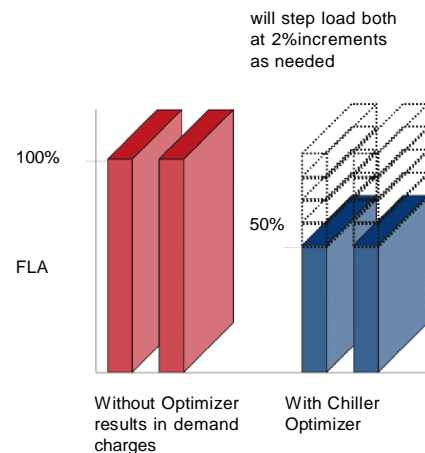
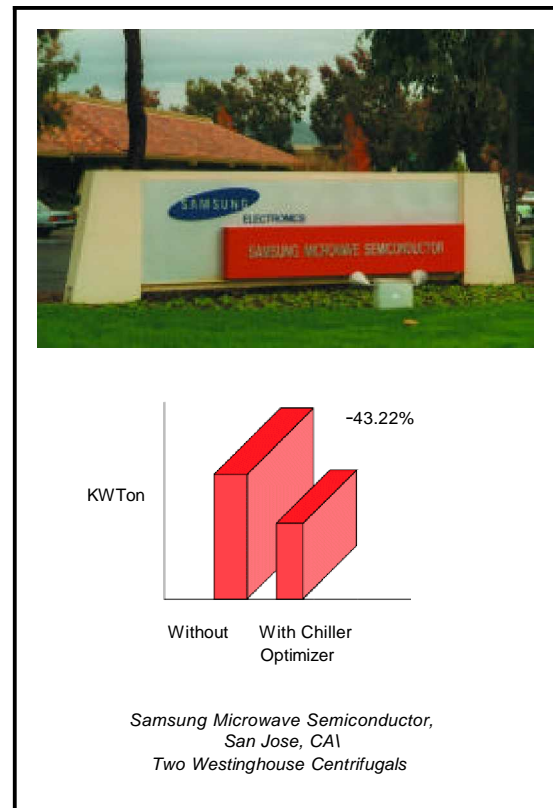
**CHILLERS ACCOUNT FOR 30-40%
OF YOUR BUILDING'S ANNUAL ENERGY
CONSUMPTION.**

BENEFITS:

- Achieves 20-30% energy savings with improved temperature and compressor control.
- Peak demand reduction with optimum start of lag chillers.
- Improved temperature control with a reduction in cold calls and hot calls.
- Maximize engineering labor assignments with fewer chiller adjustments.
- Extend Chiller life.
- Match real life efficiency of most new chillers at a fraction of the cost.

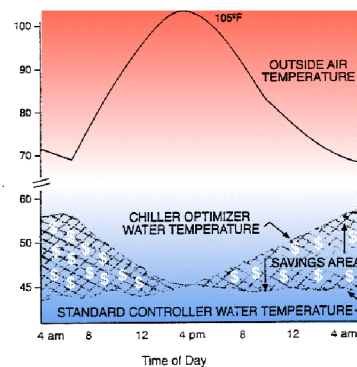


*Palm Springs Marquis Resort, Palm Springs, CA
Two McQuay Centrifugals*



Peak Demand Control

Temperature Reset



ELECTRA SOFTWARE STRATEGIES:

ELECTRA™ CHILLER OPTIMIZATION SOFTWARE STRATEGIES INCLUDE:

1. Soft start.
2. Variable soft loading.
3. Return and leaving chilled water reset.
4. Low load cycle for efficient chiller use during light load conditions.
5. Optimum start of lag chillers.

Additional Features:

The easy-to-read digital display constantly shows all pertinent chiller and system information with data updated at 1 second intervals providing operator information of operating conditions.

Optional critical zone temperature or humidity sensor activates immediate additional cooling feature. This option provides special performance for computer rooms, hospital operating rooms, or regions with high humidity concerns.

GENERAL SPECIFICATIONS

Electronic Circuitry:

Microprocessor: 16-bit AMD x 86 Series
 Program Memory: Flash
 User's Parameter Memory: Electrically Erasable Flash (non-volatile)
 Operator Interface: 16 tactile sealed membrane switch keys and 16-character, dual line alphanumeric large format LCD display (back lighted)
 A/D Converter (with 8-input mux): 12-bit binary, ± 0.5 LSB max inaccuracy
 D/A Converter: 12-bit binary, ± 1 LSB max inaccuracy

Status (Logic) Inputs:

Ready-to-load (110/220 VAC)
 Remote Start (Dry Contact Closure)
 Remote Lead / Lag (Dry Contact Closure) Remote Load Shed (Dry Contact Closure) Remote Additional Cooling (Dry Contact Closure)

Logic Outputs:

Chiller Start (Interlock) Load/Unload
 Chiller (Centrifugals)
 Compressor On Solid State Relay (up to 12) for recip loading
 Chiller Fail

Analog Output:

4/20 mA for driving steam valves (absorber) or analog input vane positioners

Sensors:

Two Platinum RTD temperature sensors (one return water sensor and one outside air sensor) with 4-20 mA transmitters
 Temp. range covered is 32/120 degF or 0/50 degC

Models:

Series C -- for Centrifugal Chillers
 Series R -- for Reciprocating Chillers
 Series S -- for Screw type Chillers
 Series A -- for Absorption type Chillers

Ambient Temperature Range:

32/120 degree F or 0/50 degree C, 10-90% Relative Humidity (non-condensing)

Weight:

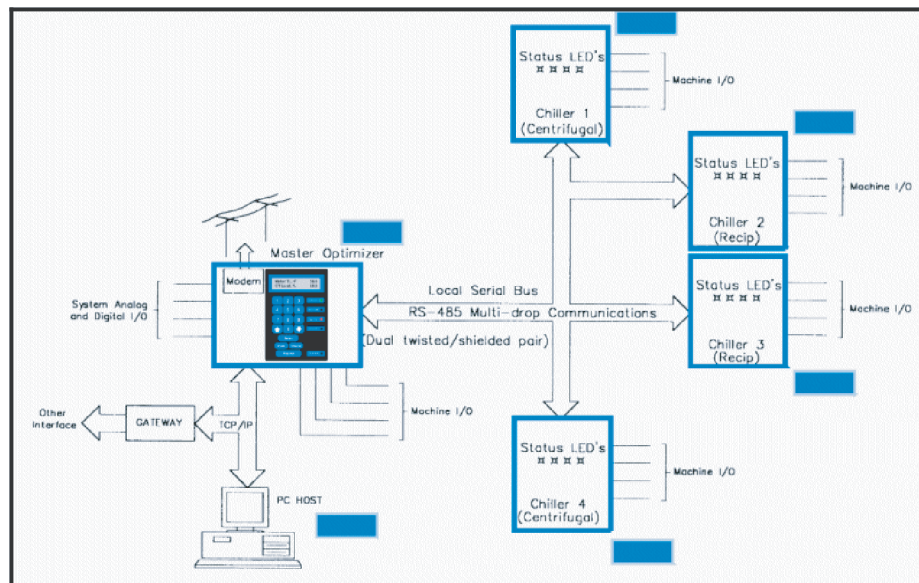
Master Unit -- 10 pounds / 4.5 kilograms

Power:

117 VAC (220 V) $\pm 10\%$, 15 watts max. Slave Unit -- 6 pounds / 2.7 kilograms

Housings:

Master Unit with one Optimizer = Wall Mounted NEMA 4X (fiberglass) cabinet with clear window
 14" x 12" x 8" / 35.5 cm x 30.5 cm x 20.3 cm
 Slave Unit = 10" x 8" x 6" / 25.4 cm x 20.3 cm x 15.2 cm



Chiller Optimizer™ System Configuration

