

# Smart Solutions Reference Summary

500kW Tier 2+ With High Efficiency Refrigerant Economization



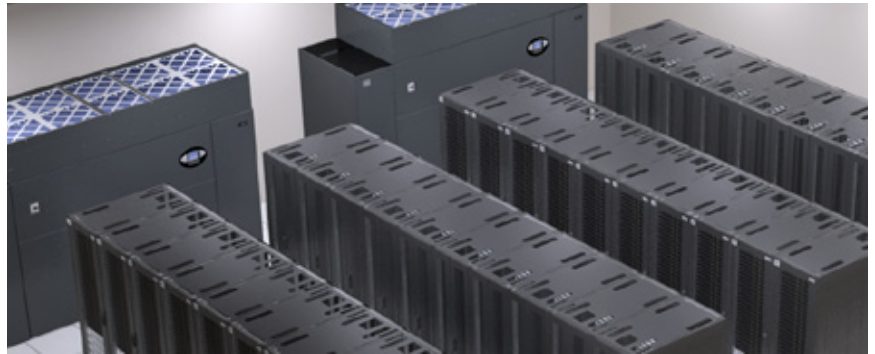
Intelligent, Integrated Infrastructure  
for the Data Center

The SmartDesign from Emerson Network Power uses a perimeter/room-based approach to deliver efficiency, availability, capacity and control, that allows you to be prepared for what's next.

This Reference Summary, [Tier 2+ With High Efficiency Refrigerant Economization](#), provides one example of how a SmartDesign solution can be developed to solve the challenges presented in new and renovated facilities. Please refer to our website [www.SmartSolutionsDesigns.com](http://www.SmartSolutionsDesigns.com) for more Scenario Reference Summaries.

## Customer Benefits:\*

- Improve OPex by \$170,000 per year
- Reduce 5 year TCO by \$379,000
- Achieve a PUE of 1.29
- Increase the availability in a Tier 4 power stream (enhance power transfers and synchronization)
- Utilize higher efficiency UPS
- Leverage the industry's highest efficiency DX cooling
- Improve overall facility scalability
- Enhance control and manageability



## SmartDesign Summary: Tier 2+ With High Efficiency Refrigerant Economization

Current Capacity:	<b>500kW</b>
Tier:	<b>2 Mech/ 4 Electrical</b>
Typical Racks:	<b>40-125</b>
This Design:	<b>70 racks</b>
Density Range:	<b>5-12kW/rack</b>
This Design:	<b>7kW/rack</b>
Floor:	<b>24" Raised</b>
Containment:	<b>Partial, doors only</b>










## Overcome the challenges with the SmartDesign approach and be prepared for what's next:

- Efficient, innovative, reliable, scalable Liebert DSE cooling technology
- Improved performance and costs over chilled water in most climates
- Availability goals addressed using proven, innovative, efficient, flexible Liebert NXL UPS
- Density can be easily increased, expanding efficiency and capacity
- Effective monitoring, management and control
- Improved PUEs
- Lower TCO
- Flexible configurations

## Current Technology Configuration:

- (6) Liebert DSE 125 Air Cooled Units
- Liebert EconoPhase Economizer
- (2) Liebert MC120 Premium Condensers
- (70) DCF Optimized Racks
- (2) Liebert NXL 625kVA UPS
- (2) Liebert battery cabinet
- (2) Liebert STS2 400A static switch
- (2) Liebert FPC 300kVA PDU
- (140) Liebert MPX Rack PDU
- Liebert iCOM Controls, Liebert Nform

# Technologies Configured to Improve Data Center Performance

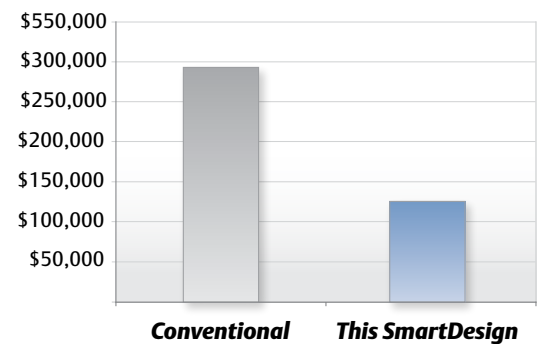
Technologies	Benefits
 <b>Liebert DSE 125A Air Cooling Units</b>	The industry's most efficient DX cooling technology. Innovative tandem scroll compressors, advanced controls, EC fans and optional EconoPhase pumped refrigerant economizer. Ideal blend of variable capacity, airflow, temperature and humidity control.
 <b>Liebert EconoPhase</b>	Unique, innovative pumped refrigerant economizer designed for Liebert DSE. No additional heat exchanger required, no air quality concerns, no added ductwork or dampers, no water usage or freezing.
 <b>Liebert iCOM</b>	Industry's best cooling controls deliver optimal performance, high efficiency, improved availability and service improvements.
 <b>Liebert NXL UPS 625kVA</b>	Robust UPS provides best in class stack-up performance, efficient eco-mode operation, 1.5 million hours MTBF, user friendly interface and flexible configurations.
 <b>Liebert FPC 300kVA PDU</b>	Reliable and flexible power isolation and distribution improves availability while ensuring flexible electrical delivery to the IT racks.
 <b>Liebert STS2 400A Static Transfer Switch</b>	Ultra reliable switching between electrical sources to improve availability.
 <b>Liebert MPH Rack PDU</b>	Inside the rack power flexibility includes monitoring and control. Flexible input/output settings. Zero U design.
 <b>DCF Optimized Racks from Emerson Network Power</b>	Optimize a data center with these racks. Excellent airflow, cable management, reconfigure flexibility.
 <b>Liebert Nform</b>	Improve data center management control, availability and efficiency with this distributed monitoring system.

## Performance (This Design vs. Base)

Benefits	Savings Over Base	Advantage Percent
Annual Energy Cost	\$170,836	58%
5 Yr OPex	\$854,180	58%
5 Yr TCO	\$379,064	12%
PUE	Reduced from 1.68 to 1.29	

\* Compared to standard cooling using 2 step variable capacity and 90% power technology efficiencies in Columbus, OH, for comparable tier design. TCO estimations includes operating costs plus equipment costs for cooling, power, racks, monitoring and installation.

## Annual Energy Costs



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● For more details on this or other SmartDesign solutions, please contact your local Emerson Network Power data center infrastructure specialist. Find them on the web or call 800.222.5877 (option 4).  
 ● See more scenario references at: [www.SmartSolutionsDesigns.com](http://www.SmartSolutionsDesigns.com)

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