

## TURBOCHYLL Product Training and Education

### TURBOCHYLL LEEF®/MIN-e Introduction, Architecture & Set-Up

#### Field Service Engineer (FSE) & Owner/ Operator

##### INTRODUCTION TO STEAM & ELECTRIC CHILLER OPTIMIZATION

*Flow and Pre-Swirl- Volume  
Lift and Load (HEAD)-Resistance  
Impact to Energy  
Part Lift –Part Load Performance  
Stall and Surge  
HBR Oils in Refrigeration Charges  
Nozzle Ratio's on Turbines  
Exhaust Impact on Condensing Turbines  
Considerations to Strategy & Control (Capacity)*

##### TURBOCHYLL ARCHITECTURE & STRATEGY

*OMRON Computer Process Control (CPU) Introduction  
LEEF- MIN-e, exclusive Program Card Processor (PCP), 2GB Memory Flash Card  
LED Sensors and Industrial Automation, Scaling & Setpoints  
Understanding Optimization Logic  
Ifm efector Product and TURBOCHYLL Controls  
Flow Chart of Components*

##### HANDS ON BUILD and COMMISSION

*MIN-e / LEEF® Student Selection of all Sensors and Transmitters  
Mounting and Scaling  
Downloading and Installing the LEEF®/ MIN-e exclusive PCP Flash Card  
Scaling an ifm Pressure and Temperature Sensor for a TURBOCHYLL Product  
Configuring the TURBOCHYLL LEEF®/ MIN-e  
Starting and Functioning a TURBOCHYLL LEEF®/ MIN-e with (electric) VSD and CCD*

##### Course Benefit and Target Audience

*This Course will introduce Owner Operator Personal (OOP) and Field Service Engineers (FSE) with the Intent. Architecture and Function of the TURBOCHYLL Products including LEEF and MIN-e. The course is broken into two essential elements with early morning introducing Capacity Control and Chiller Optimization. The course moves rapidly into the Architecture and Selection methodology that were designed to have TURBOCHYLL Products be a leader as the only "true" Aftermarket (non proprietary) Chiller Control platform. Course participants will spend the final half day building, assembling and setting up a TURBOCHYLL Control Center. As a group selecting a chiller of choice-essentially "building a system" to their application, followed by the start up and commissioning of a functioning model VSD Compressor and Flow Device controlled in "Part Lift-Part Load" demonstration. This course relies primarily on strong fundamental knowledge of chiller operation, Theory and Capacity Devices and otherwise intended for ICACS FSE and OOP of TURBOCHYLL LEEF®/ MIN-e Control Systems.*

##### Preferred Prerequisite

- ICACS FSE or OOP of TURBOCHYLL LEEF®/ MIN-e Control Systems.
- ICACS Centrifugal Chiller Fundamentals

##### Date and Time

Industrial Cooling Inc. Training Center  
30 South Ocean Avenue Suite 304  
Freeport, NY 11520  
Thursday, February 28, 2013  
7:30am to 4:30pm  
Continental Breakfast  
Instructors: V. Costanza, M. Santonocito