



Tracer™ CH530 Chiller Controller

for EarthWise™ CenTraVac™





Revolutionary control of the chiller, chilled-water system, or your entire building

It makes sense that the leader in chiller design also offers the most advanced capabilities for chiller plant management. Since 1985, we've been electronically controlling our chillers, chilled water systems, and entire buildings, with a proven history of integrating chillers and controls into total systems that perform better.

Part of a larger system

We're not satisfied with merely providing the world's most efficient centrifugal chiller. The Tracer™ CH530 chiller controller is designed to serve as an important component in a comfort control system. Although Tracer CH530 can communicate with many building automation systems, the Tracer Summit™ building automation system allows you to fully leverage the chiller's Adaptive Control™ capabilities, so the overall system stays at its peak efficiency.

In addition to system-level equipment coordination, Tracer Summit also provides crucial reports on energy efficiency, operating status, and refrigerant management.

If you are replacing a chiller or adding one to any centrally controlled plant, the Tracer CH530 chiller controller offers a wide range of interface options. Its ability to communicate with other systems using industry-standard control signals allows you to upgrade the control of your chiller plant regardless of your current control system. A Tracer Summit system can support both of the leading interoperable communications standards—BACnet™ and LonTalk®.

When updating your chiller, it may also be the ideal time to introduce the benefits of Trane controls across more of your facility. Trane offers the expertise and solutions you need, for both the short and long term.

Unprecedented accuracy and fast reactions keep your chiller on line

Adaptive Control™

Chiller reliability is all about producing chilled water and keeping it flowing, even when facing conditions that ordinarily would shut down the chiller—conditions that often happen when you need cooling the most.

Faster, more accurate response keeps the chiller online whenever possible

Tracer™ CH530 collects three rounds of data per second, 55 times the data collection speed of its predecessor. It does this by using smart devices. Each device (e.g., sensor) has its own microprocessor that simultaneously converts and accurately calibrates its own readings from analog to digital.

Because all devices are communicating digitally with the main processor, there is no need for the main processor to convert each analog signal one at a time. This distributed logic allows the main processor to focus on responding to changing conditions—in the load, the machine, its ancillary equipment, or its power supply.

Intelligently satisfies multiple objectives

Tracer CH530 constantly receives information about key data parameters—temperatures and current are two examples. Every five seconds, a multiple-objective algorithm compares each parameter to its programmed limit.

Whenever the controller senses a situation that might trigger a protective shutdown, it focuses on bringing the critical parameter back into control. When the parameter is no longer critical or if another parameter becomes more critical, the controller switches its objective—back to controlling the chilled water temperature, or to the more critical parameter.

One example of how the controller averts a shutdown occurs during an inverted start.

An inverted start occurs when the refrigerant is “stuck” in the condenser, which is temporarily at a lower temperature than the evaporator. By tightly controlling down to the low-refrigerant-temperature cutout, the controller reduces the chilled-water temperature while simultaneously coaxing the refrigerant back into the evaporator.

Variable water flow through the evaporator

Chilled-water systems that vary water flow through chiller evaporators have caught the attention of engineers, contractors, building owners, and operators. Varying the water flow reduces the energy consumed by pumps, while requiring no extra energy for the chiller. This strategy can be a significant source of energy savings, depending on the application.

With its faster and more intelligent response to changing conditions, Tracer CH530 reliably accommodates variable evaporator water flow and its effect on the chilled-water temperature. These improvements keep chilled water flowing at a temperature closer to its setpoint.

Rides out power disturbances

Improved power measurement and protection algorithms allow the unit to accommodate more power anomalies than ever. If the chiller must shut down, faster restarts get the machine up and running as soon as possible.

EarthWise™ Purge

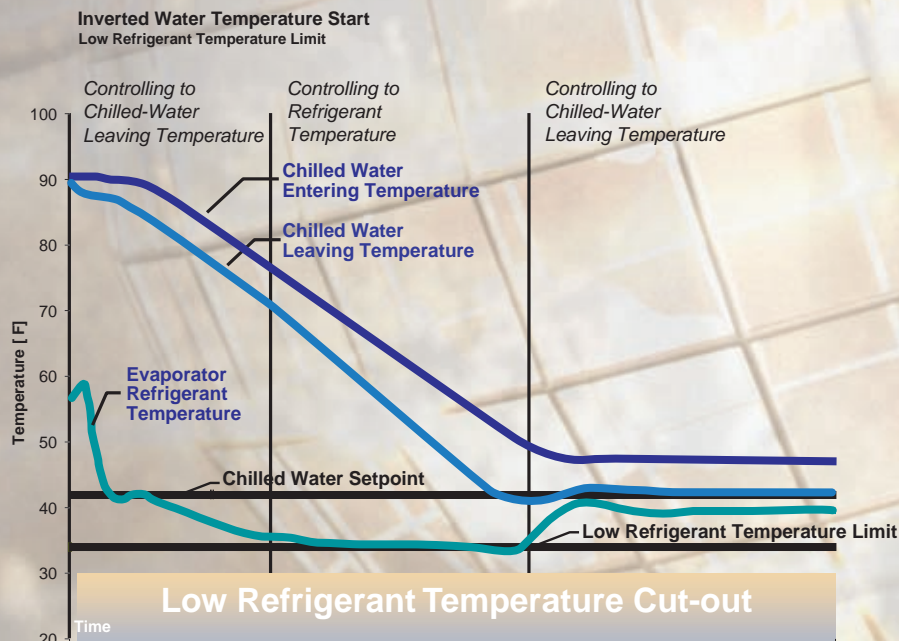
Trane has also revolutionized its controller-integrated purge, which features an automatic regeneration system for high-efficiency, maintenance-free refrigerant containment. Air and noncondensables are pumped out twice as fast, and its lower temperature refrigeration system enhances the base purge efficiency.

Unit-mounted medium-voltage starter

Take advantage of Tracer CH530's new starter module and save space in your equipment room. There is no need for a remote or floor-mounted starter with our new, exclusive, unit-mounted, medium-voltage starter from Cutler-Hammer.

Adaptive Frequency™ motor drive

Tracer CH530 complements Trane's Adaptive Frequency motor drive (AFD) system for chillers better than ever before. Brand new control algorithms allow safe, more efficient inlet vane and motor speed control operation to maximize part-load performance. The AFD goes to its final speed-control point in a fraction of the time it used to take, which allows you to limit the starting current if necessary.





Information tailored to operators, service technicians, and owners



Touch sensitive screen provides information and navigation at the same time

Change setpoints and settings with touch screen commands

Displays chiller status and operating points. Touch for more information

If diagnostic exists, an alarm indicator will appear. Press for detail.

On and off buttons

Extensive diagnostics customized to the chiller type installed—centrifugal, helical rotary, or absorption

When operating a chiller, there is specific information you need on a day-to-day basis—operating mode, setpoints, limits, diagnostic information, and reports.

When servicing a chiller, you need different information and a lot more of it—historic and active diagnostics, configuration settings, and customizable control algorithms, as well as operation settings.

By providing two different tools—one for daily operation and one for periodic service—everyone has easy access to pertinent and appropriate information.

DynaView™ human interface—A streamlined display for day-to-day operation

Day-to-day operational information is presented at the panel. Up to seven lines of data (I-P or SI units) are simultaneously displayed on the one fourth VGA touch-sensitive screen. Logically organized groups of information—chiller modes of operation, active diagnostics, settings, and reports—put information conveniently at your fingertips.

TechView™ chiller service tool—A portable control panel interface for the service technician or advanced operator

When you need more detailed information about a Trane chiller, connect your laptop computer to DynaView's plug-in port. TechView's user interface provides access to that particular machine's configuration settings, customizable limits, status, and up to 60 active or historic diagnostics. Any computer that meets the system requirements may download up-to-the-minute DynaView and TechView software from The Trane Company's Web site, www.trane.com. Without changing any hardware, we give you access to the latest and greatest version of Tracer CH530!

User-defined language support

DynaView is capable of displaying English text or one of the two alternate languages that are stored in DynaView at one time. Switching languages is easily accomplished from a settings menu.

Similarly, TechView accommodates a primary and a secondary language from the same list of available languages.

A new level of serviceability

Using the innovative TechView chiller service tool, a technician can interact with an individual device or a group of devices for advanced troubleshooting. LEDs and their respective TechView indicators visually confirm the viability of each device.

Advanced interoperability

Tracer CH530 can provide generic BAS I/O points to any other plant controller and/or communicate with the Tracer Summit™ chiller plant manager using COMM4. From the chiller plant manager, chiller points can be exchanged using BACnet.



Introducing Tracer CH530 for the EarthWise™ CenTraVac™

Control functions

- Evaporator leaving-water temperature
- Chilled-water reset based on return water temperature
- Ability to control with variable water flow
- Evaporator refrigerant temperature limit
- Condenser pressure limit (derived)
- Soft-loading
- Smart auto-restart
- Current-limit mode
- Limit relays
- Pump start/stop
 - cooling water
 - chilled water

Optional:

- Heat recovery
- Free cooling
- Chilled-water reset based on ambient temperature
- Adaptive Frequency™ drive
- Hot-gas bypass
- Ice-making control
- Hot-water control
- Base load/24 hour operation
- Remote setpoint control
- Remote enable/disable
- Condenser pressure limit (transducer)
- Generic BAS I/O

Protections

- Loss of evaporator or condenser water flow
- High condenser pressure
- Evaporator water temperature
- Low refrigerant temperature
- Starter contactor failure
- Current overload
- Phase unbalance, phase loss, phase reversal
- Undervoltage/overvoltage
- Momentary power loss/distribution fault
- High motor-winding temperature
- Smart short-cycling protection
- Current limit
- Surge detection and protection
- Oil temperature
- Oil pressure
- Continuous and/or excessive purge detection
- Excessive air leakage

Optional:

- High compressor discharge temperature
- Bearing temperatures

Monitored points

- Operating mode
- Setpoint value
- Setpoint source
- Evaporator and condenser system water temperature
- Refrigerant/solution evaporator and condenser temperature
- Starts and run-hour meter
- Phase currents, voltages, kW, power factor
- Current-limit setpoint
- Oil temperature and pressure
- Purge suction temperature
- Purge elapsed time
- Pumpout activity and time to next purge
- ...and more

Optional:

- Evaporator and condenser water flow and capacity (tons or kW)
- Auxiliary and heat recovery condenser temperatures
- Discharge compressor temperature
- Condenser pressure





The Trane Company
An American Standard Company
www.trane.com

For more information contact
your local district office or
e-mail us at comfort@trane.com

Literature Order Number	CTV-SLB011-EN
File Number	August 2001
Supersedes	New
Stocking Location	La Crosse

Since The Trane Company has a policy of continuous product and product data improvement, it reserves the right to change design and specifications without notice.