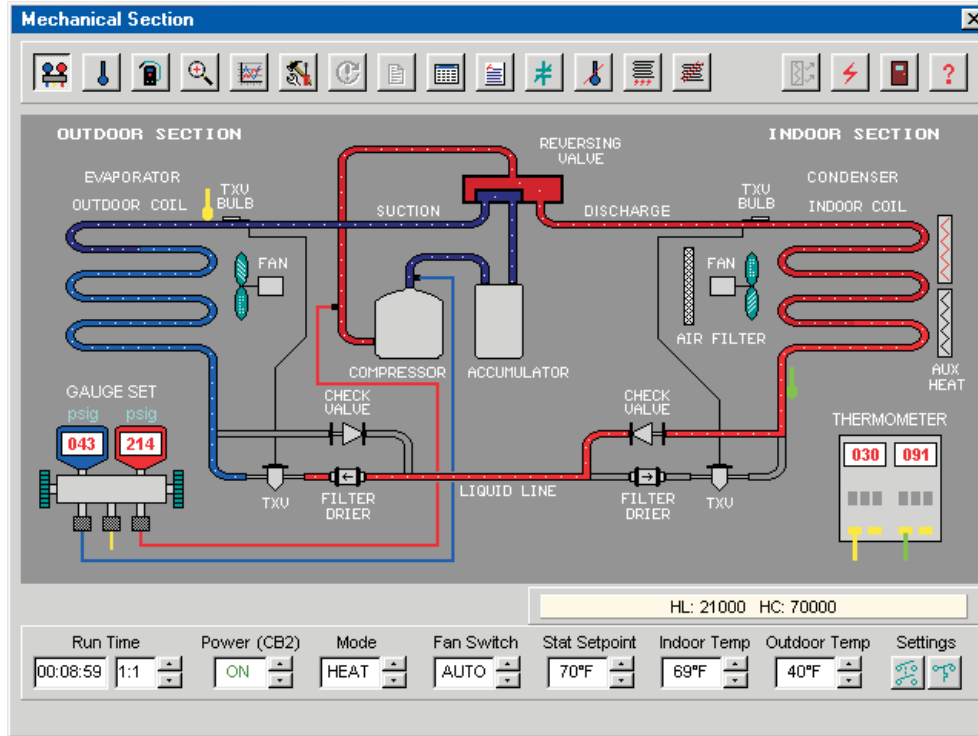


HEAT PUMP SIMULATOR *SIMUPUMP*™



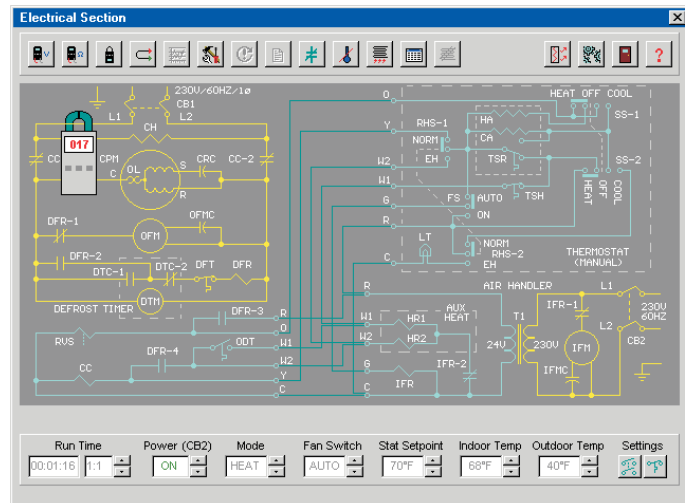
SIMUPUMP™ simulates a generic residential/light-commercial type *air-to-air* split-system heat pump, using either R-22 or R-410A refrigerant. The trainee may select heating, cooling, or emergency heat modes. Indoor and outdoor temperatures are adjustable, and continuously updated and displayed on the screen. Settings for thermostats, TXVs, defrost frequency, and building heatloss are also adjustable. With the capability of changing operating temperatures, a heat pump may be observed under various environmental conditions; something very difficult to do with real mechanical equipment.

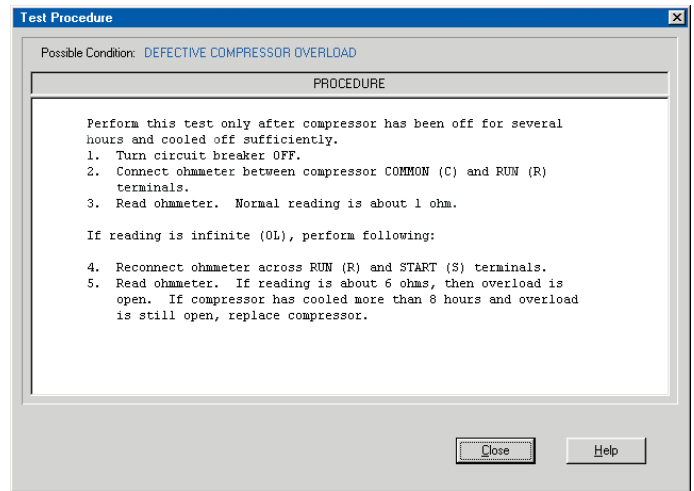
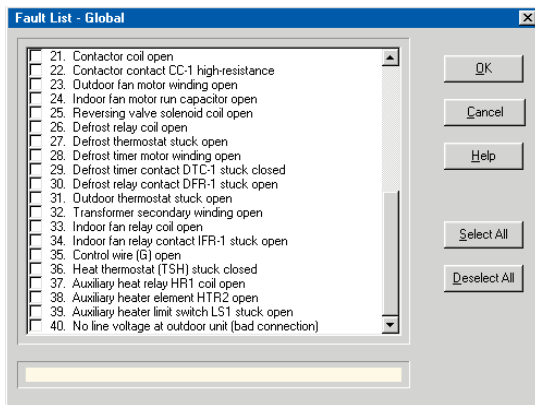
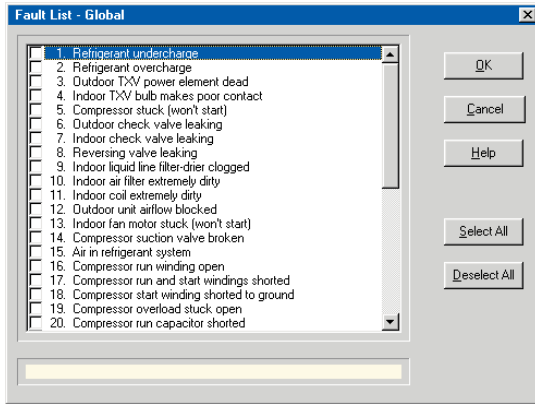
Animated mechanical and electrical schematic diagrams of the simulated heat pump are provided in “real-time”. The **mechanical diagram** shows refrigerant flow, as well as the *liquid*, *liquid/vapor*, and *superheated vapor* states of the refrigerant. In the **electrical ladder diagrams**, the controls and switch contacts constantly change state as the system operates. Providing a means of visually tracing refrigerant and current flow during operation, makes it much easier for the trainee to understand how a heat pump is supposed to work.

Pressure-temperature charts, performance charts, specifications, and an electrical nomenclature are available on-screen. In addition, the trainee can “zoom” into the system to visually inspect various components, including dirt or ice on the coils, a dirty air filter, and a blocked outdoor unit.

SIMUPUMP provides easy-to-use “point-and-click” selection of meters and test points, and are saved to an *Instrument Log* to monitor the users’ troubleshooting skill. Temperatures may be displayed in either *Fahrenheit* (°F) or *Celsius* (°C), and pressures may be displayed in either *imperial* (psig) or *metric* (kPa/barg). The on-screen test instruments include:

- Gauge manifold set
- Thermometers
- Leak detector
- Voltmeter
- Ohmmeter
- Clamp-on ammeter





SYSTEM REQUIREMENTS

SIMUPUMP for Windows requires the following minimum IBM compatible PC computer:

- Pentium, Core, or equivalent processor (32 or 64-bit)
- Minimum RAM required by operating system
- Windows 95, 98, 2000, 2003, 2008, NT, Me, XP, Vista, or Windows 7 (32 or 64-bit)
- VGA/SVGA display
- Hard drive, 18MB available disk space
- Pointing device, such as Windows-compatible mouse

SIMUPUMP network version is compatible with Novell and Windows NT/XP/Vista/7/2000/Server 2003/Server 2008

Up to 40 commonly encountered mechanical and electrical faults may be selected, as shown in the *Fault Lists* above.

SIMUPUMP provides testing and troubleshooting of the devices shown below, which are commonly found in heat pumps.

Compressor	Transformer
Condenser coil	Defrost timer
Evaporator coil	Auxiliary heater element
Accumulator	Crankcase heater
TX valve (TXV/TEV)	Run capacitor
Check valve	Fan motor capacitor
Filter-drier	Room thermostat
Air filter	Heat thermostat
Outdoor fan	Outdoor thermostat
Indoor fan	Defrost thermostat
Reversing valve	Emergency heat switch
Compressor contactor	Fan switch
Indoor fan relay	Limit switch
Defrost relay	Fused link
Heater relay	Circuit breaker
Reversing valve solenoid	



ORDERING INFORMATION

SIMUPUMP™ Heat Pump Simulator Version 5.4

MP-500	Stand-alone computer version, single license	\$695.00
MP-560	Network version, 25-user (seat) license	1,695.00
MP-570	Network version, 50-user (seat) license	2,295.00
TP-500	<i>HPINST</i> ™ Instructor Interface, Version 5.1	195.00

For further prices and ordering information, please see Page 16

ORDERING INFORMATION

METHODS OF ORDERING

MAIL

Simutech Systems, Inc.
PO Box 7212
Beaverton OR 97007 (U.S.A.)

PHONE

(800) 648-6209 (USA & Canada)
(503) 649-9076
Hours: 8:00 am to 5:00 pm Pacific Time

FAX

(503) 649-8972

ON-LINE STORE / E-MAIL

www.simutechsystems.com
sales@simutechsystems.com

METHODS OF PAYMENT

U.S. CUSTOMERS

- Purchase Order from government agency, school, or corporation (OAC), Net 30-days
- Visa, MasterCard, or American Express
- Prepaid by check

CANADA & INTERNATIONAL CUSTOMERS

- Purchase Order from government agency or school, Net 30-days, payable in U.S. funds
- Visa, MasterCard, or American Express
- Prepaid by International Bank Check, payable in U.S. funds

SHIPPING

All orders are shipped *FOB shipping point* and a shipping charge is added to invoice. Shipment is normally via *UPS ground* in USA and *UPS Air* to Canada and international. *Next-day* or *second-day air* is available upon request. For Canada and international orders, GST, local taxes, and duty are not included in our prices.

Orders are normally shipped within 24-hours from receipt

SYSTEM CONTENTS

Each simulator system includes the following:

- CD-ROM
- User's Manual
- Instructor's Manual
- Technical Support, unlimited, with toll-free number (USA and Canada)

- (1) Additional licenses are required if simulators are installed and used on more than one stand-alone computer at same campus or training facility
- (2) Network versions are valid for installation on a LAN server at one campus or training facility, for concurrent use by maximum licensed users
- (3) Network versions for more than 50 users are also available

Prices are subject to change without notice

Note: Simutech reserves the right to refuse any order, including shipment to countries where prohibited by U.S. export laws or lacking proper international copyright protection.

Export, reshipment, or resale is prohibited without prior written permission, subject to U.S. export laws.



PRICE LIST – MULTIPLE LICENSES FOR STAND-ALONE COMPUTERS

PRODUCT	5 LICENSES	10 LICENSES	15 LICENSES	20 LICENSES
<i>SIMUAIR™</i>	\$1,095.00	\$1,595.00	\$1,795.00	\$1,995.00
<i>SIMUPUMP™</i>	1,295.00	1,795.00	1,995.00	2,195.00
<i>SIMUREFR™</i>	1,295.00	1,795.00	1,995.00	2,195.00
<i>SIMUMKT™</i>	1,695.00	2,195.00	2,395.00	2,595.00
<i>SIMUGAS™</i>	1,295.00	1,795.00	1,995.00	2,195.00
<i>SIMUOIL™</i>	1,495.00	1,995.00	2,195.00	2,395.00
<i>SIMUHYDRO™</i>	1,495.00	1,995.00	2,195.00	2,395.00

Prices shown include a stand-alone single-license version on CD-ROM (e.g. "5-Licenses" includes a single-license plus 4 additional licenses)

Quantity of licenses can not be combined for multiple products

For greater than 20 licenses or other quantities, please contact us for a quotation

Prices shown are in US Dollars

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