Trilogy 45 Q-Mode
Igate Connect & Service Tool

Presented By Mike Hammond
Introducing..

Trilogy 45 Q-Mode

iGate Connect

Trilogy

iGate Smart Tank
Trilogy 45 Q-Mode
Trilogy Variable speed

- Inverter Variable speed compressor
- ECM variable speed fan
- ECM variable speed internal pump
- 45 EER / 5.1 COP part-load efficiency – LOWEST OPERATING COST OF THE INDUSTRY
- Best humidity and temperature control
- Capacity modulation down to 30%
  - 0930 model: 9K to 30K capacity
  - 1860 model: 18K to 60K capacity
- Delivers full capacity across the ENTIRE operating range (20-120 deg EWT)
## Load Matches

<table>
<thead>
<tr>
<th>Outdoor Air Deg F</th>
<th>Annual Weather Hours</th>
<th>Space Load Btu/hr</th>
<th>Hot Water Load Btu/hr</th>
<th>Geo Source Deg F</th>
<th>Htg - Clg Capacity Btu/hr</th>
<th>Hot Water Capacity Btu/hr</th>
<th>Htg - Clg Run Time</th>
<th>Hot Water Run Time</th>
<th>Htg - Clg Speed Hz</th>
<th>Hot Water Speed Hz</th>
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</table>
Example of savings

## Design Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Heating Load</td>
<td>53,450 Btu/hr</td>
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<tr>
<td>Htg Load Temp Diff</td>
<td>70 Deg F</td>
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<tr>
<td>Cooling Load</td>
<td>33,487 Btu/hr</td>
</tr>
<tr>
<td>Clg Load Temp Diff</td>
<td>17 Deg F</td>
</tr>
<tr>
<td>Sensible Cooling</td>
<td>25,100 Btu/hr</td>
</tr>
</tbody>
</table>

| Reference City                    | Fort Wayne, IN |
| Winter Design                     | 1 Deg F        |
| Summer Design                     | 92 Deg F       |
| Bldg Balance Temp                 | 58 Deg F       |
| Avg Internal Gains                | 9,532 Btu/hr   |

## Estimated Operating Cost Summary

<table>
<thead>
<tr>
<th>System</th>
<th>Heating Cost</th>
<th>Cooling Cost</th>
<th>Hot Water Cost</th>
<th>Cont. Fan Cost</th>
<th>Total Cost</th>
<th>Monthly Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>QE 1860 Q-Mode / Horz 4 pipe - 0.75&quot;</td>
<td>$504</td>
<td>$69</td>
<td>$147</td>
<td>$0</td>
<td>$719</td>
<td>$50</td>
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<td>TE 049 Digital / Horz 4 pipe - 0.75&quot;</td>
<td>$550</td>
<td>$138</td>
<td>$481</td>
<td>$0</td>
<td>$1,167</td>
<td>$97</td>
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<tr>
<td>20 SEER - Scroll - Vspd - R410a System</td>
<td>$841</td>
<td>$209</td>
<td>$722</td>
<td>$0</td>
<td>$1,772</td>
<td>$148</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Comments</th>
<th>Sample Project Note</th>
</tr>
</thead>
</table>

69% savings in HW with Trilogy verse desuperheater

59% total savings from variable speed air source
IGate
Web Enabled Communication Network

Homeowner Portal; Dealer Portal with remote troubleshooting & Configuration

Connect to internet through wifi-enabled thermostat

15 Sensors / Transducers measure refrigerant, air and water – flow and temperature – report in Plain English on stat, PC tool or internet-connected device
NEW: iGate Connect
Wi-Fi internet smart thermostat

- From iGate Connect you can:
  - Set and adjust space temperature preferences and system settings
  - Reads space temperature and humidity, communicates this information to the EXM
  - Receives reports from the EXM of changes to preference settings
  - Set preferences from thermostat, PC or with Android, iPhone mobile app
  - Set up routine maintenance schedules for your customers to be displayed on thermostat.
  - Monitor performance, make configuration changes and diagnose systems issues remotely
  - System performance history is viewable at thermostat and homeowner and dealer portals.

- Compatible only with Trilogy 45 Q-Mode
iGate Connect
Web overview

Portals on Smart Phone (app), internet connected computer and mobile devices

Homeowners:
• Homeowner portal on Smart Phone (app), internet connected computer and mobile devices
• Homeowners can adjust set points, set schedules, vacation mode and alerts online; Can see system operation as well

Dealers:
• Access to performance data – 3 days of data at 5-minute increments
• Adjust the unit configuration from the web! Unit capacity, airflow etc.
iGate - EXM

- *NEW* EXM board is the hub of the system
- 21 sensors and smart components feed 39 readings to the EXM and the EXM calculates 8 results, including superheat, subcool, HE/HR, % capacity, etc
- Receives data on 51 measurements on
  - Refrigerant pressure and temperature
  - Air temperature and flow
  - Water temperature, flow and loop pressure
- Report data, alerts and diagnostics to thermostat
EXM – main communication hub

• 4 wires to thermostat

• 15 sensors and additional smart components feed 39 readings to the EXM

• EXM calculates 8 results, including superheat, subcool, HE/HR, % capacity etc.

• Sensors monitor and measure flow and refrigerant temperatures and refrigerant pressure

• Sensors connected to variable speed fan, pump and compressor, electronic expansion valve, pressure transducers, temperature sensors, thermostat and water storage tank.

• Stores space conditioning and system settings

• Monitors system performance to settings

• Receives continuous feedback from sensors on system performance

• Sends performance data to thermostat, and homeowner/dealer portal
The Homeowner can configure:

- Hot water temperature settings
- Temperature settings for daily and vacation
- Receive live weather data
- System information
- Dealer contact information
- Granting access to dealer
- Reminders on maintenance
Trilogy 45 Q-Mode
iGate Connect – Configure

The Dealer can configure:

- Unit information, model and serial number
- Dealer contact information
- Minimum and maximum heating and cooling capacities can be adjusted as well as minimum and maximum airflow levels
- Target delta T for heating and cooling, single loop or parallel
- Hot water set point and operating mode (Heat pump / emergency, economy / comfort)
- Anti freeze or not
- Schedule service reminders and alerts
- Space condition preferences
Trilogy 45 Q-Mode
EXM – Diagnose

From the thermostat, networked PC, smart phone or mobile device, anytime, anywhere…..

Diagnose:
- Fault codes
- Fault History
- Conditions AT TIME OF FAULT for water flow, refrigerant and air flow.
iGate contractor portal

The image shows a webpage interface with a highlighted section titled "Thermostats." It displays information about the user's thermostat status, with options to view and manage thermostats. The interface also includes a section for "Technician Info," which contains company information such as name, address, city, state, country, and ZIP code. The text explains that entering company information into the fields provided will be downloaded to the thermostat when it connects to the internet. If changes are made to the information, all the thermostats assigned to the account will be upgraded with the new information.
Select customer
iGate Contractor Portal
Visibility to 5 faults

![Image of the iGate Contractor Portal](image.png)

**Equipment Details**
- **Air Filter**
- **Air Cleaner**
- **Heat Pump**
  - Model: ClimateMaster TTA-EXM-60
  - Serial Number: 0
  - Status: Operating

**Fault History**
- **Fault 1**
  - Value: 8
  - Units: %
- **Fault 2**
  - Value: 59
  - Units: %
- **Fault 3**
  - Value: 128
  - Units: Hex
- **Fault 4**
  - Value: 0
  - Units: Hex
- **Fault 5**
  - Value: 0
  - Units: Hex

**Download Operating Date**

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*Image credit: ClimateMaster, Geothermal Heat Pump Systems*
iGate Contractor Portal
Data is real time
### Last update: Mon Aug 26 2013 3:31 PM

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Value 1</th>
<th>Unit 1</th>
<th>Value 2</th>
<th>Unit 2</th>
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<td>Compressor Current</td>
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Configure such things as airflow

<p>| | | |</p>
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<tr>
<td>Maximum Heating Airflow</td>
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<td>Minimum Cooling Airflow</td>
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<td>Minimum Heating Low Airflow Limit</td>
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<td>Maximum Heating High Airflow Limit</td>
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<td>CFM</td>
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</tbody>
</table>
iGate Homeowner’s portal

Program

System Details

Current Temperature 73°

Set Temperature 73°

System

Fan

Heat

Cool

Auto

Aux

Off

On

Away

Quick Save
Reports from Homeowner’s portal
PC Service tool
Configure:

- Unit family, blower type, loop config
- Loop delta T; single/parallel; Anti-freeze
- Capacity: Min/Max Cool/Heat
- Airflows
- Serial # updates
- Hot water delta T
- Aux. heat operating mode
Configure:

- Cooling + Hot-Water %
- Cooling + Hot-Water offset
- Heating + Hot-water cutout
- Heating + Hot-water cutout offset
- Cooling-Dehumid cutout
- Anticipator
- Compressor ASCD minutes
Enter service mode

Manual operation:
- Operating mode
- Target airflow
- Loop pump speed
- Hot water pump speed

Clear Fault History
Enter service mode

Manual operation:
- Operating mode
- Target airflow
- Loop pump speed
- Hot water pump speed

Clear Fault History
PC SERVICE TOOL
Diagnostics

Get all 39 readings and 8 calculated values in REAL TIME from the EXM board

- Sensor values and calculations
- Smart component information
- Misc. sensors / data
- Dip switch status
Get all 39 readings and 8 calculated values in AT TIME of fault from the EXM board

- Sensor values and calculations
- Smart component information
- Misc. sensors / data
- Dip switch status
Thank You