Integration Note

Manufacturer:	Life Sense
Model Number(s):	**LT1002 Thermostat**
Minimum Core Module Version:	6.1
Document Revision Date:	**12/19/2012**

OVERVIEW AND SUPPORTED FEATURES

The LifeSense LT1002 thermostat series is an LCD display and all-touch button temperature controller. The LT1002 thermostats are remote controllable via a RS-485 connection, enabling reliable 2-way control and feedback from g!. Each g! System Controller supports up to 31 thermostats.

THE LT1002 THERMOSTATS SUPPORT THE FOLLOWING FEATURES:

Temperature Control: Temperature control can be managed by schedules tied to house modes or by manual control based on time (Timed Temporary Hold, Temporary Hold and Permanent Hold).

Celsius: LT1002 Thermostats support displaying Temperatures in C only. C is supported both at the thermostat and in the **g!** system in whole numbers and up to one decimal place.

Mode Control: The climate system can be set to run in the following heating and cooling modes: **Heat** only, **Cool** only, **Vent** only, or **Off**. Vent only Mode is not supported on TS2 and HR2 interfaces.

Fan Mode Control: Systems that have a fan can be set to run in **Automatic or Continuous** with **High**, **Mid**, and **Low** fan speed adjustment. When in Vent only Mode, selecting Auto will change the fan speed to Low.

History View: The history view shows the inside temperature, outside temperature, unit run and fan run times, and cooling and heating setpoints.

Schedule Control: Scheduling is supported from the Viewer and should be disabled on the thermostat.

Auto Thermostat Detection: The **g!** system will automatically detect all the thermostats connected to system, along with each thermostat's ID (number).

THE LT1002 THERMOSTATS DO NOT SUPPORT THE FOLLOWING FEATURES:

Humidity Control: Humidity control is not supported.

Mode Control: LT1002 thermostat do not support Auto mode.

Remote Sensors: LT1002 thermostats do not support Remote Sensors.

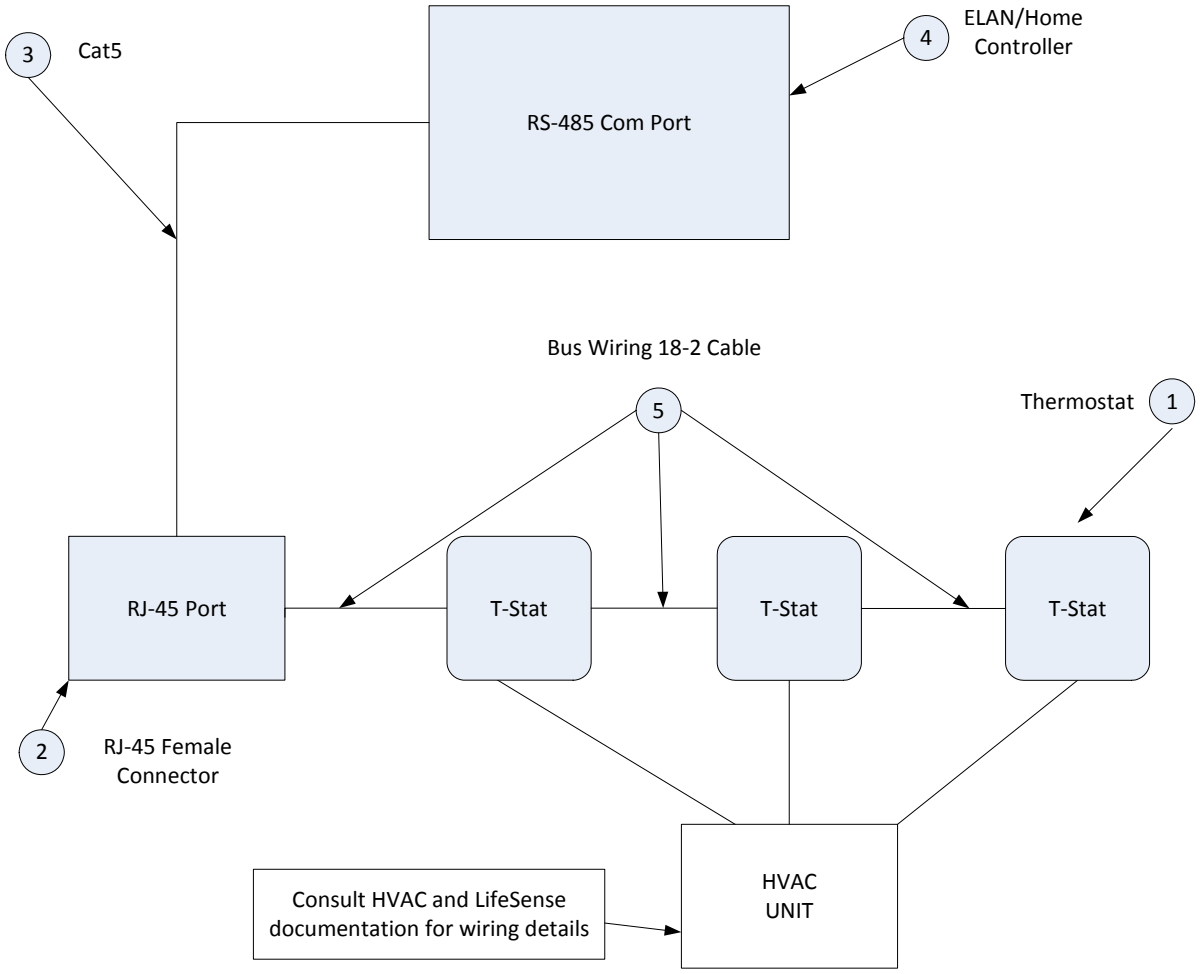
Other Features: Any other features not specifically mentioned as supported above are not supported.

INSTALLATION OVERVIEW

1. Install the LifeSense RS-485 thermostat network and control cables during the rough-in phase. Consult the HVAC unit manual for control cabling requirements.

2. Install thermostats according to LifeSense documented standards and connect power, HVAC, and bus cabling.
3. Verify each thermostat has a unique IP (See Programming instructions Section) and test the LifeSense system as a stand-alone system. Ensure that the thermostats correctly turn on the appropriate heating, cooling and fan equipment.
4. Connect the **g!** system to the LifeSense thermostats electrically. See the wiring diagram for more information.
5. Configure the g! system for the LifeSense thermostats and confirm communication between the thermostats and the Controller. Use the auto detect (Discover Devices) feature to find the thermostats on the network. See **g!** Configuration for full details.
6. Configure the **g!** system for HVAC equipment on the Climate tab under Heating/Cooling Units.
7. Test the system by changing the set points, modes and schedules on the viewer and various thermostats, confirming that the various components in the system are communicating with each other.
8. Optionally, configure the climate scheduling using the configurator to create the schedule format and the viewer to adjust the times and temperature settings as desired.

LIFE SENSE LT1002 SYSTEM DIAGRAM



NOTES

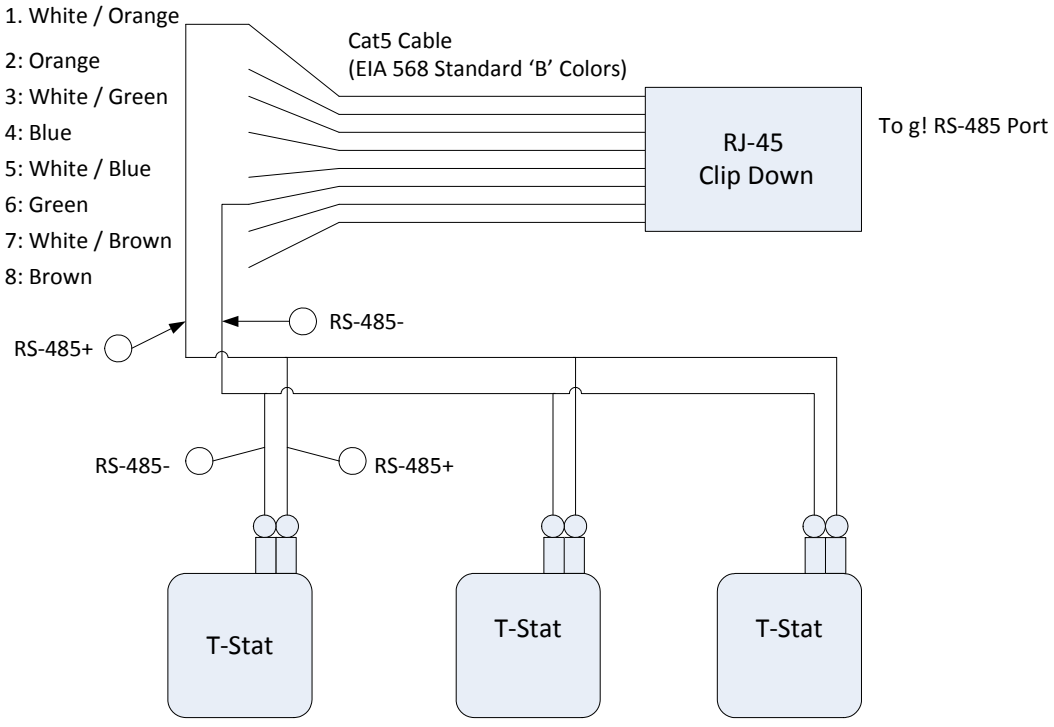
1. Each g! System Controller supports 31 thermostats.

BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Thermostat	Life Sense	LT1002	RS-485	Screw terminal	Each g! System Controller supports 31 thermostats
2	RJ-45 Female Connector	N/A	N/A	RS-485	Screw terminal	
3	Cat5 Cable	Installer	N/A	RS-485	RJ-45	
4	g! Controller	ELAN	Various (ex. HC-12)	RS-485	RJ-45	
5	18-2 Cable	N/A	N/A	N/A	Screw terminal	

Wiring Diagram 1: RS-485 Connections to the Thermostat

The diagram below shows the communication connections in more detail. Refer to the LifeSense installation manuals for HVAC connections and power options for the thermostats.



THERMOSTAT PROGRAMMING

Each thermostat must have a unique IP. Use the following steps to validate or adjust thermostat IP settings:

1. On the thermostat, press the “Mode“ key for 3 seconds to enter thermostat options. Option 01 is for the IP setting.
2. Press “Up” or “Down” key to change IP to a unique number. Valid options are 1 – 31. Set the first thermostat to 1, the second to 2, and so on.
3. Verify scheduling on the thermostat is disabled.
4. Press the “Mode” key until option 11 is displayed and verify the value is “---“
5. Press “Fan” key to save and exit.
6. No other settings need to be changed to integrate with the **g!** system.

OTHER THERMOSTAT SETTINGS

In addition to the standard settings listed above, there may be situations that require additional changes to the thermostat to solve a particular installation issue. The following table lists the thermostat settings and comments on each. Recall that the thermostats are put into programming mode by pressing the “Mode” key for 3 seconds.

Item	**Thermostat Menu Headings**	LifeSense Default	Comments
1	IP address choose (1 - 31)	1	IP address must be Unique
2	The freeze setting temperature upper limit value range (10 ~ 30) ℃	30℃ (86℉)	OK to change
3	The freeze setting temperature lower limit value range (10 ~ 30) ℃	10℃ (50℉)	OK to change
4	Temperature resolution setting range：-5 ~ 5 ℃	0	OK to change
5	Heating setting ： 1- heating 0- no-heating	1	OK to change
6	With/ Without Valve? 1：reach the temperature, not stop the fan(low speed) 0 : reach the temperature and stop the fan	1	OK to change
7	3 minutes delay protective 0：NO 1：YES	0	OK to change
8	ANTI-FREEZE FUNCTION 1：YES 0：NO	0	OK to change

9	Sensor choose： 0：inner sensor 1：outside sensor	0	**Do not change.**
10	Scheduling state: --- Disabled, 1 - 5: Monday to Friday, 1 - 6: Monday to Saturday, 1 - 7: Monday to Sunday	---	Every hour the g! System Controller will set the Scheduled state to disabled
11	DI input mode ： 1：Remote on/off 0：energy-saving	0	OK to change
12	Freeze energy-saving setting value range：25～30℃	25℃	OK to change
13	Heating energy-saving setting value range：10～20℃	15℃	OK to Change
14	Power on auto running 1：ON 0：OFF	0	OK to Change

g! CONFIGURATION DETAILS

The following table provides settings used in the g! Configurator. In the table below:

- o "<Select>" Select the appropriate item from the list (or drop-down) in the Configurator.
- o "<User Defined>", etc. Type in the desired name for the item.
- o "<Auto Detect>", etc. The system will auto detect this variable.

Devices	Variable Name	Setting	Comments
Communication Devices	**Name**	<User Defined>	
	Type	**Serial Port**	
	Communication Type	**Generic MODBUS**	
	Location	<User Defined> (Not Required)	
	COM Port	**<Select>**	**Select RS485 port on HC Controller.**
	Settings	**LifeSense[RS485 Half Duplex; 9600,8,N,1;RTU]**	
HVAC Units	**Name**	<User Defined>	
	Model	**Generic HVAC Unit**	
	Controls Heat	<Select from list>	Set to Yes if Controlling Heat
	Controls Cooling	<Select from list>	Set to Yes if Controlling Cooling
	Controls Fan	<Select from list>	Set to Yes if Controlling Fans
<Discover Devices>			Click the Discover Devices button on the Communication Device
Thermostats	**Name**	<User Defined> (Default: **Thermostat1**, etc.)	
	Location	<User Defined> (Not Required)	
	Com Device	<Select from list>	
	Thermostat #	<Auto Detect>	If manually adding thermostat, verify each thermostat has a Unique "IP" number.
	Heating Unit	<Select from list>	
	Cooling Unit	<Select from list>	
Schedules	**HVAC Schedule**	<Select from list>	Select desired number of schedules
	Programs	<Select from list>	Select desired weekly programs
	Monday - Sunday	<Select days>	Select days that go together
	Periods per Day	<Select from list>	1, 2 or 4 periods per day
Global Options	**Units**	<Select from list>	Thermostat only supports Celsius
	Temporary Hold Mode	<Select from list>	Timed Hold or Hold until next schedule period
	Temporary Hold Default Time	<Select from list>	Select default Temporary Hold time
	Outside Temperature Sensor	<Select from list>	Choose optional sensor if installed or choose Internet
	Outside Humidity Sensor	<Select from list>	Choose optional sensor if installed or choose Internet

COMMON MISTAKES

1. Programming two thermostats with the same IP address. Each thermostat must have a unique address
2. Setting incorrect COM Port.