



Product Data

Precedent™ and Voyager™ Rooftop air conditioner or heat pump unit, Voyager™ Commercial Rooftop air conditioner and Odyssey™ Split System air conditioner with LonTalk® communication interface for ReliaTel® control





Product Data

Overview

Each Precedent™ rooftop air conditioner and rooftop heat pump comes equipped with ReliaTel® controls as optional equipment.

Each Voyager™ rooftop air conditioner and rooftop heat pump comes equipped with ReliaTel® controls.

Each Voyager Commercial™ rooftop air conditioner comes equipped with ReliaTel® controls.

Each Odyssey™ Split System cooling only Condenser comes equipped with ReliaTel® controls as optional equipment.

The ReliaTel control is a direct digital unit controller.

A LonTalk® Communication interface Tracer™ LCI-R is optional for this equipment.

The Tracer™ LCI-R enables the ReliaTel control unit to communicate over a LonTalk network.

The pre-configured, factory-installed and commissioned ReliaTel control is a highly-integrated product that provides accurate and reliable space-temperature control and equipment protection. Factory commissioning helps ensure the highest level of quality and customer satisfaction. Connect a space sensor and the controller is operational.

The ReliaTel control package includes a controller board, sensors, transformer, required wiring, and actuators (if applicable). It provides space-temperature control through custom proportional integral (PI) control algorithms.

The LonTalk communication interface is available with Precedent and Voyager rooftop air conditioners including:

- 3 to 25 ton constant volume air conditioners
- Gas or electric heat
- 3 to 25 ton constant volume heat pumps with auxiliary heat
- Optional economizer

The LonTalk communication interface is available with Voyager Commercial rooftop air conditioners including:

- 27.5 to 50 ton constant volume air conditioners
- Gas or electric heat
- Optional economizer

The LonTalk communication interface is available with Odyssey Split System constant volume condensers including:

- 7.5 to 20 ton constant volume
- Cooling only



Product Data

Features

Features of the ReliaTel Controls units equipped with a Tracer™ LCI-R include:

- Factory-installed and commissioned controls
- LonMark ® certification
- Conformance to the LonMark Space Comfort Controller Functional Profile
- LonTalk ® FTT-10A free topology communications
- Occupied and unoccupied modes
- Stand alone operation
- Occupied bypass function
- High and low-pressure protection
- Compressor minimum On and Off timers
- Discharge air tempering control
- Manual output test function
- Space sensor with optional override, cancel, and setpoint adjustment
- Continuous fan or cycling fan operation
- One or two-stage cooling
- One or two-stage gas or electric heat
- Heat pump with one- or two-stage auxiliary heat
- Modulating economizer
- High-temperature limit input
- Agency listings: UL and CUL

Feature descriptions

Following are descriptions of ReliaTel Controls and Tracer™ LCI-R features.

Factory installed and commissioned controls

The ReliaTel Controls is factory installed and commissioned during the manufacture. The ReliaTel Controls automatically configures itself for the type of unit in which it is installed. An automated test stand performs mechanical and electrical tests. When the unit passes the prescribed tests, the automated test equipment allows the unit to be shipped. This helps to ensure a high quality product and reduced installation time.

LonMark Space Comfort Controller Profile

The ReliaTel Controls and Tracer™ LCI-R conform to the LonMark Space Comfort Controller Functional Profile. The Tracer™ LCI-R provides LonTalk communications via an FTT-10A transceiver.

Occupancy and override

The ReliaTel Controls and Tracer™ LCI-R provide:

- A factory programmed set of occupied, occupied standby, and unoccupied setpoints. The Tracer™ LCI-R accepts communicated occupancy inputs that provide application flexibility for localized or system-wide time of- day scheduling.
- An occupied bypass function. The function enables after-hours operation. An On button on the space-temperature sensor overrides the unoccupied mode. A Cancel button returns the controller to its normal mode.



Product Data

Equipment protection

The ReliaTel Controls and Tracer™ LCIR provide:

- Refrigerant high and low-pressure protection and indoor coil frost protection to prevent the unit from operating in abnormal system conditions
- Compressor minimum On and Off timers to extend compressor life by preventing short cycling
- A discharge air temperature sensor to help monitor equipment operation and diagnose problems
- Heat fail detection for gas heat
- Outdoor coil frost protection for heat pumps

Manual output test function

The ReliaTel Controls provides a manual output test function to assist in installation and troubleshooting. The function enables the user to temporarily override normal unit operation and manually exercise each ReliaTel Control output in a predefined sequence. Also, a status LED enables the user to verify proper communication between the Tracer™ LCI-R and ReliaTel Controls boards.

Continuous fan or cycling fan operation

The ReliaTel Controls and Tracer™ LCI-R can provide either continuous fan or cycling fan operation.

One- or two-stage cooling

The ReliaTel Controls provides space temperature control for one- or two-compressor air conditioners, heat pumps and split systems. This control is integrated with the equipment protection features.

One- or two-stage gas and electric heat

The ReliaTel Controls provides space temperature control for one or two-stage gas and electric heat units. Also, the heat can be used for discharge air tempering control to minimize cold drafts for building occupants.

Heat pump with auxiliary heat

The ReliaTel Controls provides space temperature control for one or two compressor heat pumps with two-stage auxiliary electric (emergency) heat. Also, outdoor coil defrost control is provided.

Modulating economizer

The ReliaTel Controls provides modulating (outdoor air) economizer control with a discharge air low limit. Various forms of changeover are available, ranging from outdoor air dry bulb to differential enthalpy.

Product Data

Data Lists

Table 1 provides an input/output listing for the LonTalk communication interface. Table 2 provides configuration properties for the interface. The content of the lists conforms to LonMark Space Comfort Controller Functional Profile 85.00 and the LonMark node object.

Table 1: Input/Output Listing

Input	SNVT type	Output	SNVT type
nviRequest	SNVT_obj_request	nvoStatus	SNVT_obj_status
nviSpaceTemp	SNVT_temp_p	nvoFileDirectory	SNVT_address
nviSetpoint	SNVT_temp_p	nvoSpaceTemp	SNVT_temp_p
nviSetptOffset	SNVT_temp_p	nvoUnitStatus	SNVT_hvac_status
nviOccSchedule	SNVT_tod_event	nvoEffectSetpt	SNVT_temp_p
nviOccManCmd	SNVT_occupancy	nvoEffectOccup	SNVT_occupancy
nviOccSensor	SNVT_occupancy	nvoHeatCool	SNVT_hvac_mode
nviApplicMode	SNVT_hvac_mode	nvoSetpoint	SNVT_temp_p
nviHeatCool	SNVT_hvac_mode	nvoFanSpeed	SNVT_switch
nviFanModeCmd*	SNVT_switch	nvoDischAirTemp	SNVT_temp_p
nviComprEnable	SNVT_switch	nvoSpaceRH	SNVT_lev_percent
nviAuxHeatEnable	SNVT_switch	nvoOutdoorRH	SNVT_lev_percent
nviEconEnable	SNVT_switch	nvoOutdoorTemp	SNVT_temp_p
nviEmergOverride	SNVT_hvac_emerg	nvoLoadAbsK	SNVT_power_kilo
nviOAMinPos	SNVT_lev_percent	nvoTerminalLoad	SNVT_lev_percent
nviSpaceIAQ	SNVT_ppm	nvoOADamper	SNVT_lev_percent
nviSpaceRH	SNVT_lev_percent	nvoSpaceCO2	SNVT_ppm
nviOutdoorTemp	SNVT_temp_p	nvoMixedAirTemp	SNVT_temp_p
nviSpaceRH	SNVT_lev_percent	nvoAlarmMessage	SNVT_str_asc
*Manufacturer defined		nvoMATemp	SNVT_temp_p
		nvoRATemp	SNVT_temp_p

Table 2: Configuration Properties

Configuration property	SNVTtype	SCPT reference	Description
nciSndHrtBt	SNVT_time_sec	SCPTmaxSendTime (49)	Send heart beat
nciSetpoints	SNVT_temp_setpt	SCPTsetPnts (60)	Occupancy temperature setpoints
nciHvacType	SNVT_hvac_type	SCPTHvacType (169)	Unit type
nciMinOutTm	SNVT_time_sec	SCPTminSendTime (52)	Minimum send time
nciRcvHrtBt	SNVT_time_sec	SCPTmaxRcvTime (48)	Receive heart beat
nciLocation	SNVT_str_asc	SCPTlocation (17)	Location label
nciBypassTime	SNVT_time_min	SCPTbypassTime (34)	Local bypass time
nciOAMinPos	SNVT_lev_percent	SCPTminRnge (23)	Outdoor air damper minimum position
nciSpaceCO2Lim	SNVT_ppm	SCPTSpaceCO2Lim (42)	SpaceCO2 Limit
nciSpaceRHsetpt	SNVT_lev_percent	SCPTSpaceRHSetpt (36)	Space Humidity Set Point

Product Data

Inputs/outputs

The ReliaTel Controls is factory configured to control: unit fan, reversing valve, one or two compressors, gas or electric heat, and a modulating outdoor air damper actuator. To operate the rooftop or split system unit and condition a space, the ReliaTel Controls uses binary and analog inputs and outputs (see Table 3).

Table 3: ReliaTel Controls input/output list

Type	Description
Binary inputs	Dirty filter
	Supply fan proving
	High pressure compressor protection
	Low pressure compressor protection
	Reheat Humidistat*
	Heat fail**
	High temperature limit*
	Emergency stop
	Smoke detector*
	Frostat™ protection*
	Ventilation override*
	Inducer Proving**
	Flame Rollout**
	Gas Heat Temperature Limit**
Binary outputs	Supply fan
	Compressor 1; Compressor 2
	Condenser fan A; Condenser fan B
	Reversing valve or Reheat valve*
	Exhaust fan*
	Heat stage 1; heat stage 2
	Combustion blower motor**
	Gas valve**
Analog inputs	Space temperature
	Outdoor air temperature
	Unit mode switch*
	Fan mode switch*
	Heating setpoint*
	Cooling setpoint*
	Outdoor humidity*
	Return air temperature*
	Return humidity*
	Discharge air temperature*
	Economizer minimum position*
	Mixed air temperature*
	Coil temperature*
	SpaceCO2*
Space Humidity*	
Other	Economizer damper*

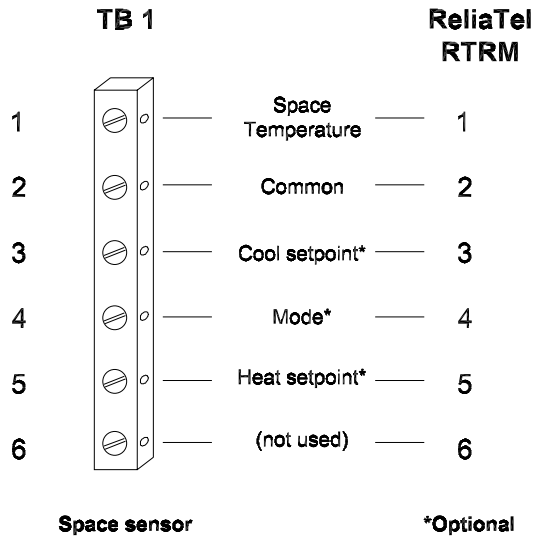
*Optional feature

**With gas heat unit

Space sensor field wiring

Figure 1 shows a typical space sensor field-wiring configuration.

Figure 1: Typical space sensor field wiring





TRANE®

The Trane Company
Worldwide Applied Systems Group
3600 Pammel Creek Road
La Crosse, WI 54601-7599
www.trane.com
An American Standard Company

Literature Order Number

File Number

Supersedes

Stocking Location

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