



Product Data

Voyager™ Commercial Rooftop air conditioner with LonTalk® communication interface for ReliaTel® control



LonTalk Communication Interface



Product Data

Overview

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

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 discharge air 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 discharge air temperature control through custom proportional integral (PI) control algorithms.

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

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

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
- One or two-stage cooling
- One or two-stage gas or electric heat
- Modulating economizer
- High-temperature limit input
- Agency listings: UL and CUL

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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 Discharge Air Controller Profile

The ReliaTel Controls and Tracer™ LCI-R conform to the LonMark Discharge Air 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.

Equipment protection

The ReliaTel Controls and Tracer™ LCI-R 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.

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.

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.



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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 Discharge Air Controller Functional Profile 8610 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
nviDACISP	SNVT_temp_p	nvoSpaceTemp	SNVT_temp_p
nviDAHtSP**	SNVT_temp_p	nvoUnitStatus	SNVT_hvac_status
nviDuctStaticSP	SNVT_press_p	nvoEffDATempSP	SNVT_temp_p
nviOccSchedule	SNVT_tod_event	nvoEffDuctStatSP	SNVT_press_p
nviOccManCmd	SNVT_occupancy	nvoEffectOccup	SNVT_occupancy
nviApplicMode	SNVT_hvac_mode	nvoHeatCool	SNVT_hvac_mode
nviPriCoolEnable	SNVT_switch	nvoApplicMode	SNVT_hvac_mode
nviPriHeatEnable	SNVT_switch	nvoDuctStatPress	SNVT_press_p
nviEconEnable	SNVT_switch	nvoDischAirTemp	SNVT_temp_p
nviEmergOverride	SNVT_hvac_emerg	nvoSpaceRH	SNVT_lev_percent
nviOAMinPos	SNVT_lev_percent	nvoOutdoorRH	SNVT_lev_percent
nviSpaceCO2	SNVT_ppm	nvoOutdoorTemp	SNVT_temp_p
nviSpaceRH	SNVT_lev_percent	nvoOADamper	SNVT_lev_percent
nviOutdoorTemp	SNVT_temp_p	nvoSpaceCO2	SNVT_ppm
nviOutdoorRH	SNVT_lev_percent	nvoAlarmMessage	SNVT_str_asc
		nvoMATemp	SNVT_temp_p
		nvoRATemp	SNVT_temp_p
		nvoEconEnabled	SNVT_switch
		nvoSupFanStatus	SNVT_switch
		nvoExhFanStatus	SNVT_switch

Table 2: Configuration Properties

Configuration property	SNVTtype	SCPT reference	Description
nciSndHrtBt	SNVT_time_sec	SCPTmaxSendTime (49)	Send heart beat
nciDACISP	SNVT_temp_p	SCPTdACISP(183)	Discharge Air Cooling Set Point
nciDAHtSP**	SNVT_temp_p	SCPTdAHtSP(184)	Discharge Air Heating Set Point
nciSetpoints	SNVT_temp_setpt	SCPTsetPnts (60)	Occupancy temperature setpoints
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
nciDuctStatSP	SNVT_press_p	SCPTductStatSP(189)	Duct Static Pressure Set Point
nciOAMinPos	SNVT_lev_percent	SCPTminRnge (23)	Outdoor air damper minimum position
nciExhStartPos	SNVT_lev_percent	SCPTexhStartPos(202)	Exhaust Enable Position

** Not supported

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Inputs/outputs

The ReliaTel Controls is factory configured to control: unit fan, one or two compressors, gas or electric heat, and a modulating outdoor air damper actuator. To operate the rooftop 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	
	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	
	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*	
	Discharge Air Cooling Set Point	
	Duct Static Pressure Set Point	
	Exhaust Fan Set Point	
	Reset Amount	
	Static Pressure Dead Band	
	Space CO2 Set Point	
	Reset Setpoint	
	Other	Economizer damper*

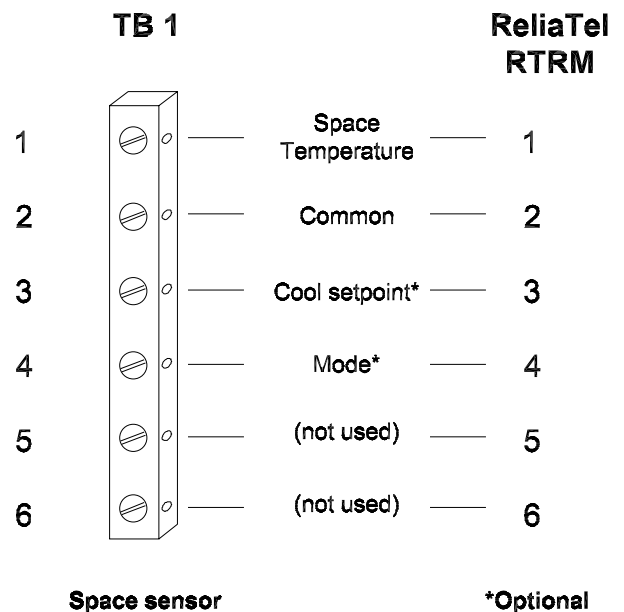
*Optional feature

**With gas heat unit

Space sensor field wiring

Figure1 shows a typical space sensor field wiring configuration.

Figure 1: Typical space sensor field wiring





TRANE®

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Supersedes

Stocking Location

Electronic Only

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