─METASYS®

RCM Room Command Module

The RCM Room Command Module is designed for use with LONMARK® compliant space comfort controllers such as the TCU fan coil unit and VMA variable air volume box controllers from Johnson Controls. A keypad and LCD display on the front of the module allow the room occupant to view and change the operating parameters of the connected controller, including the space temperature setpoint and fan speed. The occupant can also request the temporary occupied (bypass) mode during unoccupied or standby periods, and the current operating mode is shown by a green LED indicator and on the LCD display.

The RCM connects directly to the LONWORKS® network and complies with the LONMARK interoperability guidelines for sharing data with other LONMARK compliant network devices. It is available with FTT-10 free topology transceivers or LPT link power transceivers, for a twisted-pair physical network configuration.

Figure 1: RCM Room Command Module

Features and Benefits	
❑ **Compact display for space comfort data using standard symbols (space temperature setpoint, heating/cooling, fan status, occupancy mode, etc.)**	Easy to read and understand -- independent of user language.
❑ **Four keys and one button for all parameter changes**	Simple and intuitive to use.
❑ **Multiple configuration options to enable/disable display and override functions**	Can be customized for each application -- hotel rooms, for example.
❑ **Override functions can be reset and disabled from the network**	Centralized control of user access.
❑ **All options set by LONMARK configuration properties**	Configured with any LONWORKS compatible network tool.
❑ **LONMARK Space Comfort Controller Command Module Profile**	Interoperates with other LONMARK compliant devices.
❑ **Option for LPT10 LONWORKS network transceiver**	Ease of installation -- only two wires to connect for network and power.
❑ **Display is back lighted with time out**	Suitable for dimly lit locations.

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*E*nvironmental and Comfort Data for the Occupant

The room command module can be configured to display one of the following values on a default display page when the occupant is not requesting any other data:

- **Space temperature setpoint**

- **Space temperature**

- **Time of day** (from LONWORKS network)

If enabled for display on the module, the other values can also be requested by pressing the "page" key.

When the data is available from the network or the connected controller, the occupant can also view:

- **Outdoor temperature**

- **Fan speed** (0.1.2.3 or 0-100% variable)

The following data is always shown on the default display page:

- **Fan status**

- **Heating/cooling active**

- **Occupancy mode**

- **Off mode** (window open)

- **Condensation warning** (chilled ceiling)

- **Manual override active**

The occupied status of the space is also shown by a green LED on the face of the module.

By configuration, the display of space temperature, time of day, outdoor temperature and fan speed can be suppressed when not required or not available.

*C*ontrolling Comfort and the Environment

The room command module can also be configured to allow the occupant to adjust or override operating parameters of the connected controller. The current value of an operating parameter must be available from the controller to enable the action by the occupant.

Temporary occupancy button

Outside of the normal occupancy periods, in the evening or on the weekend for example, one touch on the temporary occupancy button will give the occupant comfort conditions for a set period of time. An LED above the button indicates that the occupied (comfort) mode is active.

Set point adjust

The set point of the controller can be adjusted within the range of +/- 3°C or within a range of values such as 15 to 25°C, specified in configuration properties, using the arrow keys on the face of the module.

Fan speed manual override

When the fan speed is being displayed the user can press the arrow keys to increase or decrease the fan speed, and the manual override symbol is displayed to confirm the override condition. Pressing the release key cancels the override.

Occupancy mode override

By selecting the occupancy display page the user can press the arrow keys to manually override the occupancy mode. Pressing the release key cancels the override.

Centralized lock-out and reset

With a command over the network from a central control station, all user override functions can be locked out and manual overrides reset.

Configuration Options for Customized Control

Depending on the use of the room or the type of building, the requirements for display and override will vary. The RCM has the following configuration options for these different applications.

- **Select default display**

- **Enable space temperature display**

- **Enable fan speed display and override**

- **Enable occupancy override**

- **Set temporary occupancy period**

- **Select temperature units (°C or °F)**

- **Select 24- or 12-hour time display**

- **Set back light time out**

In a standalone application, a user-owned apartment, for example, all features might be enabled. In an office environment with centralized monitoring and control, only the display options may be enabled. In a hotel room functions may be limited to temperature set point and fan speed adjust with an automatic return to default settings when the room is vacated.
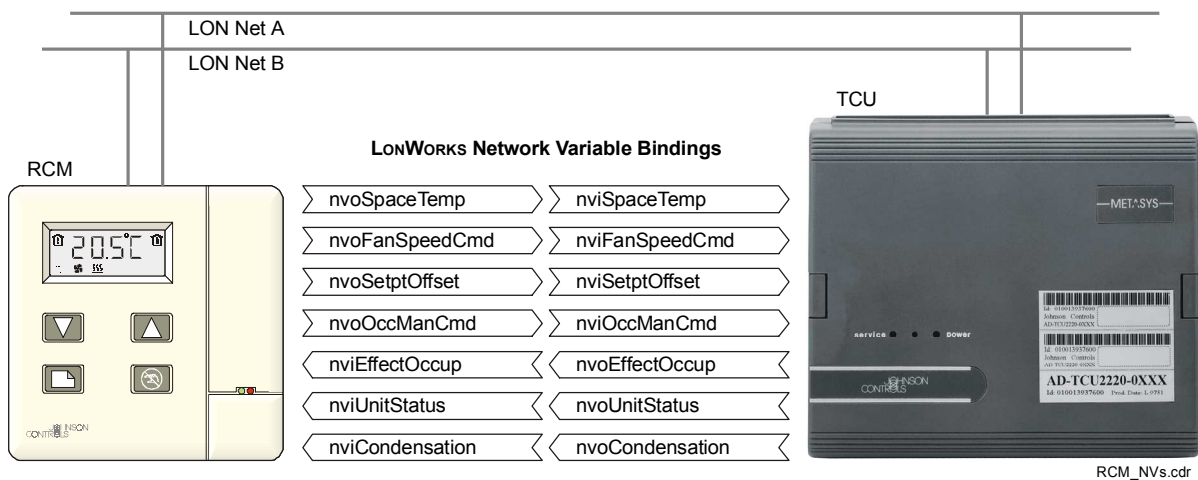
LON Net A

LON Net B

TCU

RCM

LONWORKS Network Variable Bindings

nvoSpaceTemp	nviSpaceTemp
nvoFanSpeedCmd	nviFanSpeedCmd
nvoSetptOffset	nviSetptOffset
nvoOccManCmd	nviOccManCmd
nviEffectOccup	nvoEffectOccup
nviUnitStatus	nvoUnitStatus
nviCondensation	nvoCondensation

RCM_NVs.cdr

Figure 1: Typical Network Bindings between RCM and TCU controller

Convenient Setup and Commissioning

All setup parameters are available as LONMARK configuration properties and can be set by any LONWORKS compatible network tool. With the Comm Pro tool from Johnson Controls a record of all parameter changes can be stored in memory or on diskette and can be downloaded to multiple room command modules in one operation.

As the controller is fully LONMARK compliant, it may be connected to any LONWORKS network segment using FTT10 or LPT10 transceivers and configured to communicate with a compatible space comfort controller on the network using any LONWORKS compliant network management tool.

Once configured, commissioned, and connected to a network, the network inputs and outputs may be monitored and the inputs commanded from a Metasys operator workstation or other LONWORKS compatible supervisory device.

The control variables and configuration parameters that are available for interoperability with other LONWORKS compatible devices on the network are listed in tables 3, 4 and 5.

Table 3: RCM Network Variable Inputs

Description	SNVT Name	SNVT Type
Space Temperature Input	nviSpaceTemp	SNVT_temp_p
Restricted Access	nviUserLockout	SNVT_switch
Time of Day (display only)	nviTimeSet	SNVT_time_stamp
Effective Set Point	nviEffectSetpt	SNVT_temp_p
Space Temperature Set Point Input	nviSetpoint	SNVT_temp_p
Effective Occupancy Mode	nviEffectOccup	SNVT_occupancy
Unit Status	nviUnitStatus	SNVT_hvac_status
Outdoor Temperature	nviOutdoorTemp	SNVT_temp_p
Condensation Sensor	nviCondensation	SNVT_switch
General Alarm	nviGeneralStatus	SNVT_switch

Table 4: RCM Network Variable Outputs

Description	SNVT Name	SNVT Type
Set Point Output (absolute)	nvoSetpoint	SNVT_temp_p
Space Temperature Output (sends displayed temperature: either valid input from external sensor or value of internal sensor)	nvoSpaceTemp	SNVT_temp_p
Fan Speed Command (auto, off, 1, 2, 3, or variable)	nvoFanSpeedCmd	SNVT_switch
Set Point Offset	nvoSetptOffset	SNVT_temp_p
Manual Occupancy Mode Request	nvoOccManCmd	SNVT_occupancy

SNVT: Standard Network Variable Type

Refer to *LONMARK Interoperability Guidelines* for further details.

Table 5: RCM Configuration Properties

Description	SCPT Name	SNVT Type
Send Heartbeat	nciSndHrtBt	SNVT_time_sec
Minimum Send Time	nciMinOutTm	SNVT_time_sec
Temperature Sensor Offset	nciTmpOffset	SNVT_temp_p
Receive Heartbeat	nciRcvHrtBt	SNVT_time_sec
Location Label	nciLocation	SNVT_str_asc
Default Display Page (Set Point, Space Temperature, or Time)	nciDefDisplay	UCPT
Enable Space Temperature Display (defines if space temperature is shown)	nciSpTempDisplay	UCPT
Temperature Units (temperature display and set point units °C/°F)	nciTempUnits	UCPT
Space Temperature Set Point High Limit	nciSetpointHigh	SNVT_temp_p
Space Temperature Set Point Low Limit	nciSetpointLow	SNVT_temp_p
Fan Configuration	nciFanConfig	UCPT
Temporary Occupied Time	nciBypassTime	SNVT_time_min
Set Point Configuration (space temperature set point as absolute or offset [+/- 3K])	nciSetptConfig	UCPT
Time Display Format (24 or 12 hour)	nciTimeConfig	UCPT
Enable Occupancy Override (defines if occupancy mode can be overridden)	nciOccOverride	UCPT
Default Absolute Set Point	nciDefaultSetpt	SNVT_temp_p
Enable Release All (defines if Auto/Release key also resets set point to default and clears bypass mode)	nciReleaseAll	UCPT
Enable Lockout All (defines if Restricted Access also clears and locks out bypass mode)	nciLockoutAll	UCPT
Back Light Time Out	nciBackLightTime	SNVT_time_sec
Default Restricted Access Status	nciDefLockout	SNVT switch

SNVT: Standard Network Variable Type

SCPT: Standard Configuration Property Type

UCPT: User Configuration Property Type

Refer to *LONMARK Interoperability Guidelines* for further details.

*I*ntegrated Room Control

At the local room level, the room command module communicates the space temperature and user comfort preferences to other LONMARK compliant control devices on the LONWORKS network and receives environmental data for display such as the time of day or outside air temperature.

Normally the room command module communicates with a space comfort temperature controller that commands the heating and cooling devices in the room. The controller can also send a positioning signal to a sun-blind controller to reflect the sun's energy when the space temperature is above the comfort setpoint as set on the room command module.

By pressing the temporary occupied button on the module the user can send an occupied signal to a lighting controller to enable the lighting for a limited period of time, or the user can override the occupancy mode for a longer period if the module is enabled for override. Overrides can be cancelled locally or remotely.

Integrated room control provides a fully coordinated system to control the local environment for occupant comfort, using natural sun energy when possible and conserving all sources of generated energy when the room is not occupied.

*O*pen Communications and Interoperability with LONWORKS

The LONWORKS communication capability of the room command module means that it can be used with a LONWORKS compatible controller and integrated into a LONWORKS network in your facility. LONWORKS is an open standard for field communications, and interoperability with other

LONWORKS compatible devices is assured by the LONMARK Interoperability Guidelines. Using the LONWORKS technology in the Metasys system allows you to integrate third party controllers and devices into the facility-wide management system.

*E*ase of Installation

The room command module has a separable base with wiring terminals. The base is installed first and the power and network wiring can be completed and checked before installing the electronic circuits that are located in the room module cover. This procedure provides the

easiest and safest way to install the control system and avoids accidental damage to the electronic circuits when being mounted in the room on the construction site.

A full range of wall and panel mounting kits are available for the room command module.

*C*olour Options

The room command module is available in two colour designs. The all white option is recommended for plain white finished walls and

the other design with an off-white cover and gray base is recommended for other colour or patterned wall finishes.

S pecifications

RCM Room Command Module

Product Codes	**AD-RCM1205-0**	Room Command Module with FTT-10 Transceiver, 24VAC, off-white cover and gray base
	AD-RCM1205-0W	Room Command Module with FTT-10 Transceiver, 24VAC, white cover and white base
	AD-RCM2205-0	Room Command Module with LPT Link Power Transceiver, off-white cover and gray base
	AD-RCM2205-0W	Room Command Module with LPT Link Power Transceiver, white cover and white base
	AD-RCM1200-8900	RCM Service Cable
Power Supply	24VAC or link power from LONWORKS network (see *Product Codes* above).	
	24VAC power (FTT-10): 24VAC +/-15%, 50/60 Hz at 40 mA	
	Link power (LPT) requires 50 mA application current at +5 VDC.	
Ambient Operating Conditions	0 to 50°C / 32 to 122°F	
	10 to 90% RH noncondensing (and max. 30°C / 86°F dewpoint)	
Ambient Storage Conditions	-20 to 70°C / 0 to 160°F	
	10 to 90% RH noncondensing (and max. 30°C / 86°F dewpoint)	
Terminations	Terminal block with screw terminals in base for 1.5 mm^2 / 14 AWG (max.) wires.	
Temperature Sensor	NTC Thermistor 0 to 50°C / 32 to 122°F; 10 Kohms at 25°C / 77°F;	
	Accuracy better than +/-0.5°C / +/-0.9°F with a resolution of 0.1°C / 0.2°F.	
	Suitable for residential and commercial office environments only.	
Display and Keypad	LCD display with 4 digits and 12 symbols.	
	Keypad with 4 keys.	
Temporary Occupancy Button	Momentary contact to select temporary occupancy (bypass) mode.	
Occupancy Mode Indicator	Green LED to indicate occupied or temporary occupancy (bypass) mode.	
LON Service Indicator	Red LED to indicate status of Neuron chip.	
Communications Interface	FTT-10 (Free Topology) or LPT (Link Power) Transceiver for LONWORKS network (see *Product Codes* above).	
Network Variable Interface	LONMARK Space Comfort Control Command Module Profile (Reference 80.90)	
Mounting	Direct surface mount, plastic base for surface mount with wiring conduits, recessed wall box and panel mounting kits available on request.	
Housing	Material: ABS + polycarbonate, self-extinguishing VO UL94.	
	Protection: IP30 (IEC529)	
Dimensions (H x W x D)	80 mm x 80 mm x 33 mm / 3.15 x 3.15 x 1.3 inches	
Shipping Weight	0.15 kg / 5.4 oz.	
Standards Compliance	CE Directive 89/336/EEC: EN 50081-1, EN 50082-2, FCC Class A	
	LONMARK Certification Pending	
Agency Listings	UL873 and CSA Listing Pending	

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