

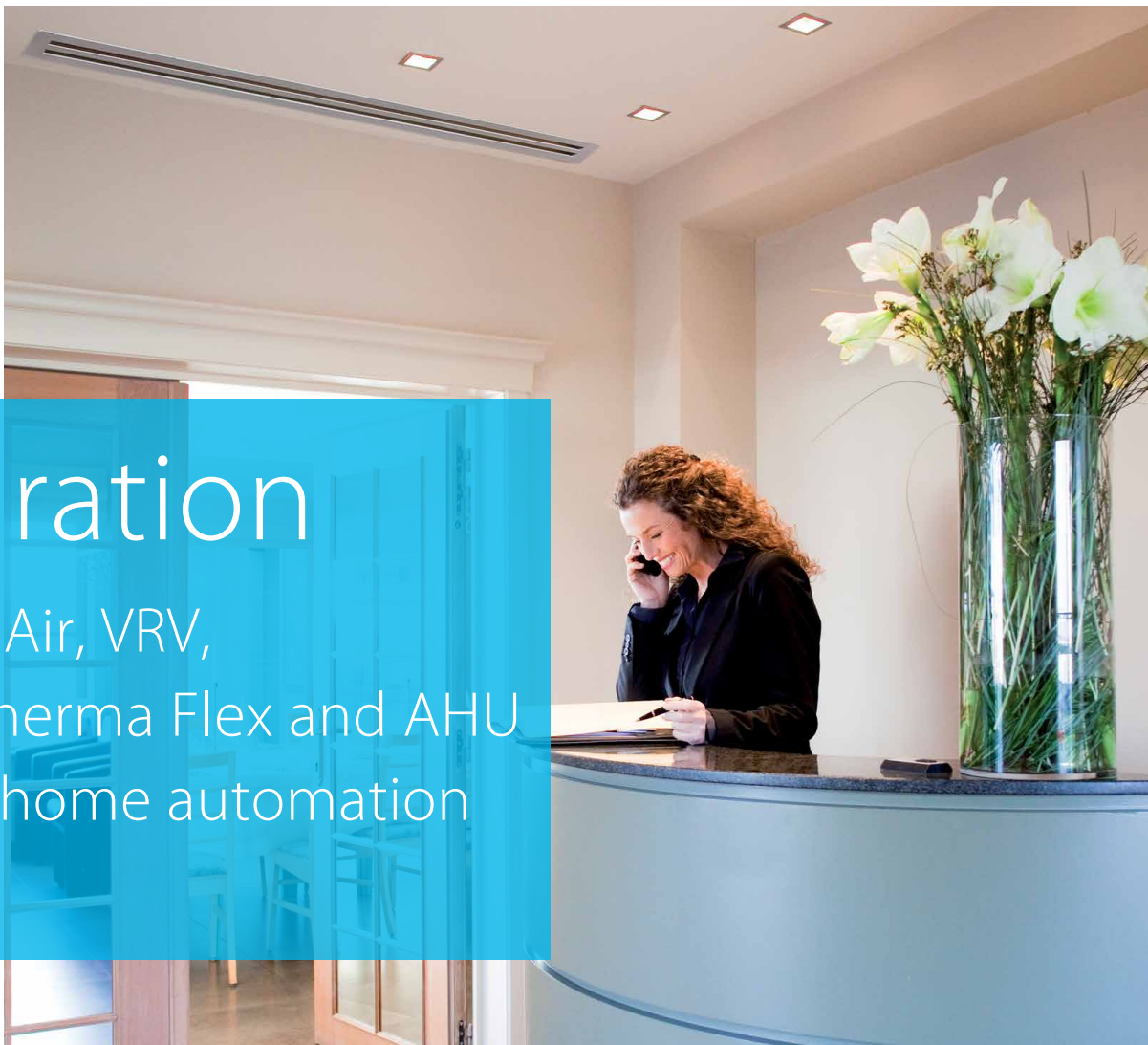
Modbus Interface

RTD



Integration of Daikin portfolio in BMS system via Modbus

- › Indoor unit control via 0~10 volt, dry contact or resistance contact
- › Retail applications
- › Hotel applications
- › IT applications
- › Heating interlock
- › Alarm signal



Integration

of RA, Sky Air, VRV,
Daikin Altherma Flex and AHU
in BMS or home automation
systems

RTD-RA

- › Modbus interface for monitoring and control of residential indoor units

RTD-10

- › Advanced integration into BMS of Sky Air, VRV, VAM and VKM through either:
 - Modbus
 - Voltage (0-10V)
 - Resistance
- › Duty/standby function for server rooms

RTD-NET

- › Modbus interface for monitoring and control of Sky Air, VRV, VAM and VKM

RTD-HO

- › Modbus interface for monitoring and control of Sky Air, VRV, VAM and VKM
- › Intelligent hotel room controller

RTD-20

- › Advanced control of Sky Air, VRV, VAM/VKM and air curtains
- › Clone or independent zone control
- › Increased comfort with integration of CO2 sensor for fresh air volume control
- › Save on running costs via
 - pre/post and trade mode
 - set point limitation
 - overall shut down
 - optimisation according to activity level
- › Room partition control: Automatic selection of individual or group control for rooms with movable walls
- › 0-10V capacity control for AHU connected to ERQ or VRV

RTD-W

- › Modbus interface for monitoring and control of Daikin Altherma Flex Type, VRV HT hydrobox and small inverter chiller

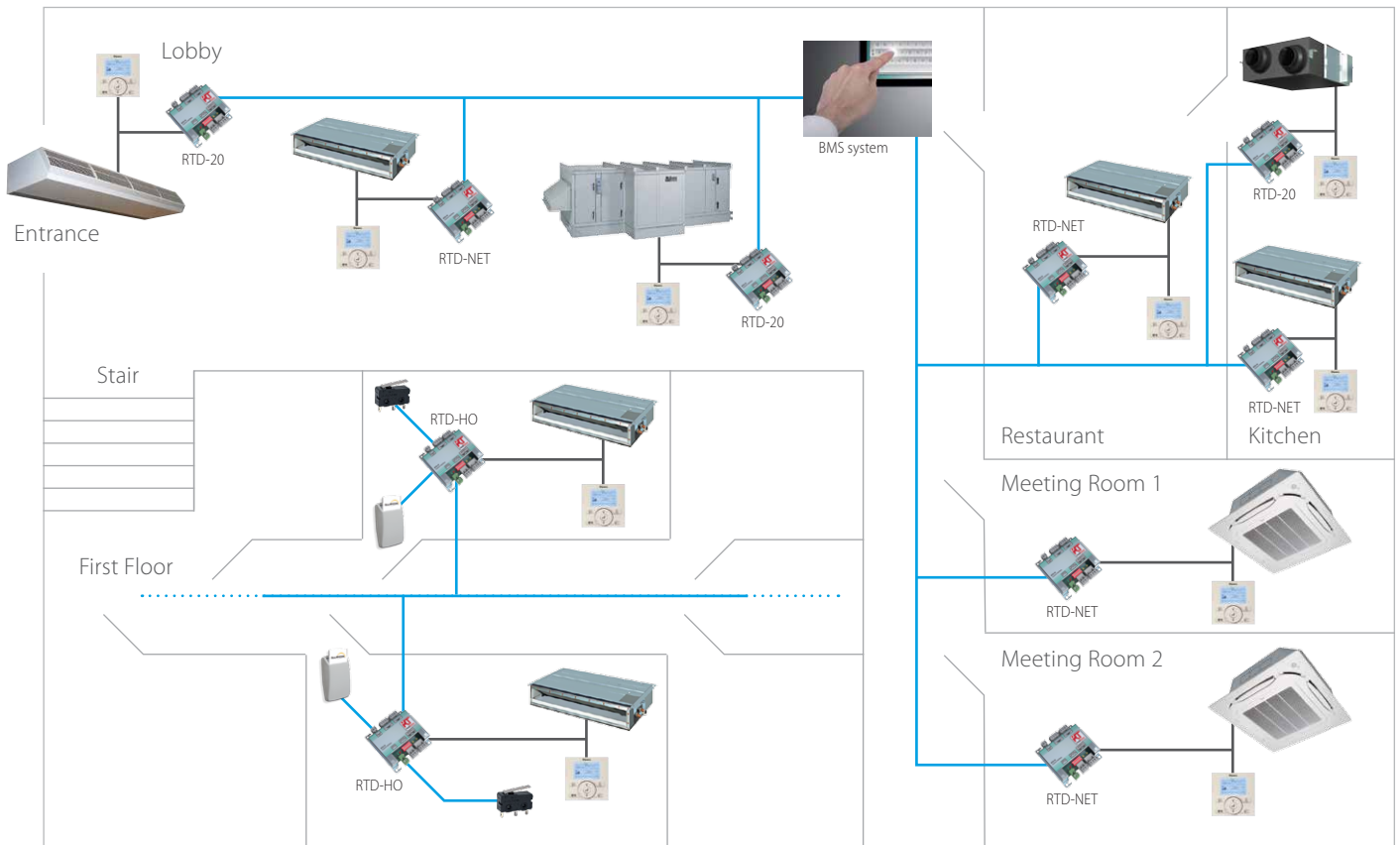
RTD-LT/CA

- › Modbus interface for monitoring and control of Daikin Altherma low temperature (EHVH(X)-C./ EHBH(X)-C)
- › Voltage and resistance control
- › Photovoltaic operation signal for energy saving

Concept

- › Full integration of entire product portfolio, allowing easy and central control of your entire commercial space
- › Full flexibility (access to all main functions) (ON/OFF, mode, setpoint, fan speed, error...)
- › Dedicated pre-programmed functions optimized for hotels, shops, server rooms, ...

Hotel groundfloor



RTD-RA

Application: Integration of Split units in BMS system

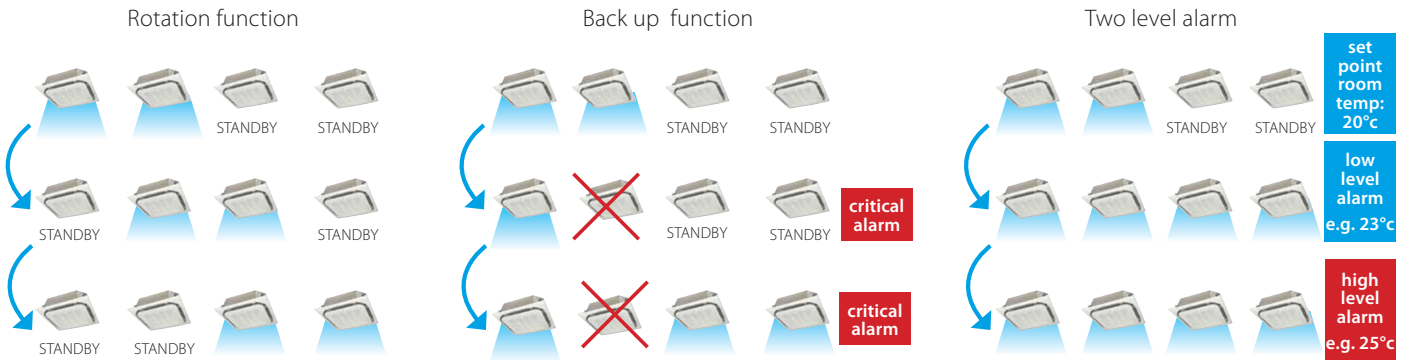
- › Modbus RTU RS485 for Splits
- › Harmonized Modbus registers with RTD line-up
- › Control prohibition from the R/C
- › IT application together with RTD-10
- › Group control (clone from master RTD)



RTD-10

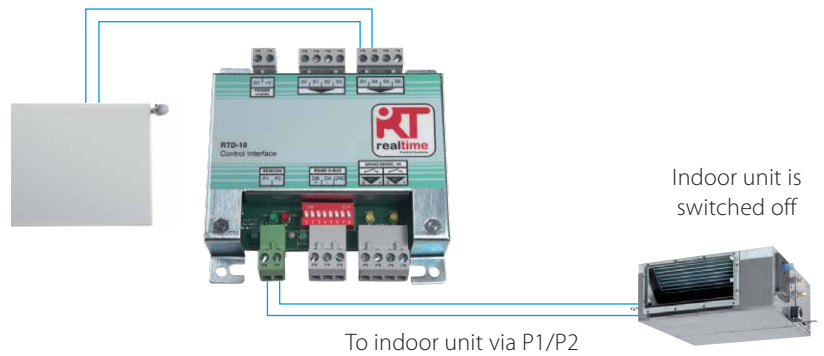
Application: Duty/standby function for server rooms

- › Suitable for IT and Telecom applications.
- › Rotation function:
 - Up to 8 duty/standby groups
 - 1 or 2 standby units /groups
 - Daily or Weekly duty rotation
 - Optional thermistor space temperature alarm
- › Back up function
- › Two level alarm on high temperature or unit fault



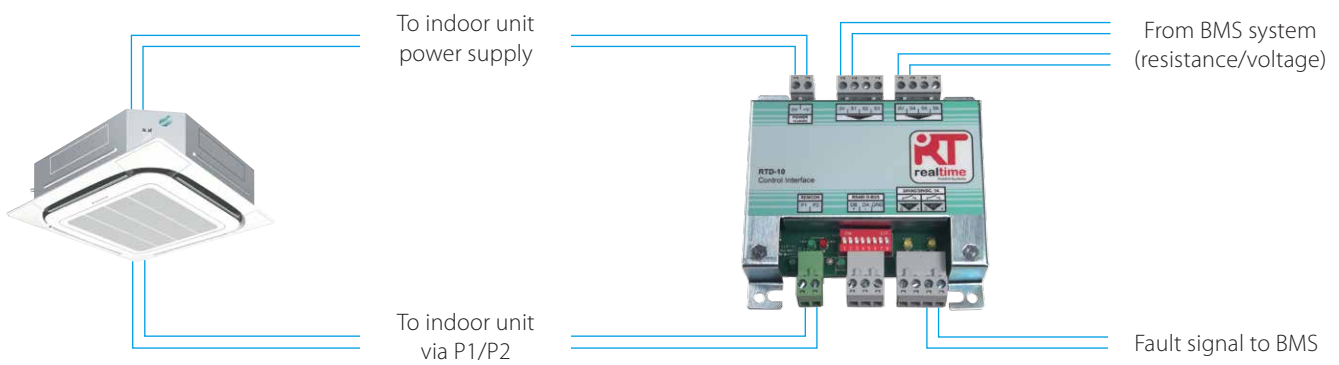
Application: Heating interlock of air conditioning with central heating

- › Avoids having simultaneous cooling and heating occurring when a separate heating system is installed
- › Master option: the heating system is switched off based on the operation of the indoor unit
- › Slave option: certain indoor unit functions are blocked, the unit is switched off or the mode is changed to fan only when the heating system is operating



Application: Integration in BMS system

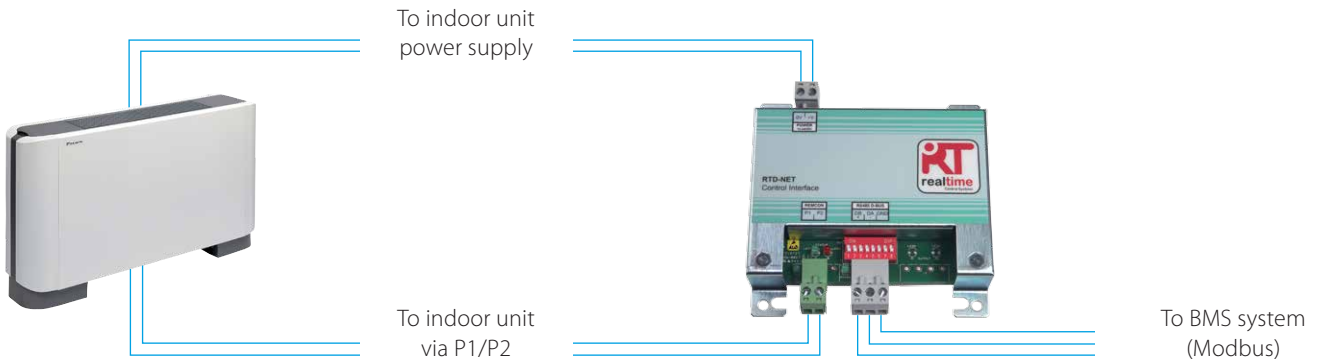
- › Integration in BMS system via resistance and/or voltage control



RTD-NET

Application: Integration in BMS system via Modbus control

> Integration in BMS system via Modbus

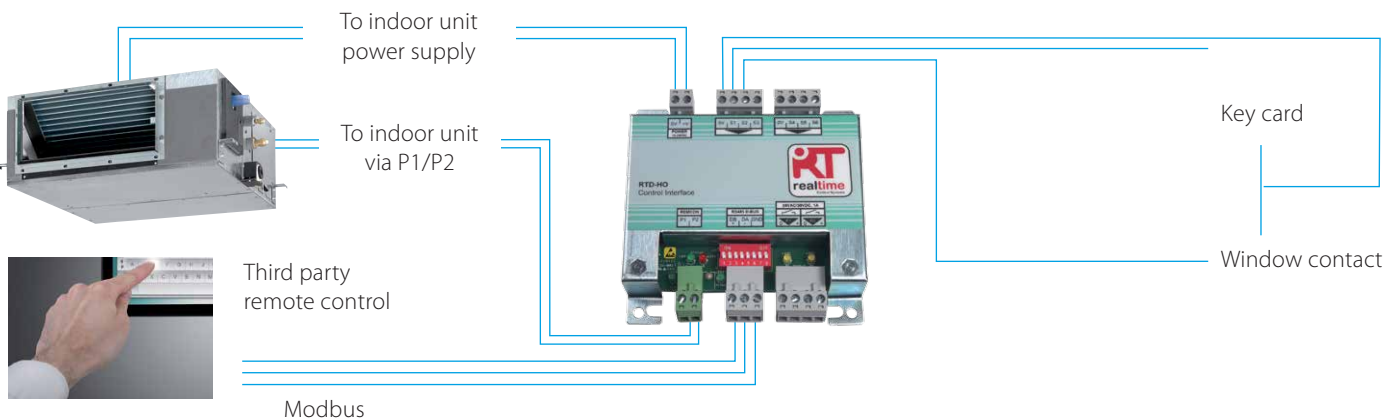
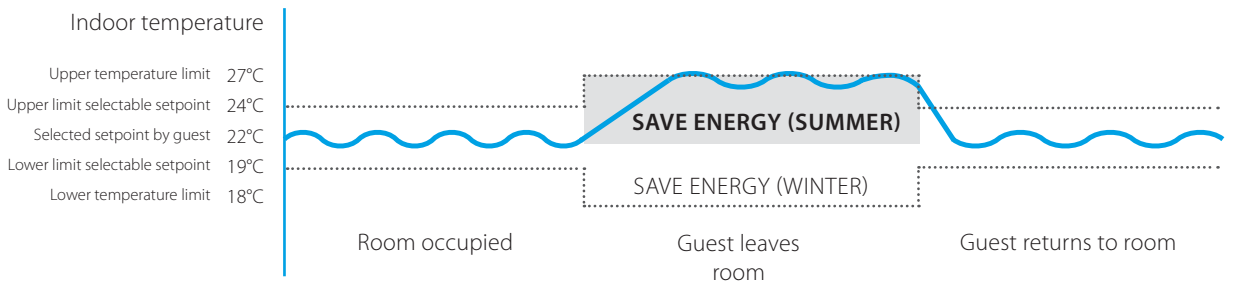


RTD-HO

Application: Hotel room

- > Interlock with key card
- > Interlock with window contact
- > Control via third party remote control
- > Limit selectable setpoint
- > Prohibit several remote control settings like indoor unit on/off , indoor unit mode ...

Example with keycard connection (cooling)

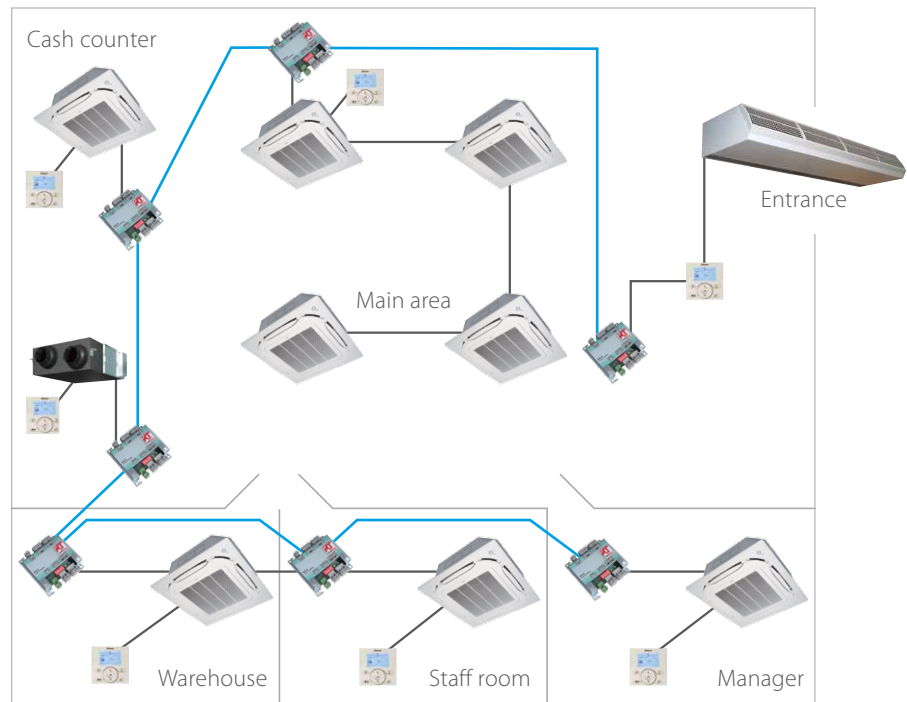


RTD-20

Application: Retail shop

- > Operation management of retail shops zone
- > Energy saving functions
- > Flexible partition modes
- > Enhance the BMS integration of:
 - Air curtains
 - VAM
 - ERQ with 0-10V controls

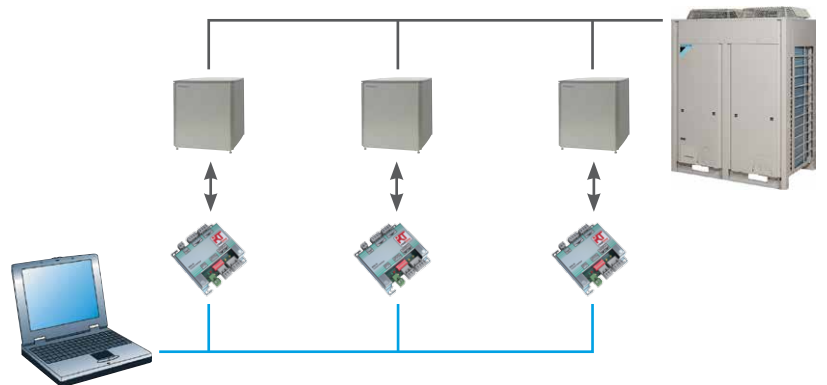
Retail shop



RTD-W

Application: Integration of the domestic hot water (HT hydrobox) through Modbus

- > Modbus RTU RS485 for the HT hydrobox operation
- > I/O for the monitoring & the control of the HT hydrobox operation
- > Offer the platform for the integration with commercial heating sequence controller



RTD-LT/CA

Application: Integration of Daikin Altherma low temperature with photovoltaic solar collectors

Enhance the energy saving of Daikin Altherma low temperature through the smart combination of photovoltaic connection

- > Modbus interface for monitoring and control of Daikin Altherma low temperature (EHVH(X)-C / EHBH(X)-C)
- > Voltage and resistance control
- > Photovoltaic operation signal to save on energy costs



Overview functions



MAIN FUNCTIONS			RTD-RA	RTD-NET	RTD-10	RTD-20	RTD-HO	RTD-W	RTD-LT/CA
Dimensions	H x W x D	mm	80 x 80 x 37,5				100 x 100 x 22		
On/off prohibition									
Key card + window contact							✓		
Set back function			✓				✓		
Prohibit or restrict remote control functions (setpoint limitation, ...)			✓	✓	✓	✓**	✓		
Modbus (RS485)			✓	✓	✓	✓	✓	✓	✓
Dry contact control								✓	✓
Group control			✓(1)	✓	✓	✓	✓		
0 - 10 V control					✓	✓			
Resistance control					✓	✓			
IT application			✓(2)	✓	✓	✓			
Heating interlock					✓	✓			
Output signal (on/defrost, error)					✓	✓****	✓	✓	✓
Space heating / cooling operation								✓	✓
Domestic hot water control								✓	✓
Retail application						✓			
Partitioned room control						✓			
Air curtain				✓***	✓***	✓			
Smart grid control									✓

(1): By combining RTD-RA devices

(2) Requires at least one RTD-10 as Duty/Backup Master with an indoor unit connected

CONTROL FUNCTIONS	RTD-RA	RTD-NET	RTD-10	RTD-20	RTD-HO	RTD-W	RTD-LT/CA
On/Off	M	M	M,V,R	M	M*	M,C	M,C,V,R
Room temperature setpoint	M	M	M,V,R	M	M*	M	M
Set point leaving water temperature (heating / cooling)						M,V	M,V,R
Operation mode	M	M	M,V,R	M	M*	M	M,V,R
fan	M	M	M,V,R	M	M*		
Louver	M	M	M,V,R	M	M*		
HRV Damper control		M	M,V,R	M			
Prohibit/Restrict functions	M	M	M,V,R	M	M*		
Forced thermo off	M						
Domestic hot water On							M,V,R
Domestic Hot Water reheat						M,C	M
Domestic hot water reheat setpoint							M,V,R
Domestic Hot Water storage						M	
Domestic hot water booster setpoint							M
Quiet mode						M,C	M,C
Weather dependent setpoint enable						M	M
Weather dependent curve shift						M	M
Fault/pump info relay choice							R
Control source prohibition						M	M

MONITORING FUNCTIONS	RTD-RA	RTD-NET	RTD-10	RTD-20	RTD-HO	RTD-W	RTD-LT/CA
On/Off	M	M	M	M	M	M,C	M,C
Room temperature setpoint	M	M	M	M	M		M
Set point leaving water temperature (heating/cooling)						M	M
Operation mode	M	M	M	M	M		M
Domestic Hot Water reheat						M	M
Domestic Hot Water storage						M	M
Number of units stored in the group						M	
Average leaving water temperature						M	
Remocon room temperature						M	M
fan	M	M	M	M	M		
Louver	M	M	M	M	M		
RC temperature		M	M	M	M		
RC mode		M	M	M	M		
nbr units		M	M	M	M		
Fault	M	M	M	M	M	M,C	M,C
Fault code	M	M	M	M	M	M	M
Circulation pump operation						M	M,C
Flow rate							M
Solar pump operation							M
Compressor status						M	M
Desinfection operation						M	M
Setback operation						M	
Return air temperature (Average /Min/Max)	M	M	M	M	M		
Filter alarm		M	M	M	M		
Termo on	M	M	M	M	M		
Defrost		M	M	M	M	M	M
Hot start							M
Booster heater operation							M
3-way valve status							M
Coil In/Out temperature	M	M	M	M	M		
Pump running hours accumulated						M	M
Compressor running hours accumulated							M
Actual leaving water temperature						M	M
Actual return water temperature						M	M
Actual DHW tank temperature (*)						M	M
Actual refrigerant temperature							M
Actual outdoor temperature						M	M

M : Modbus / R : Resistance / V : Voltage / C: Contact

* : only when room is occupied / ** : setpoint limitation / (*) if available

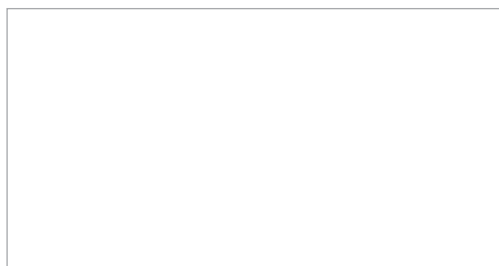
*** : no fan speed control on the CVY air curtain / **** : run & fault



Specifications

		RTD-RA	RTD-NET	RTD-10	RTD-20	RTD-HO	RTD-W	RTD-LT/CA
Dimensions	HeightxWidthxDepth	80x80x37,5					100x100x22	
Weight					120			-
Operation range					0~50			-
Power supply					15V-24V DC			-
Voltage /resistance input		2	N/A	6	6	3		6
Voltage input		N/A	N/A	0~10VDC < 1mA	0~10VDC < 1mA	N/A		0~10VDC < 1mA
Resistance input		5V, 1mA	N/A	5V, 1mA	5V, 1mA	5V, 1mA		5V, 1mA
Dry contact input ports		N/A	N/A	2	N/A	N/A		N/A
Modbus connection					RS485			
P1/P2 connection					yes			
Relay		N/A	N/A	1A, 24VAC max	1A, 25VAC max	1A, 24VAC max		1A, 25VAC max
		N/A	N/A	1A, 30VDC max	1A, 30VDC max	1A, 30VDC max		1A, 30VDC max

Daikin Europe N.V. Naamloze Venootschap Zandvoordestraat 300 · 8400 Oostende · Belgium · www.daikin.eu · BE 0412 120 336 · RPR Oostende (Responsible Editor)



FSC

ECPEN15-308 xxx · 12/14



The present publication is drawn up by way of information only and does not constitute an offer binding upon Daikin Europe N.V. Daikin Europe N.V. has compiled the content of this publication to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Daikin Europe N.V. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this publication. All content is copyrighted by Daikin Europe N.V.

The present publication supersedes ECPEN14-002. Printed on non-chlorinated paper.