FCR230
Modbus-BACnet

EN

Modbus signal types

EXOL types

EXOL signal types:

R = Floating point number (Real) (-3.3E38 - 3.3E38)

I = Whole number (Integer) (-32768 - 32767)

X = Index (0 - 255)

L = Logic (Logic) (0/1)

Modbus types

Modbus signal types (types listed below):

1 = Coil Status Register (Modbus function = 1, 5 and 15)

2 = Discrete Input (Modbus function = 2)

3 = Coil Status Register (Modbus function = 3, 6 and 16)

4 = Input Register (Modbus function = 4)

Supports the following Modbus functions:

1 = Read Coils

2 = Read Discrete Input

3 = Read Holding Register

4 = Read Input Register

5 = Write Single Coil

6 = Write Single Register

15 = Write Multiple Coils

16 = Write Multiple Registers

Scaling factor Modbus

All floating point numbers have a scaling factor of 10. Integers, Index and Logic signals always have a scaling factor of 1.

EXOline/Modbus

The RCF controller will automatically switch between EXOline and Modbus, depending on what type of communication is used. This switch-over will take place without any errors in communication resulting. The exception is when communicating via Modbus with a configuration of 8 bits, no parity and 1 stop bit, in which case the switch must be made manually.
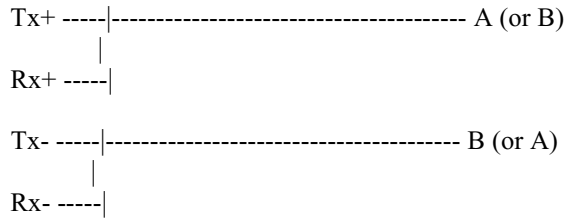
Wiring, Modbus

A Modbus type protocol consists of multiple layers (OSI model). The bottom layer is always the physical layer, the number of connection wires and signal levels. The next layer describes the communication digits (number of bits, stop bits, parity bits etc). After these come the layers describing Modbus-specific functions (number of digits per message, the meaning of different messages, etc). For Modbus, the bottom layer can be either RS485, RS422 or RS232.

RS485 and RS422

RS485 and RS422 constitute the purely electrical part of the protocol, ie. the physical layer. RS485 has two connections, A and B. Often, there is also a Protective earth (N on EXO controllers). RS485 units are connected A → A and B → B. It may prove necessary to shift A and B in order to make Modbus work properly. RS485 is a so called half duplex communication: The communication can only go in one direction, eg. the main unit will initially send a request, and thereafter listen to the reply. A and B are used both for sending and receiving.

RS422 is a full duplex communication, meaning that 4 connecting wires are required; 2 for sending (Tx+ and Tx-) and 2 for receiving (Rx+ and Rx-). Tx is used for sending and Rx for receiving, meaning the Tx in a unit must be connected to the Rx in another and vice versa. Pertaining to signal levels, etc., RS422 and RS485 are identical.

In order to connect RS485 and RS422: Connect Tx+ to Rx+ and Tx- to Rx- on the RS422 unit. We have now changed a 4-wire system to a 2-wire system and can connect them to A and B on the RS485 unit. It is usually easiest to find out what fits where simply by experimenting. Wrong polarity makes the system not function but is incapable of harming any unit.

```
Tx+ -----|-------------------------------------- A (or B)
         |
Rx+ -----|

Tx- -----|-------------------------------------- B (or A)
         |
Rx- -----|
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Bit rate, two stop bits, parity is next layer.

These settings must correspond to the settings in the main unit. Find out what the settings for the main unit are, and then enter the same settings into the controller.

Parity can be set to odd, even (FS) or none. If no parity is set, two stop bits will automatically be used. If odd or even parity is set only one stop bit will be used, or the total amount of bits will be too great. 1 start bit, 8 data bits, 1 parity bit and 1 stop bit gives a total of 11 bits, which is the maximum.

Modbus signals

Discrete inputs

Name of signal	Type	Modbus address	Description
RC_Actual_L.RegioDigIn(0)	L,2	1	Not used
RC_Actual_L.RegioDigIn1	L,2	2	Value on digital input 1
Not used in this model	L,2	3	
RC_Actual_L.RegioUDigIn1	L,2	4	Value on universal digital input 1
RC_Actual_L.RegioDigOut(0)	L,2	5	Not used
RC_Actual_L.RegioDigOut1	L,2	6	Value on digital output 1
RC_Actual_L.RegioDigOut2	L,2	7	Value on digital output 2
RC_Actual_L.RegioDigOut3	L,2	8	Value on digital output 3
Not used in this model	L,2	9-10	
RC_Actual_L.RegioUDigOut1	L,2	11	Heating (Value on digital output 4)
RC_Actual_L.RegioUDigOut2	L,2	12	Cooling (Value on digital output 5)
RC_Actual_L.RegioDIOpenWindow	L,2	13	Indicates open window
Not used in this model	L,2	14	
RC_Actual_L.RegioDIPresences	L,2	15	Indicates presence from digital input
RC_Actual_L.RegioDIChangeOver	L,2	16	Indicates change-over from digital input
RC_Actual_L.RegioFanSpeed1	L,2	17	Indicates fan speed 1
RC_Actual_L.RegioFanSpeed2	L,2	18	Indicates fan speed 2
RC_Actual_L.RegioFanSpeed3	L,2	19	Indicates fan speed 3
Not used in this model	L,2	20	
RC_Actual_L.RegioCVHeatPulsProp	L,2	21	Indicates pulse prop. heating
RC_Actual_L.RegioCVCoolPulsProp	L,2	22	Indicates pulse prop. cooling
RC_Actual_L.RegioCVHeatInc	L,2	23	Indicates increase heating/cooling DO4
RC_Actual_L.RegioCVHeatDec	L,2	24	Indicates decrease heating/cooling DO5
Not used in this model	L,2	25-26	
RC_Actual_L.RegioAIChangeOverState	L,2	27	Indicates change-over status from analogue input
RC_Actual_L.RegioChangeOverState	L,2	28	Indicates change-over status from both digital and analogue input
Not used in this model	L,2	29-30	
RC_Actual_L. RegioPresence	L,2	31	Occupancy indication (with on- and switch-off delay)
Not used in this model	L,2	32-33	

Coil status register

Name of signal	Type	Modbus address	Default value	Description
Not used in this model	L,1	1	0	
RC_Setp_L.RegioShutDown	L,1	2	0	Puts the unit in Shutdown mode.
RC_Setp_L.RegioFireAlarmStop	L,1	3	0	Places the unit in Shutdown mode and prevents it from being activated again, unless this value is first set to "0".
RC_Setp_L.RegioDiNC(0)	L,1	4	0	Not used
RC_Setp_L.RegioDi1NC	L,1	5	0	Normally open (NO) or normally closed (NC) on digital input. 0=NO, 1=NC.
Not used in this model	L,1	6	.	
RC_Setp_L.RegioUDi1NC	L,1	7	0	Normally open (NO) or normally closed (NC) on universal digital input. 0=NO, 1=NC.
Not used in this model	L,1	8	-	
RC_Setp_L. RegioDO4NC	L,1	9	1	DO4 NO/NC
RC_Setp_L.RegioDO5NC	L,1	10	1	DO5 NO/NC
RC_Setp_L.RegioDilAct	L,1	11	0	DI1-activation (presence/window) → Economy/Off
RC_Setp_L.RegioMPAct	L,1	12	0	Activation of Mould protection.
RC_Setp_L.RegioTermoModel	L,1	13	0	EEPROM storage of Thermo model variable (3-point actuator)
RC_Setp_L.RegioMinFanSpeed	L,1	14	1	The fan is run at its minimum speed setting if the automatic fan control calculates that the fan can be switched off.
Not used in this model	-	15	-	
RC_Setp_L.RegioComFactoryDefaults	L,1	16	0	Set communication parameters to factory settings (does not apply to addresses): 1 = Factory settings (resets to 0)
RC_Setp_L.RegioBlockConfig	L,1	21	0	Blocks the option to enter the parameter list using the buttons on RCF.
RC_Setp_L.RegioPreventManualFanSpeed	L,1	22	0	Prevents the fan speed from being changed manually if the fan is not set to auto (parameter 25).

Input register

Name of signal	Type	Modbus address	Description
RC_Actual_X.RegioSoftware	X,4	1	Type of Regio software: 0 = RCP 1 = RC
RC_Actual_X.RegioVerMajor	X,4	2	Major version
RC_Actual_X.RegioVerMinor	X,4	3	Minor version
RC_Actual_X.RegioVerBranch	X,4	4	Branch version
RC_Actual_X.RegioRevision	X,4	5	Revision
Not used in this model	X,4	6	
RC_Actual_X.RegioUnitState	X,4	7	Current running mode: 0 = Off 1 = Economy/Standby 2 = Not used 3 = Not used 4 = Comfort
RC_Actual_X.RegioControllerState	X,4	8	Current control: 0 = Off 1 = Heating 2 = Cooling
RC_Actual_X.RegioFanSpeed	X,4	9	Current fan speed: 0 = Off 1 = Fan speed 1 active 2 = Fan speed 2 active 3 = Fan speed 3 active
Not used in this model	X,4	10	
RC_Actual_R.RegioRoomTemp	R,4	11	Room temperature
RC_Actual_R.RegioRoomTempExt	R,4	12	Room temperature from external sensor
RC_Actual_R.RegioRoomTempInt	R,4	13	Room temperature from internal sensor
RC_Actual_R.RegioAIChangeOver	R,4	14	Change-over temperature
RC_Actual_R.RegioAnaIn1	R,4	15	Value on analogue input 1
RC_Actual_R.RegioUAnaIn1	R,4	16	Value on universal analogue input 1
RC_Actual_R.RegioUAnaOut1	R,4	17	Value on universal analogue output 1
RC_Actual_R.RegioUAnaOut2	R,4	18	Value on universal analogue output 2
Not used in this model		19	
RC_Actual_R.RegioPIDSetP	R,4	20	Controller setpoint
RC_Actual_R.RegioPIDOutput	R,4	21	Controller output signal (0…100 %)
RC_Actual_R.RegioHeatOutput	R,4	22	Heating output signal (0…100 %)
RC_Actual_R.RegioCoolOutput	R,4	23	Cooling output signal (0…100 %)
RC_Actual_R.RegioAI1Raw	R,4	24	Raw value for analogue input 1
RC_Actual_R.RegioUI1Raw	R,4	25	Raw value for universal input 1
RC_Actual_R.RoomTemp_NTC2	R,4	26	Room temperature input value from secondary internal sensor
RC_Actual_R.RegioSupplyAirTemp	R, 4	47	Supply air temperature from sensor connected to AI1
RC_Actual_R.RegioSupplyAirPIDout	R, 4	48	Supply air controller output
RC_Actual_R.RegioPID2Setp	R, 4	49	Room controller output (scaled) and supply air controller setpoint

Holding register

Name of signal	Type	Modbus address	Default setting	Description
Not used in this model	X,3	1-2	-	
RC_Setp_X.RegioHeatOutputSelect	X,3	3	2	Manual/Auto heating output
RC_Setp_X.RegioCoolOutputSelect	X,3	4	2	Manual/Auto cooling output
RC_Setp_X.RegioFanSelect	X,3	5	4	Select fan mode: 0 = Off 1 = Manual speed 1 2 = Manual speed 2 3 = Manual speed 3 4 = Auto
RC_Setp_X. RegioFanControlMode	X,3	6	3	Select fan control: 0 = No control 1 = The fan is controlled by heating requirement 2 = The fan is controlled by cooling requirement 3 = The fan is controlled by both heating and cooling requirement
RC_Setp_X.RegioFanSpeed1Start	X,3	7	20	Controller output signal in % for fan speed 1
RC_Setp_X.RegioFanSpeed2Start	X,3	8	60	Controller output signal in % for fan speed 2
RC_Setp_X.RegioFanSpeed3Start	X,3	9	RCFx-230CD = 90 All others = 100	Controller output signal in % for fan speed 3
RC_Setp_X.RegioFanSpeedHyst	X,3	10	5	Controller output signal hysteresis start/stop fan speed
RC_Setp_X.RegioFanSpeedMax	X,3	11	3	Number of fan speeds (1-3)
Not used in this model	X,3	12	-	
RC_Setp_X.RegioChangeOverSelect	X,3	13	RCFM-230Cxx = 0 RCF-230Cxx = 2	Manual/Auto Change-over (0=Heating, 1=Cooling, 2=Auto)
RC_Setp_X.RegioRemoteState	X,3	14	5	Used for remote control: 0 = Off 1 = Economy/Standby 2 = Not used 3 = Not used 4 = Comfort 5 = No remote control
RC_Setp_X.RegioUnitReturnState	X,3	15	-	Pre-set running mode: 0 = Off 1 = Standby
Not used in this model	X,3	16		
Not used in this model	X,3	17	-	

Name of signal	Type	Modbus address	Default setting	Description
RC_Setp_X.RegioControllerMode	X,3	18	RCFM-230Cxx = 2 RCF-230Cxx = 3	Control mode selection: 2= Heating or Cooling via change-over 3 = Heating/Cooling 4 = Electric heating
RC_Setp_X.RegioCVHeatType	X,3	19	0	Type of actuator, heating: 0 = 0…10 V 1 = 2…10 V 2 = 10…2 V 3 = 10…0 V
RC_Setp_X.RegioCVCoolType	X,3	20	0	Type of actuator, cooling
RC_Setp_X.RegioCVHeatExerciseInterval	X,3	21	23	Time (in hours) between exercise of heating actuator.
RC_Setp_X.RegioCVCoolExerciseInterva l	X,3	22	23	Time (in hours) between exercise of cooling actuator.
Not used in this model	X,3	23	-	
RC_Setp_X.RegioAi1	X,3	24	0	Signal connected on AI1: 0 = Not used (Internal Room sensor used) 1 = External Room sensor 3-10 = No function 11 = Supply air temperature limitation sensor
Not used in this model	X,3	25-27	-	
RC_Setp_X.RegioDi2	X,3	28	N/A	Not used (Signal connected on DI2: 1 = Open window 2 = Condensation alarm)
RC_Setp_X.RegioDi3	X,3	29	N/A	Not used
RC_Setp_X.RegioUi1	X,3	30	0	Signal connected on UI1: 0 = Not used 1 = Change-over sensor, digital 2 = Change-over sensor, analogue 3=Off mode (open window)
Not used in this model	X,3	31 - 41	-	
RC_Setp_X.RegioUo1	X,3	42	RCF-230CAD = 3 RCF-230CTD-EC = 17 All others = 1	Signal connected on UO1: 0 = Not used 1 = Thermo valve, Heating/Cooling (not (C)AD) 2 = Not used 3 = Analogue valve Heating/Cooling (only (C)AD) 4-16 = Not used 17 = EC fan analogue out AO1, Thermo valve heating DO4 (only RCF-230-CTD-EC)

Name of signal	Type	Modbus address	Default setting	Description
RC_Setp_X.RegioUo2	X,3	43	RCF-230CAD = 4 All others = 2	Signal connected on UO2: 0 = Not used 1 = Not used 2 = Thermo valve, Cooling (not (C)AD) 3 = Not used 4 = Analogue valve Cooling (only (C)AD)
RC_Setp_X.RegioModbusSlaveAddr	X,3	44	Factory set	Address Modbus slave
RC_Setp_X.RegioModbusParity	X,3	45	2	Parity and stop bits for Modbus communication: 0 = 8N2 1 = 8O1 2 = 8E1 3 = 8N1
RC_Setp_X.RegioModbusCharTimeout	X,3	46	3	Modbus timeout for characters (t1.5), in ms. Should be 1.5 times a character, ie. at least 2 ms.
RC_Setp_X.RegioModbusAnswerDelay	X,3	47	5	Response lag Modbus (t3.5), in ms. Should be 3.5 times a character, ie. at least 5 ms.
RC_Setp_X.RegioDispBacklightLO	X,3	48	10	Display backlight low (0...100)
RC_Setp_X.RegioDispBacklightHi	X,3	49	30	Display backlight high (0...100)
RC_Setp_X.RegioDispContrast	X,3	50	15	Contrast (0…15)
RC_Setp_X.RegioDisplayViewMode	X,3	51	2	Viewing options for the display: 0 = Room temperature and setpoint when adjusting 1 = Room temperature and setpoint when adjusting 2 = Setpoint 3 = Setpoint displacement
Not used in this model	X,3	52-55	-	
Not used in this model	I,3	56	-	
RC_Setp_I.RegioPresenceOffTime	I,3	57	0	Switch-off delay when changing to no presence (min)
RC_Setp_I.RegioPresenceOnTime	I,3	58	0	Switch-on delay when changing to presence (min)
RC_Setp_I.RegioCVHeatPeriodTime	I,3	59	60	Period time for pulse prop. control valve, heating (sec)
RC_Setp_I.RegioCVCoolPeriodTime	I,3	60	60	Period time for pulse prop. control valve, cooling (sec)
RC_Setp_I.RegioCVHeatRunTime	I,3	61	120	Run time closed valve to open, heating (sec)
RC_Setp_I.RegioCVCoolRunTime	I,3	62	120	Run time closed valve to open, cooling (sec)
Not used in this model	X,3	63-67	-	
Not used in this model	R,3	68-69	-	
RC_Setp_R.RegioStandbySetPDeadBand	R,3	70	8°C	Deadband for Economy mode

Name of signal	Type	Modbus address	Default setting	Description
RC_Setp_R.RegioUnOccSetPHeat	R,3	71	15°C	Heating setpoint when in Unoccupied mode
RC_Setp_R.RegioUnOccSetPCool	R,3	72	30°C	Cooling setpoint when in Unoccupied mode
RC_Setp_R.RegioFrostSetP	R,3	73	N/A	Not used
RC_Setp_R.RegioSetpointOffsetPos	R,3	74	13°C	Max. upward setpoint displacement
RC_Setp_R.RegioSetpointOffsetNeg	R,3	75	17°C	Max. downward setpoint displacement
RC_Setp_R.RegioSetPOffset	R,3	76	0	Setpoint displacement
RC_Setp_R.RegioPIDPGain	R,3	77	10°C	Room controller P-band
RC_Setp_R.RegioPIDITime	R,3	78	300 sec	Room controller I time
RC_Setp_R.RegioCVDeadband	R,3	79	N/A	Not used (Control valve dead band)
RC_Setp_R.RegioAIChangeOverLimitLow	R,3	80	18°C	Controller switches over to control of cooling if change-over temperature is lower
RC_Setp_R.RegioAIChangeOverLimitHigh	R,3	81	28°C	Controller switches over to control of heating if change-over temperature is higher
RC_Setp_R.RegioAi1Comp	R,3	82	0°C	Compensation for analogue input 1
RC_Setp_R. RegioUi1Comp	R,3	83	0°C	Compensation for universal input 1
RC_Setp_R.RegioInternalTempComp	R,3	84	0°C	Compensation for internal room sensor
RC_Setp_R.RegioTempFilterFactor	R,3	85	0.2°C	Filter factor for temperature on analogue input 0 = No filter 1 = Max filter
Not used in this model	R,3	86-89	-	
RC_Setp_R.RegioThermostatHyst	R,3	90	10	Room hysteresis
RC_Setp_R.RegioComfortSetPDeadBand	R,3	91	RCFM-230Cxx = 0 RCF-230Cxx = 2	Deadband for Comfort mode (DB)
	R,3	92	-	Not used
	R,3	93	-	Not used
RC_Setp_R.RegioHeatOutputManual	R,3	94	0 %	Manual output heating output (0…100 %)
RC_Setp_R.RegioCoolOutputManual	R,3	95	0 %	Manual output cooling output (0…100 %)
RC_Setp_R.RegioRoomTempRemote	R,3	96	-255	Used for remote control of room temperature. External Room sensor must be selected.
RC_SetpExt_R.RegioMinECFanSpeed	R,3	282	1 V	Starting voltage for EC fan. The fan will never receive a signal of a lower voltage than the set value (only RCF-230CTD-EC).

Name of signal	Type	Modbus address	Default setting	Description
RC_SetpExt_R.RegioMaxECFanSpeed	R,3	283	10 V	Maximum speed of the EC fan
RC_SetpExt_R.RegioRCFSetPoint	R,3	284	22°C	Basic setpoint
RC_Setp_R.SupplyAirTLim_HeatHi	R, 3	289	35℃	Supply air max limitation for cascade control and heating control
RC_Setp_R.SupplyAirTLim_HeatLo	R, 3	290	24°C	Supply air min limitation for cascade control and heating control
RC_Setp_R.SupplyAirTLim_CoolHi	R, 3	291	24°C	Supply air max limitation for cascade control and cooling control
RC_Setp_R.SupplyAirTLim_CoolLo	R, 3	292	12°C	Supply air min limitation for cascade control and cooling control
RC_Setp_R.SupplyAirTLim_CascadeFact	R, 3	293	3°C	Cascade factor between room controller and supply air controller
RC_Setp_R.SupplyAirTLim_FrostProtect	R, 3	294	8°C	Frost protection temperature for supply air when supply air temperature limitation is active

BACnet signal types

BACnet	In order to communicate via BACnet, the protocol has to be changed either via Regio tool© or via the parameter list in the display. Once the protocol has been set to BACnet, it can only be switched back to EXOline and Modbus via the display.
Object type	The BACnet types of the signals (types in the list below):

      • Analogue inputs

      • Analogue values

      • Binary inputs

      • Binary values

      • Loop

      • Multistate inputs

      • Multistate values

      • Device

Out_of_service	The property out_of_service is not writable for all Object Types.
Commandable	The value objects are not commandable (i.e. does not use a priority array).
EDE files	EDE files for BACnet are included in the Regio tool© installation.

BACnet signals

Analogue inputs

Object name	Object ID	Description	Unit	Writeable
RC_Actual_R.RegioRoomTemp	Analog input, 0	Room temperature	°C	No
RC_Actual_R.RegioAIChangeOver	Analog input, 1	Change-over temperature	°C	No
RC_Actual_R.RegioAnaIn1	Analog input, 2	Value on analogue input 1	°C	No
RC_Actual_R.RegioUAnaIn1	Analog input, 3	Value on universal analogue input 1	V	No
RC_Actual_R.RegioSupplyAirTemp	Analog input, 4	Supply air temperature	°C	No

Analogue values

Object name	Object ID	Description	Unit	Writeable
RC_Actual_R.RegioUAnaOut1	Analog value, 0	Value on universal analogue output 1	V	No
RC_Actual_R.RegioUAnaOut2	Analog value, 1	Value on universal analogue output 2	V	No
RC_Actual_R.RegioSetPAdjustment	Analog value, 2	Setpoint displacement from internal unit	°C	No
RC_Actual_R.RegioPIDSetP	Analog value, 3	Controller setpoint	°C	No
RC_Actual_R.RegioPIDOutput	Analog value, 4	Controller output	%	No
RC_Actual_R.RegioHeatOutput	Analog value, 5	Heating control	%	No
RC_Actual_R.RegioCoolOutput	Analog value, 6	Cooling control	%	No
Not used in this model	Analog value, 7-8			Yes
RC_Setp_R.RegioUnOccSetPHeat	Analog value, 9	The room heating setpoint when in "Economy" mode	°C	Yes
RC_Setp_R.RegioUnOccSetPCool	Analog value, 10	The room cooling setpoint when in "Economy" mode	°C	Yes
Not used in this model	Analog value, 11			
RC_Setp_R.RegioSetPOffset	Analog value, 12	Setpoint displacement during presence	°C	Yes

Object name	Object ID	Description	Unit	Writeable
RC_Setp_R.RegioHeatOutputManual	Analog value, 13	Manual value heating output	%	Yes
RC_Setp_R.RegioCoolOutputManual	Analog value, 14	Manual value cooling output	%	Yes
RC_Setp_R.RegioRoomTempRemote	Analog value, 15	Remote control of room temperature.	°C	Yes
RC_Setp_R.RegioStandbySetPDeadBand	Analog value, 16	Deadband for Standby mode	°C	Yes
Not used in this model	Analog value, 17-26			
RC_Setp_R.RegioMinECFanSpeed	Analog value, 27	Lowest possible speed for the EC fan	%	Yes
RC_Setp_R.RegioMaxFanSpeed	Analog value, 28	Highest possible speed for the EC fan	%	Yes
RC_Setp_R.RegioAIChangeOverLimitLow	Analog value, 29	Cooling if lower change-over temperature	°C	Yes
RC_Setp_R.RegioAIChangeOverLimitHigh	Analog value, 30	Heating if higher change-over temperature	°C	Yes
RC_Setp_R.RegioThermostatHyst	Analog value, 31	Room temperature hysteresis	°C	Yes
RC_Setp_R.RegioComfortSetPDeadband	Analog value, 32	Deadband for comfort mode.	°C	Yes
RC_SetpExt_R.RegioRCFSetPoint	Analog Value, 33	Basic setpoint for the controller	°C	Yes
RC_Actual_R.RegioPID2Setp	Analog Value, 34	Calculated supply air setpoint	°C	No

Binary inputs

Object name	Object ID	Description	Values	Writeable
RC_Actual_L.RegioDIOpenWindow	Binary input, 0	Indicates open window	ACTIVE/ INACTIVE	No
Not used in this model	Binary input, 1			No
RC_Actual_L.RegioDIPresences	Binary input, 2	Indicates presence from digital input	ACTIVE/ INACTIVE	No
RC_Actual_L.RegioDIChangeOver	Binary input, 3	Indicates change-over from digital input	ACTIVE/ INACTIVE	No
Not used in this model	Binary input, 4-6			No

All binary inputs have normal polarity.

Binary values

Object name	Object ID	Description	Values	Writeable
Not used in this model	Binary value, 0			No
RC_Actual_L.RegioCVHeatPulsProp	Binary value, 1	Indicates pulse prop. heating	ACTIVE/ INACTIVE	No
RC_Actual_L.RegioCVCoolPulsProp	Binary value, 2	Indicates pulse prop. cooling	ACTIVE/ INACTIVE	No
RC_Actual_L.RegioCVHeatInc	Binary value, 3	Indicates heating increase	ACTIVE/ INACTIVE	No
RC_Actual_L.RegioCVHeatDec	Binary value, 4	Indicates heating decrease	ACTIVE/ INACTIVE	No
Not used in this model	Binary value, 5-6			No
RC_Actual_L.RegioChangeOverState	Binary value, 7	Indicates change-over status from both digital and analogue input	ACTIVE/ INACTIVE	No
Not used in this model	Binary value, 8			No
RC_Actual_L.RegioFireAlarmStop	Binary value, 9	Places the unit in Shutdown mode and prevents it from being activated again, unless this value is first set to "0".	ACTIVE/ INACTIVE	Yes
RC_Setp _L.RegioShutDown	Binary value, 10	Places the unit in Shutdown mode	ACTIVE/ INACTIVE	Yes
RC_Setp_L.RegioBlockConfig	Binary value, 12	Prevents parameter menu access via display	ACTIVE/ INACTIVE	Yes

All binary values have normal polarity.

Loop

Object name	Object ID	Description
Controller	Loop, 0	The Regio controller

Multistate inputs

Object name	Object ID	Description	Values	Writeable
Not used in this model	Multistate input, 0			No
RC_Actual_X.RegioUnitState	Multistate input, 1	Current running mode	1=Off 2=Economy/Standby 3=Not used 4=Not used 5=Comfort	No
RC_Actual_X.RegioControllerState	Multistate input, 2	Current control mode	1=Off 2=Heating 3=Cooling	No
RC_Actual_X.RegioFanSpeed	Multistate input, 3	Current fan speed	1=Off 2=Fan speed 1 3=Fan speed 2 4=Fan speed 3	No

Multistate values

Object name	Object ID	Description	Values	Writeable
RC_Setp_X.RegioHeatOutputSelect	Multistate value, 0	Manual/Auto heat output	1=Off 2=Manual output 3=Automatic output	Yes
RC_Setp_X.RegioCoolOutputSelect	Multistate value, 1	Manual/Auto cool output	1=Off 2=Manual output 3=Automatic output	Yes
RC_Setp_X.RegioFanSelect	Multistate value, 2	Fan mode select	1=Off 2=Manual speed 1 3=Manual speed 2 4=Manual speed 3 5=Auto 6=Auto 2 7=Auto 1	Yes
Not used in this model	Multistate value, 3	Manual/Auto forced ventilation	1=Off 2=Manual on 3=Auto	Yes
RC_Setp_X.RegioChangeOverSelect	Multistate value, 4	Manual/Auto change-over	1=Heating 2=Cooling 3=Auto	Yes
RC_Setp_X.RegioRemoteState	Multistate value, 5	Remote control unit state	1=Off 2=Economy/Standby 3=Not used 4=Not used 5=Comfort 6=No remote control	Yes

Object name	Object ID	Description	Values	Writeable
RC_Non_Modbus.RegioButtonActiveConf	Multistate value, 6	Buttons active	1=No buttons 2=Occupancy button only 3=INCREASE/DECREASE only 4=Occupancy button and INCREASE/DECREASE 5=Fan button only 6=Occupancy button and fan button 7=INCREASE/DECREASE and fan button 8=All buttons	Yes

Device

The **Device** object contains to writeable properties; **Description** and **Location**. **Description** can be 17 characters in length and **Location** can be 33 characters, as long as single byte character encoding is used.

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