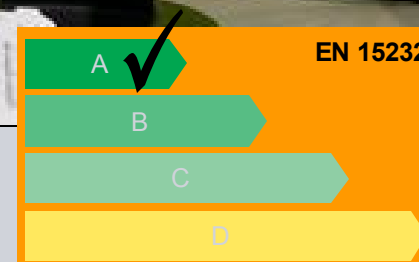
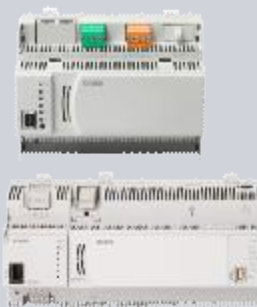


Integratsioonist, KVVK ja automaatika, eriti VAV juhtimisega seoses

SIEMENS



Ventilatsiooni vajaduspõhine reguleerimine, volume flow coordination

KAS SOOMES TEEB AUTOMAATIKA PROJEKTI KVJ PROJEKTEERIJA?

EI TEE, KUID SEAL AUTOMAATIKA
PROJEKTEERIJA KUULUB
"TORUMEESTE" SELTSKONDA

SIEMENS

AUTOMAATIKA VALDKONNA ERIALADE, ALLERIALADE JA AMETIALADE LOEND

Inseneritegevuse valdkond <i>Domain-of-engineering</i>	Eriala <i>Speciality</i>	Alleriala <i>Sub-speciality</i>	Ametiala <i>Occupational-activity</i>
Automaatika valdkond <i>Automation-Engineering</i>	Automaatika <i>Automation</i>	Tootusprotsessi automaatika <i>Process-Automation</i>	-Projekteerimine -Projekti teostamine -Projekti juhtimine -Järelvalve -Automaatikasüsteemide ehitus ja -käit -Teadus- ja arendustegevus -Tootearendus ja tootmis-tegevus -Inseneride koolitus ja uurimistöö -Automatiseeritava protsessi ekspertiis -Automaatjuhtimise süsteemide ekspertiis -Automaatikaprojektide ekspertiis
		Ehitusautomaatika <i>Building-Automation</i>	
		Tootmiseseadmete automaatika <i>Machinery-automation</i>	

§ 3. Ehitamise tegevusalade täpne liigitus

- 10) ehitiste kontrollimis- ja juhtimissüsteemide automatiseerimine;
- 11) elektroonilise side võrkude ja -rajatiste ehitamine;
- 12) nõrkvoolusüsteemide ehitamine

Ehitiste kontrollimis- ja juhtimissüsteemide automatiseerimine

pädevust tõendada erialase kõrghariduse ja erialase kolmeaastase töökogemusega, mida arvestatakse alates erialast kõrgharidust tõendava dokumendi väljastamise kuupäevast.

KAS SOOMES TEEB AUTOMAATIKA
PROJEKTI KVJ PROJEKTEERIJA?

EI TEE, KUID SEAL AUTOMAATIKA
PROJEKTEERIJA KUULUB
"TORUMEESTE" SELTSKONDA

Tähtajad:
1.7.2016
1.1.2018

Juba veebruaris kinnitab kutsekoda standardi
Subjekt kutsete väljaandmisel on EIL

Inseneritegevuse valdkond <i>Domain-of-engineering</i>	Eriala <i>Speciality</i>	Alleriala <i>Sub-speciality</i>	Ametiala <i>Occupational-activity</i>
Automaatika valdkond <i>Automation-Engineering</i>	Automaatika <i>Automation</i>	Tootusprotsessi automaatika <i>Process-Automation</i>	-Projekteerimine -Projekti teostamine -Projekti juhtimine -Järelvalve -Automaatikasüsteemide ehitus ja -käit -Teadus- ja arendustegevus -Tootearendus ja tootmis-tegevus -Inseneride koolitus ja uurimistöö -Automatiseeritava protsessi ekspertiis -Automaatjuhtimise süsteemide ekspertiis -Automaatikaprojektide ekspertiis
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AirOptiControl

SIEMENS

Maksimaalselt vähendada õhuhulkasid säilitades mugavused

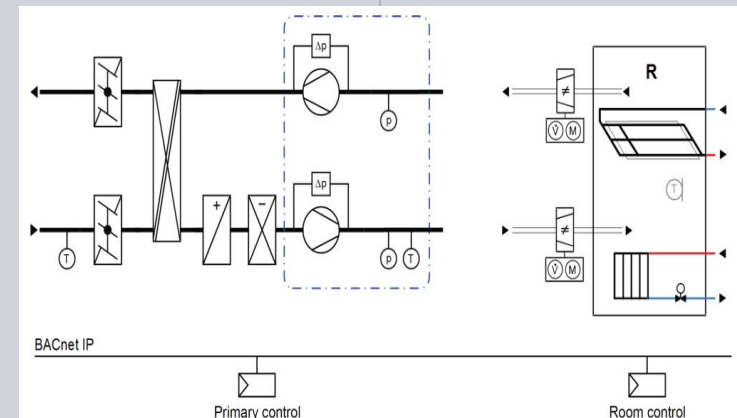
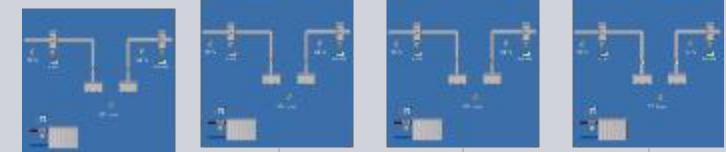
Vajaduspõhine rõhkude optimeerimine VAV klappidele

- No **limitations** for rooms

Optimized air flow while satisfying comfort requirements. Demand-controlled fan pressure control of ventilation and air conditioning plants to lower energy consumption by monitoring all damper positions

- **Improved exchange of demand signals from Desigo TRA with Desigo primary plant is the key.**
- **Combination of demand-controlled fan pressure control and demand-controlled supply air temperature control ensures maximum energy efficiency without loss of comfort**

Room 1 Room 2 Room 3 Room n



- Reduce pressure drop across VAV boxes as much as possible, thus lowering operating costs due to lower fan output Vähendada rõhulangu klappidel
 - Supporting sequences in the room.
 - No overheating or undercooling of rooms
- Enhanced comfort and energy-efficient plant operation through control of supply and extract pressure setpoint vs. plant with constant pressure air temperature control

“Power is xxx without control”

SIEMENS



Setpoint

Extract air volume flow

20%

Device information

Device name

GDB181.1E/KN

Fault text

Operating hours

0hrs

Actual values

Extract air volume flow

0%

Extract air volume flow

4,7339m3/h

Position extract air damper

100%

Settings

Type of air

Extract air

Master/Slave

Autonomous

Opening direction

Clockwise

Nominal volume flow

13970,4485m3/h

Minimum volume flow

28%

Maximum volume flow

96%

Vn

1.43

Elevation above sea level

40

Adaptive positioning

Off

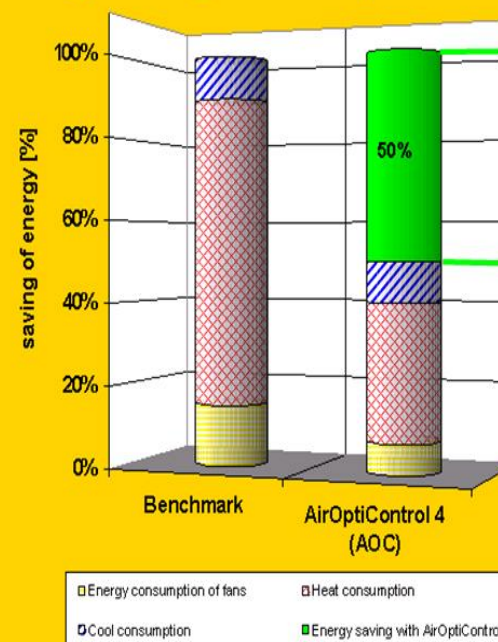
Designo AirOptiControl Cost-effective throughout the life cycle

Example Comparison is based on real measurements and simulations: AirOptiControl achieves 50% energy savings compared to a demand-controlled VAV plant with 10 training rooms at an educational institution.

All (555)	Basic Documentation (5)	Brochure (133)	Catalog (4)	Commissioning (3)	Data sheet (239)
Declaration / Certificate (81)	Installation (16)	Operation (44)	Poster (4)	Presentation (4)	
Public Relation (6)	System description (16)				

Download	Language	Title	Issued
4.7 MB	EN	Energy efficiency in building automation and control Proven applications for heating and cooling supply	5/16/2011
289 KB	EN	Energy-efficiency_reference_office_EN	3/14/2011
1.7 MB	EN	Energy-efficient applications: AirOptiControl - Application data sheet	3/1/2012
1.1 MB	EN	Energy-efficient applications: Economiser tx2 - Application data sheet	1/28/2011
1.9 MB	EN	Energy-efficient applications: Predictive heating controller - Application data sheet	3/1/2012
534 KB	EN	Energy-efficient applications: TABS Control - Application data sheet	1/28/2011
266 KB	EN	Energy-Saving Partnership saves Berlin 5.3m euro annually	3/29/2011
51 KB	EN	Engineering tool Software X-PG V41	3/12/2008
57 KB	EN	Engineering tool X-PG V41 Notebook	3/10/2008
1.3 MB	EN	Enjoyable stay - thanks to integrated hotel solutions	7/8/2011
128 KB	EN	Environmental Product Declaration, Touch panels PMX40, PMX 50, Designo	3/14/2013
51 KB	EN	Ethernet printer port	8/1/2007

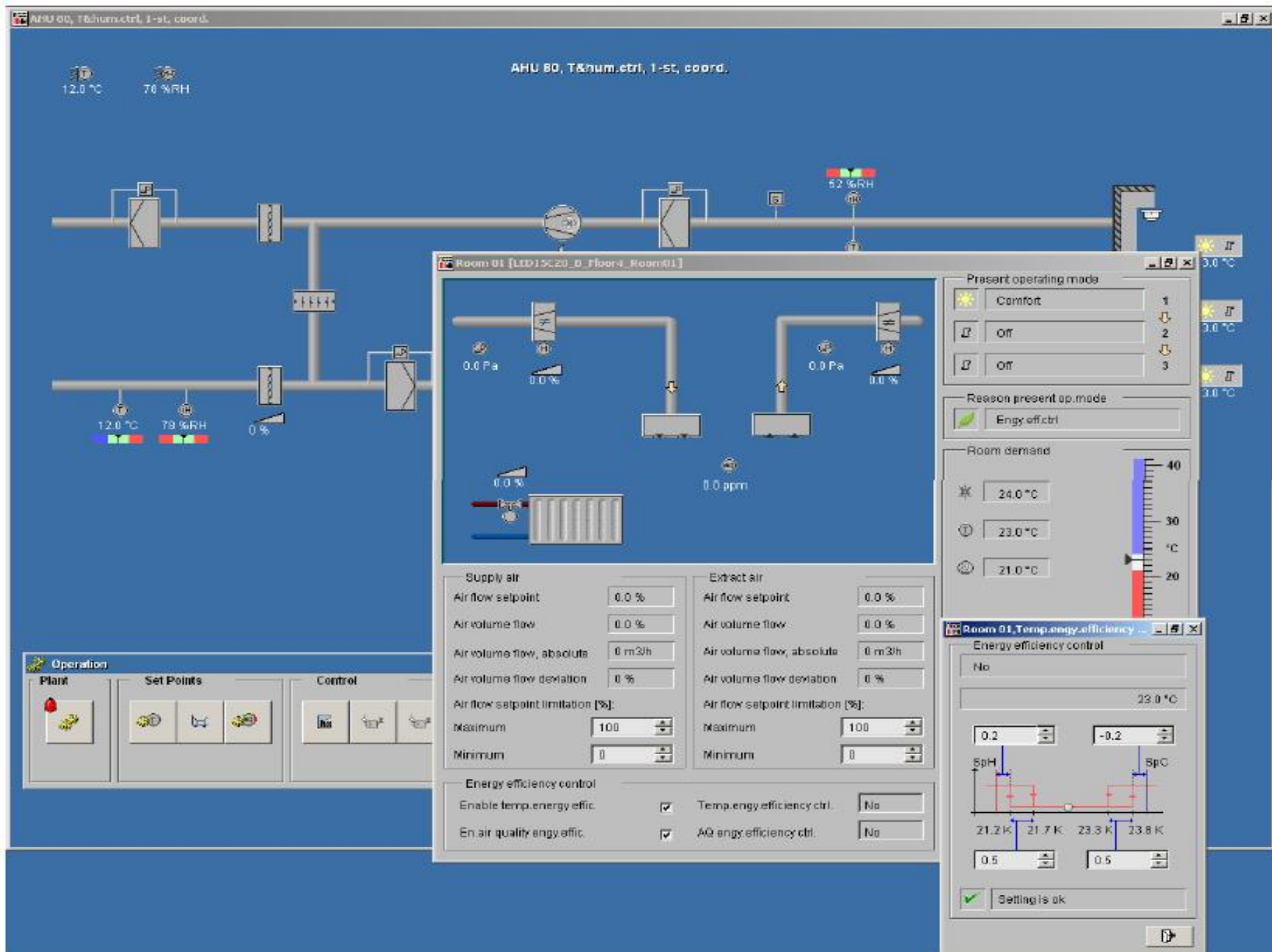
Energy saving with AirOptiControl



Saving regarding to Benchmark

Energy consumption of fans	51%
Heating	55%
Cooling	6%

- Short payback period thanks to
 - enormous opportunities to save energy, and
 - low investment costs (no extra plant components required, just control measures)
- Specially suited for modernization to achieve energy savings

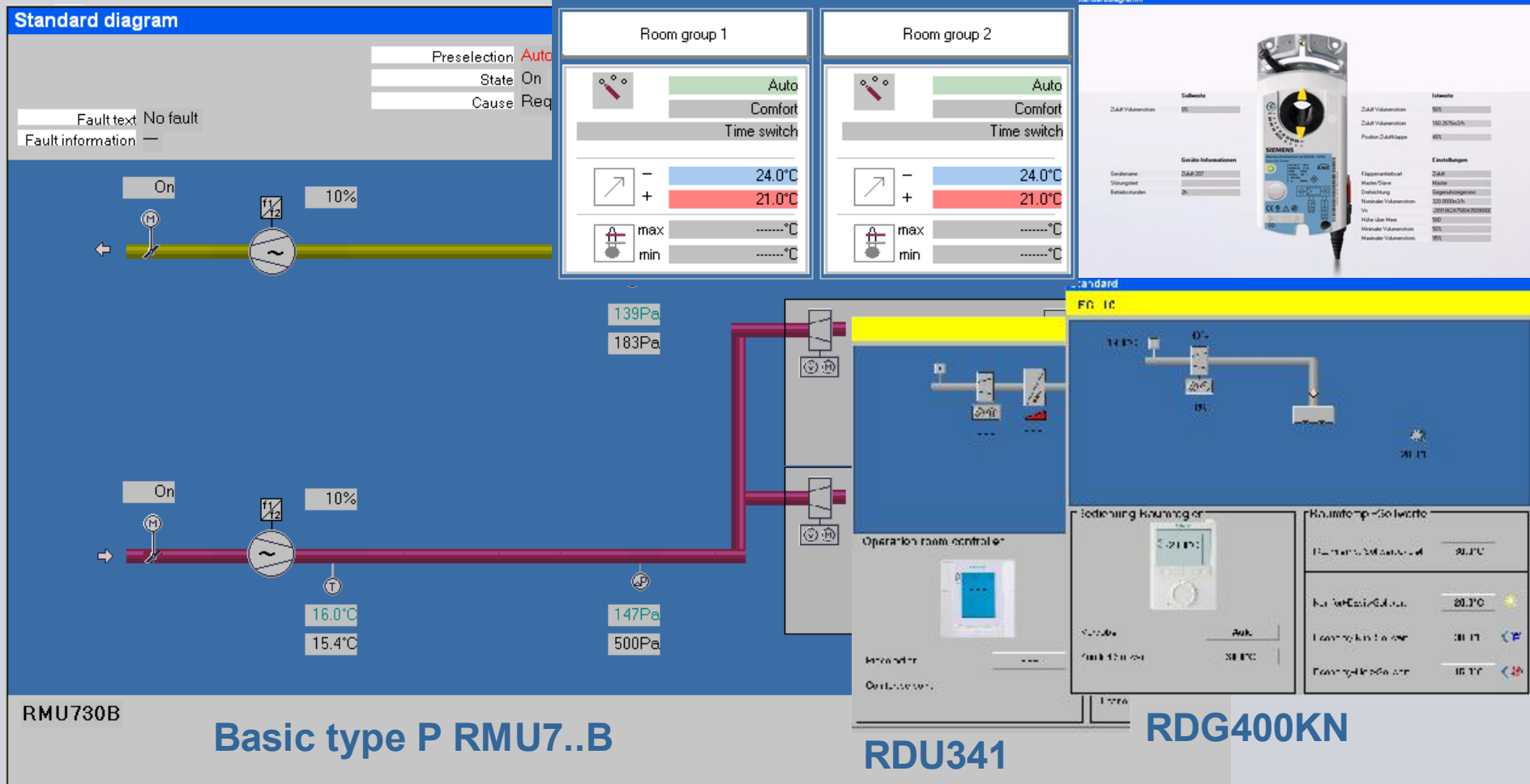


ACS790 V8.00 Visualization of KNX VAV system solution “Plant operation & Plant engineering”

SIEMENS

RMB795

G..B181.1E/KN



ACS790 V8.00 Visualization of KNX VAV system solution “Plant operation & Plant engineering”

SIEMENS

Application Sheet

ADCE06 USB HQ
Synco™ 700 RMU720B
Basic type P

Partial Air Conditioning Plant, Heating / Cooling

Supply air temperature control for VAV systems with plate heat recovery system, air heating coil and chilled water cooling coil
Integration of communicating room thermostats for VAV systems
Compatible with RDG400KN, RDU341

Plant diagram

Function diagram

Supply air temperature control

Fan speed control

Summer / winter compensation

Description of functions

Basic functions	Options
7-day time switch with holiday / special day program (week time switch primary air handling) - Control of speed-controlled fans with differential pressure control - Control of the supply air temperature with the heat	- Anti-freeze function for the heat recovery system with outdoor air temperature sensor - Swarm mode during non-heating time in combination with central control RASSTV - Night cooling with outdoor air dehumidification

Room group 1

Room group 2

139Pa
183Pa

147Pa
500Pa

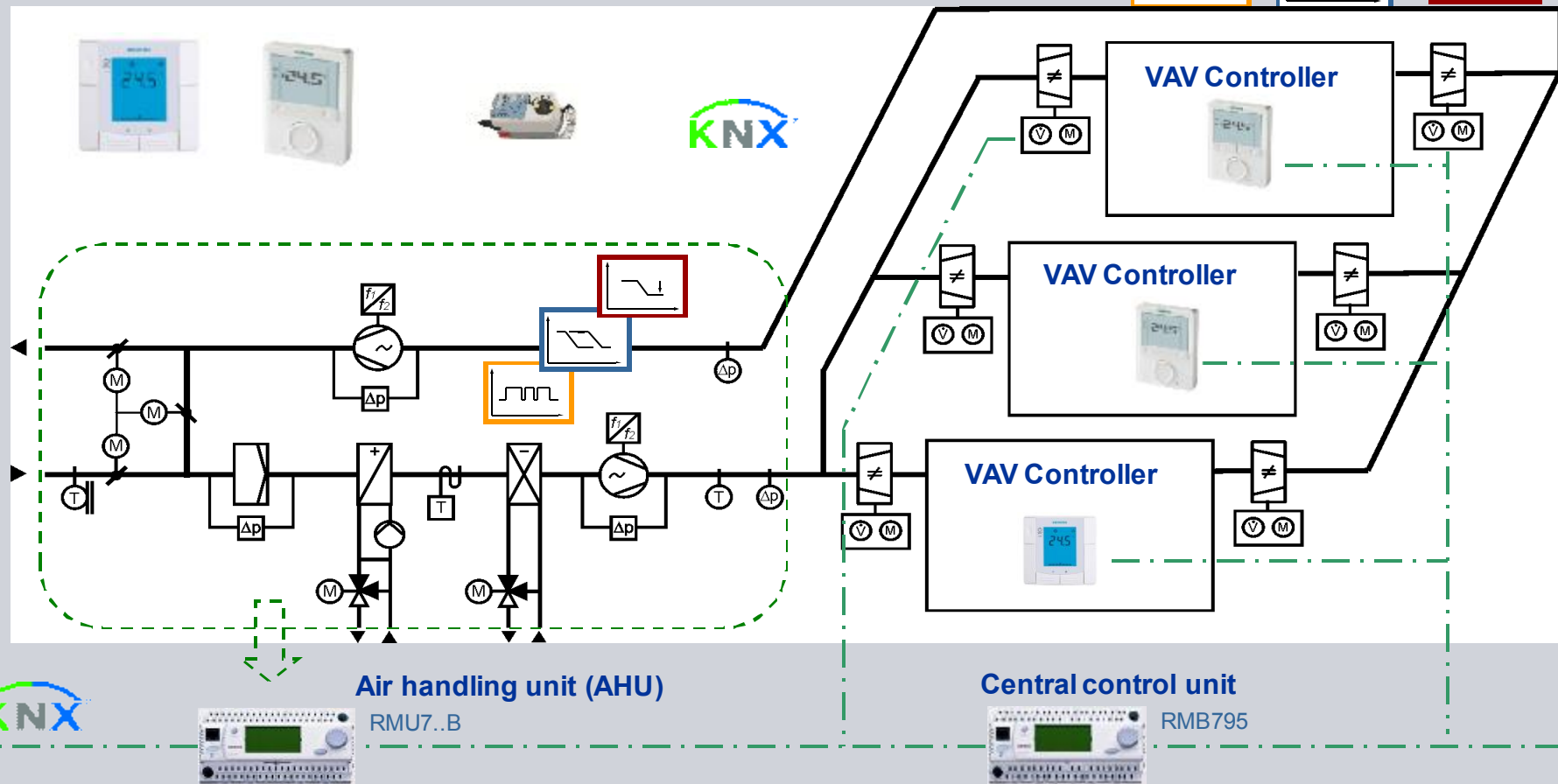
Operation room controller

RDU341

RDG400KN

Basic type P RMU7..B

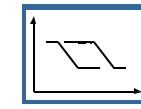
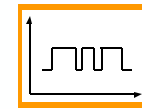
RMU7..B series C – KNX VAV system solution



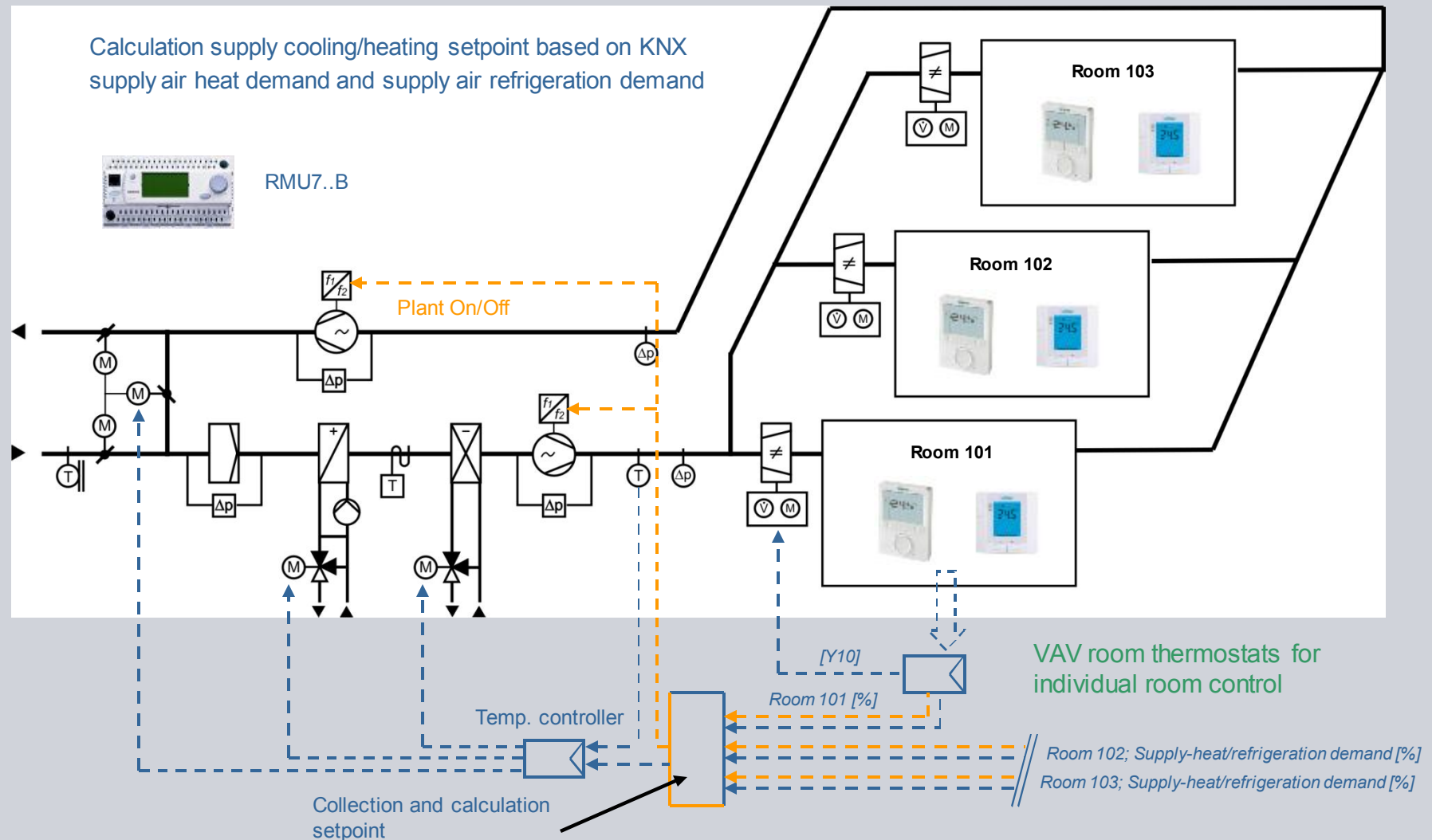
AirOptiControl provides two control strategies for volume flow coordination. You can select between the control strategies depending on the installed facility for volume flow control:

- **VVS damper position**
- Control **deviation to volume flow control** (setpoint – actual value)

Demand-controlled plant operation and supply air temperature control



SIEMENS



1.3 Demand-controlled speed control with pressure setpoint optimization (1/2)

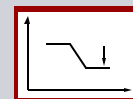
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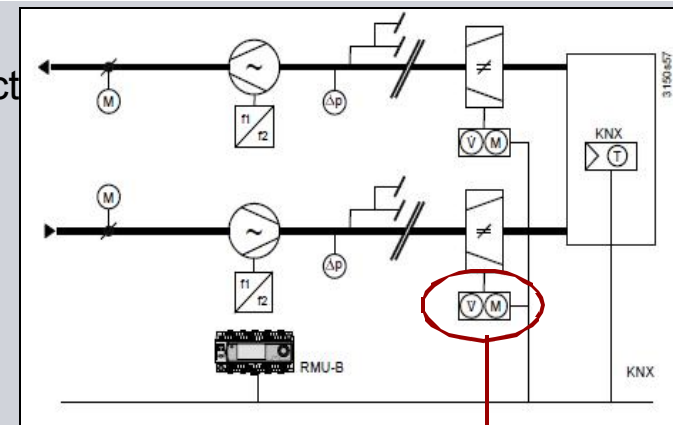
Fan control optimization by feedback damper position VAV
Actual signal damper position for shifting pressure supply & extract

Main menu > Settings > Aggregates > Supply air fan..

Pressure optimization	Supply and extract air
Control action	Medium
Request evaluation	Max
Sp VAV s'air damper	80% ¹⁾
Pressure setpoint	[] Pa
Pressure setpoint reduct	[] Pa
Press controller Xp	500
Press controller Tn	02.00 m.s
Speed min	0%



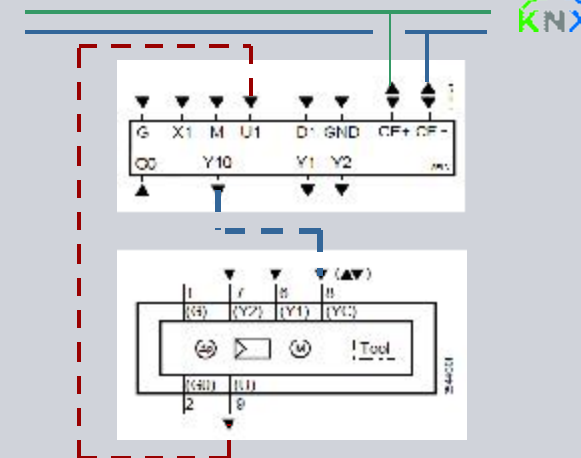
} Settings for interpretation
KNX bus signals



Main menu > Settings > Aggregates > Extract air fan..

Sp VAV s'air damper	80% ¹⁾
Pressure setpoint	[] Pa
Pressure setpoint reduct	[] Pa
Press controller Xp	500
Press controller Tn	02.00 m.s
Speed min	0%

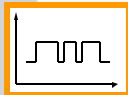
¹⁾ Control setpoint for damper position VAV controllers supply air (G..B181.1E/KN)



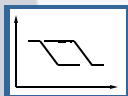
Piirid reguleerimisel

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Demand-controlled air handling unit

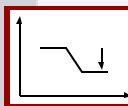


Air handling unit switched on and off via the KNX demand signals room thermostats

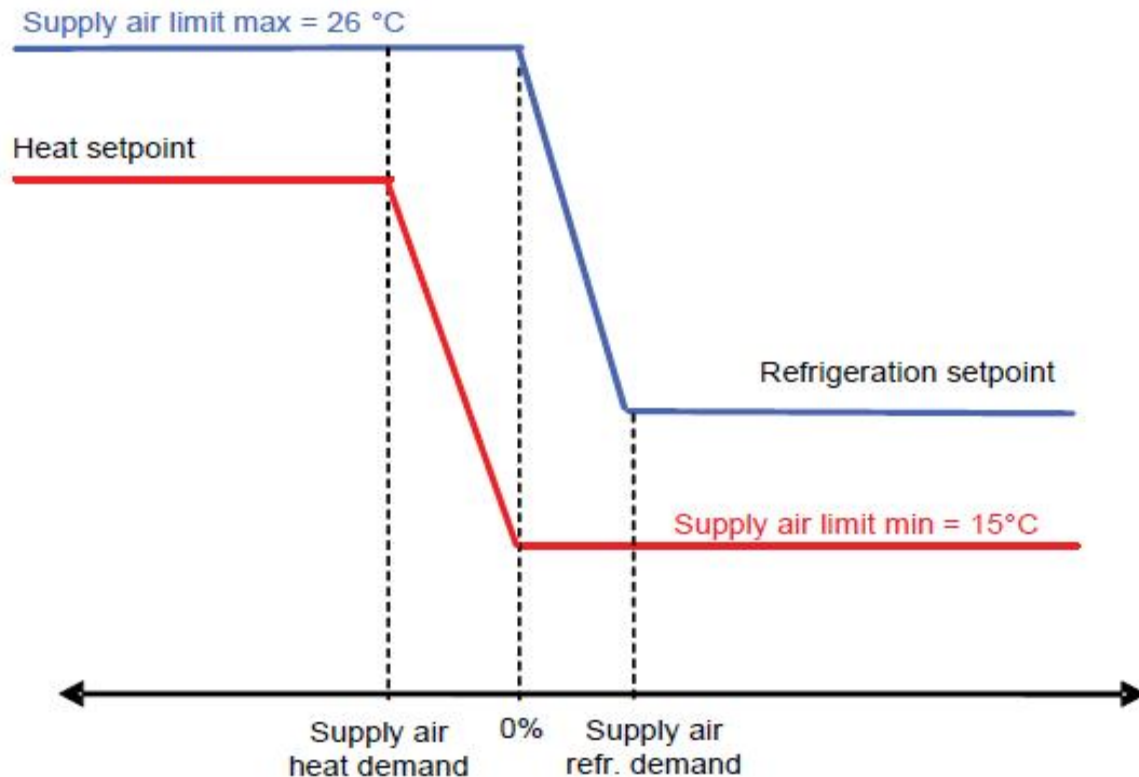


Demand-controlled supply air temperature

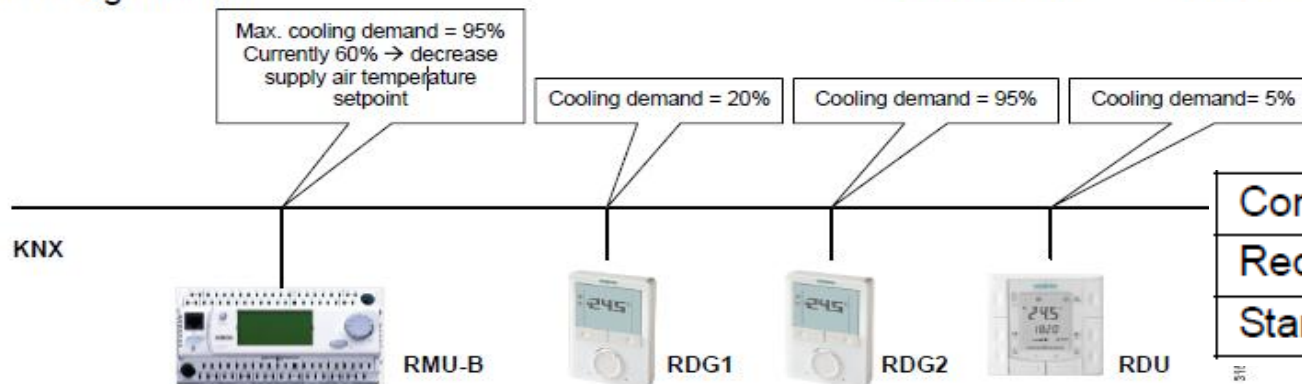
demand-controlled supply air temperature control via the KNX demand signals (heating and cooling demand VAV room thermostats)



Optimization pressure control Setpoint shift pressure control loop for supply- and extract air fans regarding damper position (function only in combination with RDG400KN room thermostats available)

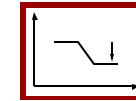


Bus signal level:

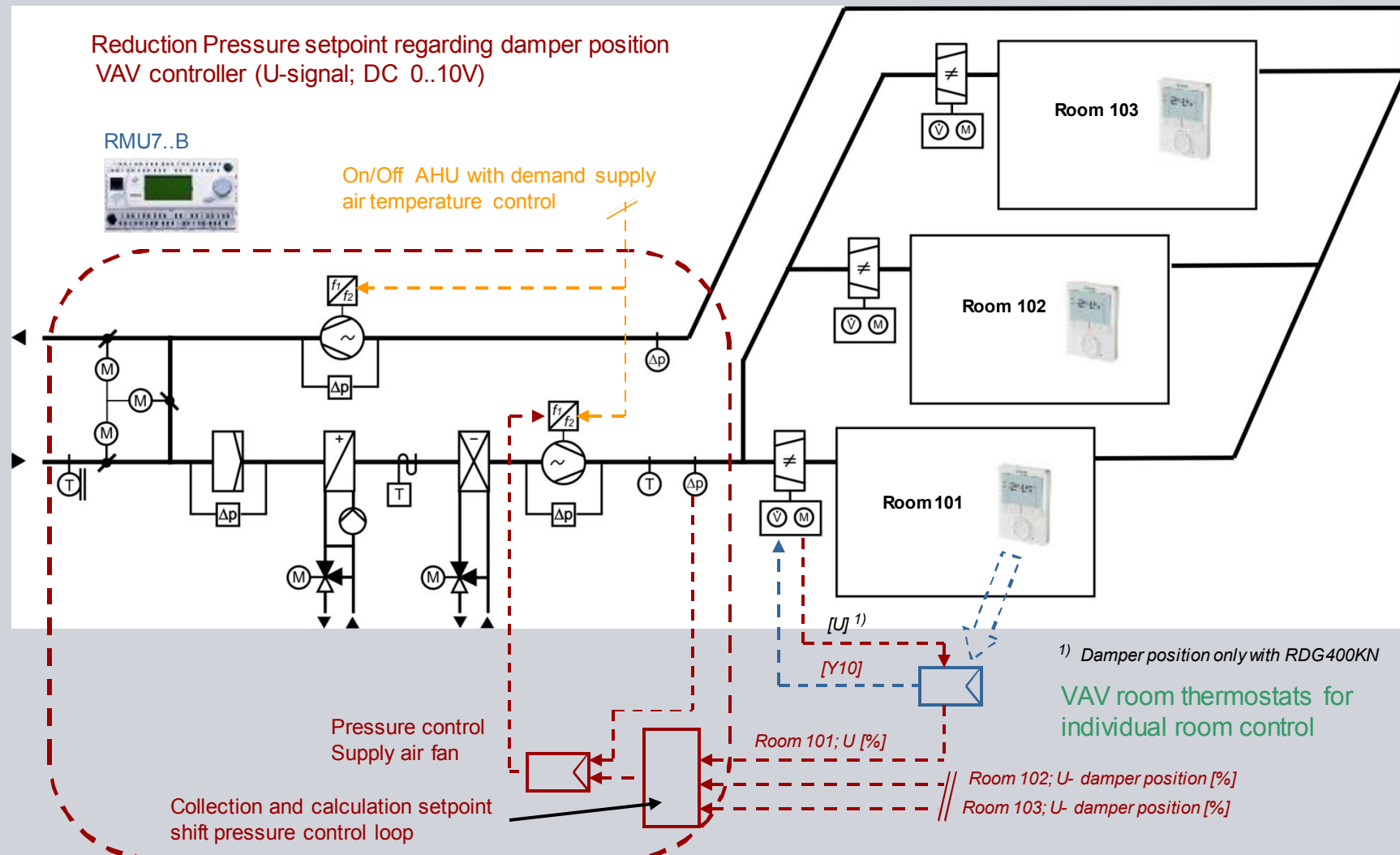


Control action
Request evaluation
Start ramp

Optimization pressure control fan



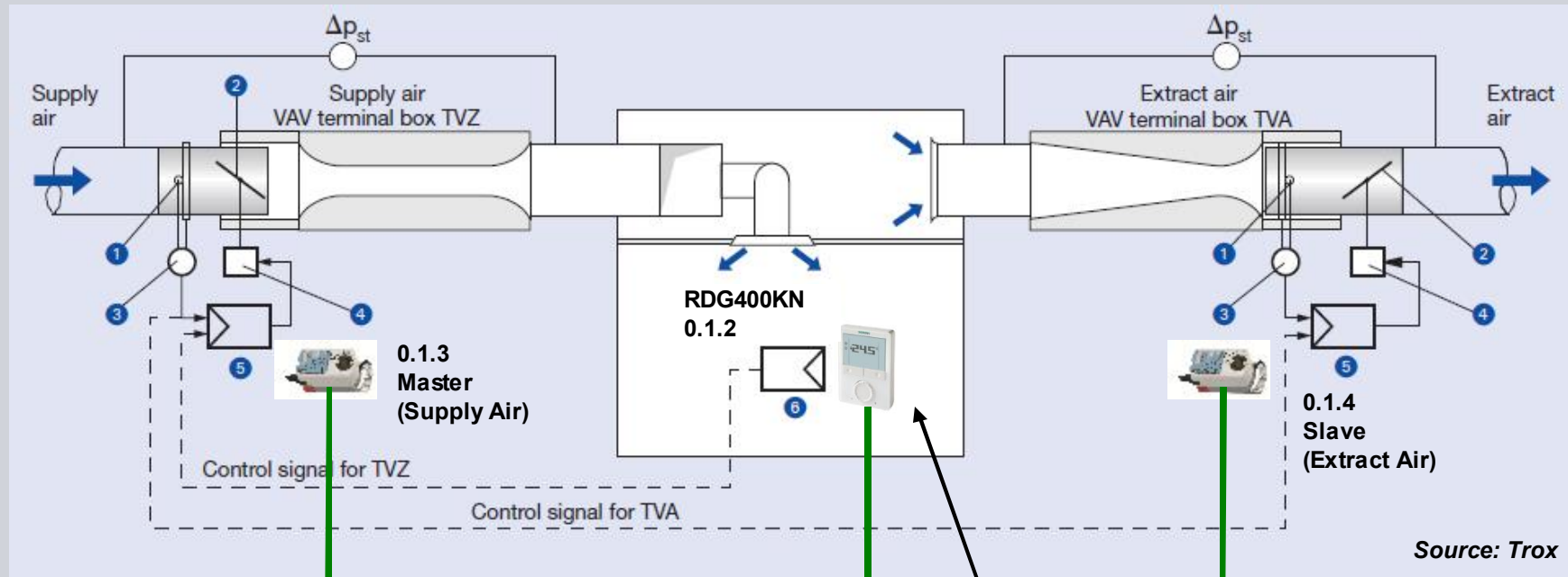
SIEMENS



Overview Room TRS 206

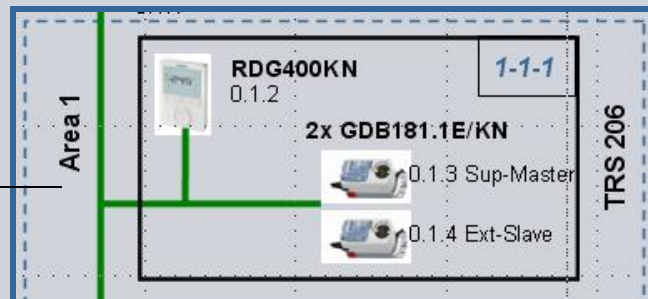
Communicating VAV controllers

SIEMENS



KNX

Screenshot
System topology



Flow rate room

$V_{max} = 320 \text{ m}^3/\text{h}$
 $V_{min} = 80 \text{ m}^3/\text{h}$

Calculation settings VAV controllers

Room TRS 206

SIEMENS

Flow rate (Specification HVAC engineer)	Manufacturer VAV Box (e.g. Barcol-Air)			ACS Settings VAV controller GxB181.1E/KN (Application range=300Pa)		
	Diff.press. [Pa]	NW	Vnominal		Supply	Extract
		NW125	320 ³ /h	Vnominal	320m ³ /h	320m ³ /h
① Vmin=80m ³ /h	7Pa --> 25%			Vmin	25%	0%
② Vmax=320m ³ /h	109Pa --> 100%			Vmax	100%	100%
				Vn [-]	1.66	1.66
				Type of air	Supply	Extract
				Typ	Master	Slave

NW 125

Volumen- strom	Wirkdruck Signal	Volumen- strom	Wirkdruck Signal	Volumen- strom	Wirkdruck Signal
m3/h	Pa	m3/h	Pa	m3/h	Pa
70	5.0	210	47.0	480	246.0
75	6.0	220	52.0	490	256.0
80	7.0	230	56.0	500	267.0
85	7.5	240	62.0	510	278.0
90	8.5	250	67.0	520	289.0
95	9.5	260	72.0	530	300.0
100	10.5	270	78.0	540	311.0
105	12.0	280	84.0	550	323.0
110	13.0	290	90.0	560	335.0
115	14.0	300	96.0	570	347.0
120	15.5	310	103.0	580	359.0
125	16.5	320	109.0	590	372.0
130	18.0	330	116.0	600	384.0

Screenshot data sheet
Barcol-Air

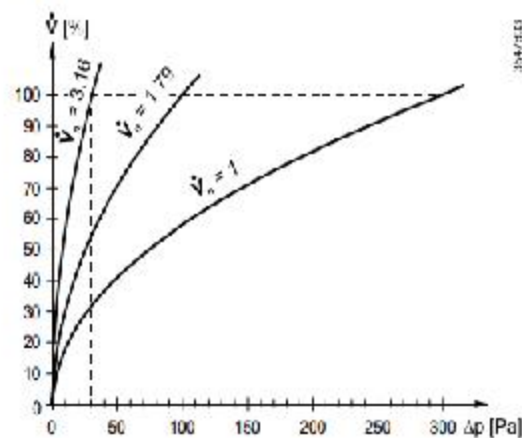
$$V_n = \sqrt{\frac{300Pa}{\Delta p_n}} \quad V_n = \sqrt{\frac{300Pa}{109Pa}} = 1.66$$

Seaded

Setting the $\dot{V}_n$ characteristic value

The VAV box manufacturer (OEM) uses the parameter $\dot{V}_n$ to adjust the operating range of the differential pressure sensor (0...300 Pa) to the actual VAV box nominal pressure Δp_n at the factory. The effect of $\dot{V}_n$ is illustrated in the diagram below:

Effect of $\dot{V}_n$



Calculation of $\dot{V}_n$ (Δp_n = nominal pressure)

$$\dot{V}_n = \sqrt{\frac{300 \text{ Pa}}{\Delta p_n \text{ Pa}}}$$

Calculation example

Assume that a VAV box is designed for a nominal pressure of $\Delta p_n = 120 \text{ Pa}$. Then $\dot{V}_n$ has to be set to 1.58:

$$\dot{V}_n = \sqrt{\frac{300 \text{ Pa}}{120 \text{ Pa}}} = \sqrt{2.5} = 1.58$$

Parameter	RDG400KN	Supply air (Master)	Extract air (Slave)
Minimum and maximum volume flow	$V_{\min} = x_1 \%$ $V_{\max} = x_2 \%$ $x_1, x_2 = \text{Project values}$	$V_{\min} = y_1 \%$ $V_{\max} = y_2 \%$ $y_1, y_2 = \text{Project values}$	$V_{\min} = 0 \%$ $V_{\max} = 100 \%$
Air distrib. zone	8	8	8
Master/Slave	-	Master	Slave
Type of air	-	Supply air	Extract air

ETS = ETS3 or ETS4.0.5 (or newer); ACS = ACS790 version 8.00 or newer

Designation	Setting	Factory setting	Can be set with
Nominal volume flow	0...2'4'000 m³/h	100 m³/h	ETS, ACS, AET
Hysteresis volume flow	1...2'4'000 m³/h	1 m³/h	ETS, ACS, AET
Min. repetition time volume flow	10 s ... 900 s	10 s	ETS, ACS, AET
Minimum volume flow	-20 ... 100 %	0 %	ETS, ACS, AET
Maximum volume flow	20 ... 120 %	100 %	ETS, ACS, AET
Elevation above sea level	0...5000 m (in 500 m steps)	500 m	ETS, ACS, AET
Opening direction	CW / CCW	CW	ETS, ACS, AET
Adaptive positioning	On / off	Off	ETS, ACS, AET
Backup mode	Backup value, Keep last state	Backup value	ETS, ACS, AET
Backup value damper position	0...100%	0 %	ETS, ACS, AET
VAV operating mode	Volume flow control Position control	Volume flow control	ETS
Type of air	Outside air, Primary supply air, Supply air, Extract air	Outside air	ACS
Master/Slave	Autonomous, Master, Slave	Autonomous	ACS

Note: If VAV operating mode is set to "Position control", "Adaptive positioning" must not be set to "On".

Settings ACS tool VAV controllers Room TRS 206

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ACS Settings VAV controller GxB181.1E/KN		
	Supply	Extract
Vnominal	320 m ³ /h	320m ³ /h
Vmin	25%	0%
Vmax	100%	100%
Vn [-]	1.66	1.66
Type of air	Supply	Extract
Master/Slave	Master	Slave

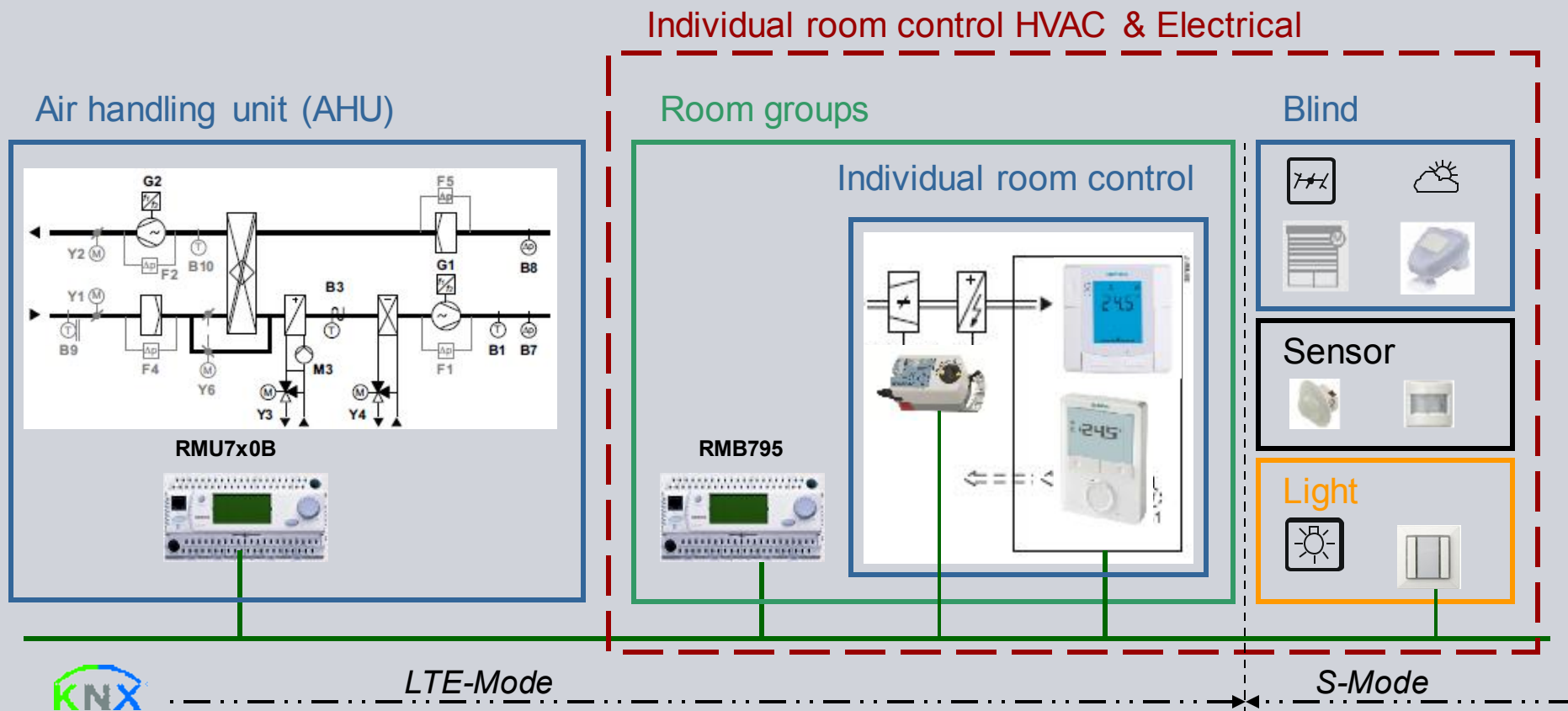
Explanation:

- 1) Parameter to define which threshold in m³/h has to be exceeded that the volume flow actual value is broadcast over the bus. This value should be set in a way to avoid high busload, but to achieve still sufficiently frequent actual values (cf. "min. repetition time").
- 2) If a change of value exceeding the threshold defined in "Hysteresis volume flow" occurs, the volume flow actual value is broadcast after at least this min. repetition time. If no change of value exceeding the threshold occurs an actual value is broadcast each 15 minutes (heartbeat).
- 3) This function is intended for VAV boxes with a damper opening range other than 0°..90°. If set to "On" (adaptive positioning enabled), the actuator determines the actual opening angle during start-up. The actual range e.g. 15°..75° is then mapped to the 0..100 % positioning signal.

Parameter: GLB181.1E/KN 0.1.3					
Erstellt am:					
Supply VAV					
Operation settings					
Line no.	Data point	Address	Value	Unit	State
	Type damper actuator	0.1.3	Supply air		OK
	Master/Slave	0.1.3	Master		OK
	Direction of rotation	0.1.3	Counterclock		OK
	Nominal volume flow	0.1.3	320	m ³ /h	OK
	Vn	0.1.3	1.66		OK
	Elevation above sea level	0.1.3	500		OK
	Minimum volume flow	0.1.3	25	%	OK
	Maximum volume flow	0.1.3	100	%	OK
1)	Hysteresis volume flow	0.1.3	10	m ³ /h	OK
2)	Min repetition time vol flow	0.1.3	10	s	OK
	Backup mode	0.1.3	Backup val		OK
	Backup value damper position	0.1.3	0	%	OK
	Enable alarm info	0.1.3	Yes		OK
3)	Actuator position	0.1.3	Adaptive		OK
Extract VAV					
Operation settings					
Line no.	Data point	Address	Value	Unit	State
	Type damper actuator	0.1.4	Extract air		OK
	Master/Slave	0.1.4	Slave		OK
	Direction of rotation	0.1.4	Counterclock		OK
	Nominal volume flow	0.1.4	320	m ³ /h	OK
	Vn	0.1.4	1.66		OK
	Elevation above sea level	0.1.4	500		OK
	Minimum volume flow	0.1.4	0	%	OK
	Maximum volume flow	0.1.4	100	%	OK
	Hysteresis volume flow	0.1.4	10	m ³ /h	OK
	Min repetition time vol flow	0.1.4	10	s	OK
	Backup mode	0.1.4	Backup val		OK
	Backup value damper position	0.1.4	0	%	OK
	Enable alarm info	0.1.4	Yes		OK
	Actuator position	0.1.4	Adaptive		OK

Integrated room automation with variable air volume (VAV) system solution

SIEMENS

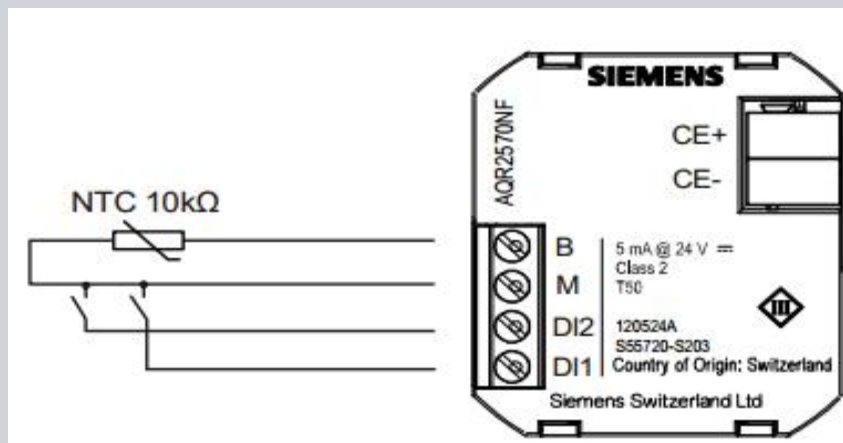


“Tark andur”

Combinable multi-sensor to measure temperature, humidity, and CO2 concentration x Range 0 +50 °C / 0 95 % r.h. (non-condensing) / 0 5000 ppm x Air quality indication via LED

x PID room temperature controller and ventilation controller (KNX S-Mode)

x 2 binary inputs for potential-free contacts x Optimized, energy-saving measuring methods ideal for energy-efficient room applications x Supplied via bus x Maintenance free



Humidity measuring range	Temperature measuring range	Air quality indication
—	—	—
—	0...50 °C	—
0...100 % r.h.	—	—
0...100 % r.h.	0...50 °C	—
0...100 % r.h.	0...50 °C	LED



System/Network environment	Engineering and commissioning tool(s)
KNX PL-Link	Desigo ABT, SSA
KNX LTE-Mode	Synco ACS
KNX S-Mode	ETS3, ETS4

6.3.3 Room air quality sensor & controller

Base module AQR2576

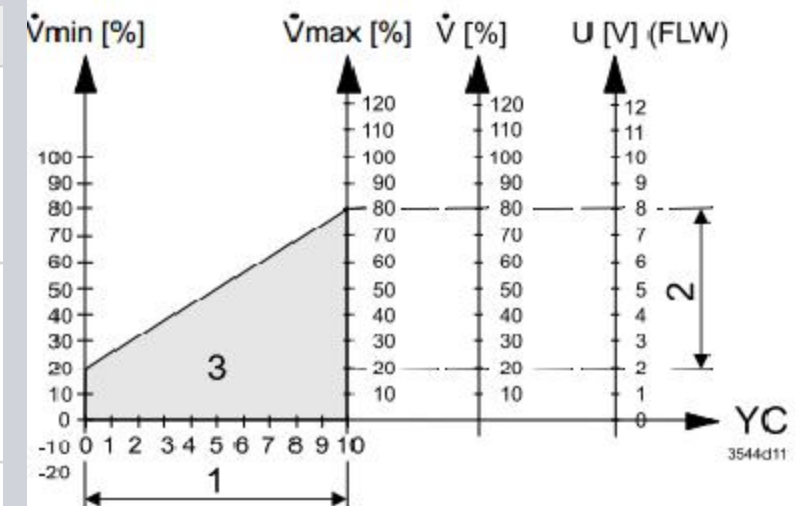
Object index	Name in ETS	I/O	Data point type KNX			Value range
			ID	Format	Unit	
3	CO ₂ concentration [ppm]	O	9.008	2 bytes	ppm	0...5000
64	Fault - room air quality sensor	O	1.001	1 bit	---	0 = Normal / 1 = Faulty
	If room air quality cannot be measured, "1 = Faulty" is generated and sent.					
25	Switching point CO ₂ - stage 1	I	9.008	2 bytes	ppm	0...5000
26	Switching point CO ₂ - stage 2	I	9.008	2 bytes	ppm	0...5000
27	Switching point CO ₂ - stage 3	I	9.008	2 bytes	ppm	0...5000
	The parameterized default switching points apply if no value is received from the bus.					
28	Control value CO ₂ cont. - manual setpoint	I	5.001	1 byte	%	0...100% (scaled from 0 to 255)
	In manual mode (obj. 29, 1=Manual), this object is used to receive a setpoint and issue it directly as continuous control value (obj. 35). Default value is 0.					
29	Control value CO ₂ cont. - manual mode	I	1.003	1 bit	---	0 = Auto / 1 = Manual
	Changeover to manual mode allows for receiving a manual setpoint (obj. 28) for the continuous control value (obj. 35). Otherwise the parameterized control values of the related stage are output. Default state is "Auto".					
30	Enable room air quality controller	I	1.003	1 bit	---	0 = Controller Off / 1 = Controller On
	When receiving "Controller off", all outputs of the controller are disabled. The controller remains disabled until "Controller On" is again received. Default is "Controller On".					
31	Override room air quality controller	I	1.003	1 bit	---	0 = Normal / 1 = Overridden
	When overriding a controller, the stage defined as "Stage if overridden" is activated. In this case, only the corresponding object assumes value "1 = On" among objects 32, 33, 34; the two other objects assume value "0 = Off". The continuous control value (obj. 35) issues the parameterized value for the related stage. Override takes highest priority. Default state is "Normal".					

Object index	Name in ETS	I/O ¹	Data point type KNX			Value range
			ID	Format	Unit	
32	Control value CO ₂ stage 1 - on/off	O	1.001	1 bit	---	0 = Off / 1 = On
33	Control value CO ₂ stage 2 - on/off	O	1.001	1 bit	---	0 = Off / 1 = On
34	Control value CO ₂ stage 3 - on/off	O	1.001	1 bit	---	0 = Off / 1 = On
	If the CO₂ concentration exceeds a switching point CO₂, the control value CO₂ for the related stage is switched on. The control value CO₂ is again switched off, if the CO₂ concentration returns to < switching point CO₂ – hysteresis.					
35	Control value CO ₂ – cont.	O	5.001	1 byte	%	0...100% (scaled from 0 to 255)
	If the CO₂ concentration exceeds a switching point CO₂, the control value CO₂ for the related stage is switched on. The control value issues again the value of the next lower stage when CO₂ concentration < switching point CO₂ – hysteresis.					
36	Control value CO ₂ , r.h. max. – cont.	O	5.001	1 byte	%	0...100% (scaled from 0 to 255)
	This object issues the greater value of obj. 23 and 35.					
57*	Air quality indication on/off	I	1.003	1 bit	---	0 = Off / 1 = On
	This object allows for enabling/disabling the air quality indication. The object is available only if "can be de-/activated via bus" is selected for the air quality indication bus influence. Default is "On".					

* Together with front module AQR2535...Q only

Seadmed

Type	Controller Type	Accessories	Image
ASV181.1E/3	Modular	Define..	
GDB181.1E/3	Compact	Define..	
GDB181.1E/KN	Compact	Define..	
GLB181.1E/3	Compact	Define..	
GLB181.1E/KN		Define..	

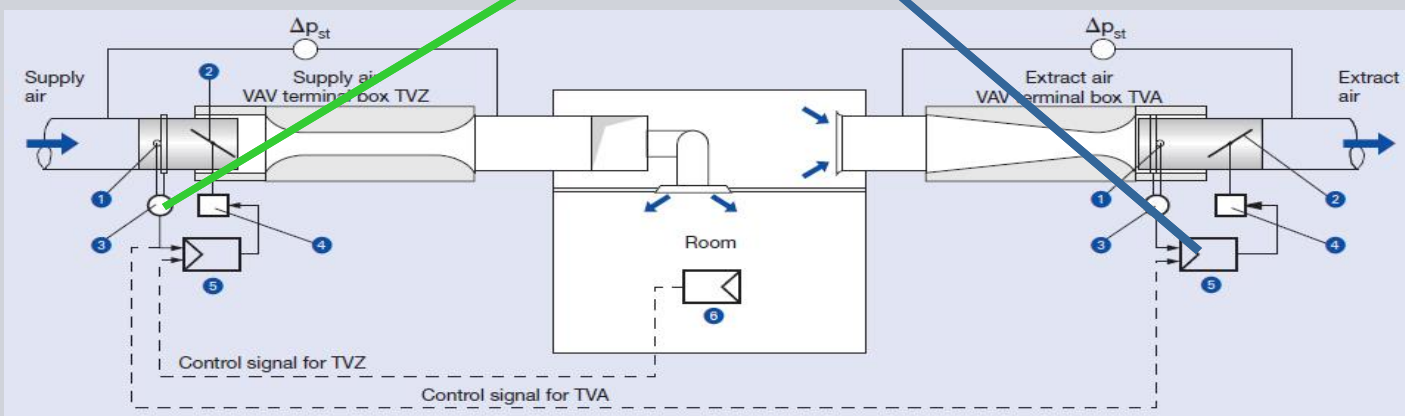
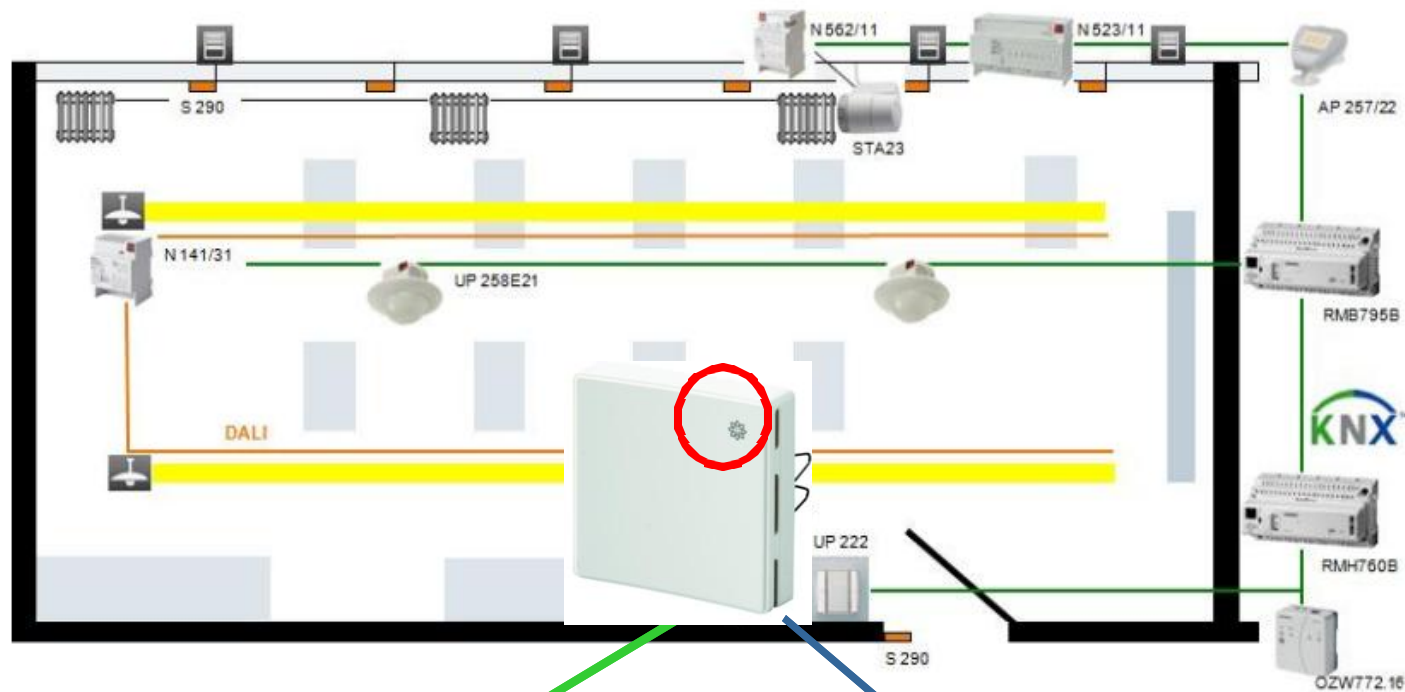


- YC 0...10 V
- 1 Reference signal
 - 2 Output signal
 - 3 Control range



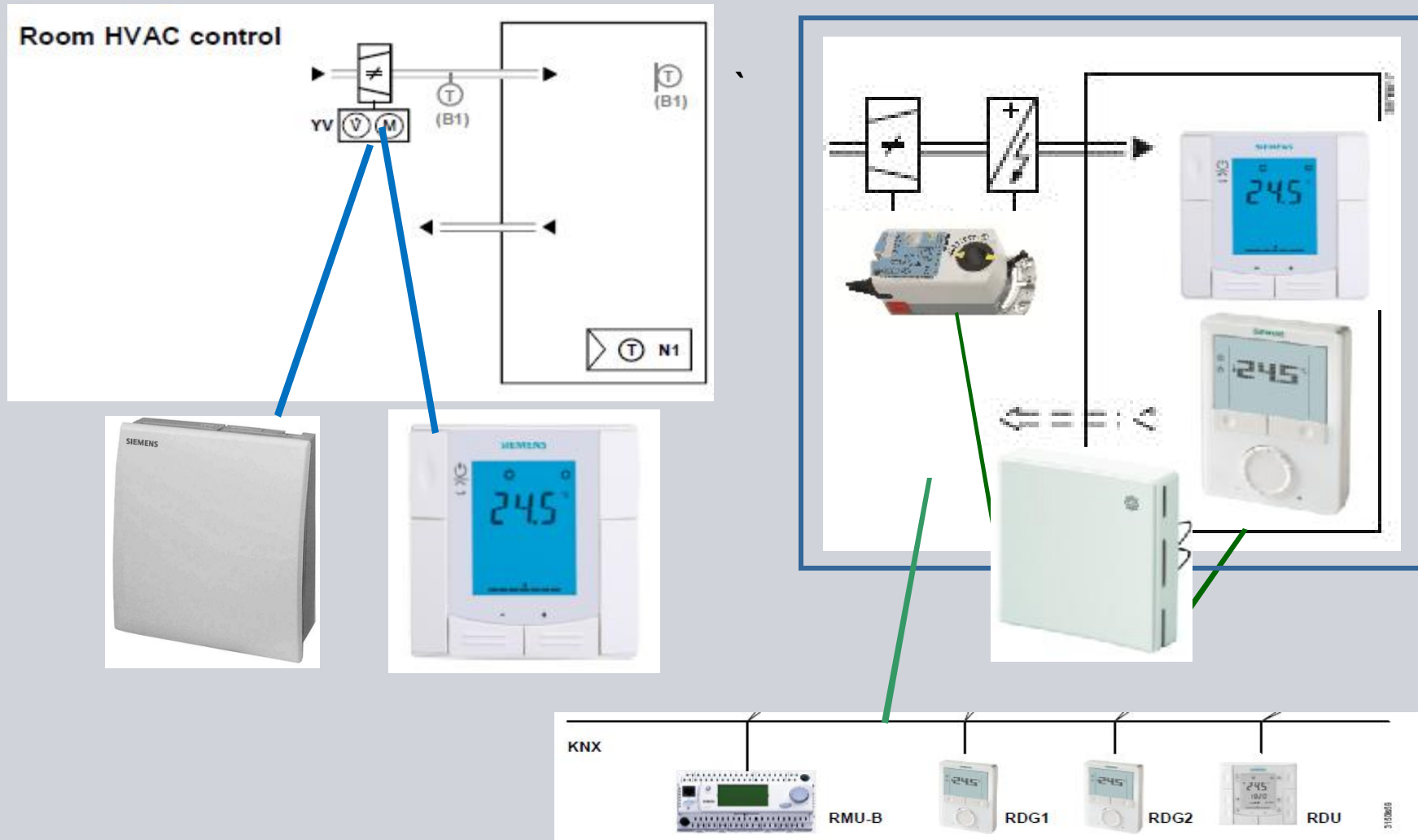
OVERRIDE?

SIEMENS



Version	Series E
Identification	
Features	• Communication over Designo PL-Link or KNX (LTE- and S-mode). • New differential pressure sensor. • Simultaneous feedback of actual values of damper position and air volume flow. • Optional adaptive opening range measurement (adaptive positioning). • HMI with push button and LED.

Lihtsaimad skeemid



ÕPPEMATERIALID, KATALOOGID, STANDARDID

<http://www.buildingtechnologies.siemens.com/bt/global/en/building-knowledge/Pages/building-automation-hvac.aspx>

Introduction to building automation / HVAC technology

[Learn about buildings physical principles, heating and hydraulic systems, ventilation and air conditioning, measuring and controlling of building technology](#)

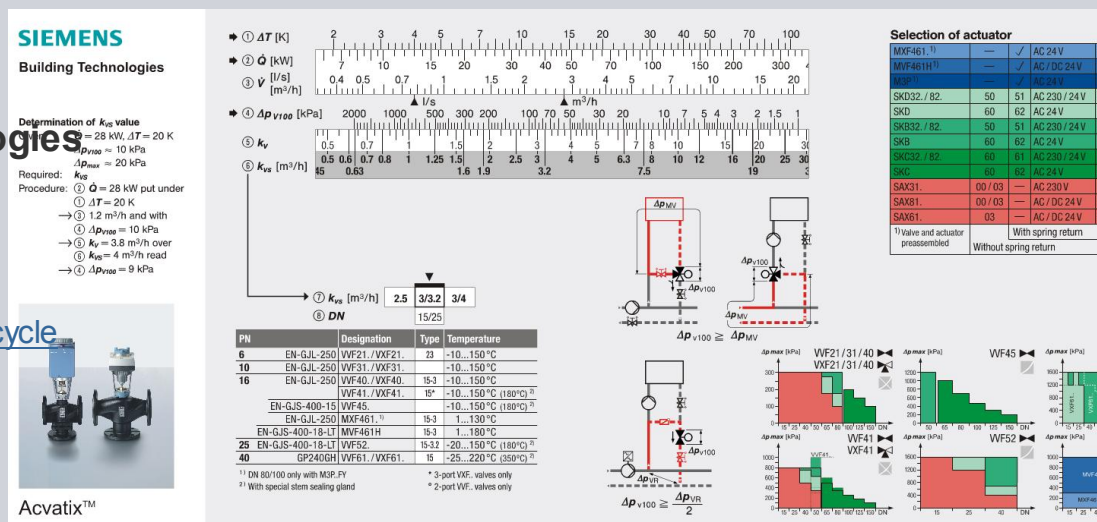
- [Control technology](#)
- [Control of heating plants](#)
- [Hydraulics in building systems](#)

Understand heating & cooling technologies

- [Demand-controlled ventilation](#)
- [Control of ventilation and air conditioning plants](#)
- [Heat recovery in the refrigeration cycle](#)
- [Refrigeration technology](#)
- [Modulation capacity control in the refrigeration cycle](#)

Valves & actuators

[The slide rules are ideal for the sizing and selection of single valves and actuators. There are two models: a slide rule for central plant equipment and a slide rule for terminal equipment. Click on file .exe and 'execute' to profit from this useful tool.](#)



Try this **3D animation tool** to learn about functions of magnetic actuators, for valve demonstration, valve electronics and further features. [Click here to download and extract the ZIP before opening the Flash file.](#)

- Refrigeration VASP: No need to think about selection of refrigerant valves again. [This excel program makes your life easier \(only in german\).](#)
- Learn more about the operation principles of combi valves with this [animation](#).

Infoks

SIEMENS

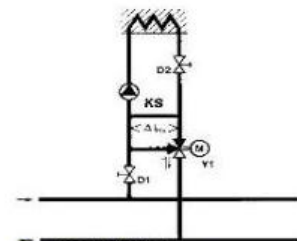
Practical tips¶

Read yourself through our practical tips about **hydraulic settings**, **faulty circulation**, **sizing and selection of valves and actuators** with **calculation examples** for heating, ventilation, steam and water. Get also information about the correct **location and mounting of sensors** or to **ensure functionality of your air damper**¶

See for example: Injection circuit¶

Injection circuit

Floor heating control using injection circuit



[Click on the image to come to the e-book¶](#)

- Hydraulic settings: Control of mixing & injection circuit for floor heating¶
- Hydraulic settings: Injection control for radiated heat¶
- Air damper actuator: selection¶
- Sensors for flush mounting¶
- Faulty circulation: on the boiler¶
- Faulty circulation: on distributor¶
- Valves & actuators: sizing and selection¶
- Valves & actuators: example heating plants¶
- Valves & actuators: example ventilation & air conditioning plants¶
- Valves & actuators: valve rating for water¶
- Valves & actuators: sizing and selection of steam¶
- Valves & actuators: water vapor table¶
- Valves & actuators: terms¶
- Valves & actuators: mounting¶
- Sensors: location¶
- [Demand-controlled ventilation: Demand-controlled ventilation¶](#)

KATALOOGID, APLIKAT SIOONIDE KATALOOGID¶

➔ HIT - HVAC Integrated Tool (for free after registration)¶

Beyond "Projects", you find a very useful, **clipping**, tool to create HVAC documentation including connection diagrams and many more **application** and features.¶

TÄRBEALAT¶

Beadmete ja lahenduste valiku programm HIT-HINNAKIRJAGA 2014-AA8TAKS:¶ https://hit.sit.siemens.com/hitfs_global.aspx?lang=en&RC=8&lic=1¶

(ei sisalda kahjuks kõiki koostalitloomis olevat)¶

Beadmete ja lahenduste valiku programm HIT-TÄIELIKU TOOTEVALIKUGA:¶ https://hit.sit.siemens.com/HITfs_global.aspx?lang=en&RC=HDEUSWINX-1233&WINX=3231¶

Selection Tools



Technical product data and descriptions, GAMMA Product database:¶

http://www.hos.sit.siemens.com/cw/voltage/gamma_product_data/data/search_find_en.htm?l=EWG11¶

Kataloogiteematu kuuli: http://www.hos.sit.siemens.com/cw/general/cw/data/assets/hw/HVAC-products-and-building-automation-systems_A6V10380897_ho-en.pdf¶

➔ 665 lehekülge, soovitaks siiski HIT interaktiivseid valikuid eelnevat¶

APLIKAT SIOONID, TEEMAD¶

[Syncro-GAMMA application guide office building¶](#)



9200012

Infoks

The communication protocol **BACnet** was specially developed for the requirements of buildings. It is suited for both the automation and the management level. The emphasis is placed on building automation with a view to HVAC plants, fire control panels, intrusion detection and access control systems. <http://www.siemens.com/bt/file?sol=A6V10209534>

Read all about communication standards like BACnet, KNX, LonWorks, EnOcean, DALI, ... <http://www.siemens.com/bt/file?sol=A6V10209534>

See how intelligent room components based on KNX standards work smoothly together and blast the energy efficiency of your room automation. [Link](#)



What is Wikipedia saying about building automation?

Building automation	KNX (Standard)
Intelligent building	EnOcean
Room automation	HVAC control systems
Green building	HVAC
Low energy building	Building performance
Building operation in conformance with construction	Thermostat
	Smart grid

Siemens BT [website](#)

www.siemens.com/hvac

<http://www.siemens.com/buildingtechnologies>

<http://www.siemens.ee/> > Infrastruktuur & linnad > Hooneautomaatika
http://www.siemens.ee/ee/infrastruktuur_ja_linnad/hooneautomaatika.htm



Tänan tähelepanu eest!

Aivar Kukk

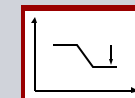
Ehitusautomaatika müügijuht
CPS BT Infrastructure and Cities
Siemens OY Eesti filiaal

SIEMENS



Küsimused, võib ka hiljem ning eraviisiliselt .

Diagnostic air duct network

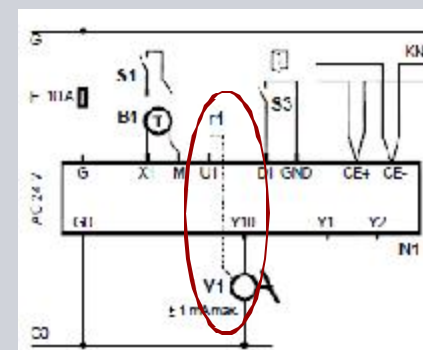


Main menu> Diagn air duct network..

Pressure optimization....

Press optimization	Supply and extract air	(type of pressure optimization)
VAV supp air damper pos	[] %	(interpretation KNX bus signals or analog DC 0..10V (r1))
Supply air fan	[] %	
Actual value press	[] Pa	
Pressure setpoint current	---- Pa	
Pressure setpoint	[] Pa	
Pressure setpoint reduct	[] Pa	

VAV extract air damper pos	[] % ¹⁾	(interpretation KNX bus signals)
Extract air fan	[] %	
Actual value press	[] Pa	
Pressure setpoint current	---- Pa	
Pressure setpoint	[] Pa	
Pressure setpoint reduct	[] Pa	



Connection diagram RDG400KN
r1 = Feedback signal for actual damper position VAV controller

¹⁾ available only if network field device (G..B181.1E/KN) is configured

KNX LTE–Mode commissioning



Room sensor AQR257 , KNX LTE–Mode controllers, and operator units are connected to power. Update first the ACS790 device list, then open.

Variant 1 (recommended) 1. Select a room sensor from the device list via the KNX ID (KNX-IDs must be collected during mounting). 2. Double-click this line to open the "Address assignment" dialog. or

The sensor can be operated as both KNX S-Mode and KNX LTE-Mode system at the same time. To do this, commissioning for both KNX S-Mode and KNX LTEM mode is required. All parameters exist only once, i.e. all parameters excepting zone settings apply to both operating modes and are overwritten by ETS and ACS. For this reason, do not use ETS to set sending intervals > 15 min. for the measured values

Variant 2 1. Set addressing mode for the room sensor (briefly press button on device LED is red). 2. In the ACS790 device list, use "Addressing mode " to select the currently active device Enter a physical address in the "Address assignment" dialog Click "Write". Enter a physical address and short description for the selected room sensor. Close the "Address assignment" dialog by clicking "Write ". Repeat these steps for all room sensors to be commissioned. Then: Continue configuration in ACS790..