A comprehensive range of controllers, from stand-alone to communicating for any requirement

HVAC control with Synco – Simple and energy-efficient
An Overview
Welcome to Building Technologies
The future is smart
Siemens Sectors and Divisions

Energy
- Fossil Power Generation
- Wind Power
- Oil & Gas
- Power Transmission
- Energy Service

Healthcare
- Imaging & Therapy Systems
- Clinical Products
- Diagnostics
- Customer Solutions
- Audiology Solutions

Industry
- Industry Automation
- Drive Technologies
- Customer Services
- Metals Technologies

Infrastructure & Cities
- Rail Systems
- Mobility and Logistics
- Low and Medium Voltage
- Smart Grid
- Building Technologies

1) Sector Divisions
Unrestricted © Siemens AG 2013. All rights reserved.
<table>
<thead>
<tr>
<th>Infrastructure &amp; Cities</th>
<th>Rail Systems</th>
<th>Mobility and Logistics</th>
<th>Building Technologies</th>
<th>Low and Medium Voltage</th>
<th>Smart Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• High Speed and Commuter Rail</td>
<td>• Road and City Mobility</td>
<td>• Solution and Service Portfolio</td>
<td>• Low Voltage &amp; Products</td>
<td>• Energy Automation</td>
</tr>
<tr>
<td></td>
<td>• Locomotives and Components</td>
<td>• Logistics and Airport Solutions</td>
<td>• Control Products and Systems</td>
<td>• Medium Voltage &amp; Systems</td>
<td>• Rail Electrification</td>
</tr>
<tr>
<td></td>
<td>• Urban Transport</td>
<td>• Rail Automation</td>
<td></td>
<td></td>
<td>• Services</td>
</tr>
</tbody>
</table>

Unrestricted © Siemens AG 2013. All rights reserved.
Megatrends change the world and affect our lives

Global Megatrends

Demographic change
- Strong increase of the global population to 9 billion people in 2050 (2010: 7 billion)
- Aging of societies: the +65 generation will nearly triple worldwide by 2050

Urbanization
- Increase of the urban population by 20% from 2010 to 70% in 2050
- Numerous megacities will develop, especially in emerging nations

Climatic change
- Climatic change is a fact and a threat to humans and nature
- The consequential costs of ignoring this fact are considerably higher than the costs for necessary action

Globalization
- Increasing interdependence of economics, politics, culture and other areas of life
- Strong growth of BRIC countries: by 2040, China will have overtaken the US relating economic strength
Building Technologies

Facts raising questions

• The majority of the global population lives in cities
• Cities consume 75% of energy
• CO₂ emissions are increasing
• Increasing demand of public security
• Increasing demand of protection in critical infrastructures (life science)
• More and larger events lead to a higher population density
Building Technologies has the answer:

We have the technology and the knowledge needed in buildings and public infrastructures …

… to reduce both energy consumption and CO₂ emissions

… to sustainably protect people and assets

… to increase comfort, efficiency, availability, safety and security

… to create the best possible work and life conditions
Our value proposition considers our society's demands and tomorrow's trends

We sell easily operable products
We offer reliable products, solutions and services
We provide comfort, optimized room climate and intelligent concepts

We offer high return on investment and reduce energy consumption
We develop flexible products and solutions – regarding the use of buildings and integration possibilities

We are the trusted technology partner for (energy-) efficient, safe and secure buildings and infrastructure.
Our value proposition considers our society's demands and tomorrow's trends

Technology is our passion, and we are experts for energy efficiency, safety and security. Our portfolio of systems and products for intelligent building solutions has been successfully tried and tested in various applications.

We are your reliable partner throughout the entire life cycle of buildings and infrastructures. All over the world, we are close to the customer and know the local requirements for the right solution.

We take care that people feel comfortable both at home and at work, and that they can be ensured that intelligent buildings protect the environment, conserve resources and reduce emissions.

We protect people, processes and assets against fire, thus minimizing the corporate risk and providing for the best possible investment protection.

We take care that people feel safe and comfortable in cities and that cities become environmentally friendlier, safer and more attractive thanks to intelligent buildings.

We ensure that thanks to intelligent buildings, people can rely on safe workplaces and business processes and that companies remain productive and competitive.

We are the trusted technology partner for (energy-) efficient, safe and secure buildings and infrastructures.
Control Products and Systems
Products for building technology – The comfortable decision

We focus on two key benefits:

- **High energy and cost efficiency plus environmental protection** – advanced technologies for accurate and energy-saving HVAC control; full compliance with environmental declarations

- **Intelligent room comfort and ease of operation** – ideal climatic conditions in any work or living environment; operation, maintenance and service are smart and straightforward
### Products for building technology

**A unique portfolio in width, depth and quality**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td><strong>Siemens as a reliable partner worldwide</strong> – high-quality products and systems from a single source</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td><strong>Ease of handling in every phase of a project</strong> – thanks to innovative products and systems that ensure ease of installation, operation and service</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>More flexibility on every application</strong> – ensured by a unique portfolio in width, depth and quality</td>
</tr>
<tr>
<td><strong>4</strong></td>
<td><strong>Increased productivity</strong> – with intelligent products and systems from Siemens that ensure lower energy usage</td>
</tr>
</tbody>
</table>
Products for building technology
A unique portfolio in width, depth and quality
Synco overview

HVAC control – simple and energy-efficient
Synco
Your requirements

The right product –
to control HVAC plants

High quality –
for simplicity and reliability

Efficient comfort –
for easy installation and straightforward operation

Low energy consumption –
for the environment and greater cost-effectiveness

High flexibility –
in use and in communications

Complete support –
during planning and operation
Synco
Our offering

- **Comprehensive portfolio of controllers for any control-related need** – communicating or stand-alone
- **In-depth knowledge** and extensive experience from Siemens in HVAC control technology
- **High quality** for efficient operation and a long life cycle
- **Convenient, straightforward plant operation** as well as easy and efficient commissioning
- Designed for high **energy- and cost-efficiency**
- **Modular concept** for flexible adaption to HVAC plants and for simple expansion
- **Best support** and comprehensive documentation
Synco – **Comprehensive portfolio for any control-related need, communicating or stand-alone**

- **Comprehensive portfolio of standard controllers**
  for all applications
  - From simple temperature control to complete control of HVAC plants
  - From heating and cooling control to distribution and individual room control

- **Communicating controllers and thermostats**
  for the system – communication via the KNX standard bus (Synco control system)

- **Stand-alone controllers** for small buildings and basic applications (Synco 200 + Synco 100)
## Synco – Comprehensive portfolio for any control-related need, communicating or stand-alone

### Communicating controllers for the system – communication via the KNX standard bus

<table>
<thead>
<tr>
<th>Synco 700</th>
<th>Synco RXB/RXL controllers, Synco RDG/RDF/RDU thermostats</th>
<th>Synco operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Versatile HVAC controller range of modular design</td>
<td>Enhanced comfort thanks to individual room climate</td>
<td>Efficient operation of plant including straightforward remote control</td>
</tr>
</tbody>
</table>

Open KNX communication for optimum interplay between controllers with standardized data exchange.

### Stand-alone controllers for small buildings and basic applications

<table>
<thead>
<tr>
<th>Synco 200</th>
<th>Synco 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVAC controller for all standard applications</td>
<td>Temperature sensor, controller and control panel combined in one unit</td>
</tr>
</tbody>
</table>
Synco

In-depth know-how and high quality for maximum simplicity

**Comprehensive expertise** for your HVAC plant:

- Through **in-depth application know-how** thanks to more than 70 years of experience in HVAC control technology
- Through **collaboration in** domestic and international **research projects**
- Through **in-house research** and testing in our own modern HVAC laboratory
Synco

In-depth know-how and high quality for maximum simplicity

High quality for a long-lasting, straightforward operation

- Through intensively and systematically **tested** products, in the lab and in the field
- Through **many years of experience** in product design for the capital goods industry

Maximum simplicity based on comprehensive expertise and optimum quality

- Through **optimally adjusted controllers**
- Through **preprogrammed standard applications** for 90% of the conventional plants
- Through usage of the clearly designed **energy indicator**
Synco

**Designed for high energy and cost-efficiency**

- **Energy-optimum operation** thanks to preprogrammed and tested energy saving functions and energy indicator
- **Straightforward operation** to support the energy-efficient and correct setting of the plant, also via the HomeControl app
- **KNX communication** to exchange energy information for an efficient operation of the HVAC plant
- **High level of control accuracy** with eu.bac-certified products (RXB/RXL)

---

**BACS Energy Classes – EN 15232**

<table>
<thead>
<tr>
<th>Energy Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>High energy performance BACS and TBM</td>
<td>A</td>
</tr>
<tr>
<td>Advanced BACS and TBM</td>
<td>B</td>
</tr>
<tr>
<td>Standard BACS</td>
<td>C</td>
</tr>
<tr>
<td>Non-energy-efficient BACS</td>
<td>D</td>
</tr>
</tbody>
</table>

- **Synco offers important prerequisites for ensuring compliance with energy class A**, which states for example that energy savings in office spaces can reach 30% in relation to the standard
Synco – Communicating control system (KNX)
## Synco

### Communicating control system (KNX)

Control system for small to medium-size multipurpose buildings – communicating HVAC control for the entire building

Everything under one roof: apartments and offices, training rooms and shops

<table>
<thead>
<tr>
<th>Synco 700</th>
<th>Synco RXB/RXL controllers, Synco RDG/RDF/RDU thermostats</th>
<th>Synco operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Versatile HVAC controller range of modular design</td>
<td>Enhanced comfort thanks to individual room climate</td>
<td>Efficient operation of plant including straightforward remote control</td>
</tr>
</tbody>
</table>

**Control of:**
- Heating
- Ventilation
- Air conditioning
- Refrigeration
- Distribution of heating and cooling energy
- Primary energy plant

**Individual room control with:**
- Fan coils
- Radiators
- Chilled ceiling
- Variable air volume systems
- Heat pumps

**Monitoring and remote control of plant:**
- Alarm reporting via SMS or e-mail
- Remote control of plant, e.g. via Web server

Open **KNX communication** for optimum interplay between controllers with standardized data exchange
Synco

Topology of the communicating control system (KNX)

**Synco tool**
For commissioning and diagnostics

**Synco operating**
Efficient operation of plant including alarm reporting

- PC with ACS software
- Mobile phone
- Standard gateway
- Internet/intranet
- PC with Web browser
- The worldwide STANDARD for home and building control

Control and switching unit for heating, ventilation and air conditioning plants

- Synco 700

Control and switching unit for heating, ventilation and air conditioning plants

- Synco RXB/RXL
- Synco RDG/RDF/RDU

Central control unit and room controller for individual room climate

Unrestricted © Siemens AG 2013. All rights reserved.
Synco 700 controls, manages and monitors the primary energy plant

- Heating
- Ventilation
- Air conditioning
- Refrigeration
Synco 700
Versatile HVAC controller range of modular design

- Flexible and modular concept
- Fast, efficient and cost-saving installation and commissioning – thanks to intuitive operation
- No programming – thanks to standard applications integrated in the controllers
- Open KNX standard communication
Synco 700
Comfortable installation and operation

- Extension modules **simply click** onto the controller

- **Easy connection** of operator units through:
  - Attaching to the controllers
  - Mounting on the front of the panels
  - Remote operation via bus

- **Easy-to-understand clear text operation** – supports an energy-efficient and correct system adjustment
Synco 700
Comfortable operation

Synco gives you control over the plant at all times

- Up-to-date information at the touch of a button
- Simple selection of programs thanks to a clearly arranged menu
- Navigate, select and confirm simply by turning and pressing a button
## Synco 700

### The controller range

#### Universal controllers

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMU710</td>
<td>Modular universal controller, 1 control loop</td>
</tr>
<tr>
<td>RMU720</td>
<td>Modular universal controller, 2 control loops</td>
</tr>
<tr>
<td>RMU730</td>
<td>Modular universal controller, 3 control loops</td>
</tr>
<tr>
<td>RMS705</td>
<td>Switching and monitoring device</td>
</tr>
</tbody>
</table>

#### Heating controllers

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMH760</td>
<td>Modular heating controller</td>
</tr>
<tr>
<td>RMK770</td>
<td>Boiler sequence controller</td>
</tr>
</tbody>
</table>

#### Universal extension modules

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMZ785</td>
<td>Universal module (8 UI)</td>
</tr>
<tr>
<td>RMZ787</td>
<td>Universal module (4 UI, 4 DO)</td>
</tr>
<tr>
<td>RMZ788</td>
<td>Universal module (4 UI, 2 AO, 2 DO)</td>
</tr>
<tr>
<td>RMZ789</td>
<td>Universal module (6 UI, 2 AO, 4 DO)</td>
</tr>
</tbody>
</table>

#### Operator units (for all types of controllers)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMZ790</td>
<td>Plug-in type operator unit</td>
</tr>
<tr>
<td>RMZ791</td>
<td>Detached operator unit (3 m)</td>
</tr>
<tr>
<td>RMZ792</td>
<td>Bus operator unit</td>
</tr>
</tbody>
</table>

#### Heating circuit modules and DHW modules

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMZ782</td>
<td>Heating circuit module</td>
</tr>
<tr>
<td>RMZ783</td>
<td>DHW module</td>
</tr>
</tbody>
</table>

#### Room unit

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QAW740</td>
<td>Room unit</td>
</tr>
</tbody>
</table>

UI = Universal input, AO = Analog output, DO = Digital output
Synco RXB and RXL
Enhanced comfort thanks to individual room climate

Communicating individual room control for
• Fan coils
• Radiators
• Chilled ceilings

RXB
• Manufacturer-independent communication with KNX, 230 V

RXL
• Without KNX certification, 24 V
Synco RXB and RXL
Enhanced comfort thanks to individual room climate

- The desired temperature at the right time – in connection with Synco 700 and matching room units

- Optimal adjustment of the energy supply according to room-occupancy periods – using KNX-based time programs and energy information

- A comfortable room climate at any time for maximum efficiency at the workplace

- Up to 14% energy savings thanks to the high control accuracy of the eu.bac-certified Synco RXB/RXL units

Tested quality, control accuracy and energy efficiency in compliance with European norms and international test standards
### The room controller range

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fan coils</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fan 1 to 3 speeds</td>
<td>Fan 1 to 3 speeds</td>
<td>Fan 1 to 3 speeds</td>
<td>Electronically commutated fan motor (EC), modulating</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-pipe system with changeover</td>
<td>2-pipe system with changeover and outside air damper</td>
<td>2-pipe system with changeover and electric re heater</td>
<td>2-pipe system with changeover</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-pipe system</td>
<td>4-pipe system with outside air damper</td>
<td>4-pipe system with electric re heater</td>
<td>2-pipe system with changeover</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-pipe system with room-supply air cascade</td>
<td>2-pipe system with changeover and radiator</td>
<td>4-pipe system</td>
<td>4-pipe system with room-supply air cascade</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-pipe system with air damper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Central control unit for RXB/RXL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chilled ceiling with dewpoint monitoring</td>
<td>Chilled ceiling/radiator with dewpoint monitoring and downdraft compensation</td>
<td>Radiator with downdraft compensation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Individual room thermostats with standard KNX communication for

- Fan coils (as well as EC motors according to ErP2015 with RDG160KN)
- Variable air volume systems
- Radiators
- Chilled ceilings
- Heat pumps

Suitable for small commercial buildings, hotels and residential buildings

**RDG..KN**
Wall mounted thermostats

**RDF..KN, RDF.. and RDU..**
Semi flush-mounted thermostats

1) Designed to fix into conduit box with fixing center 60.3 mm (BS4662)

Unrestricted © Siemens AG 2013. All rights reserved.
Synco RDG, RDF and RDU
Individualized variety with high energy efficiency

- Easy to operate and straightforward installation
- Versatile thermostats with multifunctional inputs and different control outputs signals as well as high control accuracy – one product covers a host of applications
- Modern design with large backlit display, buttons and rotary setting knob for intuitive operation
- The desired temperature at the right time – in connection with Synco 700 and matching room units
- Optimal adjustment of the energy supply according to room-occupancy periods – using KNX-based time programs and energy information
- A comfortable room climate at any time for maximum efficiency at the workplace
## The room thermostat range

<table>
<thead>
<tr>
<th>RDG100KN</th>
<th>RDF600KN</th>
<th>RDG400KN</th>
<th>RDU341</th>
<th>RMB795</th>
</tr>
</thead>
</table>

### Fan coils
- 2-pipe system with changeover
- 2-pipe system with electrical heater
- 2-pipe system and radiator ¹)
- 2-pipe, 2-stage cooling or heating ¹)
- 4-pipe system
- 4-pipe system with electrical heater ²)
- Universal thermostat ¹) (chilled/heated ceilings or radiators)
- Heat pump systems ³) (1-/2-stage compressor)

### VAV
- Single duct
- Single duct with electrical heater
- Single duct and radiator ¹)
- Single duct with heat/cool coil ¹)

### Notes:
- RDF301.50 with buttons for light and blind control
- RDF600KN suitable for round conduit box (min. 60 mm)

¹) Only with RDG range  
²) Only with RDG100KN  
³) Only with RDG160KN and RDF range

Unrestricted © Siemens AG 2013. All rights reserved.
Synco HomeControl app
Feeling better when on the road

- Adapting **room temperature, ventilation, lighting or shading** simply via smartphone

- **Everything under control, anytime and anywhere** – whether you are travelling or doing sports – whether at home, at the office or at the holiday cottage

- **Intuitive operation** and clear user interface help you keep everything under control

- **Simple configuration** without needing an additional tool

- **Increased flexibility** – something can be forgotten, but thanks to the app, it will be back to the right level in no time
Controlled energy efficiency thanks to energy indicator

- **Fast and straightforward implementation** of the energy indicator by administrator

- **Easy monitoring** of defined end user settings

- **Intuitive display of exceeded limit values**, making use of clear symbols:
  - Green leaf symbol for "correct setting from energetic point of view",
  - orange leaf symbol for "setting is energetically unfavorable"

- All settings are **transparent and visible**

- **Alarming** via e-mail or HomeControl app
Synco operating
Efficient operation of plant with straightforward remote control

- **Expanded service** with fewer trips to the customer's site possible
- Time- and cost-saving **operation from PC**
- **Location-independent plant access** via Internet with the integrated web server or via modem
- **Alerting fault status or maintenance messages** via SMS or e-mail
- **Fast diagnostics** and fault tracing
  - Through recording and visualizing process values, e.g. for trend analysis
  - Through graphics of the plants
Synco

Data exchange via KNX standard bus, independent of supplier

- **Standardized communication platform** – guarantees interoperability and thus higher safety as well as new business options

- **Facilitates interconnections independent of the supplier** – for example for HVAC, lighting or blinds for simultaneous control via a presence detector

- **Simple design and quick starting of communication** – just interconnect the units, activate the bus power supply on the controller and set the device address
Synco

Data exchange via KNX standard bus, independent of supplier

- Automatic data exchange of energy demand, room temperature, time- or vacation-based programs, faults, etc.
- Optimized coordination of the HVAC plants increases comfort and decreases operating costs

If no heat is requested, the boiler is automatically turned off. This saves energy.

If cooling is required, the valve is set accordingly, e.g. 60% open

If no cold water is requested, the refrigeration unit and boost pumps are automatically turned off.
Synco – Stand-alone controllers
**Synco**

**Stand-alone controllers**

### Stand-alone controllers for small buildings and basic applications

<table>
<thead>
<tr>
<th>Synco 200</th>
<th>Synco 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVAC controller for all standard applications</td>
<td>Temperature sensor, controller and control panel combined in one unit</td>
</tr>
</tbody>
</table>

**Controls:**
- Temperature
- Humidity
- Air pressure
- Air quality
- etc.

**For use in:**
- Pipes
- Air ducts
- Rooms
Synco 200
HVAC controller for all standard applications

- **Control of temperature, humidity, air pressure**, and other HVAC-specific measuring variables

- Main application areas: **basic ventilation, air conditioning and chilled-water plants**

- **Quick and simple commissioning**: activate one of more than 140 tested, preprogrammed and documented basic applications and it's ready to go

- **Space- and cost-saving mounting in control panels** thanks to a compact design and state-of-the-art cage terminals
## The controller range

### Synco 200 controller

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLU202</td>
<td>Universal controller (2 DO)</td>
<td>Digital Output (DO)</td>
</tr>
<tr>
<td>RLU220</td>
<td>Universal controller (2 DO)</td>
<td>Digital Output (DO)</td>
</tr>
<tr>
<td>RLU222</td>
<td>Universal controller (2 AO, 2 DO)</td>
<td>Analog Output (AO), Digital Output (DO)</td>
</tr>
<tr>
<td>RLU232</td>
<td>Universal controller (2 AO, 2 DO)</td>
<td>Analog Output (AO), Digital Output (DO)</td>
</tr>
<tr>
<td>RLU236</td>
<td>Universal controller (3 AO, 6 DO)</td>
<td>Analog Output (AO), Digital Output (DO)</td>
</tr>
</tbody>
</table>

**DO** = Digital Output, **AO** = Analog Output

Unrestricted © Siemens AG 2013. All rights reserved.
Synco 100
Temperature sensor, controller and control panel combined in one unit

- The portfolio includes **duct and pipe mounting as well as cost-effective temperature control** for smaller units and plants
- **Straightforward and time-saving installation** – simply feed power to the controller, connect the sensors and actuators
- **Easy commissioning** – no training required
- **Compact, space-saving design** – installs directly within the plant, very little wiring required and no control panel necessary
Synco 100
The controller range

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RLE132</td>
<td>Immersion temperature controller, 3-position signal</td>
</tr>
<tr>
<td>RLE162</td>
<td>Immersion temperature controller, DC 0...10 V signal</td>
</tr>
<tr>
<td>RLM162</td>
<td>Air duct temperature controller, DC 0...10 V signal</td>
</tr>
<tr>
<td>RLA162</td>
<td>Room temperature controller, DC 0...10 V signal</td>
</tr>
<tr>
<td>RLA162.1</td>
<td>Room temperature controller, DC 0...10 V signal</td>
</tr>
</tbody>
</table>

RLE = Pipe installation, RLA = Room installation, RLM = Duct mounting
Synco – Reliable partnership
Synco

Reliable partnership and comprehensive documentation

- Data sheets for an easy choice of the right product
- Comprehensive application catalog with function descriptions, connection diagrams and commissioning guides
- Documentation with detailed function descriptions and application examples
- Comprehensive training modules, e-learning
- HIT tool to efficiently design the controllers and field devices
- ACS software for fast and easy engineering as well as efficient commissioning
- App for straightforward operation and monitoring
- Highly skilled, trained employees to answer all your questions
Synco project planning with HIT
HVAC Integrated Tool

- Software for **fast and simple project planning** when it comes to controlling heating, ventilation, air conditioning and refrigeration systems
- **Efficient layout of controllers and field devices** – access to the entire portfolio of valves, actuators, sensors, thermostats, variable speed drives and controllers
- **More than 300** fully described **applications** to easily select and match
- **Complete documentation** of the plant with material lists, plant diagrams, function descriptions and tendering texts
Engineering

Fast and easy engineering with ACS790

- Intuitive software for **quick and easy engineering** of HVAC installations
- Easily import and further process the installation designed in HIT
- Create the installation topology right in ACS – no devices needed
- **Guided workflow** takes you through all engineering steps so you don't forget anything or repeat the same steps twice
- **Practical error warning functions**
- The output is a **file for your complete installation**
Commissioning
Fast and efficient commissioning with ACS790

- The **same software** for both engineering and commissioning of HVAC installations

- **Minimize the time spent** on the construction site:
  - Import and write the engineering file
  - Wiring test
  - Optimize the settings
  - Create a backup including the commissioning report

- **Support** for commissioning through guided workflow so you don't repeat steps twice

- **Practical error warning function**
Synco – Application examples
Synco – Application examples

**Synco 700**

**Heating plant with heat generation, two heating circuits, DHW heating and Synco 700**

**RMH760**
Modular heating controller

- Three controlled heating circuits with 7-day programs and yearly calendar
- Control of DHW storage tank charging with control of circulating pump
- Boiler temperature control including multistage or modulating burner control

**Multi-boiler system and Synco 700**

**RMK770**
Boiler sequence controller

- Control of boiler sequence
- Automatic master boiler switchover based on boiler's operating hours
- Boiler temperature control including single-/dual stage or modulating burner control
- Controlled heating circuit with 7-day programs and yearly calendar
Synco – Application examples

Synco 700

Ventilation plant with room-supply air cascade control and Synco 700

- Control and monitoring
- Room temperature control with min/max limitation of the supply air temperature
- Room humidity control via air humidifier and limitation of supply air humidity
- Mixed air damper with start-up control
- 2-speed fan
- 2-phase frost protection
- 7-day program and yearly calendar

RMU730
Modular universal controller

Chilled water generation and recooling and Synco 700

- Control of the refrigeration machine
- Flow monitoring
- Chilled water circuit control
- Recooling control

RMU720
Modular universal controller
Synco – Application examples

**Synco RXB**

**Individual room control with fan coils with RXB and RMB**

**RXB21.1/FC-10 and RMB795**

Individual room controller and central control unit

- Room temperature control with room/return air temperature sensors
- Actuation of fan and valve
- Central operation
- 7-day program and yearly calendar
- Changeover function for heating/cooling

**Individual room control of radiators and chilled ceilings with RXB and RMB**

**RXB24.1/CC-02 and RMB795**

Individual room controller and central control unit

- Room temperature control with room temperature sensors
- Continuously controlled heating and cooling valve
- Dewpoint monitoring
- Central operation
- 7-day program and yearly calendar
Synco – Application examples
Synco RDG, RDF and RDU

**Individual room temperature control for variable air volume plants (VAV) with RDG400KN**

- Room temperature control with integrated room temperature sensor
- Modulating control of actuator with min/max limitation of the air flow signal
- Integration of communicating VAV controllers
- Demand-dependent setpoints
- Central time program

**RDG400KN, G..B181../KN and RMU7..B Room thermostat and supply air temperature control (VAV system solution)**

**Individual room temperature control for fan coils with RDG100KN**

- Room temperature control with integrated temperature sensor or return air temperature sensors
- Actuation of fan and valve
- Changeover function heating/cooling
- Central operation of room thermostats
- 7-day program and yearly calendar

**RDG100KN and RMB795 Room thermostat and central control unit**
Synco – Application examples

**Synco 200**

---

**Water application and Synco 200**

---

**RLU220**

Universal controller

- Differential pressure control
- Speed control for the pump
- Operation integrated in controller

---

**Ventilation plant with room-supply air cascade control and Synco 200**

---

**RLU232**

Universal HVAC controller

- Control, cascade with supply air temperature min/max limitation
- Remote setpoint readjuster
- Energy recovery with anti-icing protection
- 2-phase frost protection
- Air heating coil pump, demand-dependent release
- Summer/winter compensation
- Operating function integrated in controller
**Synco – Application examples**

**Synco 100**

**Ventilation plant with supply air temperature control and Synco 100**

**RLM162**

**Air duct temperature controller**

- Supply air temperature control, PI- or P-mode
- Remote setpoint readjuster
- Temperature setpoint shifted by outside temperature
- Direct mounting on air duct, no control panel required
Synco – Outstanding references from many years of experience
The project

• The Chilematt Center in Switzerland offers shopping facilities, a bank, apartments as well as three multi-purpose halls
• During the conception phase, sustainability and efficient energy use were key

The solution

• HVAC plant is controlled via Synco 700
• Room and air quality sensors in the individual rooms ensure demand-oriented supply of warmth, refrigeration and outside air
• Variable speed drives to save energy when operating pumps and fan
The customer benefits

- Sustainability by using renewable energies
- Straightforward operation of plant
- On-demand control that meets all needs
- Energy saving functions, variable speed drives and heat recovery for comprehensive energy efficiency
- Automatic coordination of all processes thanks to KNX communication
Synco – Summary
Synco – Summary
HVAC control for the entire building

Comprehensive product range – complete, modular and compatible standard range for controlling your plant

Communicating controllers for the system – communication via the KNX standard bus

<table>
<thead>
<tr>
<th>Synco 700</th>
<th>Synco RXB/RXL controllers, Synco RDG/RDF/RDU thermostats</th>
<th>Synco operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Versatile HVAC controller range of modular design</td>
<td>Enhanced comfort thanks to individual room climate</td>
<td>Efficient operation of plant including straightforward remote control</td>
</tr>
</tbody>
</table>

Open KNX communication for optimum interplay between controllers with standardized data exchange

Stand-alone controllers for small buildings and basic applications

<table>
<thead>
<tr>
<th>Synco 200</th>
<th>Synco 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVAC controller for all standard applications</td>
<td>Temperature sensor, controller and control panel combined in one unit</td>
</tr>
</tbody>
</table>
Benefits for your customers

- **High level of energy efficiency, cost savings and environmental compatibility** – thanks to integrated energy saving functions, a high degree of control accuracy, individually adjustable room climate and energy indicator

- **Exact and energy-efficient plant operation** – thanks to straightforward operation

- **Long-term investment protection** – thanks to tested, long-lasting controllers confirmed by more than 200,000 plants operating perfectly

- **Optimized climate for relaxed living and performance-oriented working** – thanks to comfortable individual room control and simple operation via HomeContol app
Synco

Your benefits

- **High reliability lets you focus on important things** – thanks to support from highly skilled HVAC control professionals from Siemens, highest level of product quality and long life cycles

- **Fast, simple procurement and assembly of the plant** – thanks to a comprehensive product range

- **Time and cost savings** – thanks to simple planning and commissioning with no programming or preliminary testing required

- **High flexibility** – thanks to simple expandability and matching of controllers and standard functions
Synco
Your benefits

- **Expanded business** – thanks to additional services (alarming, remote control) and integration into supplier-independent systems on the basis of open communication

- **Fulfillment of specific customer requests**
  when it comes to energy efficiency – thanks to energy-optimized plant settings as well as limit values at energy indicator that can be individually set

- **Quick and simple planning of the plant** – thanks to superior support with bundled information (such as HIT), comprehensive documentations and trained employees
Synco HVAC control

Simple and energy-efficient

We look forward to discussing your needs!

www.siemens.com/bt/synco