

Synco™ 700



## Universal Controllers

## RMU7...

- With yearly time switch
- Each type of controller is supplied with 5 different ventilation/air conditioning plants preprogrammed
- Freely programmable controller, for optimum adaption to the relevant type of plant
- Modular extensions
- Menu-driven operation with separate operator unit (plug-in type or detached)
- Konnex bus connection for operation and process information

### Use

For use on basic to complex ventilation, air conditioning and chilled water plants. The universal controllers are designed to handle the following controlled variables: Temperature, relative/absolute humidity, pressure/differential pressure, airflow, indoor air quality and enthalpy.

### Functions

#### Time switch and operating modes

- Yearly time switch with automatic summer-/wintertime changeover
- 7-day program (6 switching points per day) and yearly program for holidays/special days (16 periods)
- Selection of operating mode with local operator unit: AUTO, Comfort, Precomfort, Economy and Protection, or via status inputs: Comfort, Precomfort, Economy, Protection
- Display of the current operating mode (Comfort, Precomfort, Economy and Protection), including the reason for it

#### Setpoints

- With each sequence controller: Individually adjustable heating and cooling setpoints (or maximum and minimum setpoints) for the Comfort and Precomfort modes

- Predefined room temperature setpoint with room unit or relative setpoint adjuster (passive)
- With each sequence controller: Predefined setpoint with absolute remote setpoint adjuster (active or passive)
- Room temperature setpoint with summer and/or winter compensation
- With each sequence controller: Setpoint shift depending on a sensor, selectable start and end points

### Universal inputs

8 universal inputs for:

- Passive or active analog input signals of the following measured values (°C, %, g/kg, kJ/kg, W/m<sup>2</sup>, bar, mbar, m/s, Pa, and ppm)
- Digital input signals (potential-free contacts)

### Control functions

- Sequence controller for 3 heating sequences (reverse acting) and 2 cooling sequences (direct acting), can be used as a controller providing P-, PI or PID mode, or as a differential controller
- Controller can be configured as a room/supply air temperature cascade controller with limitation of the supply air temperature
- Each sequence can be assigned modulating control (modulating output, step switch, mixed air damper, heat recovery equipment) and a pump. 2 sequences can act on the same analog control (e.g. priority cooling/dehumidification)
- General limitation function (minimum / maximum with PI mode per sequence controller, either as absolute limitation (e.g. for the supply air temperature or supply air humidity), or as relative temperature limitation (e.g. maximum limitation of the room/supply air temperature differential). Limitation acts on all sequences. Minimum limitation can be set to a lower setpoint while cooling is on (example: cooling with direct expansion cooler battery)
- Sequence limitation function with PI mode per sequence controller, can be defined as minimum or maximum limitation. Limitation acts on a single sequence (e.g. heat recovery anti-icing protection or maximum limitation of the air heating coil's return temperature)
- Locking of individual sequences
- Messages about deviations of setpoint/actual value per sequence controller

### Switching and supervisory functions

- Fault indication with red LED, acknowledgement with button. In addition, 2 relay outputs can be configured as fault relays, 4 universal inputs as fault status inputs (1 as a fire and 1 as a smoke status input)
- 2-stage frost protection function (modulating/2-position) or frost protection thermostat (heating sequences delivering 100 % output, fans switched off)
- Preheating function
- Demand-dependent ventilation (CO<sub>2</sub>/VOC), acting on the air dampers or the variable speed/multispeed fans
- Sustained heating mode during unoccupied periods
- Sustained cooling mode during unoccupied periods
- Night purging during unoccupied periods in the summer
- Control and monitoring of a supply and an extract air fan
  - Single-speed fan (recirculated air operation possible)
  - 2-speed fan (locking the second speed according to the outside temperature)
  - Speed-controlled fan, including pressure control
- Control and monitoring of up to 4 pumps, with pump kick, continuously on at low outside temperatures, on according to the load sequence controller or according to the operating mode
- Control of the heat recovery system with Maximum Economy Changeover; monitoring of efficiency
- Control of the mixed air dampers with Maximum Economy Changeover; minimum position, startup and maximum position depending on the outside temperature

- Control of a multistage aggregate with a step switch, maximum 6 stages and 1 analog output.  
Switch-on/-off points of each stage can be individually adjusted. Adjustable delay times. External release configurable (e.g. electric air heater battery with supervision of airflow). Analog output with minimum and maximum position, invertable
- Control of up to 4 multistage aggregates, each with 1 step switch with a maximum of 2 stages and 1 analog output. Functions as described above
- Supervision of the heating and refrigeration demand
- Delivery of the heat and refrigeration demand signals

#### Functions with twin pump module

- Control and supervision of twin pumps, with pump changeover in the event of fault and periodic changeover

#### Functions with universal modules

- Extra inputs and outputs for extending the controller's functionality (e.g. for filter supervision, monitoring the fan's differential pressure/speed, fault status messages, etc.)
- Can be used with 2 extension modules (1 RMZ787 and 1 RMZ788)

#### Bus functions

- Room operator unit with the relevant functions
- Indication of fault status messages delivered by other devices on the bus
- Delivery of a common fault status message from all devices on the bus to a fault relay
- Time synchronization
- Passing on and adoption of outside temperature signal
- Sending or receiving the yearly time switch schedule (holidays/special days) from some other controller
- Sending or receiving the 7-day program or the yearly program for the holidays/special days of some other controller
- Generating and sending a demand signal (hot water, chilled water) to the primary controller or the hot water/chilled water source
- Receiving and evaluating refrigeration demand signals if configured as a primary controller or hot water/chilled water source
- Common control strategy of a ventilation controller with a heating controller for the control of the same room

#### Service and operating functions

- Outside temperature simulation
- Wiring test
- Data protection
- Display of setpoints, actual values and active limitations

#### Type summary

Controllers	Type reference	Universal inputs	Positioning outputs	Switching outputs	Number of control loops	Default languages
	<b>RMU710-1</b>	6	2	2	1	de, fr, it, es
	<b>RMU720-1</b>	8	3	4	2	de, fr, it, es
	<b>RMU730-1</b>	8	4	6	3	de, fr, it, es
	<b>RMU710-2</b>	6	2	2	1	de, <b>en</b> , fr, nl
	<b>RMU720-2</b>	8	3	4	2	de, <b>en</b> , fr, nl
	<b>RMU730-2</b>	8	4	6	3	de, <b>en</b> , fr, nl
	<b>RMU710-3</b>	6	2	2	1	sv, fi, no, da
	<b>RMU720-3</b>	8	3	4	2	sv, fi, no, da
	<b>RMU730-3</b>	8	4	6	3	sv, fi, no, da
	<b>RMU710-4</b>	6	2	2	1	pl, cs, sk, hu
	<b>RMU720-4</b>	8	3	4	2	pl, cs, sk, hu
	<b>RMU730-4</b>	8	4	6	3	pl, cs, sk, hu

<b>Accessories</b>	<i>Name</i>	<i>Type reference</i>	<i>Data Sheet</i>
Operator / service units	Operator unit, plug-in type	<b>RMZ790</b>	N3111
	Operator unit, detached	<b>RMZ791</b>	N3112
	Service tool	<b>OCI700.1</b>	N5655
Option modules	Twin pump module	<b>RMZ786</b>	N3145
	Universal module with 4 universal inputs and 4 relay outputs	<b>RMZ787</b>	N3146
	Universal module with 4 universal inputs, 2 relay outputs and 2 analog DC 0...10 V outputs	<b>RMZ788</b>	N3146
	Module connector for detached extension modules	<b>RMZ780</b>	N3138

## Ordering and delivery

When ordering, please give name and type reference of the controller, for example:  
Universal controller **RMU730-2**.

The devices listed under "Accessories" must be ordered as separate items.

Each controller is supplied as follows:

- Complete with 5 standard applications plus one empty application each of basic types A, C and U (configuration must be adapted)
- With operating languages (refer to "Type summary")

## Equipment combinations

For equipment combinations, refer to Data Sheet N3110, "Product Range Overview Synco™700", or to the document covering the selected application.

## Product documentation

<i>Name</i>	<i>Ordering number</i>
Data Sheet "Product Range Overview Synco™700"	<b>CE1N3110en</b>
Basic Documentation, detailed description of all functions	<b>CE1P3140en</b>
Application Catalog for Synco™700 "Ventilation/air conditioning plants"	
Installation Instructions (mounting and commissioning) G3140	<b>74 319 0398 0</b>
Operating Instructions (de, fr, it, es) B3144x1	<b>74 319 0349 0</b>
Data Sheet "Konnex bus KNX"	<b>CE1N3127en</b>
Basic Documentation "Communication via Konnex bus for devices of the Synco™700 series and DESIGO RXB"	<b>CE1P3127en</b>
Declaration of Conformity (CE)	<b>CE1T3110</b>
Environmental Declaration	<b>CE1E3110en01</b>

## Technical design

Each type of controller has 5 applications of ventilation/air conditioning plants preprogrammed. Some of them require extension modules.

When commissioning a plant, the relevant plant type must be entered. All associated functions, terminal assignments, settings and displays will then automatically be activated, and parameters not required will be deactivated.

In addition, each type of universal controller has 3 empty applications loaded:

- 1 for basic type A (ventilation controller)
- 1 for basic type C (demand-dependent chilled water controller)
- 1 for basic type U (universal controller)

Using the operator unit RMZ790 or RMZ791, the controller permits:

- Activation of a preprogrammed application

- Modification of a preprogrammed application
- Free configuration of applications
- Optimization of the controller settings

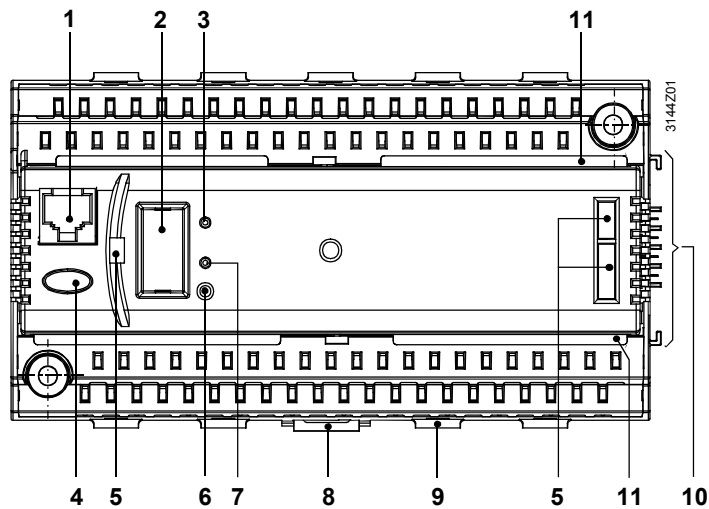
For operating actions of the functions, refer to the Basic Documentation CE1P3140en.

## Mechanical design

The universal controller consists of terminal base and controller insert. It has a plastic housing with the printed circuit boards, 2 terminal levels and accommodates the connecting elements (electrical and mechanical) for one extension module (refer to "Accessories").

It can be mounted on a top hat rail conforming to EN 60 715-TH35-7.5, or on a wall. The controller is operated either with the plug-in type or detached operator unit (refer to "Accessories").

### Operating, display and connecting elements



### Legend

- 1 Connection facility for the service tool (RJ45 connector)
- 2 Removable cover with connection facility for the operator unit
- 3 LED (RUN) for indication of operation
- 4 Button with LED (red) for indication of faults and for resetting
- 5 Openings for plug-in type operator unit RMZ790
- 6 Push-button for assigning the device address in Konnex system mode (requiring a tool)
- 7 LED (Prog) for indication of programming procedure in Konnex system mode
- 8 Catch for fitting the controller to a top hat rail
- 9 Fixing facility for a cable tie (cable strain relief)
- 10 Electrical and mechanical connection elements for extension module
- 11 Rest for the terminal cover

## Engineering notes

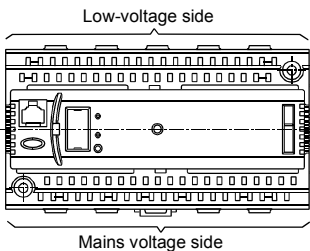


- The controller operates on AC 24 V. Operating voltage must conform to the requirements of SELV/PELV (safety extra low-voltage)
- The transformers used must be safety isolating transformers featuring double insulation to EN 60 742 or EN 61 558-2-6; they must be suited for 100 % duty
- Fuses, switches, wiring and earthing must be in compliance with local regulations
- Sensor wires should not be run parallel to mains carrying wires that power fans, actuators, pumps, etc.
- It is recommended to use the standard applications provided. Specific plant situations may require certain adaptations
- The controller can be used with 1 extension module type RMZ786, RMZ787, or RMZ788

## Mounting and installation notes

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- Controllers and extension modules are designed for:
  - Mounting in a standard cabinet as per DIN 43 880
  - Wall mounting on an existing tophat rail (EN 50 022-35x7.5)
  - Wall mounting using two fixing screws
  - Flush panel mounting
- Not permitted are wet or damp spaces. The permissible environmental conditions must be observed
- If the controller shall not be operated inside a control panel, use the detached operator unit RMZ791 in place of the plug-in type operator unit RMZ790
- Disconnect the system from the power supply prior to mounting and installation the controller
- **The controller insert may not be removed from the terminal base!**
- If extension modules are used, they must be attached to the right side of the controller in the correct order in accordance with the internal configuration
- The extension modules require no wiring between themselves or to the controller. The electrical connections are made automatically when attaching the modules. If it is not possible to arrange the extension modules side by side, the first of the detached modules must be connected to the last previous module or to the controller using the RMZ780 module connector. In that case, the cumulated cable length may not exceed 10 m
- All connection terminals for protective extra low-voltage (sensors, data bus) are located in the upper half of the unit, those for mains voltage (actuators and pumps) at the bottom
- Each terminal (spring cage terminal) can accommodate only one solid wire or one stranded wire. For making the connections, the cables must be stripped for 7 to 8 mm. To introduce the cables into the spring cage terminals and to remove them, a screw driver size 0 or 1 is required. Cable strain relief can be provided with the help of the fixing facility for cable ties
- The controller mounted on a top hat rail together with modules can only be removed from the rail after the module directly attached to the controller has been removed
- The controller is supplied complete with Installation Instructions and Operating Instructions



## Commissioning notes


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- Using the the operator unit RMZ790 or RMZ791, or the service tool, staff trained by HVAC Products and having the required access rights can change the configuration and the parameters online or offline at any time
- During the commissioning process, the application is deactivated and the outputs are in a defined off state. This means that no process and alarm signals will then be delivered to the bus
- On completion of the configuration, the controller automatically makes a new start
- When leaving the commissioning pages, the peripheral devices connected to the universal inputs (including the extension modules) are automatically tested and identified. If a peripheral device is missing, a fault status message will be delivered
- The operator unit can be removed and plugged in or connected while the controller is operating
- If adaptations to specific plants are required, they must be recorded and the documentation kept inside the control panel
- For the procedure to be followed when starting up the plant for the first time, refer to the Installation Instructions

## Disposal notes

Larger plastic parts carry material identifications conforming to ISO/DIS 11 469 to facilitate environment-compatible disposal.

## Technical data

<b>Power supply (G, G0)</b>	Rated voltage	AC 24 V $\pm$ 20 %
	Safety extra low-voltage (SELV) / protective extra low-voltage (PELV) to	HD 384
	Requirements for external safety isolating transformer (100 % duty, max. 320 VA) to	EN 60 742 / EN 61 558-2-6
	Frequency	50/60 Hz
	Power consumption (excl. modules)	12 VA
	Supply line fusing	max.10 A
<b>Functional data</b>	Reserve of clock	12 h
<b>Universal inputs</b>	Number	refer to "Type summary"
Measured value inputs X	Sensors	
	Passive	LG-Ni 1000, T1, Pt 1000 2x LG-Ni 1000 (averaging)
	Active	DC 0...10 V
	Signal sources	
	Passive	0...2500 $\Omega$
	Active	DC 0...10 V
Status / counting value inputs X	Contact sensing	
	Voltage	DC 15 V
	Current	5 mA
	Requirements for status and impulse contacts	
	Signal coupling	potential-free
	Type of contact	maintained or impulse contacts
Insulating strength against mains potential	AC 3750 V to EN 60 730	
	Perm. resistance	
	Contacts closed	max. 200 $\Omega$
	Contacts open	min. 50 k $\Omega$
<b>Outputs</b>	Number of positioning and switching outputs	refer to "Type summary"
Positioning outputs Y	Output voltage	DC 0...10 V
	Output current	$\pm$ 1 mA
	Max. load	continuous short-circuit
 Switching outputs AC 230 V (Q1x...Q7x)	External supply line fusing	
	Non-renewable fuse (slow)	max. 10 A
	Automatic line cutout	max. 13 A
	Release characteristic	B, C, D to EN 60 898
	Cable length	max. 300 m
	Relay contacts	
	Switching voltage	max. AC 265 V min. AC 19 V
	AC current	max. 4 A res., 3 A ind. (cos $\phi$ = 0.6)
	At 250 V	min. 5 mA
	At 19 V	min. 20 mA
	Switch-on current	max. 10 A (1 s)
	Contact life at AC 250 V	guide values:
	At 0.1 A res.	2 x 10 <sup>7</sup> cycles
	At 0.5 A res.	4 x 10 <sup>6</sup> cycles (N. O.)
		2 x 10 <sup>6</sup> cycles (changeover)
	At 4 A res.	3 x 10 <sup>5</sup> cycles (N.O.)
		1 x 10 <sup>5</sup> cycles (changeover)
Red. factor at ind. (cos $\phi$ = 0.6)	0.85	
Insulating strength		
Between relay contacts and system electronics (reinforced insulation)	AC 3750 V, to EN 60 730-1	
Between neighboring relay contacts (operational insulation) Q1 $\Leftrightarrow$ Q2; Q3 $\Leftrightarrow$ Q4; Q5 $\Leftrightarrow$ Q6 $\Leftrightarrow$ Q7	AC 1250 V, to EN 60 730-1	
Between relay groups (reinforced insulation) (Q1, Q2) $\Leftrightarrow$ (Q3, Q4) $\Leftrightarrow$ (Q5, Q6, Q7)	AC 3750 V, to EN 60 730-1	
Power supply external devices G1	Voltage	AC 24 V
	Current	max. 4 A

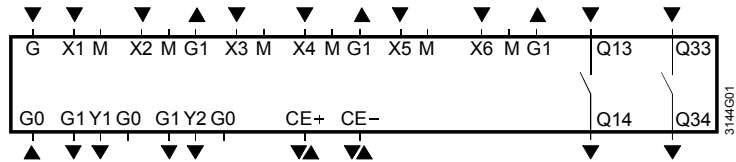
<b>Interfaces</b>	Konnex bus	
	Type of interface	Konnex-TP1
	Bus loading number	2,5
	Bus power supply (decentral, can be switched off)	25 mA
	Power failure of short duration to EN 50 090-2-2	100 ms with 1 extension module
	Extension bus	
	Connector specification	4 contacts SELV/PELV
	Service tool connection facility	RJ45 connector
<b>Perm. cable lengths</b>	For passive measuring and positioning signals	(measuring errors can be corrected on the "Settings / Inputs" menu)
	Type of signal	
	LG-Ni 1000, T1	max. 300 m
	Pt 1000	max. 300 m
	0...1000 Ω	max. 300 m
	1000...1235 Ω	max. 300 m
	Contact sensing	max. 300 m
	For DC 0...10 V measuring and control signals	refer to Data Sheet of the signal delivering device
	For Konnex bus	max. 700 m
	Type of cable	2-core without screening, twisted pairs
<b>Electrical connections</b>	Connection terminals	spring cage terminals
	For wires	0.6 mm dia....2.5 mm <sup>2</sup>
	For stranded wires without ferrules	0.25...2.5 mm <sup>2</sup>
	For stranded wires with ferrules	0.25...1.5 mm <sup>2</sup>
	Connection facility for Konnex bus	wires cannot be interchanged
<b>Degrees of protection</b>	Degree of protection of housing to IEC 60 529	IP 20 (when mounted)
	Safety class to EN 60 730	device suited for use with equipment of safety class II
<b>Environmental conditions</b>	Operation to	IEC 60 721-3-3
	Climatic conditions	class 3K5
	Temperature (housing and electronics)	0...50 °C
	Humidity	5...95 % r. h. (non-condensing)
	Mechanical conditions	class 3M2
	Transport to	IEC 60 721-3-2
Climatic conditions	class 2K3	
Temperature	-25...+70 °C	
Humidity	<95 % r. h.	
Mechanical conditions	class 2M2	
<b>Classifications to EN 60 730</b>	Mode of operation, automatic controls	type 1B
	Degree of contamination, controls' environment	2
	Software class	A
	Rated surge voltage	4000 V
	Temperature for ball-pressure test of housing	125 °C
<b>Materials and colors</b>	Terminal base	Polycarbonate, RAL 7035 (light-grey)
	Controller insert	Polycarbonate, RAL 7035 (light-grey)
	Packaging	corrugated cardboard
<b>Norms and standards</b>	Product safety	
	Automatic electrical controls for household and similar use	EN 60 730-1
	Special requirements for energy controllers	EN 60 730-2-11
	Home and Building Electronic System (HBES)	EN 50 090-2-2
	Electromagnetic compatibility	
	Immunity industrial sector	EN 61 000-6-2
	Emissions domestic sector, light industry	EN 61 000-6-3
	Home and Building Electronic System (HBES)	EN 50 090-2-2
	 -conformity	
	EMC directive	89/336/EEC
	Low-voltage directive	73/23/EEC
 -conformity to		
Australian EMC Framework	Radio communication act 1992	
Radio Interference Emission Standard	AS/NZS 3548	
<b>Weight</b>	Excl. packaging	0.49 kg



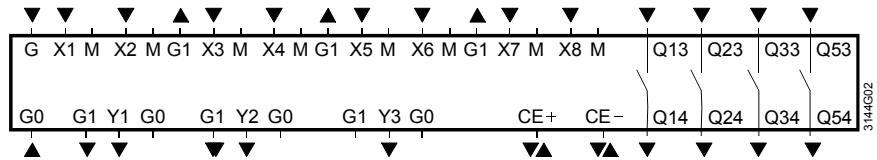
## Connection diagrams

### Internal diagrams

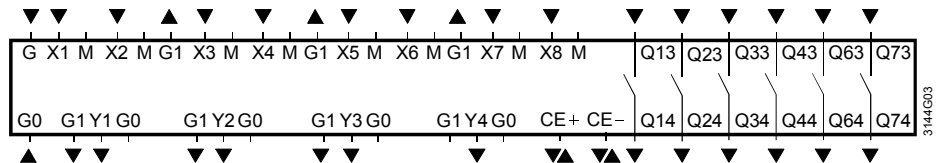
RMU710



RMU720



RMU730



### Legend

G, G0	Rated voltage AC 24 V
G1	Output voltage AC 24 V for powering external active sensors, signal sources, monitors or setting units
M	Measuring neutral for signal input
G0	System neutral for signal output
X1...X8	Universal signal inputs for LG-Ni 1000, 2x LG-Ni 1000 (averaging), T1, Pt 1000, DC 0...10 V, 0...1000 Ω (setpoint), 1000...1175 Ω (rel. setpoint), contact sensing (potential-free)
Y1...Y4	Control or status outputs, analog DC 0...10 V
Q...	Potential-free relay outputs (N.O. contact) for AC 24...230 V
CE+	Konnex bus data line, positive
CE-	Konnex bus data line, negative

### Notes

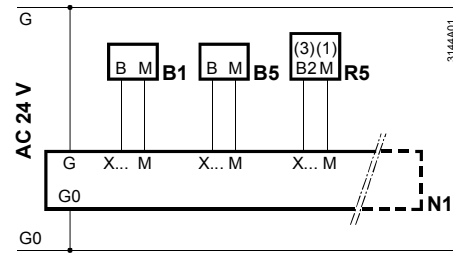
Each terminal (spring cage terminal) can only accommodate one solid wire or one stranded wire. Double terminals are internally interconnected.

**Connection diagrams**

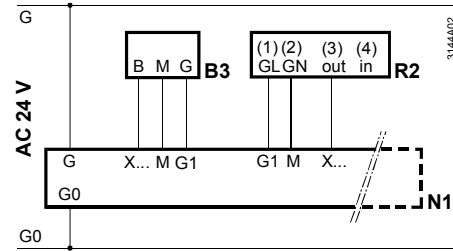
Connections on the measuring side

Examples:

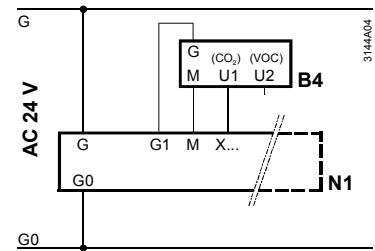
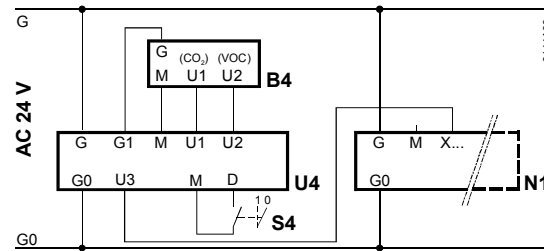
*Connection diagram 1: Measuring section with passive main and auxiliary sensors and passive signal source*



*Connection diagram 2: Measuring section with active sensor and active signal source*

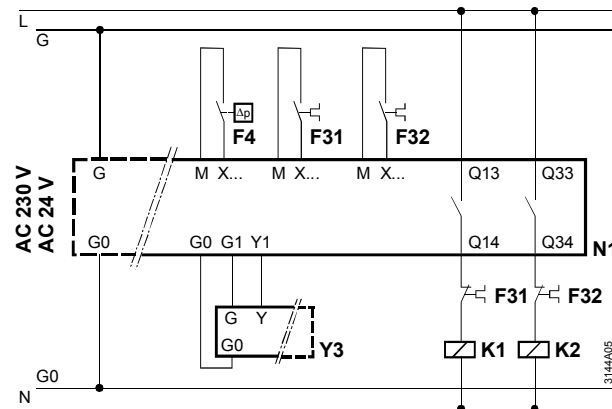


*Connection diagrams 3 and 4: Measuring section with CO<sub>2</sub>/VOC sensor with/without ventilation demand processor*



Connections on the control and monitoring side

*Connection diagram 5:*



*Legend to the connection diagrams 1 through 5*

- |       |  |        |                                      |
|-------|--|--------|--------------------------------------|
| N1    | Universal controller RMU7...           | K1, K2 | Motor contactor for fan              |
| B1    | Supply air temperature sensor QAM22... | R5     | Setpoint shifting unit BSG21.5       |
| B3    | Frost sensor QAF63.2/QAF63...          | R2     | Setpoint adjuster BSG61              |
| B4    | CO <sub>2</sub> /VOC sensor QPA63...   | S4     | On/off switch "Locking signal"       |
| B5    | Room temperature sensor QAA24          | U4     | Ventilation demand processor AQP63.1 |
| F4    | Differential pressure sensor QBM81...  | Y3     | Actuating device for heating         |
| F3... | Overcurrent release contact            |        |                                      |

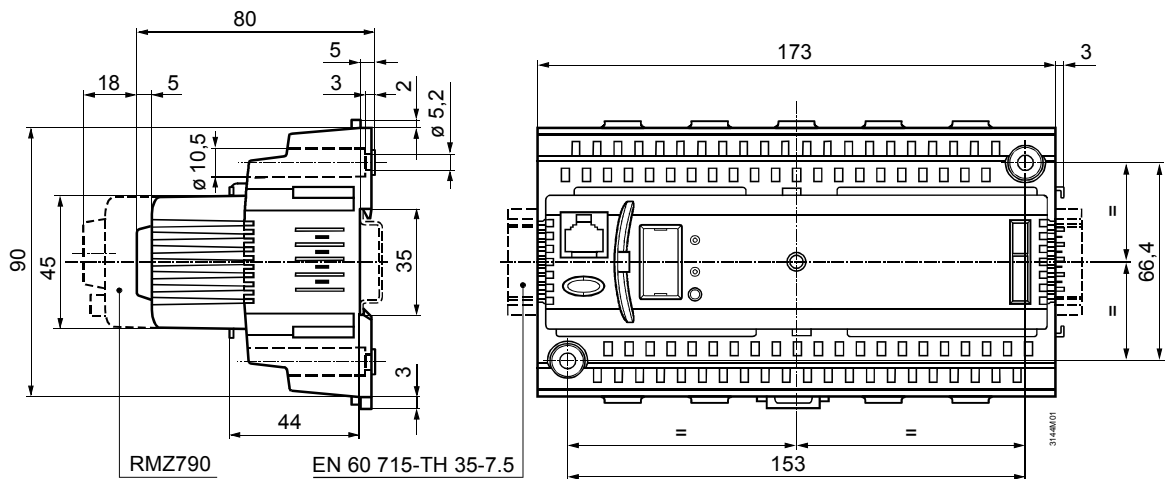
Overview of the preprogrammed standard applications

Type of controller	Plant type	Application number/description	Plant diagram
RMU710	A01	ADA001 MU1 HQ a Supply air temperature control with hot water air heating coil. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A02	ADB001 MU1 HQ a Supply air temperature control with chilled water air cooling coil. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A03	ADC001 MU1 HQ a Supply air temperature control with hot water air heating coil and chilled water cooling coil in sequence. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A04	AEA001 MU1 HQ a Supply air temperature control with mixed air dampers and hot water air heating coil in sequence. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A05	ADAE01 MU1 HQ a Supply air temperature control with plate heat recovery system and hot water air heating coil in sequence. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
RMU720	A01	AEC001 MU2 HQ a Supply air temperature control with mixed air dampers, hot water air heating coil and chilled water air cooling coil in sequence. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A02	ADCE01 MU2 HQ a Supply air temperature control with plate heat recovery system, hot water air heating coil and chilled water air cooling coil in sequence. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	

Type of controller	Plant type	Application number/description	Plant diagram
RMU720	A03	ADFB01 MU2 HQ a Supply air temperature control with hot water air heating coil and chilled water air cooling coil in sequence. Room humidity control with steam humidifier. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A04	AEDB01 MU2 HQ a Supply air temperature control with mixed air dampers and hot water air heating coil in sequence. Room humidity control with steam humidifier. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A05	ADDP01 MU2 HQ a Supply air temperature control with thermal wheel heat recovery system and hot water air heating coil in sequence. Room humidity control with steam humidifier. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
RMU730	A01	AEFB01 MU3 HQ a Supply air temperature control with mixed air dampers, hot water air heating coil and chilled water air cooling coil in sequence. Room humidity control with steam humidifier. <i>Variant:</i> Room (extract) supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A02	ADFP01 MU3 HQ a Supply air temperature control with thermal wheel heat recovery system, hot water air heating coil and chilled water air cooling coil in sequence. Room humidity control with steam humidifier. <i>Variant:</i> Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature.	
	A03	ADZA01 MU3 HQ a Room (extract)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature, with hot water air reheater and chilled water air cooling coil in sequence. Room humidity control with spray humidifier (release). Dewpoint temperature control (constant supply air humidity) with hot water air preheater and chilled water air cooling coil in sequence.	
	A04	AEZH01 MU3 HQ a Room (extract air)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature, with hot water air reheater and chilled water air cooling coil in sequence. Room humidity control with spray humidifier(release). Dewpoint temperature control (constant supply air humidity) with mixed air dampers, hot water air preheater and chilled water air cooling coil in sequence.	

Type of controller	Plant type	Application number/description	Plant diagram
<b>RMU730</b>	<b>A05</b>	<p>AEZH02 MU3 HQ a</p> <p>Room (extract air)/supply air temperature cascade control with minimum and maximum limitation of the supply air temperature, with mixed air dampers, hot water air reheater and chilled water air cooling coil in sequence.</p> <p>Room humidity control with spray humidifier (release) and chilled water air cooling coil.</p> <p>Dewpoint temperature control (constant supply air humidity) with hot water air preheater.</p>	<p>The diagram illustrates a complex HVAC system. It features a main air duct with several branches. Key components include: <ul style="list-style-type: none"> <li><b>Control Elements:</b> A series of control boxes labeled B1 through B5, with associated actuators N.X1 through N.X8.</li> <li><b>Dampers and Valves:</b> Multiple dampers labeled Y1 through Y10, and valves labeled N1 through N10.</li> <li><b>Coils and Heat Exchangers:</b> Hot water air preheaters (F1, F2, F3, F4) and chilled water air cooling coils.</li> <li><b>Humidifiers:</b> Spray humidifiers labeled M3 and M9.</li> <li><b>Flow Direction:</b> Arrows indicate the direction of air flow through the system.</li> </ul> </p>

## Dimensions



Dimensions in mm