

Synco™ 700

Extension Modules

RMZ782B  
RMZ783B

Extension modules for use with the RMH760B heating controller to provide additional auxiliary functions

Use

Heating plants controlled by the RMH760B heating controller. For the heating controller's field of use, refer to Data Sheet N3133.

Functions

The universal modules are designed to increase the number of inputs and outputs of Synco™ 700 controls, thus providing additional control and monitoring functions. The following inputs and outputs are provided:

Type reference	Number of universal inputs	Number of analog outputs	Number of relay outputs	
			NO	Changeover
RMZ782B	3	1	2	1
RMZ783B	4	1	3	2

Type summary

Type of module	Type reference
Heating circuit module	RMZ782B
DHW module	RMZ783B

## Ordering

---

When ordering, please give name and type reference, for example:

### Heating circuit module RMZ782B

The module connector listed under "Accessories" must be ordered as a separate item, if required.

## Equipment combinations

---

The extension modules must be used in connection with the **RMH760B** heating controller. They cannot be used in connection with other controls of the Synco™ 700 family.

For information about the heating controller RMH760B, refer to Data Sheet N3133.

## Product documentation

---

<i>Type of documentation</i>	<i>Classification number</i>
Mounting Instructions	<b>M3110</b>
Product Range Description	<b>S3110</b>
CE Declaration of Conformity	<b>T3110</b>
Environmental Declaration	<b>E3110...02</b>

## Technical design

---

### Mode of operation

The RMZ78... extension modules complement the RMH760B heating controller and can not operate autonomously.

Use of the extension modules is determined by the selection of the basic type (basic configuration). All settings required in connection with the extension modules are made on the heating controller.

The signals from sensors, signal sources, etc., are delivered to the heating controller and then handled; the control signals and commands generated by the controller are fed to the respective extension module from where they are passed on to the connected actuating devices.

The extension module is powered by the RMH760B heating controller, which also identifies and monitors the module.

## Mechanical design

---

### Basic design

In terms of mechanical design, the extension modules are identical to the Synco™ 700 controls. No wiring between the modules or to the heating controller is required; the electrical connections are made by attaching the modules to the controller.



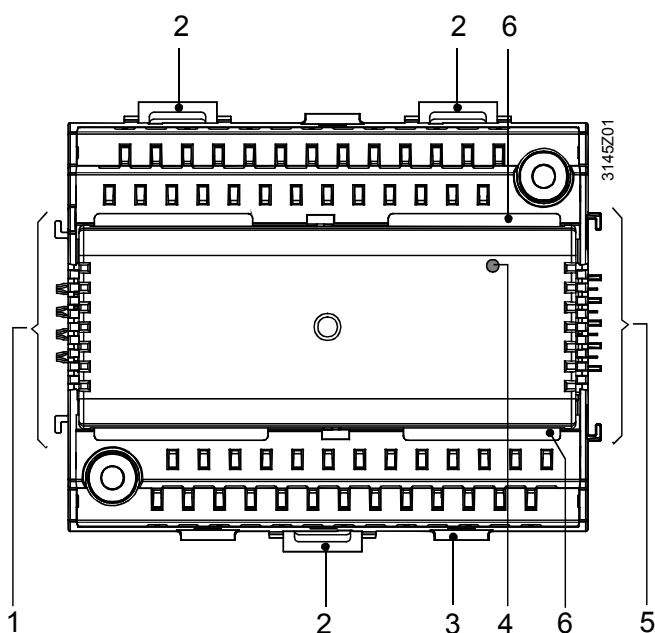
Synco™ 700 control with attached extension module RMZ78...

### Operation

The extension modules have no setting and operating elements; operation takes place with the operator unit RMZ790 or RMZ791.

There is one exception, the module has an LED for indicating the operating state.

## Indicating and connecting elements



- 1 Connecting elements for the Synco™ 700 control or for one extension module
- 2 Mounting facility for fitting the module to a top hat rail
- 3 Fixing facility for the cable tie
- 4 LED (green) for indication of operation
- 5 Connecting elements for one extension module
- 6 Rest for the terminal cover

## Accessories

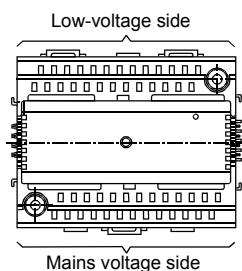
Accessories	Type reference	Data Sheet
Module connector	<b>RMZ780</b>	N3138

## Engineering notes

- Fuses, switches, wiring and grounding must be in compliance with local safety regulations
- Sensor cables should not be run parallel to mains-carrying cables powering loads such as actuators and pumps

## Mounting and installation notes

- The module are designed for:
  - Mounting in a standard cabinet as per DIN 43 880
  - Wall mounting on an existing top hat rail (EN 50 022-35×7.5)
  - Wall mounting using two fixing screws
  - Flush panel mounting
- Not permitted are wet or damp spaces; the permissible ambient temperatures must be observed
- Disconnected the system from the power supply prior to mounting and installation the module
- The module insert may not be removed from the terminal base!**
- The module must be fitted to the right of the controller in the correct order
- The extension modules need not be wired between themselves or to the controller. The electrical connections are made automatically when plugging the modules. If it is not possible to arrange all extension modules side by side, the first of the detached modules must be connected to the previous module or the controller by using the RMZ780 module connector. In that case, the cumulated cable length may not exceed 10 meters



- The connection terminals for protective extra low-voltage are located in the upper half of the module, those for mains voltage (actuators and pumps) at the bottom
- Only one solid or stranded wire may be connected to each terminal (spring cage terminals). For fixing the wires, the cables must be stripped by 7 to 8 mm. To introduce the wires into the spring cage terminals, or to remove them, a screw driver size 0 or 1 is required. Cable strain relief can be ensured with the help of the lugs for cable ties
- The module mounted on the top hat rail together with other modules can only be removed from the rail after the 3 catches have been brought into their release-and-hold position (audible "click"). After removal, the catches must be pushed back into their snap-on position
- The module is supplied complete with Mounting Instructions


## Commissioning notes

During the commissioning process, the outputs are in a defined off state.

## Disposal notes

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

## Technical data

<b>Power supply</b>	Rated voltage (via the controller)	AC 24 V $\pm 20\%$
	Power consumption	3 VA
<b>Analog inputs (X...)</b>	Sensors	
	Passive	1 or 2 (averaging) LG-Ni 1000, T1, Pt 1000, NTC 575
	Active	DC 0...10 V
	Signal source	
	Passive	0...2500 $\Omega$
	Active	DC 0...10 V
<b>Digital Inputs (X...) (status / counting values)</b>	Contact sensing	
	Voltage	DC 15 V
	Current	5 mA
	Requirements for the 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>Positioning outputs (Y1, Y2)</b>	Output voltage	DC 0...10 V
	Output current	$\pm 1$ mA
	Max. load	continuous short-circuit
 <b>Switching outputs (Q...)</b>	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 contact data	
	Switching voltage	max. AC 265 V / min. AC 19 V
	AC current (cos $\varphi$ = 0.6)	max. 4 A ohm., 3 A ind.
	at 250 V	min. 5 mA
	at 19 V	min. 20 mA
	Switch-on current	max. 10 A (1 s)
	Contact life at AC250 V	guide values:
	at 0.1 A res.	$2 \times 10^7$ cycles
	at 0.5 A res.	$4 \times 10^6$ cycles (N.O.)
	at 4 A res.	$2 \times 10^6$ cycles (changeover)
		$3 \times 10^5$ cycles (N.O.)
		$1 \times 10^5$ cycles (changeover)
	Reduction factor at ind. (cos $\varphi$ = 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	AC 1250 V, to EN 60 730-1
	Between relay groups (reinforced insulation)	
	[Q1, Q2] $\leftrightarrow$ [Q3, Q4/Q5]	AC 3750 V, to EN 60 730-1
<b>Power supply external devices (G1)</b>	Voltage	AC 24 V
	Current	max. 4 A
<b>Electrical connections</b>	Connections terminals	spring cage terminals
	For solid wires	0.6 mm dia...2.5 mm <sup>2</sup>
	For stranded wires without ferules	0.25...2.5 mm <sup>2</sup>
	For stranded wires with ferules	0.25...1.5 mm <sup>2</sup>
<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-
	Climatic conditions	class 3K5
	Temperature (housing with electronics)	0...50 °C
	Humidity	5...95 % r. F. (non-condensing)
	Mechanical conditions	class 3M2
	Transport to	IEC 60 721-3-2
	Climatic conditions	class 2K3
	Temperature	-25...+70 °C
	Humidity	<95 % r. F.
	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-test of housing	125 °C
<b>Materials and colors</b>	Terminal base	polycarbonate, RAL 7035 (light-gray)
	Module insert	polycarbonate, RAL 7035 (light-gray)
	Packaging	corrugated cardboard

## Norms and standards

### 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

### CE-conformity to

EMC directive	89/336/EEC
Low-voltage directive	73/23/EEC

### ✓-conformity to

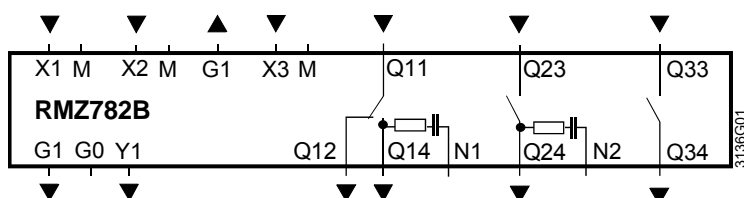
Australian EMC Framework	Radio communication act 1992
Radio Interference Emission Standard	AS/NZS 3548

## Weight

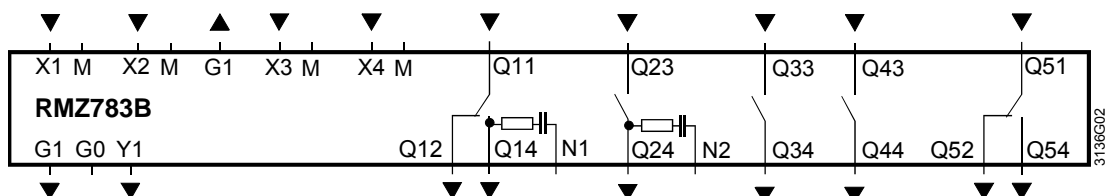
RMZ782B excl. packaging	0.28 kg
RMZ783B excl. packaging	0.28 kg

## Connecting terminals

### RMZ782B



### RMZ783B



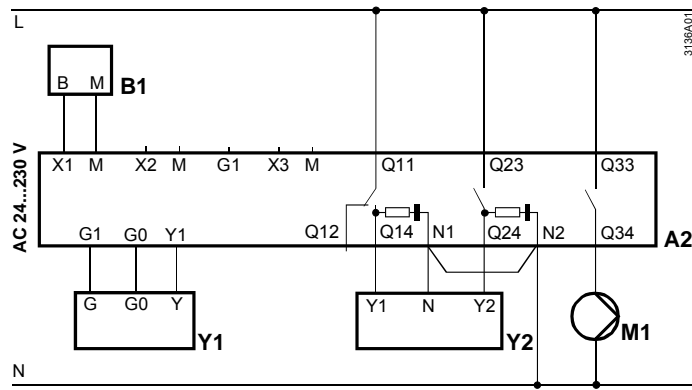
- G0 System neutral for signal output
- G1 Output voltage AC 24 V for powering external active devices
- M Measuring neutral for signal input
- N... Spark suppression device for 3-position actuators
- Q... Potential-free relay inputs and outputs for AC 24...230 V
- X... Universal signal inputs for LG-Ni 1000, 2× LG-Ni 1000 (averaging), T1, Pt 1000, DC 0...10 V, NTC 575, 0...2500 Ω, contact sensing (potential-free)
- Y... Control or status outputs DC 0...10 V

## Notes

- Each terminal (spring cage terminals) can accommodate only 1 solid wire or 1 stranded wire
- Double terminals are internally interconnected
- With 3-position control of actuators operating on AC 230 V, the radio interference suppression element must be activated. For that purpose, terminal N1 is to be connected to the neutral conductor and a wire link is to be fitted between terminals N1 and N2

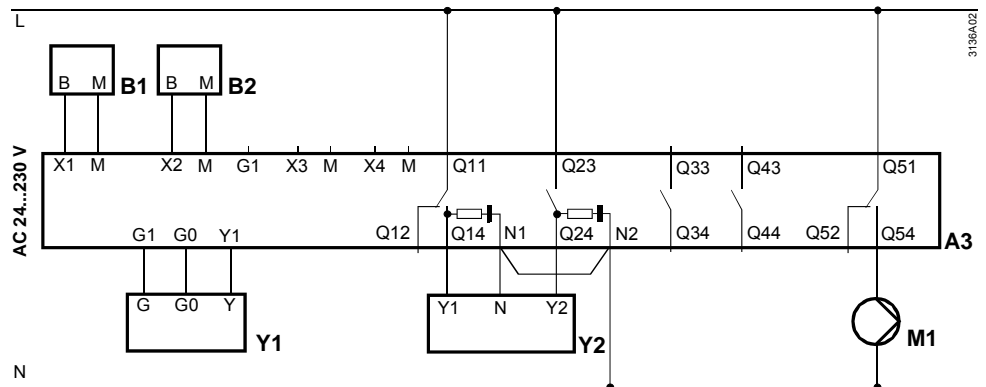
## Connection examples

### Heating circuit module RMZ782B



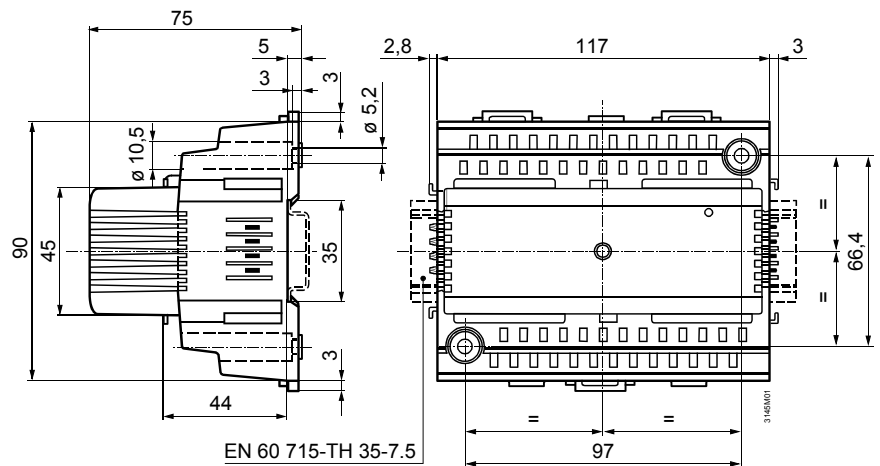
- A2 Heating circuit module RMZ782B  
 B1 Flow temperature sensor  
 M1 Heating circuit pump  
 Y1 Actuator with DC 0...10 V input  
 Y2 3-position actuator

### DHW module RMZ783B



- A3 DHW module RMZ783B  
 B1 DHW flow temperature sensor  
 B2 Storage tank temperature sensor  
 M1 Charging pump  
 Y1 Actuator with DC 0...10 V input  
 Y2 3-position actuator

## Dimensions



Dimensions in mm