

Synco™ 700

## Universal Modules

## RMZ78...

Extension modules for use with controls of the Synco™ 700 family.

### Use

For heating, ventilation, air conditioning and chilled water plant equipped with controls of the Synco™ 700 family.

### 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.

### Type summary

| Type reference | Number of universal inputs | Number of analog outputs | Number of relay outputs |                     |
|----------------|----------------------------|--------------------------|-------------------------|---------------------|
|                |                            |                          | N.O. contacts           | Changeover contacts |
| <b>RMZ785</b>  | 8                          | –                        | –                       | –                   |
| <b>RMZ787</b>  | 4                          | 0                        | 3                       | 1                   |
| <b>RMZ788</b>  | 4                          | 2                        | 1                       | 1                   |
| <b>RMZ789</b>  | 6                          | 2                        | 2                       | 2                   |

## Ordering

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| <i>Product number</i> | <i>Designation</i>                 |
|-----------------------|------------------------------------|
| RMZ785                | Universal modul (8 UI)             |
| RMZ787                | Universal modul (4 UI, 4 DO)       |
| RMZ788                | Universal modul (4 UI, 2 AO, 2 DO) |
| RMZ789                | Universal modul (6 UI, 2 AO, 4 DO) |

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

Universal module **RMZ785**

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

## Equipment combinations

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The universal modules must be used in connection with controls of the Synco™ 700 family. At present, the following combinations are possible:

| <i>Type of Synco device</i>         | <i>RMZ785</i> | <i>RMZ787</i> | <i>RMZ788</i> | <i>RMZ789</i> |
|-------------------------------------|---------------|---------------|---------------|---------------|
| Universal controller RMUB..         | •             | •             | •             | –             |
| Heating controller RMH760B          | –             | •             | –             | •             |
| Boiler sequence controller RMK770   | •             | •             | •             | •             |
| Control center RMB795               | •             | •             | –             | –             |
| Control and monitoring unit RMS705B | •             | •             | •             | –             |

For details of these Synco devices, refer to Product Range Description S3110 or the document of the selected application.

## Product documentation

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| <i>Name</i>                    | <i>Document no.</i> |
|--------------------------------|---------------------|
| Mounting Instructions          | <b>M3110</b>        |
| Product Range Description      | <b>S3110</b>        |
| Declaration of Conformity (CE) | <b>T3110</b>        |
| Environmental Declaration      | <b>E3110...02</b>   |

## Technical design

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The RMZ78... universal modules complement the range of Synco™ 700 controls. They cannot be operated autonomously.

The universal modules are incorporated into the Synco™ 700 controls in the basic configuration. All settings associated with the universal modules are made on the relevant Synco™ 700 control.

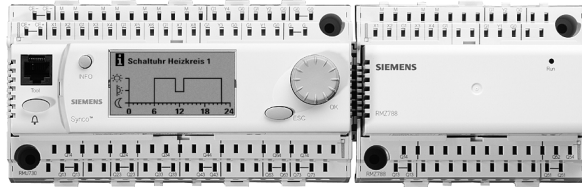
The signals from sensors, signal sources, etc., are delivered to the Synco™ 700 device for handling. The control signals and commands generated by the control are fed back to the respective universal module from where they are passed on to the connected actuating devices.

The universal module is powered by the relevant Synco™ 700 control, which also identifies and monitors the module.

## Mechanical design

### Basic design

In terms of mechanical design, the extension modules are identical with the Synco™ 700 controls, No wiring is required between the individual modules or between module and controller. The electrical connections are established by attaching the module to the control.

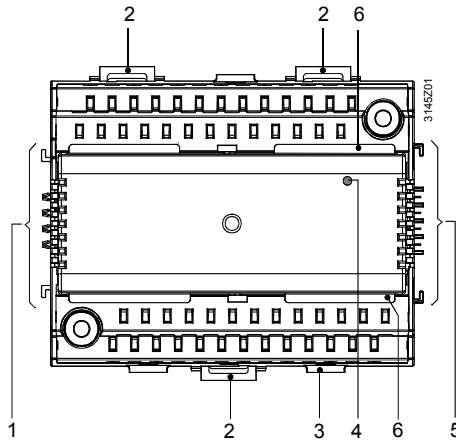


Synco™ 700 controller with attached RMZ78... module

### Operation

The extension modules have no setting and operating elements. Operation is accomplished with the help of the RMZ790 or RMZ791 operator unit. Exception is the LED, which indicates the module's operating state.

### Operating, display and connecting elements



- 1 Connecting elements for Synco™ 700 control or another extension module
- 2 Catch for fitting the module to a top hat rail
- 3 Fixing facility for the cable tie (cable strain relief)
- 4 LED (green) for indicating the operating state
- 5 Connecting elements for another extension module
- 6 Rest for the terminal cover

## Accessories

| <i>Accessory</i> | <i>Type reference</i> | <i>Data Sheet</i> |
|------------------|-----------------------|-------------------|
| Module connector | <b>RMZ780</b>         | N3138             |

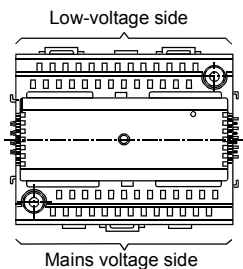
## Notes

### Engineering

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

### Mounting and Installation

- The modules are designed for:
  - Mounting in a standard cabinet conforming to DIN 43 880
  - Wall mounting on an existing top hat rail (EN 50 022-35x7.5)
  - Wall mounting with 2 fixing screws
  - Flush panel mounting
- Not permitted are wet or damp spaces; the permissible ambient temperatures must be observed
- Disconnect the system from power supply prior to mounting and installing the module
- **The module insert must not be removed from the terminal base!**
- The module must be fitted on the right hand side of the Synco™ 700 control in the correct order, in accordance with the internal configuration
- The extension modules need not be wired, neither between themselves nor to the Synco™ 700 control. The electrical connections are made automatically when attaching 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 Synco™ 700 control by using the RMZ780 module connector. In that case, the cumulated cable length must 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 a 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

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

### Disposal



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

## Technical data

|   |  |   |
|---|--|---|
| <b>Power supply</b>   | Rated voltage                                    | AC 24 V $\pm$ 20 %<br>(via the controller)          |
|   | Power consumption                                | 3 VA  |
| <b>Analog inputs (X...)</b>   | Sensors  |   |
|   | Passive  | 1 or 2 LG-Ni 1000, T1, Pt 1000                      |
|   | Active   | DC 0...10 V   |
|   | Signal sources                                   |   |
| Passive   | 0...2500 $\Omega$                                |   |
| Active  | DC 0...10 V                                      |   |
| <b>Digital inputs (X...)<br/>(status and 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<br/>(Y1, Y2)</b>   | Output voltage                                   | DC 0...10 V   |
|   | Output current                                   | $\pm$ 1 mA  |
|   | Max. load  | continuous short-circuit                            |
|  <b>Switching outputs<br/>(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                                       | max. 4 A res., 3 A ind.<br>( $\cos \varphi = 0.6$ ) |
|   | 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.                                    | $2 \times 10^7$ cycles                              |
|   | N.O. contact at 0.5 A res.                       | $4 \times 10^6$ cycles                              |
|   | Changeover contact at 0.5 A res.                 | $2 \times 10^6$ cycles                              |
|   | N.O. contact at 4 A res.                         | $3 \times 10^5$ cycles                              |
|   | Changeover contact at 4 A res.                   | $1 \times 10^5$ cycles                              |
| 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                        |   |

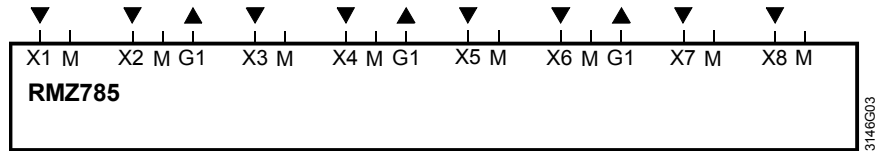
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|---|---|---|
| <b>Power supply external devices (G1)</b> | Voltage                                       | AC 24 V   |
|   | Current                                       | max. 4 A  |
| <b>Electrical connections</b>             | Connection terminals                          | 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>Protection</b>                         | Degree of protection of housing to IEC 60 529 | IP20 (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 with electronics)        | 0...50 °C   |
|   | Humidity                                      | 5...95 % r.h. (noncondensing)                           |
|   | 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-test of housing          | 125 °C  |
| <b>Materials and colors</b>               | Terminal base                                 | Polycarbonate, RAL 7035 (light-grey)                    |
|   | Insert  | Polycarbonate, RAL 7035 (light-grey)                    |
|   | Packaging                                     | corrugated cardboard                                    |

**Standards**

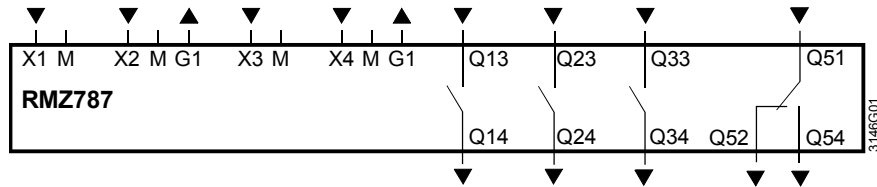
|   |  |
|---|--|
| Product safety  |  |
| Automatic electrical controls for household and similar use                                     | EN 60 730-1                                    |
| Special requirements for energy controllers   | EN 60 730-2-11                                 |
| <hr/>   |  |
| Electromagnetic compatibility   |  |
| For use in industrial and domestic environments   |  |
| Immunity  | EN 60730-1                                     |
| Emissions   | EN 60730-1                                     |
| <hr/>   |  |
|  conformity to |  |
| EMC directive   | 2004/108/EC                                    |
| Low-voltage directive   | 2006/95 EC                                     |
| <hr/>   |  |
|  conformity to |  |
| Australian EMC Framework  | Radio communication act 1992                   |
| Radio Interference Emission Standard  | AS/NZS 3548                                    |
| <hr/>   |  |
| Environmental compatibility   |  |
| The product environmental declaration   | ISO 14001 (Environment)                        |
| CE1E3113 contains data on environmentally compatible product design and assessments             | ISO 9001 (Quality)                             |
| (RoHS compliance, materials composition, packaging, environmental benefit, disposal)            | SN 36350 (Environmentally compatible products) |
|   | RL 2002/95/EG (RoHS)                           |
| <hr/>   |  |
| <b>Weight</b>   |  |
| RMZ785 (excl. packaging)  | 0.25 kg  |
| RMZ787 (excl. packaging)  | 0.30 kg  |
| RMZ788 (excl. packaging)  | 0.28 kg  |
| RMZ789 (excl. packaging)  | 0.31 kg  |

## Internal diagrams

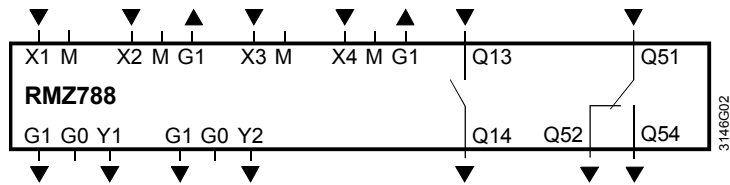
### RMZ785



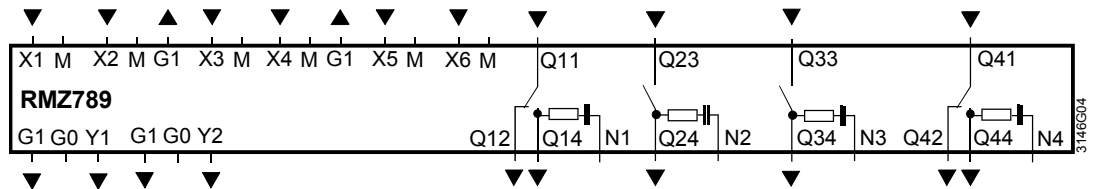
### RMZ787



### RMZ788



### RMZ789



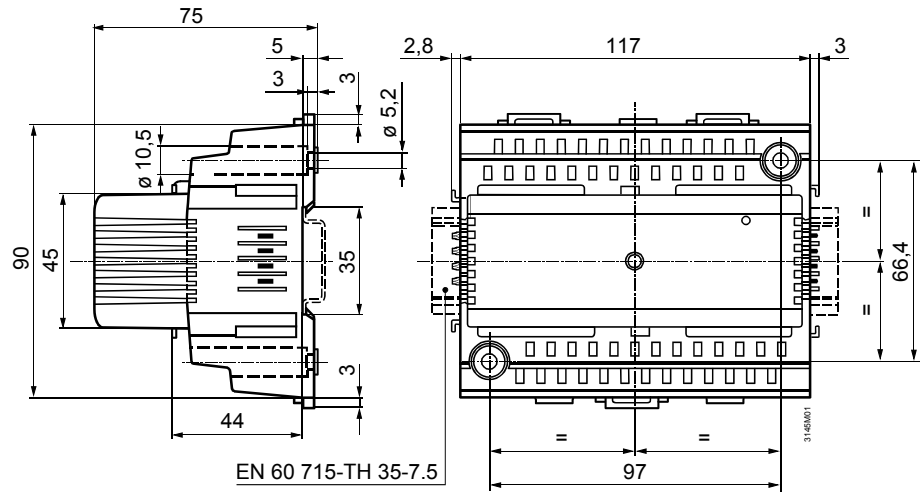
- G0 System neutral for signal outputs
- G1 Output voltage AC 24 V for powering external active devices
- M Measuring neutral for signal inputs
- N... Radio interference suppression for 3-position actuators
- Q... Potential-free relay inputs and outputs for AC 24...230 V
- X... Universal signal inputs 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)
- Y... Control or status outputs DC 0...10 V

### Notes

- Each terminal (cage terminal) can accommodate only 1 solid wire or 1 stranded wire
- Double terminals are internally interconnected



# Dimensions



Dimensions in mm

