**PROFILE**

The input/output modules with communication ports for CANopen or PROFIBUS-DP provide a high degree of flexibility when designing new plants. The compact, plug-in modules can be combined into cost-effective, de-centralized I/O islands. Due to the modular concept, type and number of the I/Os can be matched optimally to the requirements. Subsequent system extensions present no problems.

**FEATURES**

- Broad range of available sensor and signal modules
- Standard fieldbus interfaces supported
- Cost-effective module size
- Well defined galvanic isolation concept
- Modules with configurable multifunctions
- Easy module exchange by plug-in cable terminals
- Configuration without special tools
- High signal resolution
- High accuracy
- Small housing size
- Flexible and easy to extend
- Optimized connection to KS98+

**APPLICATION**

- Data acquisition
- Remote I/O
- I/O extension

**DESCRIPTION**

**CONSTRUCTION**

RM 200 consists of a basic module (housing) for „top hat“ rail mounting, with 3, 5 or 10 sockets. The left-hand socket is always reserved for the bus coupler module (CANopen / PROFIBUS-DP / MODBUS). The remaining sockets can be used for the required number of I/O modules (insertion with system power „off“) or dummy panels. The modules clip into the connectors of the basic module, and can be removed easily with simple tools.

**Power supply**

The system supply of 24 VDC is connected to the bus coupler module, that also provides galvanic isolation. The I/O modules and the internal communication circuits are supplied with 24 VDC via the motherboard.

**Internal communication**

An internal bus connects the I/O modules with the bus coupler module, where the statuses/values of the connected I/Os are continuously updated and stored. The stored data also contains information about the type and diagnostic results of the relevant I/O module. The scanning cycle depends on the type and number of inserted modules and the bus load.

**Galvanic isolation**

In the bus coupler module, the bus system (CAN / PROFIBUS / RS485 / RS232), the internal communication circuits are galvanically isolated from each other and from the 24 VDC system supply.

Furthermore, the I/O modules provide galvanic isolation for the internal system bus and for the I/O circuits. Analog inputs/outputs of the individual modules are galvanically connected, but are isolated from all the other modules. Exception for the RM 224-0, RM 224-2 and RM 225: their inputs are isolated from each other.

The eight digital outputs of the RM 251 are combined into two groups with four outputs each. The groups are galvanically isolated from each other and from the remaining electronics. The eight digital inputs of the RM 242 are grouped together to two inputs each which are galvanically isolated from each other.

**Sensor energization**

**Transmitter supply**

Analog input modules (RM 222-x) provide 24 VDC for energizing external two-wire transmitters. Module versions with standardized voltage input signals also provide a stable 5 VDC reference for connecting to potentiometers used as voltage dividers.

**Digital inputs**

The RM 241 provides 24 VDC for operating proximity switches as well as NPN or PNP transistors.
**Input circuit monitoring**

Analog input signals are monitored for short circuit, open circuit, or polarity depending on module type. If triggered, the monitor’s output has two selectable alternative states: the highest permissible value or the smallest possible value.

**Electrical connections**

The signal leads are connected to staggered terminal levels at top and bottom of the module. The screw terminal blocks are plug-in units, and a connecting diagram is printed on the module front.

**Configuration**

Available as an accessory, the Engineering Set ES/RM 200 contains a complete description plus the EDS and GSD files required for linking the equipment to a CANbus or PROFIBUS network (maximum version with Standard Mapping of the variables). The set also contains example programs for SIMATIC STEP7 (Siemens) environment.

Standard field-bus configurators such as ProCANopen (Vector) or SIMATIC STEP7 (Siemens) are supported.

**Connection to KS98+**

If the RM 200 is used as an I/O extension for the multi-function unit KS 98+ via CANbus, parameter adjustment and configuration are done by means of additional functions in the Engineering Tool ET/KS 98plus. In this case, a CAN configurator is not needed!

---

**TECHNICAL DATA**

**SYSTEM**

**Basic module**

Internal scanning cycle of the I/O modules:

\[ t_s = 10 \ldots 400 \text{ms} \] (depending on the type and number of connected inserted I/O modules and the bus load).

**Number of module sockets:**

<table>
<thead>
<tr>
<th>Module</th>
<th>2 sockets for I/O modules</th>
<th>4 sockets for I/O modules</th>
<th>9 sockets for I/O modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM 211</td>
<td>RM 212</td>
<td>RM 213</td>
<td></td>
</tr>
</tbody>
</table>

**Restrictions:**

- max. 16 analog inputs (e.g. 4x RM 221-x or RM 224-1 or 8x RM 224-0 or 4x RM 225)
- A strain gage input (RM 226) occupies two analog inputs!
- max. 16 analog outputs (e.g. 4x RM 231-x)

There are no restrictions for digital I/O modules.

**Dummy panel RM 214**

Slot covers for keeping protection degree IP20.

---

**BUS COUPLER MODULES**

**Bus coupler module RM 201**

Full CAN controller according to CAN specification V2.0A; physical coupling according to ISO 11898.

**Cycle time on the CANbus:**

Depends on the selected transmission speed, and on the number and type of inserted I/O modules (PDOs).

---

**Transmission speed:**

- 10 / 20 / 50 / 100 / 125 / 500 / 800 / 1000 kBit/s; adjustable with DIP switches or via automatic selection.

**Bus cable length**

depending on baudrate (10kBd...1MBd):

\[ \leq 1000/1000/500/250/100/50/25 \text{ m} \]

**Address configuration:**

addresses 1...127, adjustable with DIP switches; \( \leq 42 \) using the default mapping

**Terminating resistor:**

fitted, can be activated with a jumper.

**CAN protocol:**

CANopen Slave, supports DS301 V3.0 (communication profile) and DSP404-12 (measuring devices and closed loop controllers)

**Process data objects (PDOs):**

- Receive: \( \leq 5 \)
- Transmit: \( \leq 10 \), of which max. 5 can be requested per RTR (Remote Transmit Request)

**EDS file:**

Maximum version; component part of the Engineering Set ES/RM 200; not necessary in conjunction with KS98+.

**Alarm output:**

- Relay: 1 potential-free changeover contact
- Function: configurable (node guarding)

- Max. working voltage for protective insulation: 150V

**Contact rating:**

- AC: \( \leq 5A, 750 \text{ W} \)
- DC: \( \leq 5A, 120V, 120 \text{ W} \)

**Galvanic isolation:**

Supply voltage, CANbus and logic circuits are galvanically isolated from each other.

**Indicator LEDs:**

1 x green (power);
1 x red (alarm);
2 x yellow (Transmit, Receive)

**Supported modules:**

- RM 221-x, RM 222-x, RM 224-x, RM 231-x, RM 24x, RM 25x
- not supported: RM 225
Bus coupler RM 201-1  
supported modules:  
RM 221-x, RM 222-x, RM 225,  
RM 231-x, RM 24x, RM 25x  
not supported: RM 224-x  
Further properties as RM 201.

Bus coupler module RM 202  
PROFIBUS-DP to EN 50 170

Cycle time on the PROFIBUS:  
Depends on the selected transmission speed and number of I/O modules.

Transmission speed  
9600 bit/s up to 12 Mbit/s via automatic selection

Bus cable length:  
≤1000 … 100m, depending on baudrate  
Address configuration:  
address 1...126, adjustable with DIP switches.

Terminating resistor: external

GSD file:  
component part of the Engineering Set ES/RM 200

Galvanic isolation:  
Supply voltage, PROFIBUS and logic circuits are galvanically isolated from each other.

Indicator LEDs:  
1 x green (power);  
1 x yellow (data exchange)  
1 x yellow (diagnosis)

Bus coupler module RM 203-x  
Serial interface with MODBUS RTU protocol.  
RM 203-0: RS 485 interface  
RM 203-1: RS 232 interface

Transmission speed:  
600 / 1200 / 2400 / 4800 / 9600 / 19200 / 38400 Baud; adjustable with DIP switches.

Byte format:  
Adjustable with DIP switches:

<table>
<thead>
<tr>
<th>Data bits</th>
<th>Parity</th>
<th>Stop bits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>none</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>none</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>even</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>odd</td>
<td>1</td>
</tr>
</tbody>
</table>

Bus cable length:  
RS 232: ≤ 3 m  
RS 485: ≤ 1200 m

Address configuration:  
addresses 1...127, adjustable with DIP switches

Alarm output:  
Relay: 1 potential-free changeover contact  
Function: configurable (node guarding)  
– Max. working voltage for protective insulation: 150V  
Contact rating:  
AC: ≤ 5A, 750 W;  
DC: ≤ 5A, 120V, 120 W

Galvanic isolation:  
Supply voltage, MODBUS and logic circuits are galvanically isolated from each other.

Indicator LEDs:  
1 x green (power);  
1 x yellow (Transmit, Receive)

ANALOG INPUT MODULES

General  
Measurement cycle:  
≤100 ms for all channels of a module

Digital filter:  
1st-order filter, configurable mean-value generation according to the difference equation:  
y(t+ts) = α x(t) + (1-α) y(t)  
(α = 0.004...1.0)

A/D converter:  
successive approximation

Input span monitoring:  
Error message in case the upper limit is exceeded by more than  
> 20 digits (resolution 12 bit)  
> 160 digits (resolution 16 bit)

Temperature drift: ≤0.08%/10K

Indicator LEDs:  
1 x red per channel (error signal)

Galvanic isolation:  
Between inputs, logic circuits, and internal supply (except RM 222-x)  
Inputs are galvanically connected, except for RM 224-0, RM 224-2, RM 225.

Standard signals without TPS (I, U) (RM 221-x)  
Number of channels: 4 (differential input)  
(Differential inputs for RM 221-2 on request)

Measuring ranges:  
selectable per channel  
RM 221-0 (I): 4 x 0/4...20 mA  
RM 221-1 (U): 4 x 0...10 / -10...10 V  
RM 221-2 (U/I): 2 x 0/4...20 mA, and  
2 x 0...10 / -10...10 V

Resolution: 12 bits  
0/4...20mA: 5,1 / 4,1 μA/digit;  
0...10V / -10...10V: 2,5 / 5 mV/digit;

Filter: 2nd-order analog filter  
Limiting frequency: fg = 100 Hz

Characteristic: linear  
development: ±0,15%

Input resistance:  
Current: approx. 470Ω; Voltage: >730 kΩ (with ground reference)

Sensor monitoring:  
Broken or short-circuited leads:  
with 4...20 mA signals  
Wrong polarity: with 0/4...20 mA and 0...10 V

Fig.4 : Display Elements and Connections of RM 200 modules
Interface:

Data format: INT; value ranges for Current: 0/16,000...20,000 Voltage: 0...10,000 or -10,000...10,000 Engineering unit: mA (I); V (U) Decimals: 3

Standard signals with TPS (I, U, potentiometer) (RM 222-x)

Number of channels: 4 (single ended)
Measuring ranges:

selectable per channel
RM 222-0 (I): 4 x 0/4...20 mA
RM 222-1 (U): 4 x 0...10 / -10...10 V
RM 222-2 (U): 2 x 0/4...20 mA and 2 x 0...10 / -10...10 V

Two-wire transmitter supply (TPS):

Channels intended for current input can provide a transmitter supply voltage at “+24V OUT”.
Voltage: Us = 24 VDC / 10% (short-circuit proof)
Max. load: I = 25 mA per channel
Fused: 200 mA (sum current of all channels).
For more details, see „Standard signals without TPS“ (RM 221-x)!

Potentiometer measurement:

(voltage-divider circuit)
Channels intended for voltage input can be configured in pairs for potentiometer measurement.
Uconst: Us = 5 VDC (output instead of +24V OUT); short-circuit proof
Current limiting: 20mA
Max. load: ≤20mA (distributable among the module’s 4 channels, e.g. 4 x 1000 Ω 2 x 500 Ω 1 x 250 Ω)
Resolution: 2.5 mV/digit (0.05%)

Temperature input TC/Pt 100 (RM 224-1)

Number of channels: 4
Sensors: selectable per channel

- Pt100:
in two or three-wire connection
Measuring range: Pt 100 -200...850°C
- Thermocouples: to DIN IEC 584

<table>
<thead>
<tr>
<th>Type</th>
<th>Measurement range*</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>Fe-CuNi -200/-120...900°C</td>
</tr>
<tr>
<td>J</td>
<td>Fe-CuNi -210/-120...900°C</td>
</tr>
<tr>
<td>K</td>
<td>NiCr-Ni -270/-130...1300°C</td>
</tr>
<tr>
<td>N</td>
<td>NiCr-Ni -196/-109...1300°C</td>
</tr>
<tr>
<td>S</td>
<td>NiCrSi-Ni -50/-12...1760°C</td>
</tr>
<tr>
<td>R</td>
<td>NiCrSi-Pt10% -50/-12...1760°C</td>
</tr>
<tr>
<td>B</td>
<td>NiCrSi-Pt13% -50/-13...1760°C</td>
</tr>
<tr>
<td>T</td>
<td>Cu-CuNi -200/-130...600°C</td>
</tr>
<tr>
<td>W(C)</td>
<td>Fe-CuNi -25/50...2299°C</td>
</tr>
</tbody>
</table>

* related to 0/50°C terminal temperature

Thermocouple input TC

(RM 224-2)

Number of channels: 2; galvanic isolated
Sensors: selectable per channel

- Thermocouples: to DIN IEC 584
Types see RM 224-1

<table>
<thead>
<tr>
<th>Type</th>
<th>Measurement range*</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>Fe-CuNi -200/-120...900°C</td>
</tr>
<tr>
<td>J</td>
<td>Fe-CuNi -210/-120...900°C</td>
</tr>
<tr>
<td>K</td>
<td>NiCr-Ni -270/-130...1300°C</td>
</tr>
<tr>
<td>N</td>
<td>NiCr-Ni -196/-109...1300°C</td>
</tr>
<tr>
<td>S</td>
<td>NiCrSi-Ni -50/-12...1760°C</td>
</tr>
<tr>
<td>R</td>
<td>NiCrSi-Pt10% -50/-12...1760°C</td>
</tr>
<tr>
<td>B</td>
<td>NiCrSi-Pt13% -50/-13...1760°C</td>
</tr>
<tr>
<td>T</td>
<td>Cu-CuNi -200/-130...600°C</td>
</tr>
<tr>
<td>W(C)</td>
<td>Fe-CuNi -25/50...2299°C</td>
</tr>
</tbody>
</table>

* related to 0/50°C terminal temperature

Characteristic: temperature-linear
Conformity error: negligible
Temperature compensation (TC):
internal, can be switched off (not for KS98+, RM 202, RM 203-x)
Remaining error of CJC: ≤±0.4°C (after warming-up phase of 20 min)

Resolution: 16 bits
Pt 100: ≤±0.02 K/digit
TC type E, J, K, L, T, N: ≤±0.04 K/digit
TC type S, R, B: ≤±0.15 K/digit
TC type W: ≤±0.09 K/digit

Error:
Pt 100: ≤±1 K
TC type E, J, K, L, T, N, W: ≤±1 K
TC type S, R, B: ≤±2 K

Filter:
2nd-order analog filter.
Limiting frequency: fg = 10 Hz
Input resistance: >1MΩ

Sensor monitoring:
For break and wrong polarity
Permissible voltage difference between inputs: ≤4 VACeff.

Interface:

Data format: INT
Value range: 10 x measuring span
Engineering unit: °C, (°F, K selectable for RM 201)
Decimals: 1
Special feature with TC types S, R, B, and W with engineering unit °F:
value range = (10 x meas. span – 2000)

Thermocouple input TC

(RM 224-0)

Number of channels: 2; galvanic isolated
Sensors: selectable per channel

- Thermocouples: to DIN IEC 584
Types see RM 224-1

Millivolt-/thermocouple input

(RM 224-2)

Number of channels: 2; galvanic isolated
Filter:
2nd-order analog filter.
Limiting frequency: fg = 10 Hz

Channel 1: Millivolt input

Range: -3000 ... 3000 mV
Input impedance: ca. 200 MΩ diff.
Screened type of wires for sensors

**Resolution:** 16 bits

**Characteristic:** linear

**Error:**
With 100 kΩ sensor output resistance:
- linearity: ≤ 0.05%
- temperature: ≤ 0.05%
With 1 MΩ sensor output resistance:
- linearity: ≤ 0.5%
- temperature: ≤ 0.4%

**Interface:**
- Data format: INT
- Value range: -30,000 ... 30,000
- Decimals: 1
- Unit: mV

**Channel 2: Thermocouple input**

**Properties:**
As RM 224-0

**Strain Gage input (RM 225)**
Direct connection of transducers with strain gage resistance in Wheatstone bridges,
6-wire connection. bridge excitation: integrated

**Number of channels:** 2

**Input measuring range:**
-4 mV/V ... +4 mV/V
Sensor types: 1, 2, 3 and 3.3 mV/V

**Filter:** analog filter: low pass
limiting frequency: fg = 50 Hz

**Input impedance:** >10 MΩ

**Resolution:** 18 Bit
(optional 16 bit for RM 202, RM 203-x)

**Accuracy:** better than 0.05 % at 25 °C

**Characteristic:** linear

**Linearity:** ≤0.01 %
temperature: ≤0.05 % / 10K of span

**Configuration:**
The functions calibration (zero and span) and tare are selectable via fieldbus.

**Cycle time:** 5 Hz.

---

**ANALOG OUTPUT MODULES**

**Standard signals I,U (RM 231-x)**

**Number of channels:** 4

**Signal ranges:** selectable per channel
RM 231-0: 4 x 0/4...20 mA or 0...10V
RM 231-1: 4 x 0/4...20 mA or
           2 x -10...+10V / 2 x 0...10V
RM 231-2: 4 x 0/4...20 mA or
           4 x -10...+10V

All outputs are short-circuit proof.

**Resolution:** 12 bits

0/4...20mA: 5,1 / 4,1 μA/digit;
0...10V / -10...+10V: 2,5 / 5 mV/digit;

**Node guarding**
Behaviour at communication failure: configurable
- Fail safe: output is set to 0V/0mA
- Hold: retain last value

**Characteristic:** linear

overall error: ≤0,25% (0...10V); ≤0,6% (-10...10V); ≤0,63% (0...20mA) of measurement range.

**Permissible load:**
Current output: ≤ 500 Ω
Voltage output: ≥ 1000 Ω

**Load effect:** 0,1%/100Ω

**Temperature drift:** ≤0,01%/10K

**Cycle time:** ≤50 ms after change of value; <5 s with constant value

**Interface:**
- Data format: INT
- Value ranges for
  - 0/4...20 mA: 0...20.000
  - 4...20 mA: 0...16.000
  - 0...10V: 0...10.000
  - -10...10V: -10.000...10.000
- Decimals: 3

**Galvanic isolation:**
Outputs from logic circuits and internal supply.
Outputs are galvanically connected.

**Indicator LEDs:**
4 x 2 x yellow
(indication of selected signal range U or I)

---

**DIGITAL INPUT MODULES**

**RM 24X**

**24 VDC logic (RM 241, RM 242)**

**RM 241:** Number of channels: 4
Input:: Logic signals, contacts or 3-wire sensors (NPN or PNP transistors);
selectable via DIP-switches

**RM 242:** Number of channels: 8 inputs

**Signal level: according to IEC 61131**
- „Low“: -3...5 VDC
- „High“: 15...30 VDC

**Sensor energization (only RM 241):**
Us = 24 VDC / 10%; short-circuit proof
Max. load: I ≤ 25mA / channel
Fused: 200 mA (sum current of all channels)

**Measurement cycle:**
≤10 ms for all channels

**Operating sense:** configurable (only RM 201)

**Input resistance:** 6,8kΩ

**Filter:** analog, fg = 1 kHz

**Surge voltage protection:** fitted

**Galvanic isolation:**
RM 241: Inputs from logic circuits.
RM 242: In groups of 2 from logic circuits and internal supply.

**Indicator LEDs:**
4 x or 8 x yellow (signal status)

**230 VAC logic (RM 243)**

**Number of channels:** 4

**Signal level:**
- „Low“: 0...50 VAC
- „High“: 90...250 VAC
Measurement cycle: ≤10 ms for all channels

Operating sense: configurable (only RM 201)

Input resistance: 240 kΩ

Filter: ≤50 ms input delay

Surge voltage protection: fitted

Galvanic isolation

Inputs from logic, between inputs

Indicator LEDs: 4 x yellow (signal status)

DIGITAL OUTPUT MODULES

RM 25X

Node guarding

Behaviour at communication failure configurable:
- Fail safe: outputs 0/1 (selectable)
- Hold: retain last value

24 VDC logic (RM 251)

Number of channels: 8 (2 groups of 4 channels), suitable for switching loads with 12 and 24 VDC.

Control voltage:

Uc = 2 x 24 VDC, separated according to groups.

Permissible range: 8...34 VDC

Forward resistance: ≤400 mΩ (≤200 mΩ typical), voltage drop ≤1,2V

Leakage current:

approx. 30 µA (non-conducting)

Load current:

Depends on ambient temperature:
At 25°C: ≤1,5A / channel; ≤3A / group
At 50°C: ≤1,0A / channel; ≤2A / group

Lead break and short circuit

detected and made available as a status signal on the bus. Outputs are switched off in pairs (1/2; 3/4;...) or set to default (selectable). Effect to outputs can be switched off.

Protective circuits:

Fitted as standard against short circuit, surge voltage, and wrong polarity; thermal current limiting.

Free-wheel diode for inductive loads:

must be provided externally

Cycle time: ≤10 ms for all channels

Operating sense: configurable (only RM 201)

Galvanic isolation

Logic from output group, groups among each other

Indicator LEDs:

8 x yellow (signal status)
2 x green (external control voltage)

POWER SUPPLY

The basic module is energized via its bus coupler module.

Supply voltage: 24 VDC ±10%

Current consumption: ≤1,5A (basic module RM 213 with all I/O modules fitted)

Influence power supply: negligible

The GND of the 24V power supply has to be connected to protective earth (PE).

ENVIRONMENTAL CONDITIONS

Permissible temperature:
Operation: 0...50 °C (32...122 °F)
Storage and transport: -20...70 °C (-4...158 °F)

Climatic category:
KUF according to DIN 40 040

Relative humidity: ≤75% yearly average, no condensation

Electromagnetic compatibility:
To DIN EN 50 081, Part 1, and DIN EN 50 082, Part 2

Shock and vibration:
To DIN 40046 IEC 60068-2-6

GENERAL

Electrical connection:
COMBICON plug-in screw terminals for leads of ≤2,5mm²

Mode of protection:
IP20 (basic module with all I/O modules)

Housing:
Material: polyamide PA 6.6

Flammability class: V0 to UL 94

Mounting:
Basic module: on 35 mm „top hat“ rails to DIN EN 50 022

I/O modules: into sockets in the basic module, and arrested. Insertion and removal of I/O modules only with power switched off!

Mounting position: vertical

Overall dimensions (W x H x D):
RM 211: 53,5 x 99,0 x 114,5 mm
RM 212: 89,0 x 99,0 x 114,5 mm
RM 213: 178,0 x 99,0 x 114,5 mm

or
RM 211: 2,09 x 3,90 x 4,49 inch
RM 212: 3,50 x 3,90 x 4,49 inch
RM 213: 7,01 x 3,90 x 4,49 inch

Weight:
RM 211: 87 g (3,07 oz.)
RM 212: 127 g (4,48 oz.)
RM 213: 232 g (8,18 oz.)
Other modules: approx. 100 g (3,53 oz.)

ACCESSORIES

Engineering Set ES/RM 200 (description & diskette with EDS and GSD files)
## Ordering Data for RM 200 modules

### Bus coupler modules

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Description</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM 201</td>
<td>bus coupler module CANopen (excl. RM 225)</td>
<td>940773820101</td>
</tr>
<tr>
<td>RM 201-1</td>
<td>bus coupler module CANopen (excl. RM 224-1)</td>
<td>940773820111</td>
</tr>
<tr>
<td>RM 202</td>
<td>bus coupler module PROFIBUS-DP</td>
<td>940773820201</td>
</tr>
<tr>
<td>RM 203-0</td>
<td>bus coupler module MODBUS RTU, RS 485</td>
<td>940773820301</td>
</tr>
<tr>
<td>RM 203-1</td>
<td>bus coupler module MODBUS RTU, RS 232</td>
<td>940773820311</td>
</tr>
</tbody>
</table>

### Basic modules

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Description</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM 211</td>
<td>Basic module 3 sockets</td>
<td>940773821101</td>
</tr>
<tr>
<td>RM 212</td>
<td>Basic module 5 sockets</td>
<td>940773821201</td>
</tr>
<tr>
<td>RM 213</td>
<td>Basic module 10 sockets</td>
<td>940773821301</td>
</tr>
<tr>
<td>RM 214</td>
<td>Dummy panel</td>
<td>940773821401</td>
</tr>
</tbody>
</table>

### Analog Inputs

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Description</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM 221-0</td>
<td>Analog inputs 4 x I</td>
<td>940773822101</td>
</tr>
<tr>
<td>RM 221-1</td>
<td>Analog inputs 4 x U</td>
<td>940773822111</td>
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<tr>
<td>RM 221-2</td>
<td>Analog inputs 2 x I, 2 x U</td>
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<td>RM 222-0</td>
<td>Analog inputs 4 x I, supply</td>
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<td>RM 222-1</td>
<td>Analog inputs 4 x I/potentiometer, supply</td>
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<td>RM 222-2</td>
<td>Analog inputs 2 x I, 2 x I/potentiometer, supply</td>
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<td>RM 224-0</td>
<td>Analog inputs 2 x TC, galvanic isolated</td>
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<td>RM 224-1</td>
<td>Analog inputs 4 x TC, Pt100, all types</td>
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<td>RM 224-2</td>
<td>Analog inputs 1 x mV, 1 x TC, galvanic isolated</td>
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<td>RM 225</td>
<td>Analog inputs 2 x strain gage, galvanic isolated</td>
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### Analog Outputs

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<tr>
<th>Module Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>RM 231-0</td>
<td>Analog outputs 4 x I/U (+10V)</td>
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<td>RM 231-1</td>
<td>Analog outputs 4 x I / 2 x U(+10V), 2 x U(±10V)</td>
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<tr>
<td>RM 231-2</td>
<td>Analog outputs 4 x I/U (±10V)</td>
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### Digital Inputs

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<tr>
<td>RM 241</td>
<td>Digital inputs 4 x 24V DC</td>
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<td>RM 242</td>
<td>Digital inputs 8 x 24V DC</td>
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<tr>
<td>RM 243</td>
<td>Digital inputs 4 x 230V AC</td>
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### Digital Outputs

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<tr>
<td>RM 251</td>
<td>Digital outputs 8 x 24V DC/0.5A</td>
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<td>RM 252</td>
<td>Digital outputs 4 x Relays, 230V AC, 5A</td>
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### Accessories

#### Engineering Sets (not necessary in conjunction with KS98+)

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<th>Engineering Set</th>
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<td>ES/RM 200 E</td>
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### Documentation

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<td>Datasheet D</td>
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<td>Datasheet E</td>
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