Technical Information

RMM621
Application Manager
Control – Compute – Log

Application
- Monitoring and control of filling plants
- Temperature monitoring in chemical/pharmaceutical processes
- Process monitoring in breweries
- Power industry
- Primaries
- Chemical industry
- Food industry

Your benefits
- Wide range of communication options (modem (landline network/cellular phone network), RS232/485, Ethernet, PROFIBUS® interface optional)
- Control/calculation of processes and process values
- Calculation of mathematical equations in process engineering
- Monitoring of sensor values
- Logging function for measured values, counter readings, error messages and parameter changes with date and time
- Configuration and operation using the PC software ReadWin® 2000
- Thanks to its modular design, the unit can be adapted at any time to suit altering needs and requirements, software can be extended through options
- Operated hours counter
- Large backlit LC display
- Prompt display of error messages
- Transmitter power supply
- Intrinsically safe inputs (optional)
Function and system design

Measuring principle
Electronic recording, display, balancing, saving, event and alarm monitoring of analog and digital input signals. Values and states determined are output by means of analog and digital output signals. Remote transmission of alarms, input values and calculated values using a PSTN or GSM modem.

Possible methods of connecting RMM621

Inputs:
- Voltage, temperature, thermocouple
- Current (0/4 to 20 mA)
- PFM
- Pulse
- Digital inputs

Outputs:
- Current (0/4 to 20 mA)
- Digital (passive)
- Pulse
- Relay
- Loop power supply
Measuring system

Note!
The number of inputs, outputs, relays and transmitter power supplies contained in the basic device can be individually extended using a maximum of three plug-in cards.

The RMM621 directly supplies power to connected two-wire transmitters (prerequisite: TPS or current cards used). The inputs and the transmitter power supply (for current cards) for Ex applications are also optionally available as intrinsically safe versions.

Configuration of the inputs, outputs, limit values, the display as well as commissioning and maintenance of the device takes place via 8 softkeys with the backlit dot matrix display, using RS232/RS485 interface, PC software ReadWin® 2000 or an external operating unit. Online help makes onsite operation easier.

The configurable color change of the background lighting visualizes alarm value violations or faults. A functional expansion of the device by means of expansion cards can be made at any time.

We recommend common industrial modems that have an RS232 interface if using the telealarm functionality. The measured values and events/alarms are coded in accordance with the serial protocol and then transmitted. (Protocol can be requested)

Input

Measured variable
Voltage (analog input and digital input), current (analog input), PFM, pulse

Input signals
Any measured variable (e.g. flow, level, pressure, temperature, density) implemented as an analog signal

Measuring range

<table>
<thead>
<tr>
<th>Measured variable</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current</strong></td>
<td>• 0/4 to 20 mA +10% overreach&lt;br&gt;• Max. input current 150 mA&lt;br&gt;• Input impedance &lt; 10 Ω&lt;br&gt;• Accuracy 0.1% of full scale value&lt;br&gt;• Temperature drift 0.04% / K (0.022%/ °F)&lt;br&gt;• Signal attenuation low-pass filter 1st order, filter constants adjustable 0 to 99 s&lt;br&gt;• Resolution 13 Bit</td>
</tr>
<tr>
<td><strong>Current (U-I-TC expansion card)</strong></td>
<td>• 0/4 to 20 mA +10% overreach&lt;br&gt;• Max. input current 80 mA&lt;br&gt;• Input impedance &lt; 10 Ω&lt;br&gt;• Accuracy 0.1% of full scale value&lt;br&gt;• Temperature drift 0.04% / K (0.022%/ °F)</td>
</tr>
<tr>
<td><strong>PFM</strong></td>
<td>• Frequency range of 0.01 Hz to 18 kHz&lt;br&gt;• Signal level&lt;br&gt;  – low: 2 to 7 mA&lt;br&gt;  – high: 13 to 19 mA&lt;br&gt;• Measurement method: period length/frequency measurement&lt;br&gt;• Accuracy 0.01% of measured value&lt;br&gt;• Temperature drift 0.01% over complete measuring range</td>
</tr>
<tr>
<td><strong>Pulse</strong></td>
<td>• Frequency range of 0.01 Hz to 18 kHz&lt;br&gt;• Signal level 2 to 7 mA low; 13 to 19 mA high with approx. 1.3 kΩ dropping resistor at max. 24 V voltage level</td>
</tr>
<tr>
<td><strong>Voltage (digital input)</strong></td>
<td>• Voltage level&lt;br&gt;  – low: -3..5V&lt;br&gt;  – high: 12..30V (to DIN 19240)&lt;br&gt;• Input current typically 3 mA with overload and reverse polarity protection&lt;br&gt;• Scanning rate: 4 x 4 Hz (Terminals 83, 85, 93, 95)&lt;br&gt;• 2 x 20kHz (Terminals 81, 91)</td>
</tr>
<tr>
<td><strong>Voltage (analog input)</strong></td>
<td>• Voltage: 0..10 V, 0..5 V, ±10 V, measured error ±0.1% of measuring range, input impedance &gt; 400 kΩ&lt;br&gt;• Voltage: 0..100 mV, 200 mV, 0..1 V, ±1 V; measured error ±0.1% of measuring range, input impedance &gt; 1 MΩ</td>
</tr>
</tbody>
</table>
### Measured variable

<table>
<thead>
<tr>
<th>Resistance thermometer (RTD) to ITS 90</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Designation</strong></td>
</tr>
<tr>
<td>Pt100</td>
</tr>
<tr>
<td>Pt500</td>
</tr>
<tr>
<td>Pt1000</td>
</tr>
<tr>
<td><strong>Note</strong></td>
</tr>
<tr>
<td>Type of connection: 3 or 4-wire system</td>
</tr>
<tr>
<td>Measuring current 500 μA</td>
</tr>
<tr>
<td>Resolution 16 Bit</td>
</tr>
<tr>
<td>Temperature drift 0.01% / K (0.0056% / °F)</td>
</tr>
</tbody>
</table>

### Thermocouples (TC)

<table>
<thead>
<tr>
<th>Type</th>
<th>Measuring range</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>J (Fe-CuNi), IEC 584</td>
<td>-210...999.9 °C (-346...1832 °F)</td>
<td>± (0.15% oMR +0.5 K) as of -100 °C ± (0.15% oMR +0.0 °F) as of -148 °F</td>
</tr>
<tr>
<td>K (NiCr-Ni), IEC 584</td>
<td>-200...1372 °C (-328...2502 °F)</td>
<td>± (0.15% oMR +0.5 K) as of -130 °C ± (0.15% oMR +0.9 °F) as of -202 °F</td>
</tr>
<tr>
<td>T (Cu-CuNi), IEC 584</td>
<td>-270...400 °C (-454...752 °F)</td>
<td>± (0.15% oMR +0.5 K) as of -200 °C ± (0.15% oMR +0.9 °F) as of -328 °F</td>
</tr>
<tr>
<td>N (NiCrSi-NiSi), IEC 584</td>
<td>-270...1300 °C (-454...1386 °F)</td>
<td>± (0.15% oMR +0.5 K) as of -100 °C ± (0.15% oMR +0.9 °F) as of -148 °F</td>
</tr>
<tr>
<td>B (Pt30Rh-Pt6Rh),</td>
<td>0...1820 °C (32...3308 °F)</td>
<td>± (0.15% oMR +1.5 K) as of 600 °C ± (0.15% oMR +2.7 °F) as of 1112 °F</td>
</tr>
<tr>
<td>IEC 584</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D (W3Re/W25Re),ASTME 998</td>
<td>0...2315 °C (32...4199 °F)</td>
<td>± (0.15% oMR +1.5 K) as of 500 °C ± (0.15% oMR +2.7 °F) as of 932 °F</td>
</tr>
<tr>
<td>C (WSRe/W26Re),ASTME 998</td>
<td>0...2315 °C (32...4199 °F)</td>
<td>± (0.15% oMR +1.5 K) as of 500 °C ± (0.15% oMR +2.7 °F) as of 932 °F</td>
</tr>
<tr>
<td>L (Fe-CuNi), DIN 43710, GOST</td>
<td>-200...900 °C (-346...1652 °F)</td>
<td>± (0.15% oMR +0.5 K) as of -100 °C ± (0.15% oMR +0.9 °F) as of -148 °F</td>
</tr>
<tr>
<td>U (Cu-CuNi), DIN 43710</td>
<td>-200...600 °C (-328...1112 °F)</td>
<td>± (0.15% oMR +0.5 K) as of -100 °C ± (0.15% oMR +0.9 °F) as of -148 °F</td>
</tr>
<tr>
<td>S (Pt10Rh-Pt), IEC 584</td>
<td>0...1768 °C (32...3214 °F)</td>
<td>± (0.15% oMR +3.5 K) for 0...100 °C ± (0.15% oMR +1.5 K) for 100...1768 °C ± (0.15% oMR +6.3 °F) for 0...212 °F ± (0.15% oMR +2.7 °F) for 212...3214 °F</td>
</tr>
<tr>
<td>R (Pt13Rh-Pt), IEC 584</td>
<td>-50...1768 °C (-58...3214 °F)</td>
<td>± (0.15% oMR +3.5 K) for 0...100 °C ± (0.15% oMR +1.5 K) for 100...1768 °C ± (0.15% oMR +6.3 °F) for 0...212 °F ± (0.15% oMR +2.7 °F) for 212...3214 °F</td>
</tr>
</tbody>
</table>

Error, internal temperature compensation: ≤ 3 °C (5.4 °F)

### Number

- **Number:**
  - 4 x 0/4 to 20 mA/FFM/pulse (in basic device)

- **Maximum number:**
  - Analog inputs: 10 (depends on the number and type of expansion cards)
  - Digital inputs: 18 (depends on the number of integrated digital cards: 6/12/18 digital inputs)

### Galvanic isolation

The inputs are galvanically isolated between the individual expansion cards and the basic device (see also "Galvanic isolation" under Output).

**Note!**

In the case of digital inputs, every terminal pair is galvanically isolated from one another.
Output

Output signal
Current, pulse, transmitter power supply (TPS) and switching output

Galvanic isolation
Basic device:

<table>
<thead>
<tr>
<th>Connection with terminal designation</th>
<th>Power supply (L/N)</th>
<th>Input 1/2 0/4 to 20 mA/ PFM/pulse (10/11) or (110/11)</th>
<th>Input 1/2 TPS (82/81) or (83/81)</th>
<th>Output 1/2 0 to 20 mA/pulse (132/131) or (134/133)</th>
<th>Interface RS232/485 housing front or (102/101)</th>
<th>TPS external (92/91)</th>
<th>Digital input (94/95/96)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>2.3 kV</td>
<td>2.3 kV</td>
<td>2.3 kV</td>
<td>2.3 kV</td>
<td>2.3 kV</td>
<td>2.3 kV</td>
<td>2.3 kV</td>
</tr>
<tr>
<td>Input 1/2 0/4-20 mA/ PFM/pulse</td>
<td>2.3 kV</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
</tr>
<tr>
<td>Input 1/2 TPS</td>
<td>2.3 kV</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
</tr>
<tr>
<td>Output 1/2 0-20 mA/pulse</td>
<td>2.3 kV</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
</tr>
<tr>
<td>Interface RS232/RS485</td>
<td>2.3 kV</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
</tr>
<tr>
<td>TPS external</td>
<td>2.3 kV</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
</tr>
<tr>
<td>Digital input (81/83/85 and 91/93/95)</td>
<td>2.3 kV</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
</tr>
<tr>
<td>Input 1/2 U/I/TC</td>
<td>2.3 kV</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
<td>500 V</td>
</tr>
</tbody>
</table>

Note!
The specified insulation voltage is the AC testing voltage U_{eff} which is applied between the connections.
Basis for assessment: IEC 61010-1, protection class II, overvoltage category II

Current - pulse output variable

Current
- 0/4 to 20 mA +10% overreach, invertible
- Load max. 500 Ω at 20 mA
- Accuracy 0.1% of full scale value
- Temperature drift: 0.01% / K (0.0056% / °F)
- Output ripple < 10 mV at 500 Ω for frequencies < 50 kHz
- Resolution 13 Bit
- Error signals 3.6 mA or 21 mA limit adjustable as per NAMUR NE43

Pulse
Basic device:
- Frequency range to 12.5 kHz
- Voltage level 0 to 1 V low, 12 to 28 V high
- Load min. 1 kΩ
- Pulse width 0.04 to 1000 ms

Expansion cards (digital passive, open collector):
- Frequency range to 12.5 kHz
- I_{max} = 200 mA
- U_{max} = 24 V ± 15%
- U_{low/max} = 1.3 V at 200 mA
- Pulse width 0.04 to 1000 ms
**Number**

- Number:
  - 2 x 0/4 to 20 mA/pulse (in basic device)
  - With ethernet option: no output present in basic device

- Max. number:
  - 10 x 0/4 to 20 mA/pulse (depends on the number of expansion cards)
  - 6 x digital passive (depends on the number of expansion cards)

**Signal sources**

- All available multifunctional inputs (current, PFM or pulse inputs) and results can be freely allocated to the outputs.

**Switching output**

**Function**

- Limit relay switches in these operating modes: minimum, maximum safety, gradient

**Switch behavior**

- Binary, switches when the alarm value is reached (potential-free NO contact)

**Relay switching capacity**

- Max. 250 V AC, 3 A / 30 V DC, 3 A

  **Note:**
  When using relays on expansion cards, a mixture of low voltage and extra-low voltage is not permitted.

**Switching frequency**

- Max. 5 Hz

**Switching threshold**

- Freely programmable

**Hysteresis**

- 0 to 99%

**Signal source**

- All available inputs and calculated variables can be allocated freely to the switching outputs.

**Number of output states**

- > 100,000

**Scan rate**

- 250 ms

**Number**

- 1 (in basic device)
- Max. number: 19 (depends on the number and type of expansion cards)

**Transmitter power supply and external power supply**

- Transmitter power supply unit (TPS), terminals 81/82 or 81/83 (optional current expansion cards 181/182 or 181/183):
  - Max. output voltage 24 V DC ± 15%
  - Impedance < 345 Ω
  - Max. loop current 22 mA (at U_{out} > 16 V)

- Technical data RMM621:
  - HART® communication is not impaired
  - Number: 4 TPS in the basic device
  - Max. number: 10 (depends on the number and type of expansion cards)

- Additional power supply (e.g. external display), terminals 91/92:
  - Supply voltage 24 V DC ± 5%
  - Max. current 80 mA, short-circuit proof
Number 1
Source resistance < 10 Ω

Electrical connection

Electrical connection (circuit diagrams)

PFM, pulse and current inputs
Input 1/2 with passive sensor
I max = 20 mA

2-wire transmitter
4-20 mA

4-wire transmitter
4-20 mA

Power supply

The terminals are bridged internally and can be used as support points for series wiring.
90...250 VAC
50/60 Hz
20...36 VDC,
20...28 VAC 50/60 Hz

Digital inputs
Input 1

galv. isolated
500 V

Relay (normally open)

Interface RS 485

Terminal assignment of RMM621 - basic device and expansion cards
Supply voltage
- Low-voltage power unit: 90 to 250 V AC 50/60 Hz
- Extra-low voltage power unit: 20 to 36 V DC or 20 to 28 V AC 50/60 Hz

Power consumption 8 to 38 VA (depending on the version)

Connection data interface
RS232
- Connection: jack socket 3.5 mm, front-panel
- Transmission protocol: ReadWin® 2000
- Transmission rate: max. 57,600 baud

RS485
- Connection: plug-in terminals 101/102 (in basic device)
- Transmission protocol: (serial: ReadWin® 2000; parallel: open standard)
- Transmission rate: max. 57,600 baud

Optional: additional RS485 interface
- Connection: plug-in terminals 103/104
- Transmission protocol and transmission rate as standard interface RS485

Optional: Ethernet interface

Note!
If the RMM621 has an Ethernet interface, no analog outputs are available on the base unit (slot E)!
Performance characteristics

Reference operating conditions
- Power supply 230 V AC ± 10%; 50 Hz ± 0.5 Hz
- Warm-up period > 30 min
- Ambient temperature range 25 °C ± 5 °C (77 °F ± 9 °F)
- Humidity 39% ± 10% RH

Installation

Installation instructions
Mounting location
In cabinet on DIN rail IEC 60715

Caution!
When using extension cards, venting with an air current of at least 0.5 m/s is necessary.

Orientation
No restrictions

Environment

Ambient temperature range
-20 to 50 °C (-4 to 122 °F)

Storage temperature
-30 to 70 °C (-22 to 158 °F)

Climate class
To IEC 60 654-1 Class B2 / EN 1434 Class ‘C’ (condensation not permitted)

Electr. safety
To IEC 61010-1: environment < 2000 m (6560 ft) height above MSL

Degree of protection
- Basic device: IP 20
- Remote operating and display unit: front IP 65

Electromagnetic compatibility

Interference emission
IEC 61326 Class A

Interference immunity
- Power failure: 20 ms, no impact
- Starting current limitation: $I_{\text{max}}/I_n \leq 50\%$ (T50% ≤ 50 ms)
- Electromagnetic fields: 10 V/m to IEC 61000-4-3
- Conducted HF: 0.15 to 80 MHz, 10 V to IEC 61000-4-3
- Electrostatic discharge: 6 kV contact, indirectly to IEC 61000-4-2
  - Burst (power supply): 2 kV to IEC 61000-4-4
  - Burst (signal): 1 kV/2 kV to IEC 61000-4-4
  - Surge (power supply AC): 1 kV/2 kV to IEC 61000-4-5
  - Surge (power supply DC): 1 kV/2 kV to IEC 61000-4-5
  - Surge (signal): 500 V/1 kV to IEC 61000-4-5
Mechanical construction

Design, dimensions

Housing for DIN rail to IEC 60715

Device with expansion cards (optional or available as an accessory)
– Slots A and E are integral parts of the basic device
– Slots B, C and D can be expanded using expansion cards

Weight

- Basic device: 500 g (17.6 oz) (maximum configuration with expansion cards)
- Remote operating unit: 300 g (10.6 oz)

Material

Housing: plastic PC, UL 94V0

Terminals

Coded, pluggable screw terminals; core size 1.5 mm² (16 AWG) solid, 1.0 mm² (18 AWG) flexible with ferrules (applies to all connections).

Human interface

Display elements

- Display (optional):
  160 x 80 DOT matrix LCD with blue background lighting. Color changes to red in the event of an error (configurable)
- LED status display:
  Operation: 1 x green (2 mm (0.08”))
  Fault message: 1 x red (2 mm (0.08”))
- Operating and display unit (optional or as accessory):
  An operating and display unit can also be connected to the device in the panel mounted housing (dimensions BxHxD = 144 x 72 x 43 mm (5.67” x 2.83” x 1.69’’)). Connection takes place at the integrated RS485 interface using the connection cable (l = 3 m (9.8 ft)) contained in the accessories kit. It is possible to have parallel operation of the operating and display unit with the device-internal display in RMM621.
Operating and display unit for panel mounting (optional or available as an accessory)

Operating and display unit in panel mounted housing

<table>
<thead>
<tr>
<th>Operating elements</th>
<th>Eight front-panel softkeys interacting with the display (function of the keys is shown on the display).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote operation</td>
<td>RS232 interface (front-panel jack socket 3.5 mm (0.14 in)): configuration via PC with PC operating software ReadWin® 2000. RS485 interface</td>
</tr>
</tbody>
</table>
| Real time clock    | - Deviation: 30 min per year  
                        - Power reserve: 14 days |

Certificates and approvals

<table>
<thead>
<tr>
<th>CE mark</th>
<th>The measuring system meets the requirements of the EC directives. Endress+Hauser confirms that the device has been tested successfully by affixing to it the CE mark.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex approval</td>
<td>Information about currently available Ex versions (ATEX, FM, CSA, etc.) can be supplied by your E+H Sales Centre on request. All explosion protection data are given in separate documentation which is available on request.</td>
</tr>
</tbody>
</table>
| Other standards and guidelines | - IEC 60529: Degrees of protection through housing (IP code)  
                                                      - IEC 61010: Protection measures for electrical equipment for measurement, control, regulation and laboratory procedures  
                                                      - EN 61326 (IEC 1326): Electromagnetic compatibility (EMC requirements)  
                                                      - NAMUR NE21, NE43 Association for Standards for Control and Regulation in the Chemical Industry |
### Ordering information

**Product structure**

<table>
<thead>
<tr>
<th>RMM621</th>
<th>Application Manager</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Functions: mathematic, logic, open loop control, data logging</td>
</tr>
<tr>
<td></td>
<td>Basic functions:</td>
</tr>
<tr>
<td></td>
<td>1x RS232 = 1x RS485.</td>
</tr>
<tr>
<td></td>
<td>3x LPS = Loop power supply.</td>
</tr>
<tr>
<td></td>
<td>Inputs A: 2x0/4-20mA/PPM/pulse.</td>
</tr>
<tr>
<td></td>
<td>Output A: 1x Relay SPST, 1x loop power.</td>
</tr>
<tr>
<td></td>
<td>Outputs E: 2x0/4-20mA/PPM/pulse.</td>
</tr>
<tr>
<td></td>
<td>Output E: 2x0/4-20mA/pulse, not, if Ethernet.</td>
</tr>
<tr>
<td></td>
<td>max. 3 application</td>
</tr>
<tr>
<td></td>
<td>– free parameterable formula editor.</td>
</tr>
</tbody>
</table>

**Approval:**

- **A**: Non-hazardous area
- **B**: ATEX II(1)GD(EEx ia)IIC
- **C**: FM ASI I, II, III/1/ABCDEFG
- **D**: CSA (Ex ia) I, II, III/1/ABCDEFG

**Display; operation:**

- **1**: Not selected; w/o button + software ReadWin 2000
- **2**: Alphanumeric; button 8
- **3**: Separat; Panel 72x144mm, RS485
- **4**: Separat; Panel 72x144mm, 2x RS485

**Power supply:**

- **1**: 90-250VAC
- **2**: 20-36VDC, 20-28VAC

**Slot B:**

<table>
<thead>
<tr>
<th>A: Not used</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: Input: 2x 0/4-20mA/PPM/pulse + LPS</td>
</tr>
<tr>
<td>C: Input: 2x Pt100/500/1000</td>
</tr>
<tr>
<td>D: Input: 2xDigital 20kHz, 4xDigital 4Hz</td>
</tr>
<tr>
<td>E: Input: 2x U, I, TC</td>
</tr>
<tr>
<td>G: Input: Ex-i, 2x0/4-mA/PPM/pulse + LPS</td>
</tr>
<tr>
<td>H: Input: Ex-i, 2x Pt100/500/1000</td>
</tr>
<tr>
<td>I: Input: Ex-i, 2xDigital 20kHz, 4xDigital 4Hz</td>
</tr>
<tr>
<td>J: Input: Ex-i, 2x U, I, TC</td>
</tr>
</tbody>
</table>

**Slot C:**

<table>
<thead>
<tr>
<th>A: Not used</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: Input: 2x 0/4-20mA/PPM/pulse + LPS</td>
</tr>
<tr>
<td>C: Input: 2x Pt100/500/1000</td>
</tr>
<tr>
<td>D: Input: 2xDigital 20kHz, 4xDigital 4Hz</td>
</tr>
<tr>
<td>E: Input: 2x U, I, TC</td>
</tr>
<tr>
<td>G: Input: Ex-i, 2x0/4-mA/PPM/pulse + LPS</td>
</tr>
<tr>
<td>H: Input: Ex-i, 2x Pt100/500/1000</td>
</tr>
<tr>
<td>I: Input: Ex-i, 2xDigital 20kHz, 4xDigital 4Hz</td>
</tr>
<tr>
<td>J: Input: Ex-i, 2x U, I, TC</td>
</tr>
</tbody>
</table>

---

**RMM621**

⇒ order code (part 1)
### Slot D:

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: Not used</td>
<td></td>
</tr>
<tr>
<td>B: Input: 2x 0/4-20mA/20kHz, 2x digital, 2x relay SPST</td>
<td>Output: 6x relay SPST</td>
</tr>
<tr>
<td>C: Input: 2x Pt100/500/1000</td>
<td>Output: 2x 0/4-20mA/pulse, 2x relay SPST</td>
</tr>
<tr>
<td>D: Input: 2x Digital 20kHz, 4x Digital 4Hz</td>
<td>Output: 6x relay SPST</td>
</tr>
<tr>
<td>E: Input: 2x U, I, TC</td>
<td>Output: 2x 0/4-20mA/pulse, 2x relay SPST</td>
</tr>
<tr>
<td>G: Input: Ex-i, 2x 0/4-mA/20mA/pulse + LPS</td>
<td>Output: 2x 0/4-20mA/pulse, 2x relay SPST</td>
</tr>
<tr>
<td>H: Input: Ex-i, 2x Pt100/500/1000</td>
<td>Output: 2x 0/4-20mA/pulse, 2x relay SPST</td>
</tr>
<tr>
<td>I: Input: Ex-i, 2x Digital 20kHz, 4x Digital 4Hz</td>
<td>Output: 6x relay SPST</td>
</tr>
<tr>
<td>J: Input: Ex-i, 2x U, I, TC</td>
<td>Output: 2x 0/4-20mA/pulse, 2x relay SPST</td>
</tr>
</tbody>
</table>

### Software:

<table>
<thead>
<tr>
<th>AA</th>
<th>Mathematic</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>Mathematic + Telealarm</td>
</tr>
<tr>
<td>YY</td>
<td>Special version, to be specified</td>
</tr>
</tbody>
</table>

### Operating language:

| A | German |
| B | English |
| C | French |
| D | Italian |
| E | Spanish |
| F | Dutch |

### Communication:

<table>
<thead>
<tr>
<th>Communication</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x RS232 + 1 x RS485</td>
<td>1</td>
</tr>
<tr>
<td>1 x RS232 + 1 x RS485 + cable + Software Readwin</td>
<td>2</td>
</tr>
<tr>
<td>1 x RS232 + Profibus-DP Slave-Module</td>
<td>3</td>
</tr>
<tr>
<td>1 x RS232 + cable + Profibus-DP Slave-Module + external + software Readwin</td>
<td>4</td>
</tr>
<tr>
<td>1 x RS232 + 2 x RS485</td>
<td>5</td>
</tr>
<tr>
<td>1 x RS232 + cable + External</td>
<td>6</td>
</tr>
<tr>
<td>1 x RS232 + 1 x RS485 + Ethernet</td>
<td>7</td>
</tr>
<tr>
<td>1 x RS232 + 1 x RS485 + Ethernet + cable + software Readwin</td>
<td>8</td>
</tr>
<tr>
<td>1 x RS232 + Profibus-DP Slave-Module + Ethernet</td>
<td>9</td>
</tr>
<tr>
<td>1 x RS232 + cable + Profibus-DP Slave Module + Ethernet + software Readwin</td>
<td>10</td>
</tr>
<tr>
<td>1 x RS232 + 2 x RS485 + Ethernet</td>
<td>11</td>
</tr>
<tr>
<td>1 x RS232 + 2 x RS485 + cable + Ethernet</td>
<td>12</td>
</tr>
<tr>
<td>1 x RS232 + 1 x RS485 + Modbus</td>
<td>13</td>
</tr>
<tr>
<td>1 x RS232 + 1 x RS485 + Modbus + Ethernet</td>
<td>14</td>
</tr>
</tbody>
</table>

### Factory calibration certificate:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not selected</td>
</tr>
<tr>
<td>2</td>
<td>With</td>
</tr>
</tbody>
</table>

RMM621- [order code (complete)]
The following table contains an overview of the order codes for the expansion cards:

<table>
<thead>
<tr>
<th>Expansion cards product structure</th>
<th>Number of inputs</th>
<th>Number of outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic device</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMM621-xxxAAxxxx</td>
<td>4x 0/4..20 mA/PFM/pulse + TPS</td>
<td>1 x relay SPST, 1 x TPS 2x0/4..20mA/pulse (standard) or No 0/4..20mA/pulse if ethernet option selected</td>
</tr>
<tr>
<td><strong>1 analog current expansion card (incl. sensor power supply)</strong></td>
<td>6x 0/4..20 mA/PFM/pulse + TPS</td>
<td>3 x relay SPST, 1 x TPS, 2 x digital 4x0/4..20mA/pulse (standard) or 2x0/4..20mA/pulse if ethernet option selected</td>
</tr>
<tr>
<td>RMM621-xxxBAxxxx (non-Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMM621-xxxGAxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1 U-I-TC expansion card (incl. sensor power supply)</strong></td>
<td>Always 4x 0/4..20 mA/PFM/pulse + TPS; 2x 0/4..20 mA or 0..10 V, 0..5 V, ±10 V, 0...100 mV,200 mV, 0..1 V, ±1 150 mV or TC</td>
<td>3 x relay SPST, 1 x TPS, 2 x digital 4x0/4..20mA/pulse (standard) or 2x0/4..20mA/pulse if ethernet option selected</td>
</tr>
<tr>
<td>RMM621-xxxEAxxxx (non-Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMM621-xxxIAxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1 digital expansion card</strong></td>
<td>4x 0/4..20 mA/PFM/pulse + TPS 2 x digital to 20 kHz, 4 x digital to 4 Hz</td>
<td>7 x relay SPST, 1 x TPS 2x0/4..20 mA/pulse (standard) or no 0/4..20mA/pulse if ethernet option selected</td>
</tr>
<tr>
<td>RMM621-xxxDAxxxx (non-Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMM621-xxxIAxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 analog current expansion cards (incl. sensor power supply)</strong></td>
<td>8x 0/4..20 mA/PFM/pulse</td>
<td>5 x relay SPST, 1 x TPS 4x0/4..20mA/pulse</td>
</tr>
<tr>
<td>RMM621-xxxBBxxxx (non-Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMM621-xxxGGxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2 digital expansion cards</strong></td>
<td>4x 0/4..20 mA/PFM/pulse + TPS 4 x digital to 20 kHz, 8 x digital to 4 Hz</td>
<td>13 x relay SPST, 1 x TPS 2x0/4..20mA/pulse</td>
</tr>
<tr>
<td>RMM621-xxxDDxxxx (non-Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMM621-xxxIIxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3 analog expansion cards</strong></td>
<td>10 x 0/4..20 mA/PFM/pulse + TPS</td>
<td>7 x relay SPST, 1 x TPS, 6 x digital 8x0/4..20mA/pulse</td>
</tr>
<tr>
<td>RMM621-xxxBBxxxx (non-Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMM621-xxxGGxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3 digital expansion cards</strong></td>
<td>4x 0/4..20 mA/PFM/pulse + TPS 6 x digital to 20 kHz, 12 x digital to 4 Hz</td>
<td>19 x relay SPST, 1 x TPS 2x0/4..20mA/pulse</td>
</tr>
<tr>
<td>RMM621-xxxDDxxxx (non-Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RMM621-xxxIIIxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Combinations</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Basic device + 2 expansion cards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 analog / 1 digital expansion card</td>
<td>6x 0/4..20 mA/PFM/pulse + TPS 2 x digital to 20 kHz, 4 x digital to 4 Hz</td>
<td>9 x relay SPST, 1 x TPS, 2 x digital 4x0/4..20mA/pulse</td>
</tr>
</tbody>
</table>

RMM621-xxxBDxxxx (non-Ex) RMM621-xxxGIAxxxx (Ex)
### Accessories

- Display- and operating keys: in offset housing for panel mounting 144x72mm
  Order No.: RMM621A-AA
- RS232 interface cable, 3.5mm plug, with PC software ReadWin to PC connection
  Order No.: RMM621A-VK
- Profibus-DP slave module for DIN rail
  Order No.: RMM621A-P1
- Adhesive label printed (max.2x16 char.)
  Order No.: 51004148
- Metal TAG
  Order No.: 51002393
- Label paper tag 3x16 char
  Order No.: 51010487

### Expansion cards

The device can be extended with max. 3 universal cards and/or digital cards and/or current cards and/or Pt100 cards.

<table>
<thead>
<tr>
<th>Expansion cards product structure</th>
<th>Number of inputs</th>
<th>Number of outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 analog / 1 digital expansion cards</td>
<td>8 x 0/4..20 mA/PFM/pulse + TPS 2 x digital to 20 kHz, 4 x digital to 4 Hz</td>
<td>11 x relay SPST, 1 x TPS, 4 x digital 6x0/4..20mA/pulse</td>
</tr>
<tr>
<td>RMM621-xxxBBDxxxx (non-Ex) RMM621-xxxGGIxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 analog / 2 digital expansion cards</td>
<td>6x 0/4..20 mA/PFM/pulse + TPS 4 x digital to 20 kHz, 8 x digital to 4 Hz</td>
<td>15 x relay SPST, 1 x TPS, 2 x digital 4x0/4..20mA/pulse</td>
</tr>
<tr>
<td>RMM621-xxxDDBxxxx (non-Ex) RMM621-xxxIIGxxxx (Ex)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Expansion cards product structure

- **Extension card digital, 6x dig. In**
  6x Rel. Out, cpl. incl. terminal + fixing frame
  Order No.: RMM621A-DA

- **Extension card digital ATEX approval, 6x dig. In**
  6x Rel. Out, cpl. incl. terminal + fixing frame
  Order No.: RMM621A-DB

- **Extension card 2x U,I,TC**
  Outp. 2x0/4mA/Imp., 2x Dig., 2x Rel. SPST
  Order No.: RMM621A-CA

- **Extension card 2x U,I,TC, ATEX approval**
  Outp. 2x0/4mA/Imp., 2x Dig., 2x Rel. SPST
  Order No.: RMM621A-CB

- **Extension board temperature (Pt100/Pt500/Pt1000) cpl. incl. connector + fixing frame**
  Order No.: RMM621A-TA

- **Extension card temp. ATEX approval, (Pt100/500/1000) cpl. incl. terminals**
  Order No.: RMM621A-TB

- **Extension board universal (PFM/pulse/analog-loop power) cpl. incl. connector and fixing frame**
  Order No.: RMM621A-UA

- **Extension card univ. ATEX approval (PFM/pulse/analog/LPS) cpl. incl. terminal**
  Order No.: RMM621A-UB

### Documentation

- 'Mathematics Module RMM621' Operating Instructions (BA217R/09)
- 'System Components' brochure (FA016K/09)