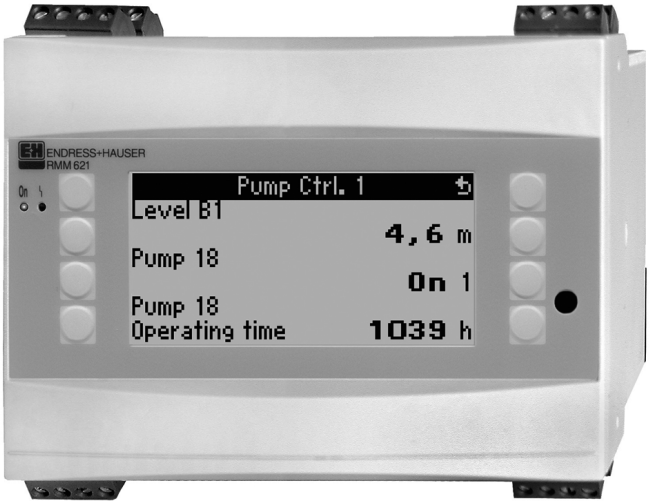
Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

RMM621 Pump Control

Pump manager
Universal pump control



Areas of application

- Sewage plants
- Water treatment plants
- Pump stations
- Brewery

Your benefits

- Up to 4 digital monitoring inputs per pump (pump on, pump blocked, pump alarm, pump not available)
- Max. 3 independent pump applications (sequence alternating, time alternating as per overall operating time, swirl jet)
- Monitoring of pressure, level and flow signals as control variables
- Versatile communication means (modem (fixed/ mobile network), RS232/485, PROFIBUS® interface as an option)
- Logging function for error events and changes to parameters, incl. date and time
- Parameterization and operation via ReadWin® 2000 PC software
- Transmission of counter readings and messages via modem (fixed network, GSM)
- Operating hours counter for the pumps
- Large, rear-illuminated LC display, with color change in the event of an error
- Transmitter power supply
- Intrinsically safe inputs (as an option)

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Function and system design

Measuring principle

The RMM621 is a multichannel pump control system for peripheral pump stations. Depending on the configuration, it comprises up to 19 relays for switching purposes or up to 10 analog inputs. The highest flexibility is guaranteed through possible combination of digital and analog expansion cards.
The digital inputs of the device are used to monitor digital status information of the connected pumps. Values and messages are output on the device display. The background color can be set to change from blue to red when user-defined threshold values are violated or errors occur. The device detects sensor or device malfunctions independent of the pump control function and processes these via switching relay or display output, if required. The device is available without display, with integrated display and/or with external display.
A real-time clock with power reserve is used for flow value integration. Integration counters are available for flow input variables. Pulse outputs are available in the device for the output of counter values. All input variables can be forwarded via the outputs.
An online help makes on-site operation easy. The function scope of the device can be expanded at any time through retrofitting of expansion cards (analog, digital/relay cards).

Calculations:
- Volume flow
- Level
- Pressure

Sums (counters):
- Operating volume

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

Outputs:
- Current (0/4 to 20 mA)
- Pulse
- Digital (passive)
- Relay
- Transmitter power supply (TPS) for each analog or pulse input

✎ Note!
The number of inputs, outputs, relays and transmitter power supplies available in the basic device can be expanded individually through the use of up to three plug-in cards.

Function

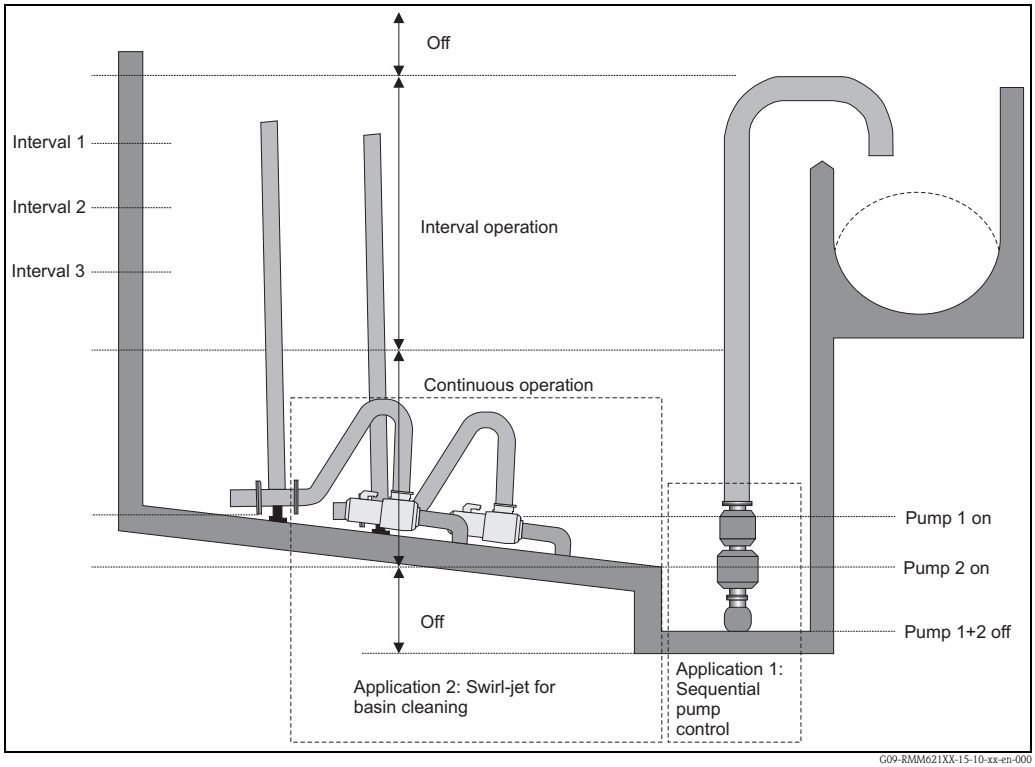
Based on the input variables flow, pressure, level or any measuring input, the RMM 621 pump manager controls up to three independent pump applications with a maximum of 6 pumps each. All pumps can be controlled individually based on various criteria. The RMM621 facilitates remote interrogation of measured values (GSM, landline network) and alarms via telealarm functions.
The individual algorithms take into account up to 4 digital inputs as the feedback signal of the connected pumps. The pump status can be analyzed by connecting the digital output of a pump to a digital input of the RMM621. The following digital signals are analyzed in the RMM621:
Pump on: The pump is interpreted as activated if a high level is present. If a low level is present at the digital input of the RMM621, the related pump is not taken into account during switch-on procedures until the user releases the pump at RMM621.
Pump blocked/pump not available/pump alarm: If a high level is present at the digital input of the RMM621, the related pump is not taken into account during switch-on procedures until a low level is present again at the digital input.
If an application has been configured and a pump returns "blocked"/"not available"/"alarm" as the feedback signal, the RMM621 activates another pump that is not yet in operation.

Control procedure

The pump control application of the RMM621 contains three different control procedures:

1. sequence-controlled pump control
2. time-controlled (alternating) pump control
3. swirl-jet control

The RMM621 pump control contains 3 independent applications, allowing for any combination of the applications. As an example, one control application can be used for emptying and cleaning a basin: the costly use of several devices is, thus, not necessary.



Pump control application with RMM621

Sequence-controlled pump control:

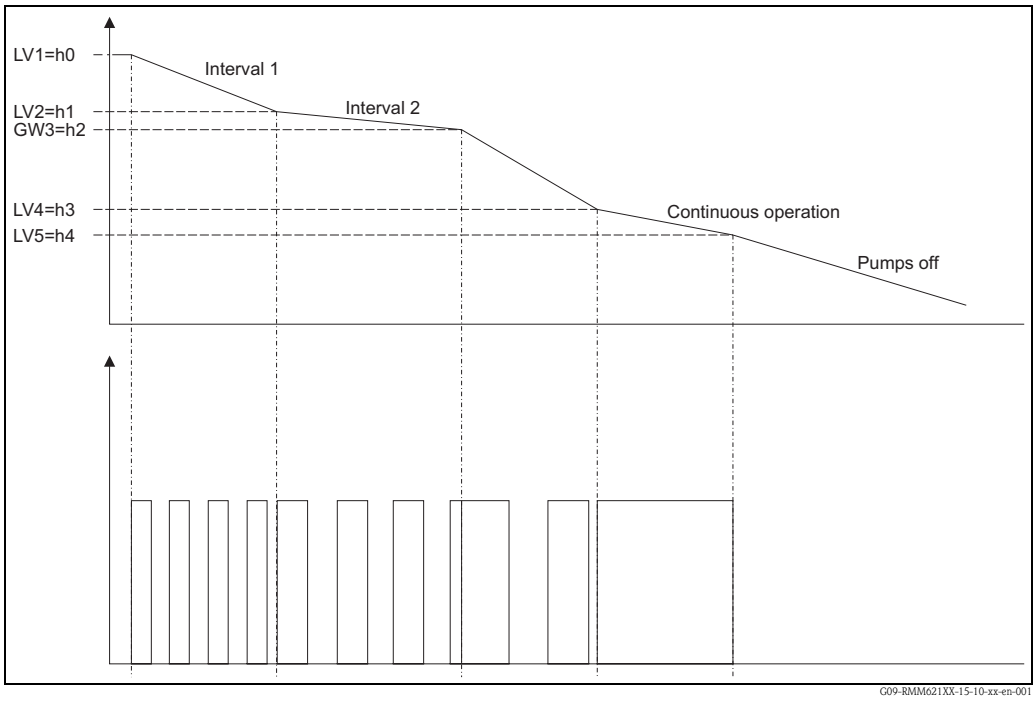
In this case, up to 6 pumps are switched on depending on the time of their last usage, i.e. the pump which was not in operation for the longest period is switched on next when a pump is required. When a pump is to be switched off, this will be the pump which has been active for the longest time in the current switching cycle.

Time-controlled (alternating) pump control:

In this case, up to 6 pumps are switched on depending on the respective operating hours counter, i.e. the pump with the shortest operating time (according to operating hours counter in the RMM621) is switched on next when a pump is required. When a pump is to be switched off, this will be the pump which has been active for the longest time (total operating time according to operating hours counter).

Swirl-jet control:

With this application, RMM621 integrates up to 6 pumps into the control operation. The pumps are activated dependent on the level of the tank monitored and the level decline gradient:
When level is declining, cleaning must be initiated with 5 different operating states being run through during swirl-jet control operation: "Interval 1", "Interval 2", "Interval 3", "Continuous operation" and "Off". In order to optimize and individually adapt these operating states to the on-site conditions, they can be freely parameterized in the RMM621.



Swirl-jet control application with RMM621

Measuring system

The analog input variables are digitized, the pulse and PFM signals recorded using period length/frequency measurement and processed further in the arithmetic unit controlled by the microcontroller. The digital status inputs are scanned cyclically.
The RMM621 directly supplies two-wire transmitters with power. For Ex-applications, the inputs and transmitter power supplies are available as intrinsically safe as an option.
Parameterization of the inputs, outputs, threshold values, and display as well as commissioning and maintenance of the device is carried out via 8 soft keys using the rear-illuminated dot matrix display, via RS232/RS485 interface, ReadWin® 2000 PC software, or via an external operating unit.
On-line help facilitates on-site operation. The optional color change of the rear illumination visualizes threshold value violations or malfunctions. The functional scope of the device can be expanded at any time using plug-in cards.
In order to use the telealarm function we recommend that you use a standard industrial modem comprising a RS232 interface.

Input

Measured variable

Voltage (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

Measured variable	Input
Current	■ 0/4 to 20 mA +10% overreach ■ Max. input current 150 mA ■ Input impedance < 10 Ω ■ Accuracy 0.1% of full scale value ■ Temperature drift 0.04% / K (0.022%/ °F) ■ Signal attenuation low-pass filter 1st order, filter constants adjustable 0 to 99 s ■ Resolution 13 Bit
PFM	■ Frequency range of 0.01 Hz to 18 kHz ■ Signal level – low: 2 to 7 mA – high: 13 to 19 mA ■ Measurement method: period length/frequency measurement ■ Accuracy 0.01% of measured value ■ Temperature drift 0.01% over complete measuring range
Pulse	■ Frequency range of 0.01 Hz to 18 kHz ■ 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
Voltage (digital input)	■ Voltage level – low: -3 .. 5V – high: 12 .. 30V (to DIN 19240) ■ Input current typically 3 mA with overload and reverse polarity protection ■ Scanning rate: 4 x 4 Hz (Terminals 83, 85, 93, 95) ■ 2 x 20kHz (Terminals 81, 91)

Number

Number:
■ 4 x 0/4 to 20 mA/PFM/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:

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

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, frequency/pulse

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

500 ms

Number

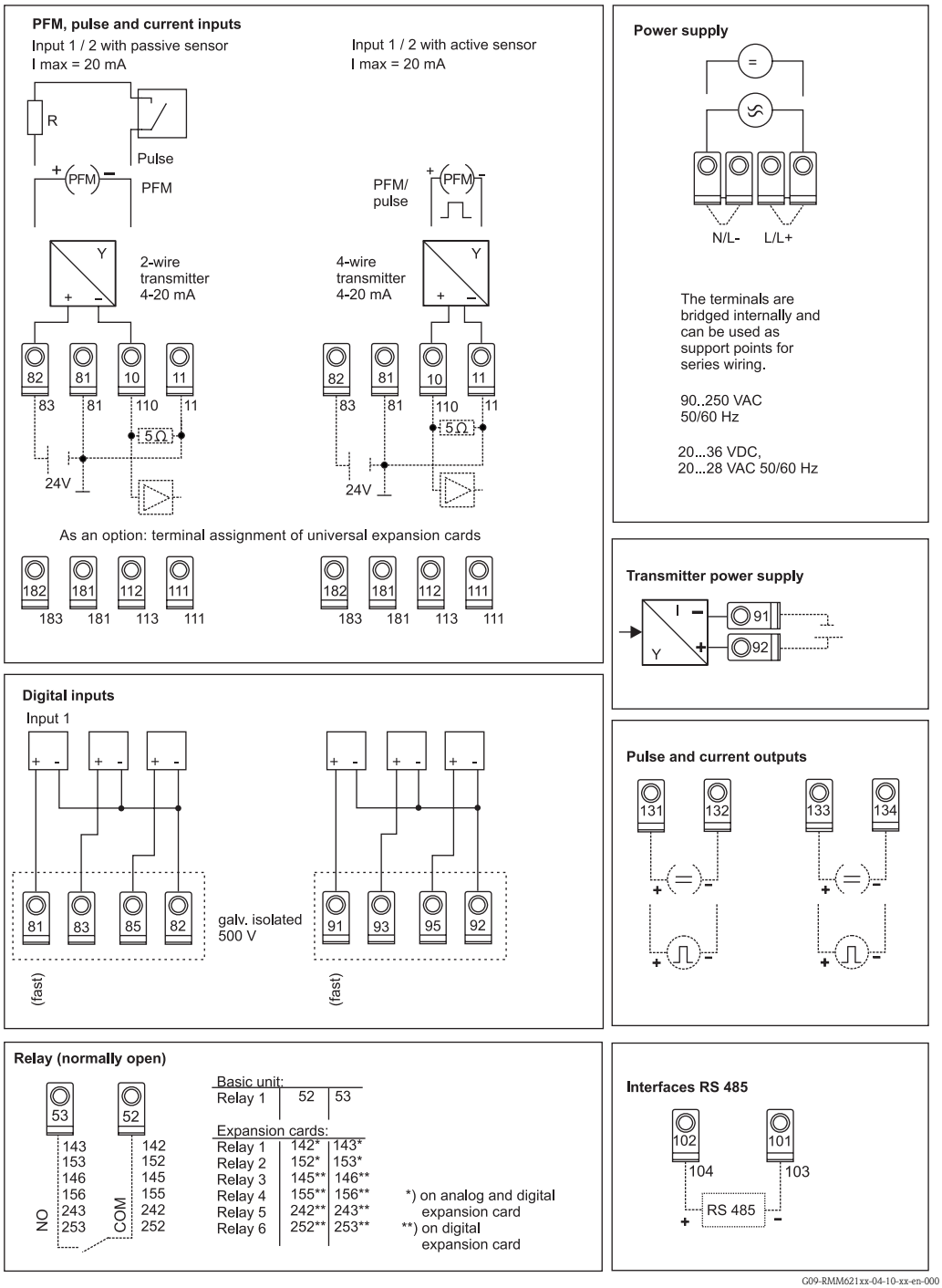
1 (in basic device)
Max. number: 19 (depends on the number and type of expansion cards)

Transmitter power supply and external power supply

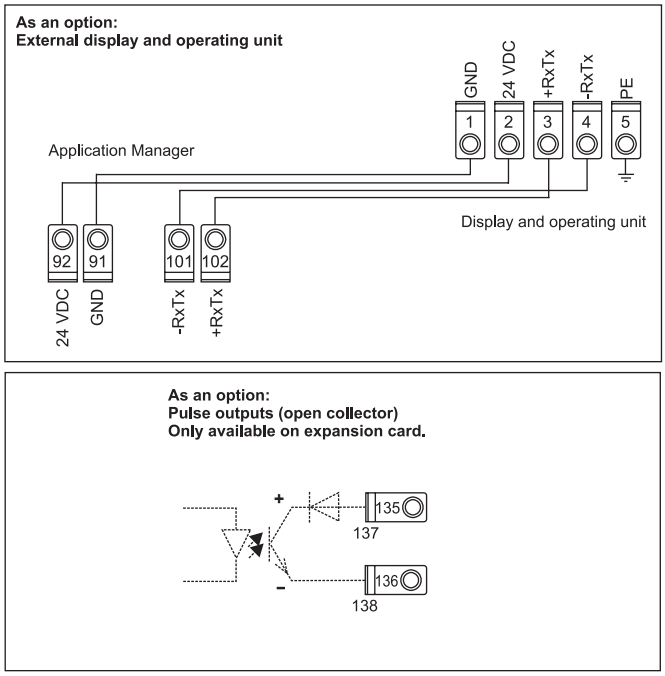
- Transmitter power supply unit (TPS), terminals 81/82 or 81/83 (optional current expansion cards 181/182 or 181/183):
  Max. output voltage 24 V DC ± 15%
  Impedance < 345 Ω
  Max. loop current 22 mA (at U_{out} > 16 V)
- Technical data RMM621:
  HART® communication is not impaired
  Number: 4 TPS in 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)



Terminal assignment of RMM621 - basic device and expansion cards



Terminal assignment of RMM621 - 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
Ethernet interface 10/100BaseT, connector type RJ45, connection via screened cable, IP address allocated via Setup menu in the device. Connection using interface with devices in office environment.
Safety distance: Office Equipment Standard IEC 60950-1 must be observed.
Connection to a PC: possible using "crossover" cables.

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

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

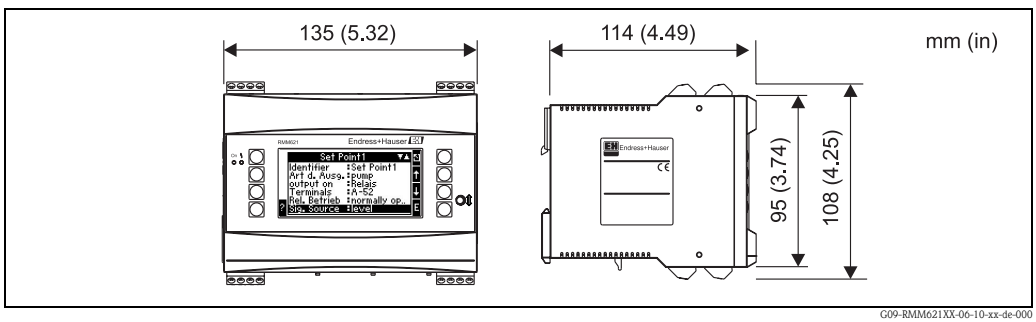
IEC 61326 Class A

Interference immunity

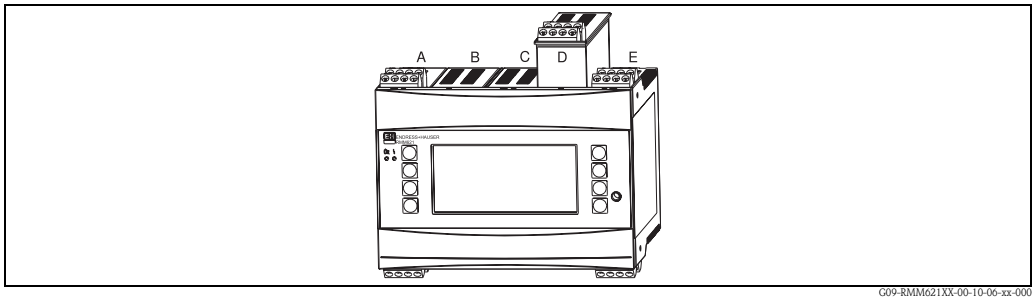
- Power failure: 20 ms, no impact
- Starting current limitation: $I_{max}/I_n \leq 50\%$ (T50% ≤ 50 ms)
- Electromagnetic fields: 10 V/m to IEC 61000-4-3
- Conducted HF: 0.15 to 80 MHz, 10 V to IEC 61000-4-3
- Electrostatic discharge: 6 kV contact, indirectly to IEC 61000-4-2
  - Burst (power supply):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



G09-RMM621XX-00-10-06-xx-000

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

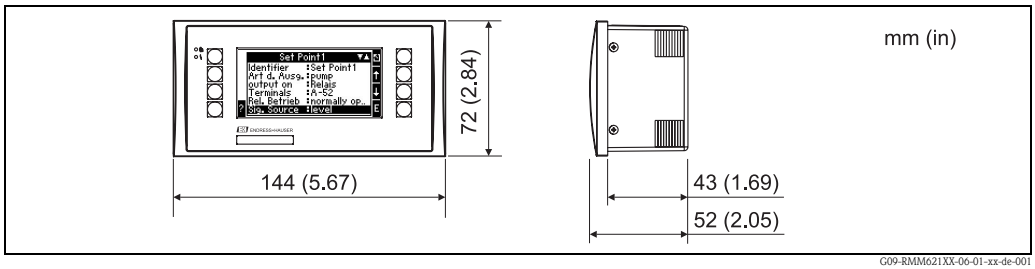
Terminals

Coded, pluggable screw terminals; core size 1.5 mm^2 (16 AWG) solid, 1.0 mm^2 (18 AWG) flexible with ferrules (applies to all connections).

Human interface

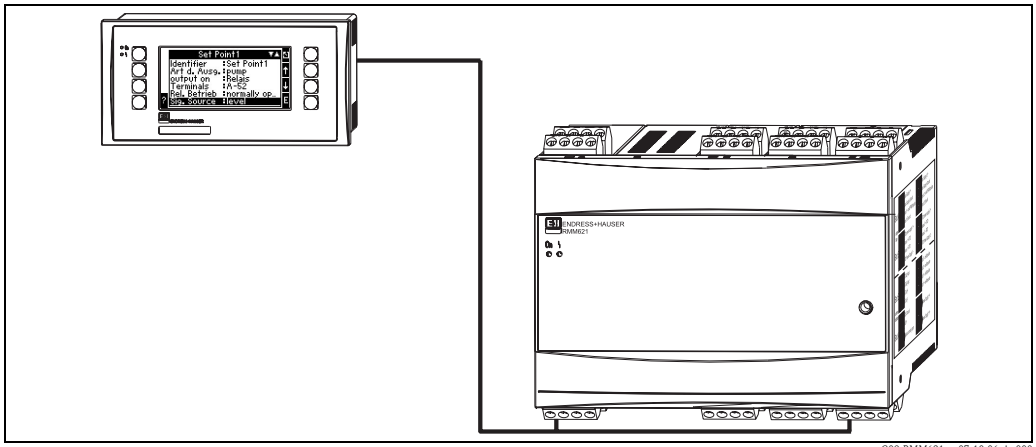
Display elements

- 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.



G09-RMM621XX-06-01-xx-de-001

Operating and display unit for panel mounting (optional or available as an accessory)



Operating and display unit in panel mounted housing

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

Certificates and approvals

CE mark	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.
Ex approval	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.
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

RMM62	**Pump control**
1	Multichannel pump control system for peripheral pump stations. Basic functions: 1x RS232 + 1x RS485. 3x LPS = Loop power supply. Inputs A:2x0/4-20mA/PFM/pulse. Output A:1x Relay SPST, 1x loop power. Inputs E:2x0/4-20mA/PFM/pulse. Output E:2x0/4-20mA/pulse - pump control

	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; without keys + ReadWin 2000 software
	2	Alphanumeric; keys 8
	3	Separate; panel 72x144mm, RS485
	4	Separate; panel 72x144mm, 2 x RS485

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

	Slot B:	
	A	Not used
	B	Input: 2x 0/4-20mA/PFM/pulse + LPS Output: 2x 0/4-20mA/pulse, 2x digital, 2x relay SPST
	D	Input: 2xDigital 20kHz, 4xDigital 4Hz Output: 6x relay SPST
	G	Input: Ex-i, 2x0/4-mA/PFM/pulse + LPS Output: 2x0/4-20mA/pulse, 2x digital, 2x relay SPST
	I	Input: Ex-i, 2xDigital 20kHz, 4xDigital 4Hz Output: 6x relay SPST

	Slot C:	
	A	Not used
	B	Input: 2x 0/4-20mA/PFM/pulse + LPS Output: 2x 0/4-20mA/pulse, 2x digital, 2x relay SPST
	D	Input: 2xDigital 20kHz, 4xDigital 4Hz Output: 6x relay SPST
	G	Input: Ex-i, 2x0/4-mA/PFM/pulse + LPS Output: 2x0/4-20mA/pulse, 2x digital, 2x relay SPST
	I	Input: Ex-i, 2xDigital 20kHz, 4xDigital 4Hz Output: 6x relay SPST

RMM621-	⇐ order code (part 1)

						Slot D:					
						A	Not used				
						B	Input: 2x 0/4-20mA/PFM/pulse + LPS Output: 2x 0/4-20mA/pulse, 2x digital, 2x relay SPST				
						D	Input: 2xDigital 20kHz, 4xDigital 4Hz Output: 6x relay SPST				
						G	Input: Ex-i, 2x0/4-mA/PFM/pulse + LPS Output: 2x0/4-20mA/pulse, 2x digital, 2x relay SPST				
						I	Input: Ex-i, 2xDigital 20kHz, 4xDigital 4Hz Output: 6x relay SPST				
							Software:				
							PA	Pump Control			
							PB	Pump Control + Telealarm			
							YY	Special version, to be specified			
								Operating language:			
								A	German		
								B	English		
								C	French		
								D	Italian		
								E	Spanish		
								F	Dutch		
									Communication:		
									1	1x RS232 + 1x RS485	
									2	1x RS232 + 1x RS485 + cable + software Readwin	
									3	1x RS232 + Profibus-DP Slave-Modul	
									4	1x RS232 + cable + Profibus-DP Slave-Modul external + software Readwin	
									5	1x RS232 + 2x RS485	
									6	1x RS232 + 2x RS485 + cable + Readwin software	
										Factory calibration certificate:	
										1	Not selected
										2	With
RMM621-											⇐ order code (complete)

Product structure selection aid The following table contains an overview of the order codes for the expansion cards:

	Expansion cards product structure	Number of inputs	Number of outputs	Possible applications
Basic device	RMM621-xxxAAAxxxx	4x 0/4..20 mA/PFM/pulse	1 x relay SPST, 1 x TPS 2x0/4..20mA/pulse	■ Switching 1 pump ■ Acquiring up to 4x flow/level/pressure, up to 4 flow sum counters possible for flow calculation ■ Output of input variables / counters via analog/ pulse outputs ■ Relay output of one limit value
Basic device + 1 expansion card	**1 analog expansion card** RMM621-xxxBAAxxxx (Non-Ex) RMM621-xxxGAAxxxx (Ex)	6x 0/4..20 mA/PFM/pulse	3 x relay SPST, 1 x TPS 4x0/4..20mA/pulse	■ Switching up to 3 pumps ■ Acquiring up to 6x flow/level/pressure, up to 6 flow sum counters possible for flow calculation ■ Output of input variables / counters via analog/ pulse outputs ■ Relay output of up to 3 limit values
	1 digital expansion card RMM621-xxxDAAxxxx (Non-Ex) RMM621-xxxIAAxxxx (Ex)	4x 0/4..20 mA/PFM/pulse 2x digital up to 20 kHz, 4x digital up to 4 Hz	7 x relay SPST, 1 x TPS 2x0/4..20 mA/pulse	■ Switching up to 7 pumps ■ Acquiring up to 4x flow/level/pressure, up to 4 flow sum counters possible for flow calculation ■ Output of input variables / counters via analog/ pulse outputs ■ Relay output of up to 7 limit values ■ Allocation of up to 2 fast counter pulses (input) ■ Evaluation of up to 6 pump feedback signals (digital input)
Basic device + 2 expansion cards	**2 analog expansion cards** RMM621-xxxBBAxxxx (Non-Ex) RMM621-xxxGGAxxxx (Ex)	8x 0/4..20 mA/PFM/pulse	5 x relay SPST, 1 x TPS 6x0/4..20mA/pulse	■ Switching up to 5 pumps ■ Acquiring up to 8x flow/level/pressure, up to 8 flow sum counters possible for flow calculation ■ Output of input variables / counters via analog/ pulse outputs ■ Relay output of up to 5 limit values
	2 digital expansion cards RMM621-xxxDDAxxxx (Non-Ex) RMM621-xxxIIAxxxx (Ex)	4x 0/4..20 mA/PFM/pulse 4x digital up to 20 kHz, 8x digital up to 4 Hz	13 x relay SPST, 1 x TPS 2x0/4..20mA/pulse	■ Switching up to 13 pumps ■ Acquiring up to 4x flow/level/pressure, up to 4 flow sum counters possible for flow calculation ■ Output of input variables / counters via analog/ pulse outputs ■ Relay output of up to 13 limit values ■ Allocation of up to 4 fast counter pulses (input) ■ Evaluation of up to 12 pump feedback signals (digital input)

	Expansion cards product structure	Number of inputs	Number of outputs	Possible applications
Basic device + 3 expansion cards	**3 analog expansion cards** RMM621-xxxBBBxxxx (Non-Ex) RMM621-xxxGGGxxxx (Ex)	10x 0/4..20 mA/PFM/pulse	7 x relay SPST, 1 x TPS 8x0/4..20mA/pulse	▪ Switching up to 7 pumps ▪ Acquiring flow/level/pressure or freely configurable measured values, up to 10 flow sum counters possible for flow calculation ▪ Output of input variables / counters via analog/ pulse outputs ▪ Relay output of up to 7 limit values
	3 digital expansion cards RMM621-xxxDDDxxxx (Non-Ex) RMM621-xxxIIIxxxx (Ex)	4x 0/4..20 mA/PFM/pulse 6x digital up to 20 kHz, 12x digital up to 4 Hz	19 x relay SPST, 1 x TPS 2x0/4..20mA/pulse	▪ Switching up to 19 pumps ▪ Acquiring up to 4x flow/level/pressure, up to 4 flow sum counters possible for flow calculation ▪ Output of input variables / counters via analog/ pulse outputs ▪ Relay output of up to 19 limit values ▪ Allocation of up to 6 fast counter pulses (input) ▪ Evaluation of up to 18 pump feedback signals (digital input)
	Combinations			
Basic device + 2 expansion cards	**1 analog / 1 digital expansion card** RMM621-xxxBDAxxxx (Non-Ex) RMM621-xxxGIAxxxx (Ex)	6x 0/4..20 mA/PFM/pulse 2x digital up to 20 kHz, 4x digital up to 4 Hz	9 x relay SPST, 1 x TPS 4x0/4..20mA/pulse	▪ Switching up to 9 pumps ▪ Acquiring up to 6x flow/level/pressure, up to 6 flow sum counters possible for flow calculation ▪ Output of input variables / counters via analog/ pulse outputs ▪ Relay output of up to 9 limit values ▪ Allocation of up to 2 fast counter pulses (input) ▪ Evaluation of up to 6 pump feedback signals (digital input)
Basic device+ 3 expansion cards	**2 analog / 1 digital expansion cards** RMM621-xxxBBDxxxx (Non-Ex) RMM621-xxxGGIxxxx (Ex)	8x 0/4..20 mA/PFM/pulse 2x digital up to 20 kHz, 4x digital up to 4 Hz	11 x relay SPST, 1 x TPS 6x0/4..20mA/pulse	▪ Switching up to 11 pumps ▪ Acquiring up to 8x flow/level/pressure, up to 8 flow sum counters possible for flow calculation ▪ Output of input variables / counters via analog/ pulse outputs ▪ Relay output of up to 11 limit values ▪ Allocation of up to 2 fast counter pulses (input) ▪ Evaluation of up to 6 pump feedback signals (digital input)
	1 analog / 2 digital expansion cards RMM621-xxxDDBxxxx (Non-Ex) RMM621-xxxIIGxxxx (Ex)	6x 0/4..20 mA/PFM/pulse 4x digital up to 20 kHz, 8x digital up to 4 Hz	15 x relay SPST, 1 x TPS 4x0/4..20mA/pulse	▪ Switching up to 13 pumps ▪ Acquiring up to 6x flow/level/pressure, up to 6 flow sum counters possible for flow calculation ▪ Output of input variables / counters via analog/ pulse outputs ▪ Relay output of up to 13 limit values ▪ Allocation of up to 4 fast counter pulses (input) ▪ Evaluation of up to 12 pump feedback signals (digital input)

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.

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 board universal(PFM/impuls/analog/loop power) cpl. incl. connector and fixing frame	Order No.: RMM621A-UA
Extention card univ.ATEX approval (PFM/pulse/analog./LPS) cpl. incl. terminal	Order No.: RMM621A-UB

Documentation

❑'RMM621 Pump Control' Operating Instructions (BA227R/09)
❑'System Components' brochure (FA016K/09)

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