

Operation Instructions

VisuNet EX1 Remote Monitor/PC RM5***-*-X / PC4***-*-X

ENG

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Validity

Specific processes and instructions in this document require special precautions to guarantee the safety of the operating personnel.

Warning: The circuitry of the apparatus and the electrical parameters have been modified and the apparatus have been assessed in accordance with the current standard versions; a modified marking is the result.

Target Group / Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismounting lies with the system operator.

Mounting, installation, commissioning, operation, maintenance and disassembly of any devices may only be carried out by trained, qualified personnel. The instruction manual must be read and understood.

Laws, standards, or directives applicable to the intended use must be observed. In relation to hazardous areas, Directive 1999/92/EC must be observed.

The corresponding data sheets, declarations of conformity, EC-type-examination certificates, certificates and Control Drawings if applicable (see data sheet) are an integral part of this document. You can find this information under www.pepperl-fuchs.com.





Marking




All VisuNet RM and VisuNet PC variants for installation are labelled with:

	RM	PC
Company name	Pepperl+Fuchs GmbH	
Address	Lilienthalstraße 200 68307 Mannheim, Germany	
Website	www.pepperl-fuchs.com	
Type designation	RM5***-*-X	PC4***-*-X
Ambient temperature	-20°C ≤ Ta ≤ +50°C	

All VisuNet RM/PC variants for installation in hazardous areas **acc. to ATEX** are additional labelled with:

	RM	PC
Relevant types	RM5***-C-*X RM5***-D-*X RM5***-E-*X RM5***-F-*X RM5***-J-*X RM5***-M-*X RM5***-W-*X	PC4***-C-*X PC4***-D-*X PC4***-E-*X PC4***-F-*X PC4***-J-*X PC4***-M-*X PC4***-W-*X
Identification code according to 94/9/EG	0102	
Conformity mark	CE	
Certification no.	BVS 07 ATEX E 008 X	

Types	Marking	Alternative Marking
RM5***-(C,E,F,J,M)-*X PC4***-(C,E,F,J,M)-*X		
RM5***-(F,J)-*X PC4***-(F,J)-*X		

Types	Marking	Alternative Marking
RM5***-(W)-*X PC4***-(W)-*X		
RM5***-(D,E,M,W)-*X PC4***-(D,E,M,W)-*X		

All VisuNet RM/PC variants for installation in hazardous areas **acc. to IECEx** are additional labelled with:

	RM	PC
Relevant types	RM5***-J-*X RM5***-K-*X RM5***-M-*X RM5***-P-*X RM5***-W-*X	PC4***-J-*X PC4***-K-*X PC4***-M-*X PC4***-P-*X PC4***-W-*X
Certification no.	IECEx BVS 08.0030X	

Types	Marking	Alternative Marking
RM5***-(J,M,P)-*X PC4***-(J,M,P)-*X	Ex e mb q [ib] IIC T4 Gb	Ex eb mb qb [ib] IIC T4
RM5***-(J)-*X PC4***-(J)-*X	Ex tb [ib] IIC T85°C Db	Ex tb [ib] IIC T85°C
RM5***-(W)-*X PC4***-(W)-*X	Ex e mc q [ib] IIC T4 Gc	
RM5***-(K,M,W)-*X PC4***-(K,M,W)-*X	Ex tc [ib] IIC T85°C Dc	Ex tc [ib] IIC T85°C

Intended Use

The VisuNet RM/PC is used as an explosion-protected apparatus for controlling, operating and visualizing production and manufacturing processes in hazardous areas zones 1 and 2, ignition group IIC, zone 21 and zone 22 for electrically conductive types of dust according to type designation according to type code.

Only use the device stationary.

The devices are only approved for appropriate and intended use. Ignoring these instructions will void any warranty and absolve the manufacturer from any liability.

The device must only be operated in the ambient temperature range and at the relative humidity (non-condensing) specified.

If the device replaces a predecessor device, the documentation for the verification of intrinsic safety must be adjusted.

Improper Use

Protection of the operating personnel and the overall system is not ensured if the product is not being used according to its intended purpose.

Mounting/Installation

Prior to mounting, installation, and commissioning of the device you should make yourself familiar with the device and carefully read the instruction manual.

Do not install damaged or polluted devices.

Only use accessories specified by the manufacturer.

Mount the device in a weatherproof space.

Ensure that the mounting space has a sufficient floor load capacity.

Protect the device against long-term or excessive vibration.

If cable glands are needed for installation, the following points must be considered / evaluated:

- the cable glands used must be suitably certified for the application
- The temperature range of the cable glands must be chosen according to the application.
- The cable glands fitted must not reduce the IP rating.

If "Ex i" protected circuits (intrinsically safe) were operated with non-intrinsically safe circuits, they must no longer be used as "Ex i" protected circuits.

The installation instructions in accordance with IEC/EN 60079-14 must be observed.

The housing provides an earthing screw, to which an equipotential bonding system with a minimum diameter of 4 mm² must be connected.

Equipotential bonding must be achieved along the intrinsically safe circuits.

The respective peak values of the field device and the associated apparatus with regard to explosion protection should be considered when connecting intrinsically safe field devices with intrinsically safe circuits of associated apparatus (verification of intrinsic safety). Make sure to observe IEC/EN 60079-14 and IEC/EN 60079-25.

All separation distances between two adjacent intrinsically safe circuits need to be observed in accordance with IEC/EN 60079-14.

Circuits of intrinsically safe apparatus can be led into hazardous areas, whereby special attention must be paid to maintaining separation distances to all non-intrinsically safe circuits according to the requirements in IEC/EN 60079-14.

To ensure the IP degree of protection:

- all seals must be undamaged and correctly fitted
- all screws of the surrounding enclosure and its cover must be tightened with the appropriate torque
- only cable of the appropriate size must be used in the cable glands
- all cable glands must be tightened with the appropriate torque
- all empty cable glands must be sealed with sealing plugs

The device is heavy. In order to avoid personal injuries or property damage, make appropriate provisions for the mounting procedure.

Only operate the device with a closed Ex e terminal compartment.

Installation Notes on Cables and Wires

If cables or wires are needed for installation, the following points must be considered/evaluated:

- Disconnect the device, before you plug or unplug the terminals.
- The permissible cross section of conductors must be considered.
- The insulation stripping length must be considered.
- If you use stranded wires, crimp on wire end ferrules.
- Observe the tightening torque of the terminal screws.
- Connectors for non-intrinsically safe circuits must be mechanically secured.

The device must be disconnected from the power supply prior to installation and maintenance. The power supply may be activated only after all the circuits required for operation have been fully assembled and connected.

Disconnect the device, before you plug or unplug the terminals.

The devices must not be repaired, changed or manipulated.

If there is a defect, the product must always be replaced with an original device.

Connection or disconnection of energized non-intrinsically safe circuits is only permitted in the absence of a hazardous atmosphere.

After de-energizing the device, a specified delay before opening the cover has to be maintained.

Only connect devices that are in accordance with IEC 60950-1 and are designed as SELV safety extra low voltage systems.

Delivery, Transport, Disposal

Check the packaging and contents for damage.

Check if you have received every item and if the items received are the ones you ordered.

Keep the original packaging. Always store and transport the device in the original packaging.

Store the device in a clean and dry environment. The permitted ambient conditions (see data sheet) must be considered.

Disposing of devices, packaging material, and possibly contained batteries must be in compliance with the applicable laws and guidelines of the respective country.

Technical Specifications

	VisuNet RM515* VisuNet PC415*	VisuNet RM519* VisuNet PC419*
Supply		
Nominal Input Voltage U _i	24V DC (20-30V DC) SELV circuit according EN60950	
Max. Voltage U _m	60 V DC	
Nominal current I _i	4.5 A	
Power consumption P _i	75 W	85 W
Connection Specifications		
Type of connection	Screw terminal	
Rate of cross-section (flexible)	0,2 – 2,5 mm ² AWG 24...13	

	VisuNet RM515* VisuNet PC415*	VisuNet RM519* VisuNet PC419*
Rate of cross-section (solid)	0,2 – 4 mm ² AWG 24...11	
Rate of cross-section of the cable gland for power supply connection	10 ... 14 mm	
Rate of cross-section of the cable gland for other Input/ Output connections	6 ... 10 mm	
Torque	0.5 ... 0.6 Nm	

Ambient Conditions		
Permitted temperature range when turning-on	-10°C ... +50 °C	
Permitted temperature range operating	-20°C ... +50 °C	
Storage temperature range	-20 °C ... +60 °C	
Relative humidity	Max. 85 % without condensation (48 h endurance test)	
Max. surface temperature	85 °C	





Mechanical Specifications		
Protection Degree	IP64	
Mass	Approx. 33 kg	Approx. 41 kg
Dimensions (W x H x D)	503 x 423 x 142 mm	537 x 457 x 158 mm
Cutout dimensions frontend (W x H)	432 x 355 mm	466 x 389 mm

Warning: The circuitry of the apparatus and the electrical parameters have been modified and the apparatus have been assessed in accordance with the current standard versions; a modified marking is the result.

The listed electrical parameters are NOT valid for devices which have one of the following part numbers AND one of the following serial numbers

Part number		Serial number
196567-* 196568-* 203467 203469 203470 220586 223661 234496 237509 242919 249763 249764	AND one of the following serial numbers	Serial number is less than 40000021015003 40000021015009 40000021015014 40000021015015

If your device is affected by this exclusion, please refer to your safety information document to get the valid electrical parameters or contact your local technical support contact at Pepperl+Fuchs.

	VisuNet RM5* / PC4*
Data for application in connection with Ex-areas	
EC-Type Examination Certificate	BVS 07 ATEX E 008 X
Group, category, type of protection	   
Directive conformity 94/9/EC	EN 60079-0:2012 EN 60079-5:2007 EN 60079-7:2007 EN 60079-11:2012 EN 60079-18:2009 EN 60079-31:2009
IECEx approval	IECEx BVS 08.0030X
Approved for	Ex e mb q [ib] IIC T4 Gb Ex tb [ib] IIC T85°C Db Ex e mc q [ib] IIC T4 Gc Ex tc [ib] IIC T85°C Dc
Ex-characteristics Inputs / Outputs	
Non intrinsically safe circuits (Ex e)	
Nominal Voltage U _i (Terminals X1-5 up to X1-26)	48 V DC
Power supply circuit (Ex e)	
Connection	Terminals X1-1, X1-2
Nominal Voltage U _i	24 V DC

VisuNet RM5* / PC4*	
Current I_i	4.5 A
Ethernet circuit (Ex e)	
Connection	Terminals X1-5 up to X1-10
Current I_i	400 mA
Power P_i	15 W
USB Circuit (Ex e)	
Connection	Terminals X1-11 up to X1-14
Voltage U_0	5 V DC
Current I_0	500 mA
RS 422 Circuit (optional for VisuNet RM51*) (Ex e)	
Connection	Terminals X1-15 up to X1-20
Voltage U_0	5 V DC
Current I_0	200 mA
RS 485 Circuit (optional for VisuNet RM51*) (Ex e)	
Connection	Terminals X1-21 up to X1-23
Voltage U_0	5 V DC
Current I_0	200 mA
RS 232 Circuit (optional for VisuNet RM51*) (Ex e)	
Connection	Terminals X1-24 up to X1-26
Voltage U_0	± 9 V DC
Current I_0	200 mA
Intrinsically safe signal circuits (Ex i)	
USB Circuits (Ex i)	
USB Circuit 1 Connection	Terminals X2-1 up to X2-4
USB Circuit 2 Connection	Terminals X2-5 up to X2-8
USB Circuit 3 Connection	Terminals X2-9 up to X2-12 (optional for VisuNet RM51*)
Voltage U_0	4,94 V DC
Current I_0	238 mA
Power P_0	595 mW
Internal Resistance R_i	41,6 Ω
Characteristic	Trapezoidal
If concentrated inductances and capacitances are present, the following values apply:	
Group IIC	
External capacitance C_0 [μ F]	1,2 3 6,5 10 23 60
at external inductance L_0 [mH]	0,5 0,2 0,05 0,02 0,005 0,002
Group IIB and IIIC	
External capacitance C_0 [μ F]	3,5 8,2 12,9 18 50 530
at external inductance L_0 [mH]	3,9 2 1 0,5 0,05 0,005
TTY Circuits (Ex i)	
Voltage U_0	9 V DC
For type RM5***-AX / PC4***-AX	
Current I_0	133 mA
Power P_0	1,2 W
For type RM5***-SX / PC4***-SX	
Current I_0	156 mA
Power P_0	1,4 W
If concentrated inductances and capacitances are present, the following values apply:	
Group IIC	
External capacitance C_0 [μ F]	0,17 0,67 2,2 3,3
at external inductance L_0 [mH]	0,2 0,1 0,02 0,01

VisuNet RM5* / PC4*				
Group IIB and IIIC				
External capacitance C_0 [μ F]	0,27	1,6	4,7	10
at external inductance L_0 [mH]	4,2	2	0,5	0,1

Connections

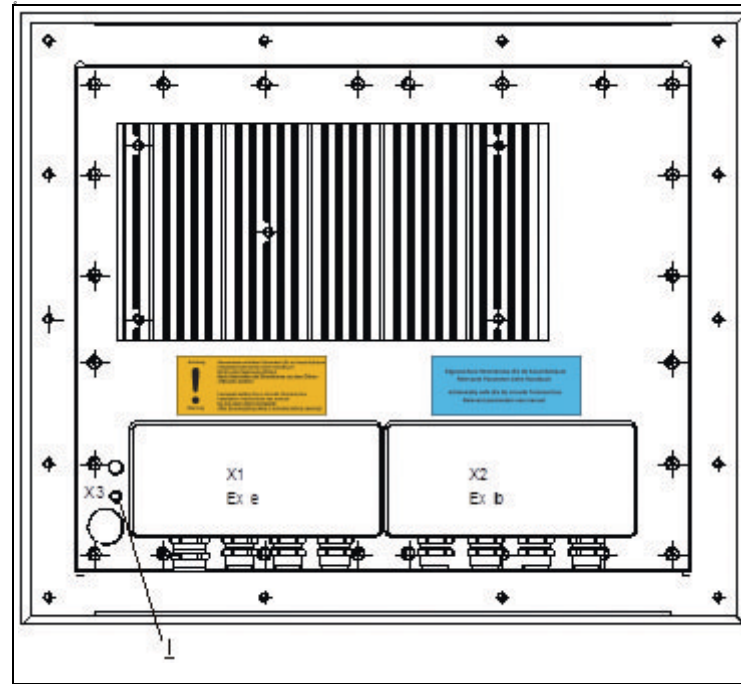


Figure 1 Backside with terminal compartment of the VisuNet PC41* and RM51*

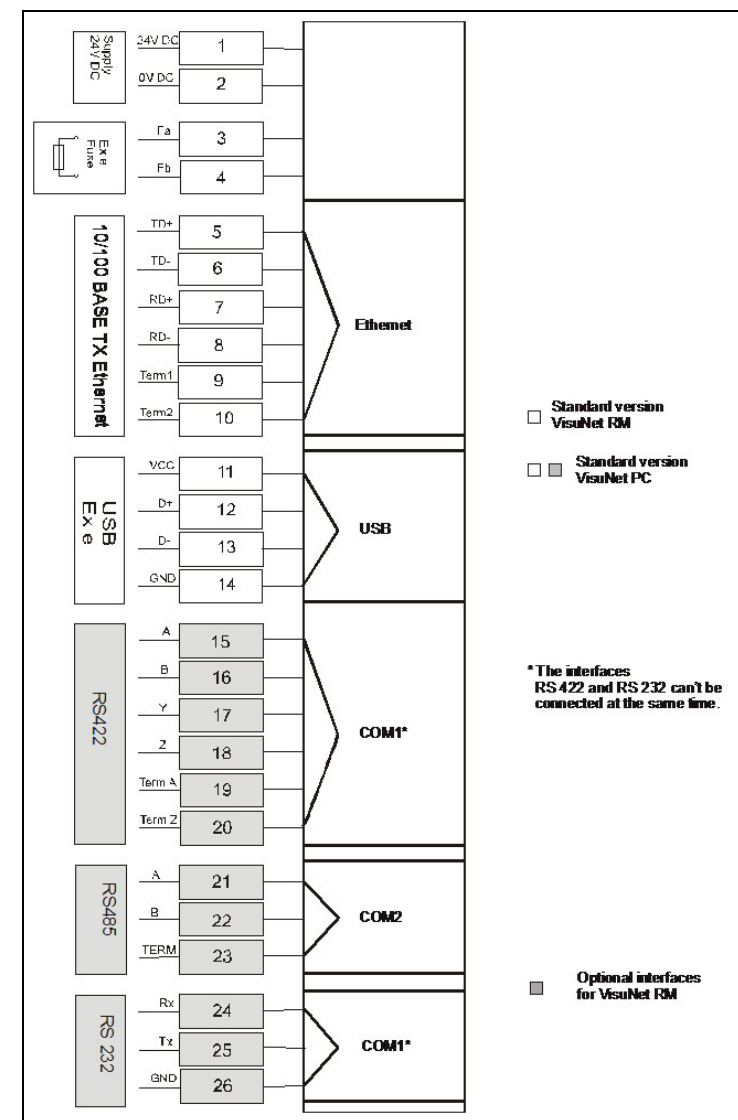


Figure 2 Terminal connections of the Ex e compartment

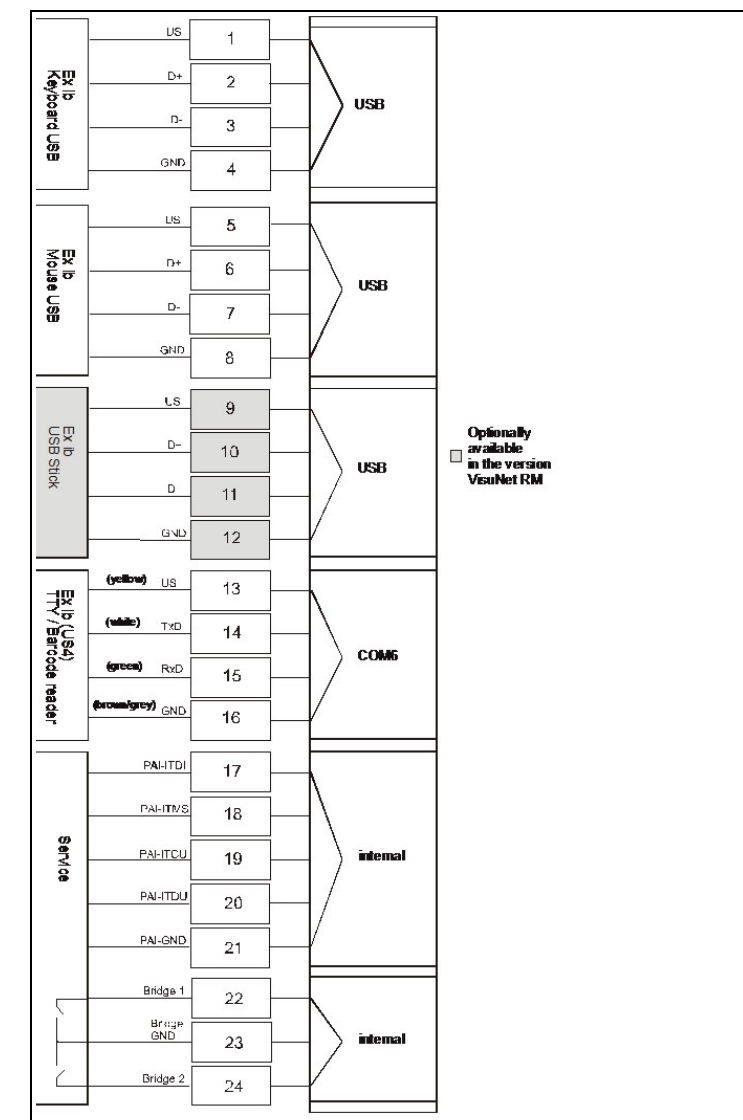


Figure 3 Terminal connections of the Ex i compartment