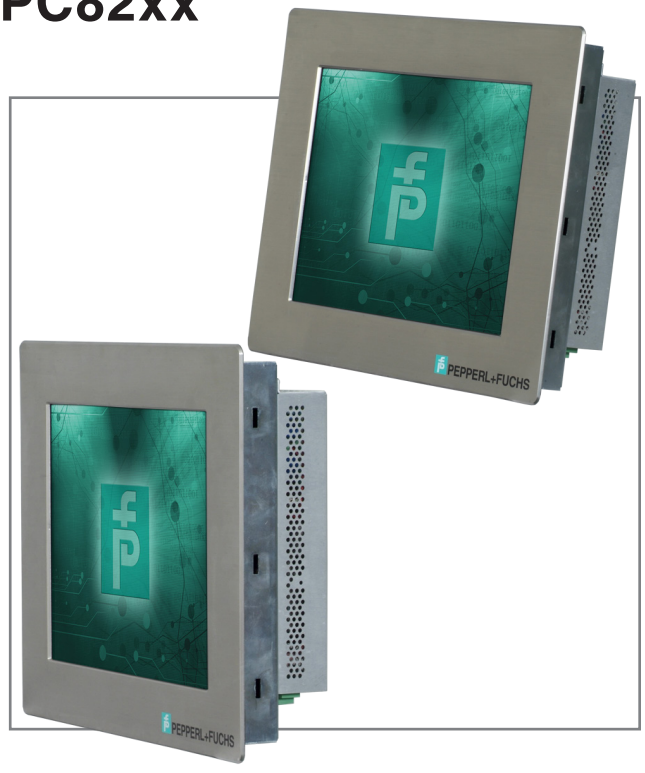
MANUAL

VISUNET IND PANEL-MOUNT MONITORS AND PCs

DM82xx, KM82xx, RM82xx, PC82xx

HARDWARE MANUAL



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General information

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MANUFACTURER:

PEPPERL+FUCHS
LILIENTHALSTRASSE 200
68307 Mannheim, Germany
www.pepperl-fuchs.com

Tel. 330-486-0002
Fax 330-963-5827
E-Mail: info@us.pepperl-fuchs.com

Safety

SYSTEM OPERATOR AND PERSONNEL

The operator of the system is responsible in terms of planning, mounting, commissioning, operating, and maintenance. Assembly, commissioning, operation, and dismounting of any devices may only be carried out by trained, qualified personnel who have read and understood the instruction manual. No internal components are field replaceable. Any internal fuses or batteries must be replaced at the factory

PERTINENT LAWS, STANDARDS, DIRECTIVES AND FURTHER DOCUMENTATION

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

INTENDED USE

VisuNet INDs units are intended to be used for 24/7 operation in harsh environments. They are key components in plant floor visualization systems, allowing reliable extension of the control room to the process floor. Depending on the facility and networking requirements, the industrial monitor with integrated PC, the network monitor, and the monitor with KVM extender can be installed in explosive atmospheres.

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

Where "ATEX/IECEx" appears in this document, it shall be understood that "ATEX" applies to ATEX installation applications only and "IECEx" applies to IECEx installation applications only.

INSTALLATION AND COMMISSIONING

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

- To connect interfaces only use shielded cable
- To advance the cable shield screw/lock the connectors
- Place lead data cable and power circuit line in separate cable channels
- Before commissioning the system check all cables and connectors

CLASS I, CLASS II/DIV. 2 AND ZONE 2 INSTALLATION REQUIREMENTS

Use an appropriate Div. 2/Zone 2 listed power supply, rated as below and marked Class 2, Limited Power Source, or LPS. Follow all local wiring codes and regulations that may apply. For applications requiring CE marking, a Series B or greater product is required with a CE marked power supply.

SPECIAL CONDITIONS FOR SAFE USE

- The device shall be mounted in an ATEX certified enclosure with a minimum ingress protection rating of at least IP54 and used in an area of not more than pollution degree 2 as defined in IEC 60664-1.
- The enclosure must utilize a tool removable cover or door.
- Provision shall be made to provide transient protection device to be set at a level not exceeding 119 V at the power supply terminals of the apparatus.
- The standard 5-wire resistive touch-screen ("T" option) has been evaluated for potential damage from UV exposure. Therefore, installation is restricted against direct exposure to sunlight. Examples of acceptable installations include indoor applications away from direct sunlight, etc. Regular inspections are necessary to check for deterioration of the touch-screen. Return the VisuNet apparatus to factory for repair or replace the VisuNet apparatus if damage is detected.

WARNINGS AND CAUTIONS

When so labeled, this equipment is suitable for use in Class I, Division 2, Groups A, B, C, and D; Class II, Division 2, Groups F, G; ATEX/IECEx Zone 2; or nonhazardous locations only.

Some of these products contain a high-voltage inverter circuit. When powered, internal voltages present can be lethal. There are no user serviceable parts inside. Direct all service work to the manufacturer or an authorized repair facility. This product contains sensitive electronic components and glass. Dropping or extreme shocks may damage or break the glass. Such abuse is not covered under warranty. This product is intended to be mounted in a suitable cabinet or other enclosure. The NEMA 12, 13, 4 ratings are applicable only when properly installed in a like rated enclosure. All peripheral equipment must also be suitable for the location it is used in.

Power, input and output (I/O) wiring must be in accordance with Class I, Class II/Div. 2 wiring methods [Article 501.4(B) of the National Electrical Code, NFPA 70] and in accordance with the authority having jurisdiction. The cabinet for installations in Division 2 must be suitable for Div. 2 wiring.

Devices must be installed in an enclosure that is suitable for the environment and accessible only by use of a tool. Enclosure in accordance with Article 500 and 502 of the National Electric Code.

The devices are to be used within their ratings.

The suitability of the wiring method is to be determined in the end-use application.

USB, PS2, Audio and Headphone ports, if used, must utilize the cable clamps.

Subject devices shall utilize a disconnect device suitable for the location where it is installed. It shall be provided to remove power from the fuses before replacing.

Warning: The external I/O connections must not be connected or disconnected in a hazardous location.

Warning: Explosion Hazard - Substitution of any components may impair suitability for Class I, Division 2.

WARNING: EXPLOSION HAZARD. DO NOT DISCONNECT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.

WARNING-EXPLOSION HAZARD-SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR USE IN DIVISION 2.

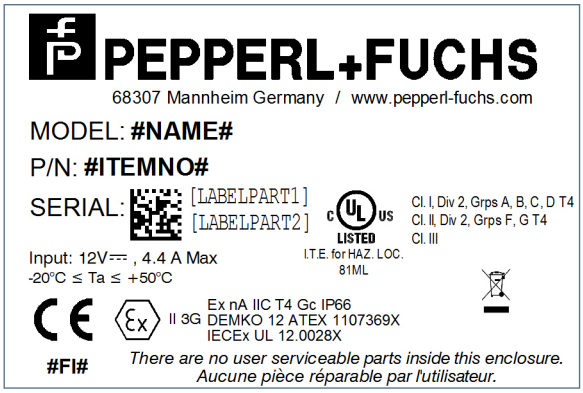
AVERTISSEMENT - RISQUE D'EXPLOSION - AVANT DE DECONNECTER L'EQUIPEMENT, COUPER LE COURANT OU S'ASSURER QUE L'EMPLACEMENT EST DESIGNE NON DANGEREUX

AVERTISSEMENT - RISQUE D'EXPLOSION - LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE DIVISION 2.

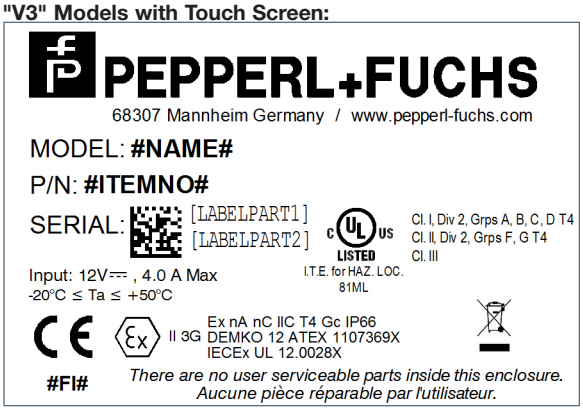
LABELS

"D2" Models:

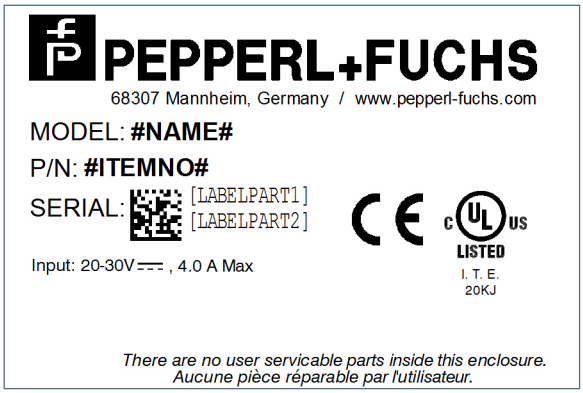
"V3" Models, No Touch Screen:



"V3" Models with Touch Screen:



General Purpose Models:



Labels show all possible certifications.
Refer to model configurators for approval options.

15" monitors: 2.5 A max
19" monitors: 4.0 A max
21.5" monitors: 4.4 A max
22" monitors: 4.4 A max

Product specifications

OVERVIEW

The VisuNet product family is a series of rugged, panel mount operator workstations for the process industry based on high-resolution, color graphic LCD monitors.

The **VisuNet Industrial Monitor DM82xx** connects directly to a PC and is fully configurable to suit specific hazardous or general-purpose application requirements. It is designed to work automatically with any standard DVI or VGA connection from a PC. There are no special hardware modules, PROMS, cables, or custom software drivers required.

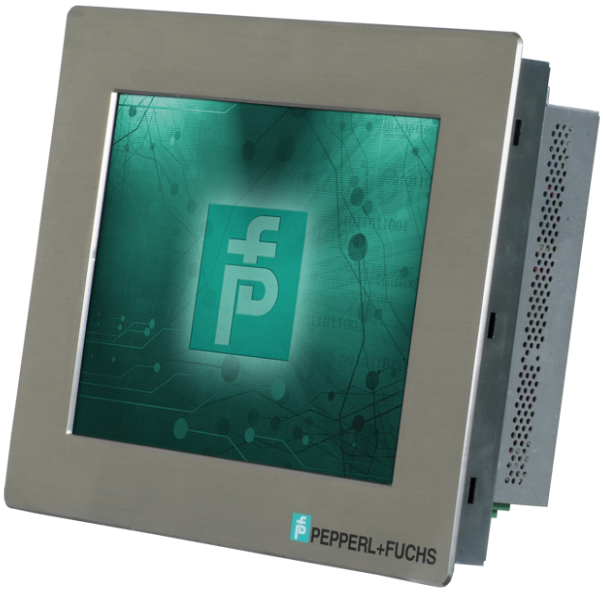
The **VisuNet Industrial KVM Monitor KM82xx** features a 15”, 19”, 21.5" Full HD, or 22” TFT LCD display. Both models have the option for a 5-wire resistive touch screen, or a 5-wire hardened resistive touch screen. Housing options include a 316L stainless steel bezel or a black painted steel, allowing installation in harsh industrial environments. The KM82xx is available as a Class I/Div 2, Class II/Div 2, ATEX/IECEx Zone 2 rated device, or for nonhazardous locations.

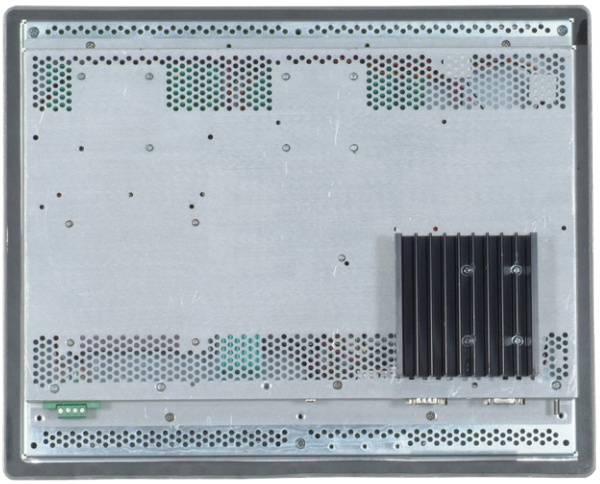
The key component in the KM82xx series is the internal KVM extender. This allows video extension from the host PC up to 1300 ft, depending on the model. The following options are available:

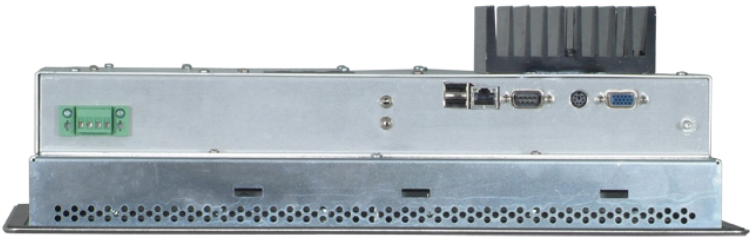
- VGA extender over CAT5, with PS2, RS232, and audio (extension up to 1000 ft). Not suitable for 21.5" Full HD.
- DVI extender over CAT5 with USB, RS232, and audio (extension up to 400 ft).
- DVI extender over fiber optic (multi-mode), with USB, RS232, and audio (extension up to 1300 ft).

The VisuNet Industrial Remote Monitor RM82xx allows a user to place only the most essential components in the field and use data lines, e.g., an Ethernet TCP/IP connection, to establish connection to the equipment in the safe area. This separation minimizes exposure to harsh conditions for a majority of the components and significantly decreases the chance for failure.

The **VisuNet Industrial PC PC82xx** also consists of a display with option for touchscreen, but it additionally includes a powerful industrial PC featuring the standard Windows 7 Ultimate operating system or Windows 10 IoT Enterprise LTSB (x 64) and an 120 GB SSD for storage. It can be connected to the process system via gigabyte Ethernet. The operator control and monitoring software (e.g., SCADA) is directly installed on this Industrial PC.







Product specifications

TECHNICAL DATA DM AND KM SERIES

DM8215 and KM8215 specifications	
Power supply	
Power consumption	20 to 30 VDC, 2.5 A max
Display	
Screen diagonal	15 inches
Response time	Standard brightness: 30 ms High brightness: 25 ms
Resolution	1024 x 768
Colors	24 bit (16.7 M) color
Contrast	Standard brightness: 800:1 High brightness: 700:1
Brightness	Standard brightness: 350 nits High brightness: 1200 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typ. half life
Touchscreen	5-wire resistive, 5-wire hardened resistive
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	16.9" x 13.6" x 3.6" (429 x 345 x 91 mm)
Protection degree	Type 4X (316L stainless steel); Type 4 (painted steel); IP66 (front panel)
Mounting	15.9" x 12.6" (404 x 320 mm)
Weight	19.0 lbs (8.6 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
Directive 2011/65/EU (RoHS)	EN 50581:2012
Directive 2014/34/EU (ATEX)	EN 60079-0:2012/A11+2013 EN 60079-15:2010
USA/Canada	UL Listing (E190294) for Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III
ATEX marking	DEMKO 12 ATEX 1107369X Ex II 3G Ex nA nC IIC T4 Gc Ex II 3G Ex nA IIC T4 Gc
IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

DM8219 and KM8219 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.0 A max
Display	
Screen diagonal	19 inches
Response time	Standard brightness: 12 ms High brightness: 5 ms
Resolution	1280 x 1024
Colors	24 bit (16.7 M) color
Contrast	1000 to 1
Brightness	Standard brightness: 350 nits High brightness: 1000 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typ. half life
Touchscreen	5-wire resistive, 5-wire hardened resistive
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	19" x 16.2" x 3.6" (483 x 411 x 91 mm)
Protection degree	Type 4X (316L stainless steel); Type 4 (painted steel); IP66 (front panel)
Mounting	17.9" x 15.2" (455 x 386 mm)
Weight	25.0 lbs (11.3 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
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IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

Pepperl+Fuchs Group www.pepperl-fuchs.com
Germany: +49 621 776 2222 pa-info@de.pepperl-fuchs.com
USA: 330 486 0002 pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091 pa-info@sg.pepperl-fuchs.com

Product specifications

DM8221 and KM8221 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.4 A Max
Display	
Screen diagonal	21.5 inches
Response time	Standard brightness: 25 ms High brightness: 5 ms
Resolution	1920 x 1080
Colors	24 bit (16.7 M) color
Contrast	5000:1 (standard brightness) 900:1 (high brightness)
Brightness	300 cd/m2 (nits) - standard brightness 1200 cd/m2 (nits) - high brightness
Reading angle	89° in all directions (standard brightness) 170° H; 160° V (high brightness)
Life span	Back Lamp Life: 50,000 hrs typical half life
Touchscreen	5-wire Resistive; 5-wire hardened resistive
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	22.5" x 15.5" x 3" (572 x 394 x 76 mm)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel); IP66 (front panel)
Mounting	17.9" x 15.2" (455 x 386 mm) panel cutout
Weight	27 lbs (12.25 kg)
Ambient conditions	
Operating temperature	-20 to 50 °C
Storage temperature	-20 to 60 °C
Relative humidity	0 to 90% non-condensing
Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
Directive 2011/65/EU (RoHS)	EN 50581:2012
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DM8222 and KM8222 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.4 A max
Display	
Screen diagonal	22 inches
Response time	4 ms
Resolution	1680 x 1050
Colors	24 bit (16.7 M) color
Contrast	1000 to 1
Brightness	250 nit
Reading angle	160 degrees in all directions
Life span	Back lamp life: 40,000 hrs typ. half life
Touchscreen	5-wire resistive
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	22.5" x 15.5" x 3.0" (572 x 394 x 76 mm)
Protection degree	Type 4X (316L stainless steel); Type 4 (painted steel); IP66 (front panel)
Mounting	21.1" x 14.1" (536 x 358 mm)
Weight	27.0 lbs (12.25 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
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Product specifications

TECHNICAL DATA KVM EXTENDERS

KVM extender - VGA/CAT5 "K3"	
Maximum resolution	1600 x 1200 @ 60 Hz (< 650 feet: 200 m) 1280 x 1024 @ 75 Hz (650 to 1,000 feet: 200 – 300 m)
Video compatibility	VGA to UXGA, RGB
Video levels	0.7 V P-P
Video coupling	DC
Sync type	Separate/composite TTL level Sync on green Sync polarity is preserved
Keyboard	PC/AT, PS/2
Skew adjustment	2.8 ns steps / 42 ns max per color
Mouse	Standard PS/2 two/three button Standard wheel mice Logitech 3-button PS/2
Serial data	Format: Transparent Signals: TX, RX, RTS, CTS, DTR, DSR Baud rate: 19.2 K max
Local power	From PC keyboard port
Connectors	Video to PC – HD15M Video to KVM – HD15F Keyboard / mouse: MiniDin-6 Serial: Local unit – DB9F (DCE) Remote unit – DB9M (DTE) Audio – 3.5 mm stereo audio jacks Interconnect: CAT5, 5e, 6

KVM extender - DVI/CAT5 "K4"	
Maximum resolution	DVI: 1920 x 1200 @ 60 Hz
Video compatibility	DVI-D
Keyboard	USB
Mouse	USB
Transmitter power	90-240 VAC adapter to 5VDC / app. 10 W
Connectors	Video to PC – DVI-I Video to KVM – DVI-I Keyboard / mouse: USB Touchscreen: Serial Interconnect: RJ45
Weight	0.65 lbs / 0.3 kg (each unit)
Dimensions	H: 1.375 in / 3.0 cm W: 4.125 in / 10.0 cm D: 5.625 in / 14.4 cm

KVM extender - DVI/Fiber Optic "K5"	
Maximum resolution	1920 x 1200 @ 60 Hz over all allowed distances all lower resolutions with refresh rates of at least 75 Hz
Video compatibility	DVI-D
Keyboard/mouse	USB
Touchscreen	Serial
Power adapter	90-240 VAC adapter to 5 VDC / app. 10 W
Transmitter power	750 mA
Connectors	Video to PC – DVI-D Video to KVM – DVI-D Keyboard: USB Mouse: USB Touch Screen: Serial Interconnect: Fiber type LC
Fiber cable length	62.5 µm multimode-fiber 650 ft / 200 m 50.0 µm multimode-fiber 1300 ft / 400 m
Indicators (LEDs)	Front panel – power Video check - LED Data error / status - LEDs
Weight	1.3 lbs / 0.6 kg (each unit)
Dimensions	H: 1.375 in / 3.0 cm W: 4.125 in / 10.0 cm D: 5.625 in / 14.4 cm

TECHNICAL DATA RM SERIES

RM8215 specifications	
Power supply	
Power consumption	20 to 30 VDC, 2.5 A max
Display	
Screen diagonal	15 inches
Response time	Standard brightness: 30 ms High brightness: 25 ms
Resolution	1024 x 768
Colors	24 bit (16.7 M) color
Contrast	Standard brightness: 800:1 High brightness: 700:1
Brightness	Standard brightness: 350 nits High brightness: 1200 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typ. half life
Touchscreen	5-wire resistive, 5-wire hardened resistive
Hardware	
Processor	Intel ® Atom™ E3826 1.46 GHz
Memory	4 GB
Compact flash	32 GB CFAST
Interface	2 x 1 GB Ethernet, 4 x USB, audio, RS232, power

Pepperl+Fuchs Group
www.pepperl-fuchs.com
Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com
USA: 330 486 0002
pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091
pa-info@sg.pepperl-fuchs.com

Product specifications

Bezel	
Material	316L stainless steel or black painted steel
Dimensions	16.9" x 13.6" x 3.6" (429 x 345 x 91 mm)
Protection degree	Type 4X (stainless steel);Type 4 (painted steel); IP66 (front panel)
Mounting	15.9" x 12.6" (404 x 320 mm) panel cutout
Weight	19.0 lbs (8.6 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
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IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

RM8219 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.0 a max
Display	
Screen diagonal	19 inches
Response time	Standard brightness: 12 ms High brightness: 5 ms
Resolution	1280 x 1024
Colors	24 bit (16.7 M) color
Contrast	1000 to 1
Brightness	Standard brightness: 450 nits High brightness: 1000 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typ. half life
Touchscreen	5-wire resistive, 5-wire hardened resistive

Hardware	
Processor	Intel® Atom™ E3826 1.46GHz
Memory	4 GB
Compact flash	32 GB CFAST
Interface	2 x 1 GB Ethernet, 4 x USB, audio, RS232, power
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	19" x 16.2" x 3.6" (483 x 411 x 91 mm)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel); IP66 (front panel)
Mounting	17.9" x 15.2" (455 x 386 mm) panel cutout
Weight	25.0 lbs (11.3 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
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IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

Product specifications

RM8221 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.4 A max
Display	
Screen diagonal	21.5 inches
Response time	Standard brightness: 25 ms High brightness: 5 ms
Resolution	1920 x 1080
Colors	24 bit (16.7 M) color
Contrast	Standard brightness: 5000:1 High brightness: 900:1
Brightness	300 cd/m2 (nits) - standard brightness 1200 cd/m2 (nits) - high brightness
Reading angle	89° in all directions (standard brightness) 170° H; 160° V (high brightness)
Life Span	Back lamp life: 50,000 hrs typical half life
Touchscreen	5-wire Resistive; 5-wire hardened resistive
Hardware	
Processor	Intel® Atom™ E3826 1.46 GHz
Memory	4 GB
CFAST	32 GB
Interface	2 x 1GB Ethernet, 4 x USB, audio, RS232, video, power
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	22.5" x 15.5" x 3" (572 x 394 x 76 mm)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel); IP66 (front panel)
Mounting	17.9" x 15.2" (455 x 386 mm) panel cutout
Weight	27 lbs (12.25 kg)
Ambient conditions	
Operating temperature	-20 to 50 °C
Storage temperature	-20 to 60 °C
Relative humidity	0 to 90% non-condensing
Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
Directive 2011/65/EU (RoHS)	EN 50581:2012
Directive 2014/34/EU (ATEX)	EN 60079-0:2012/A11+2013 EN 60079-15:2010
USA/Canada	UL Listing (E190294) for Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III
ATEX marking	DEMKO 12 ATEX 1107369X Ex II 3G Ex nA nC IIC T4 Gc Ex II 3G Ex nA IIC T4 Gc
IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

RM8222 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.4 A max
Display	
Screen diagonal	22 inches
Response time	4 ms
Resolution	1680 x 1050
Colors	24 bit (16.7 M) color
Contrast	1000:1
Brightness	250 nit
Reading angle	160 degrees in all directions
Life span	Back lamp life: 40,000 hrs typical half life
Touchscreen	5-wire resistive
Hardware	
Processor	Intel® Atom™ E3826 1.46GHz
Memory	4 GB
Compact flash	32 GB CFAST
Interface	2 x 1 GB Ethernet, 4 x USB, audio, RS232, power
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	22.5" x 15.5" x 3.0" (572 x 394 x 76 mm)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel); IP66 (front panel)
Mounting	21.1" x 14.1" (536 x 358 mm) panel cutout
Weight	27.0 lbs (12.25 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing

Pepperl+Fuchs Group
www.pepperl-fuchs.com
Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com
USA: 330 486 0002
pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091
pa-info@sg.pepperl-fuchs.com

Product specifications

Directive conformity	
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Directive 2011/65/EU (RoHS)	EN 50581:2012
Directive 2014/34/EU (ATEX)	EN 60079-0:2012/A11+2013 EN 60079-15:2010
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IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

TECHNICAL DATA PC SERIES

PC8215 specifications	
Power supply	
Power consumption	20 to 30 VDC, 2.5 A max
Display	
Screen diagonal	15 inches
Response time	Standard brightness: 30 ms High brightness: 25 ms
Resolution	1024 x 768
Colors	24 bit (16.7 M) color
Contrast	Standard brightness: 800:1 High brightness: 700:1
Brightness	Standard brightness: 350 nits High brightness: 1200 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typ. half life
Touchscreen	5-wire resistive, 5-wire hardened resistive

Hardware	
Processor	Intel® Atom™ E3826 1.46 GHz or Intel® Duo-Core™ i7-3517UE 1.7 GHz
Storage	120 GB SSD
Memory	Up to 8 GB
Interface	2 x GB Ethernet, 4 x USB, audio, RS232, RS485, power
Operating system	Windows® 7 Ultimate (32-bit or 64-bit) or Windows® 10 IoT Enterprise LTSB (x 64)
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	Atom™: 16.9" x 13.6" x 3.6" (429 x 345 x 91 mm) i7: 16.9" x 13.6" x 5.2" (429 x 345 x 132 mm)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66 (front panel)
Mounting	15.9" x 12.6" (404 x 320 mm) panel cutout
Weight	19.0 lbs (8.6 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
Directive 2011/65/EU (RoHS)	EN 50581:2012
Directive 2014/34/EU (ATEX)	EN 60079-0:2012/A11+2013 EN 60079-15:2010
USA/Canada	UL Listing (E190294) for Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III
ATEX marking	DEMKO 12 ATEX 1107369X II 3G Ex nA nC IIC T4 Gc II 3G Ex nA IIC T4 Gc
IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

Product specifications

PC8219 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.0 A max
Display	
Screen diagonal	19 inches
Response time	Standard brightness: 12 ms High brightness: 5 ms
Resolution	1280 x 1024
Colors	24 bit (16.7 M) color
Contrast	1000 to 1
Brightness	Standard brightness: 450 nits High brightness: 1000 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typical half life
Touchscreen	5-wire resistive, 5-wire hardened resistive
Hardware	
Processor	Intel® Atom™ 1.6 GHz or Core™ 2 Duo 1.5 GHz
Storage	80 GB SSD
Memory	Up to 2 GB
Interface	2 x 1 GB Ethernet, 2 x USB, audio, RS232, RS485, power
Operating system	Windows® 7 Ultimate (32-bit or 64-bit) or Windows® 10 IoT Enterprise LTSB (x 64)
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	Atom™: 19" x 16.2" x 3.6" (483 x 411 x 91 mm) Core™ 2 Duo: 19" x 16.2" x 5.2" (483 x 411 x 132 mm)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel)
Mounting	17.9" x 15.2" (455 x 386 mm) panel cutout
Weight	25.0 lbs (11.3 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing

Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
Directive 2011/65/EU (RoHS)	EN 50581:2012
Directive 2014/34/EU (ATEX)	EN 60079-0:2012/A11+2013 EN 60079-15:2010
USA/Canada	UL Listing (E190294) for Class I, Division 2, Groups A, B, C and D; Class II, Division 2, Groups F and G; Class III
ATEX marking	DEMKO 12 ATEX 1107369X Ex II 3G Ex nA nC IIC T4 Gc Ex II 3G Ex nA IIC T4 Gc
IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

PC8221 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.4 A max
Display	
Screen diagonal	21.5 inches
Response time	Standard brightness: 25 ms High brightness: 5 ms
Resolution	1920 x 1080
Colors	24 bit (16.7 M) color
Contrast	5000:1 (standard brightness) 900:1 (high brightness)
Brightness	300 cd/m2 (nits) - standard brightness 1200 cd/m2 (nits) - high brightness
Reading angle	89° in all directions (standard brightness) 170° H; 160° V (high brightness)
Life span	Back lamp life: 50,000 hrs typical half life
Touchscreen	5-wire Resistive; 5-wire hardened resistive
Hardware	
Processor	Intel® Atom™ E3826 1.46 GHz or i7-3517UE 1.7 GHz
Storage	120 GB SSD
Memory	up to 8 GB
Interface	2 x 1GB Ethernet, 4 x USB, Audio, RS232, RS485, Video, Power
Operating system	Windows® 7 Ultimate (32-bit or 64-bit) or Windows® 10 IoT Enterprise LTSB (x 64)

Pepperl+Fuchs Group
www.pepperl-fuchs.com
Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com
USA: 330 486 0002
pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091
pa-info@sg.pepperl-fuchs.com

Product specifications

Housing	
Material	316L stainless steel or black painted steel
Dimensions	Atom™: 22.5" x 15.5" x 3" (572 x 394 x 76 mm) i7: 22.5" x 15.5" x 4.6" (572 x 394 x117 mm)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel); IP66 (front panel)
Mounting	536 x 358 mm (21.1" x 14.1") panel cutout
Weight	12.25 kg (27 lbs)
Ambient conditions	
Operating temperature	-20 to 50 °C
Storage temperature	-20 to 60 °C
Relative humidity	0 to 90% non-condensing
Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
Directive 2011/65/EU (RoHS)	EN 50581:2012
Directive 2014/34/EU (ATEX)	EN 60079-0:2012/A11+2013 EN 60079-15:2010
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IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

PC8222 specifications	
Power supply	
Power consumption	20 to 30 VDC, 4.4 A max
Display	
Screen diagonal	22 inches
Response time	4 ms
Resolution	1680 x 1050
Colors	24 bit (16.7 M) color
Contrast	1000 to 1
Brightness	250 nit
Reading angle	160 degrees in all directions
Life span	Back lamp life: 40,000 hrs typ. half life
Touchscreen	5-wire resistive

Hardware	
Processor	Intel® Atom™ E3826 1.46 GHz or Intel® Duo-Core™ i7-3517UE 1.7 GHz
Storage	120 GB SSD
Memory	Up to 8 GB
Interface	2 x GB Ethernet, 4 x USB, audio, RS232, RS485, power
Operating system	Windows® 7 Ultimate (32-bit or 64-bit) or Windows® 10 IoT Enterprise LTSB (x 64)
Bezel	
Material	316L stainless steel or black painted steel
Dimensions	Atom™: 22.5" x 15.5" x 3.0" (572 x 394 x 76 mm) i7: 22.5" x 15.5" x 4.6" (572 x 394 x 117 mm)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66 (front panel)
Mounting	21.1" x 14.1" (536 x 358 mm) panel cutout
Weight	27.0 lbs (12.25 kg)
Ambient conditions	
Operating temperature	-20 °C to 50 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Directive 2014/30/EU (EMC)	EN 61326-1:2013
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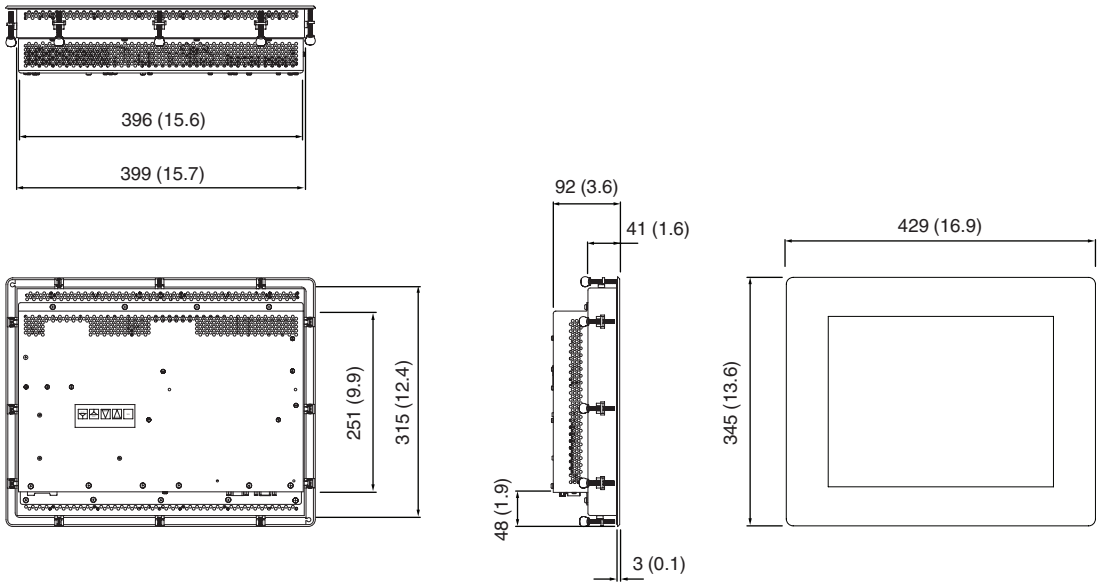
IECEx	IECEx UL 12.0028X Ex nA nC IIC T4 Gc Ex nA nc IIC T4 Gc

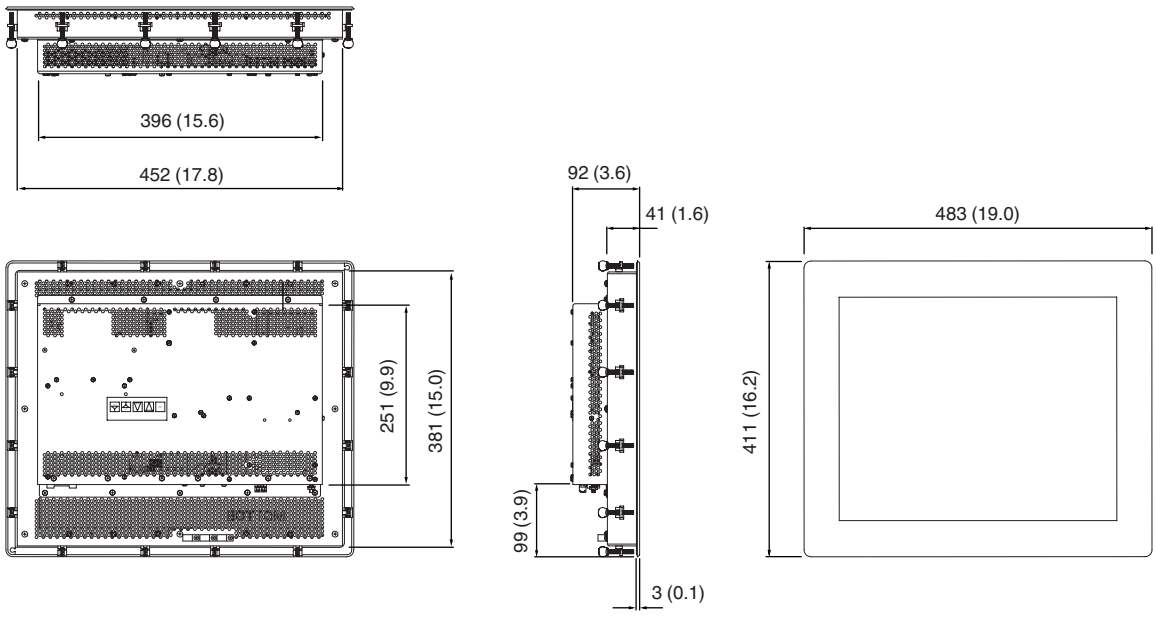
Product specifications

DM AND KM 15-INCH DISPLAY

DIMENSIONS in mm (inches)



DM AND KM 19-INCH DISPLAY

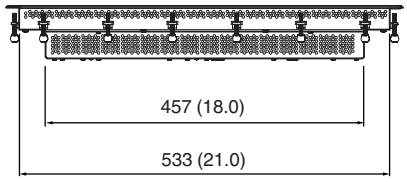


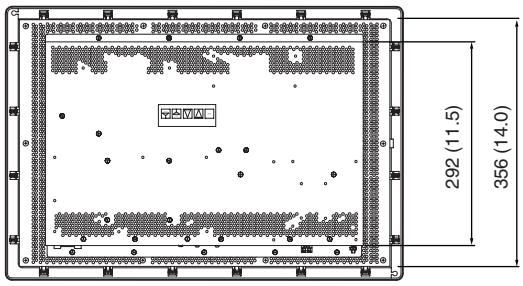
PEPPERL+FUCHS
Pepperl+Fuchs Group www.pepperl-fuchs.com
Germany: +49 621 776 2222 pa-info@de.pepperl-fuchs.com
USA: 330 486 0002 pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091 pa-info@sg.pepperl-fuchs.com

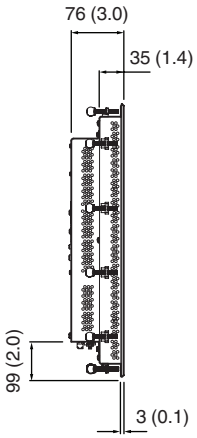
Product specifications

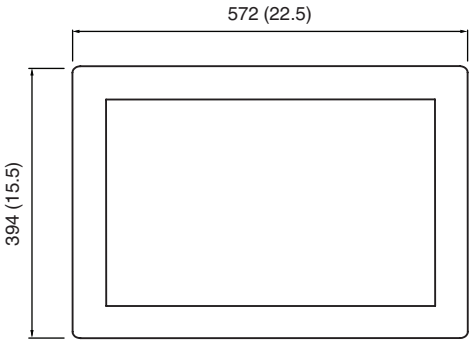
DM AND KM 21.5- and 22-INCH DISPLAY

DIMENSIONS in mm (inches)





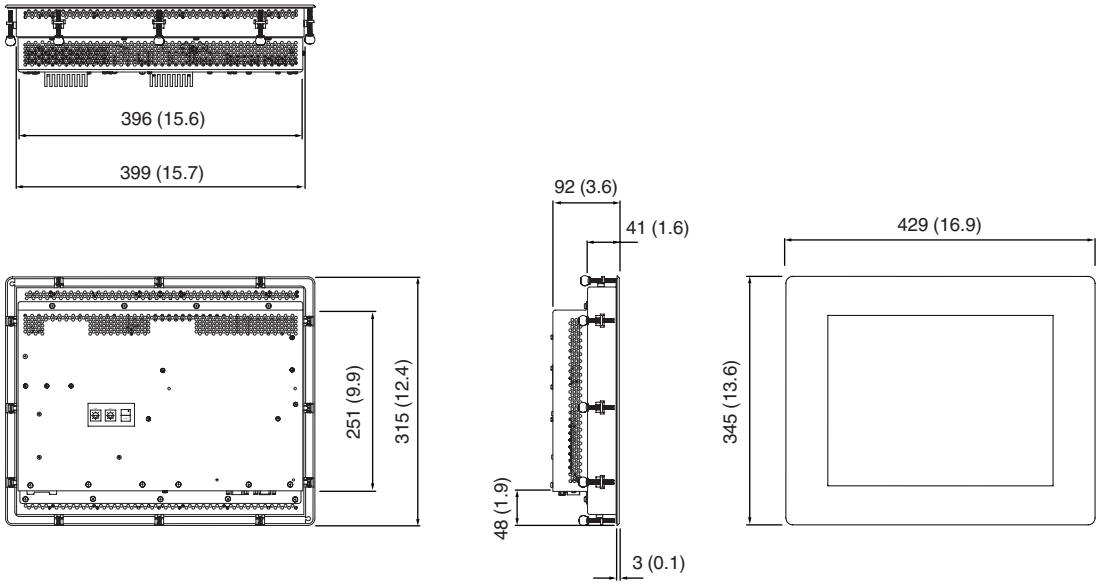




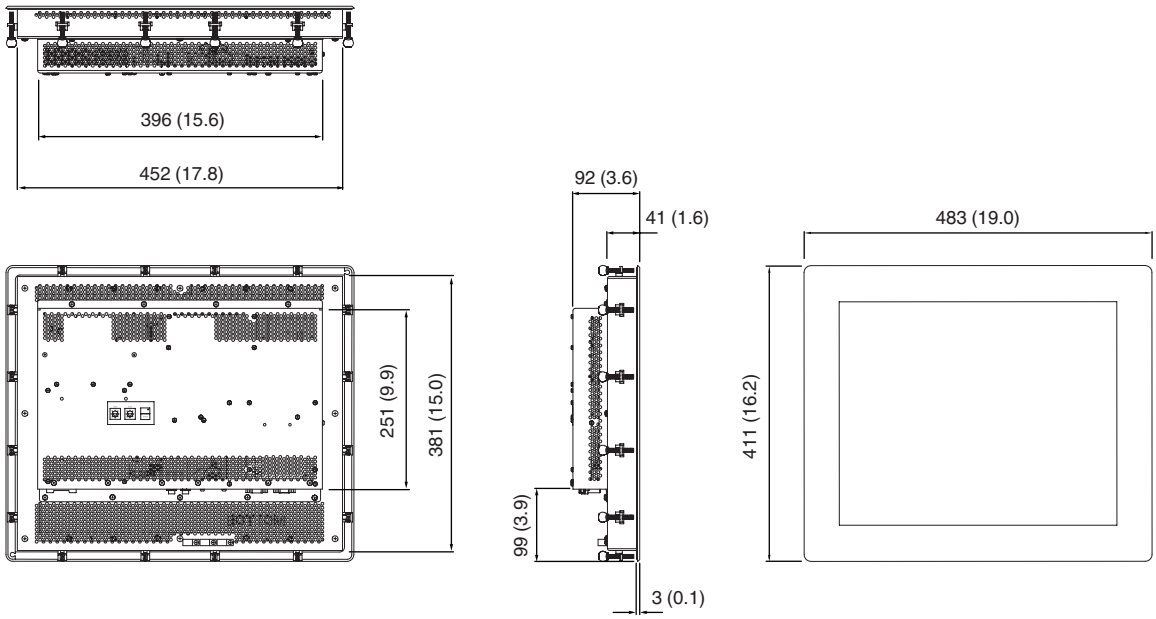
Product specifications

RM 15-INCH DISPLAY

DIMENSIONS in mm (inches)



RM 19-INCH DISPLAY



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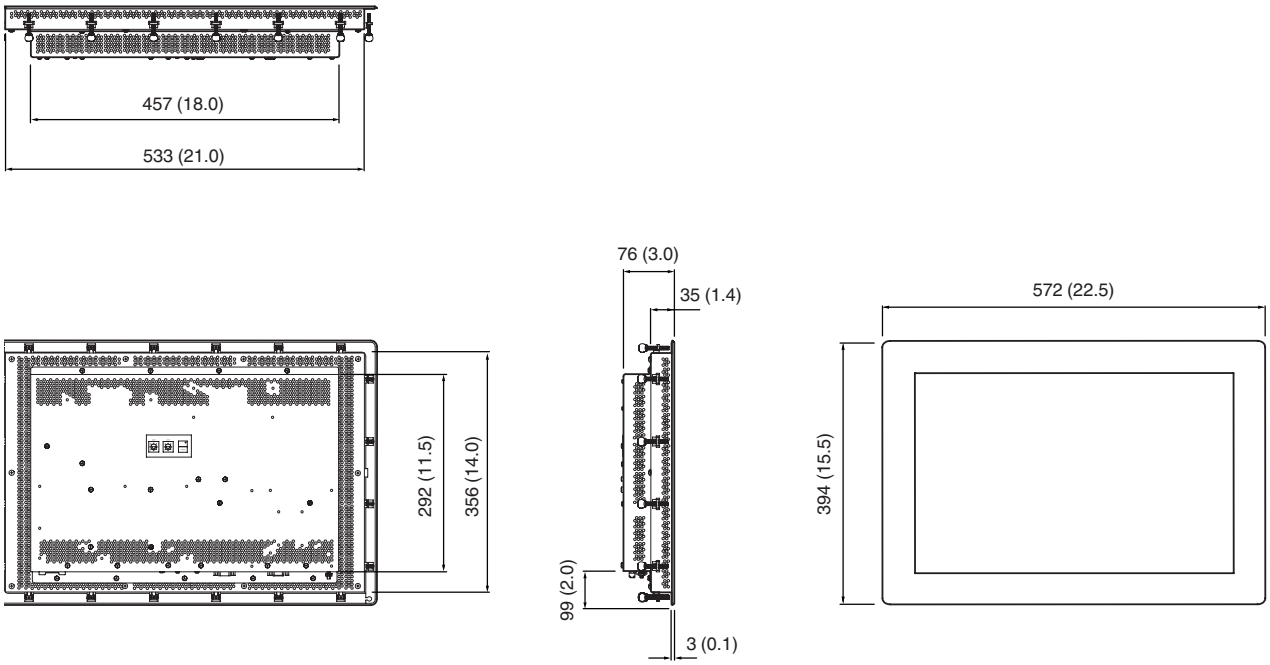
Pepperl+Fuchs Group www.pepperl-fuchs.com
Germany: +49 621 776 2222 pa-info@de.pepperl-fuchs.com
USA: 330 486 0002 pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091 pa-info@sg.pepperl-fuchs.com

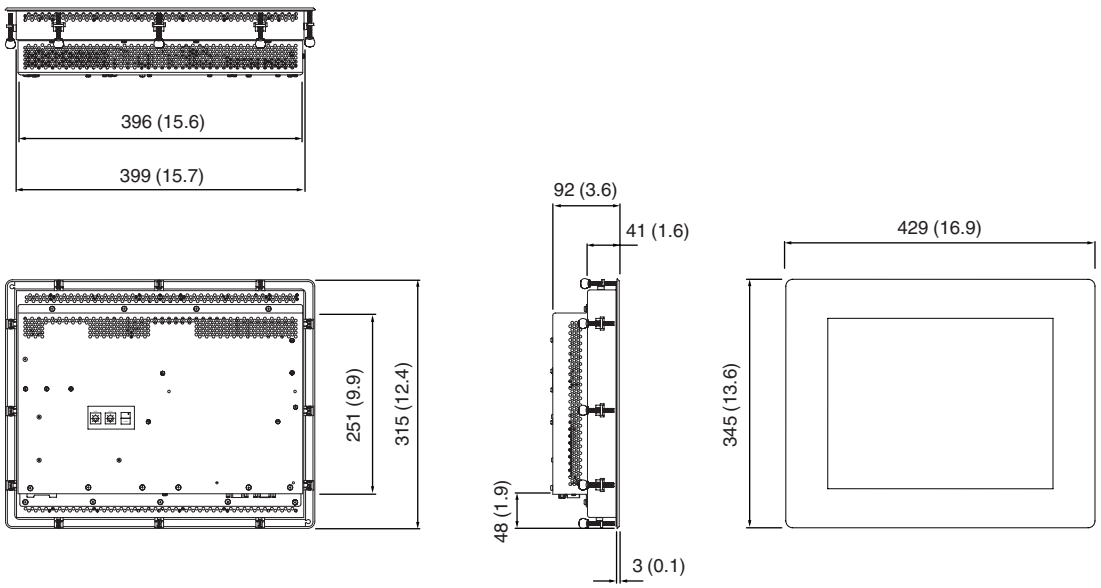
Product specifications

RM 21.5- AND 22-INCH DISPLAY

DIMENSIONS in mm (inches)



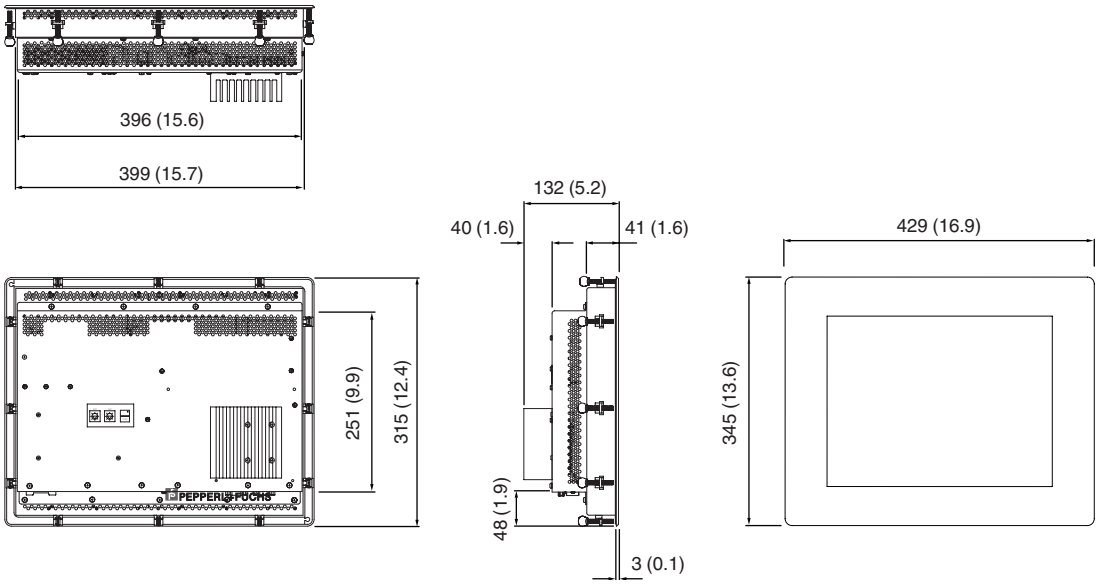
PC 15-INCH DISPLAY ATOM™



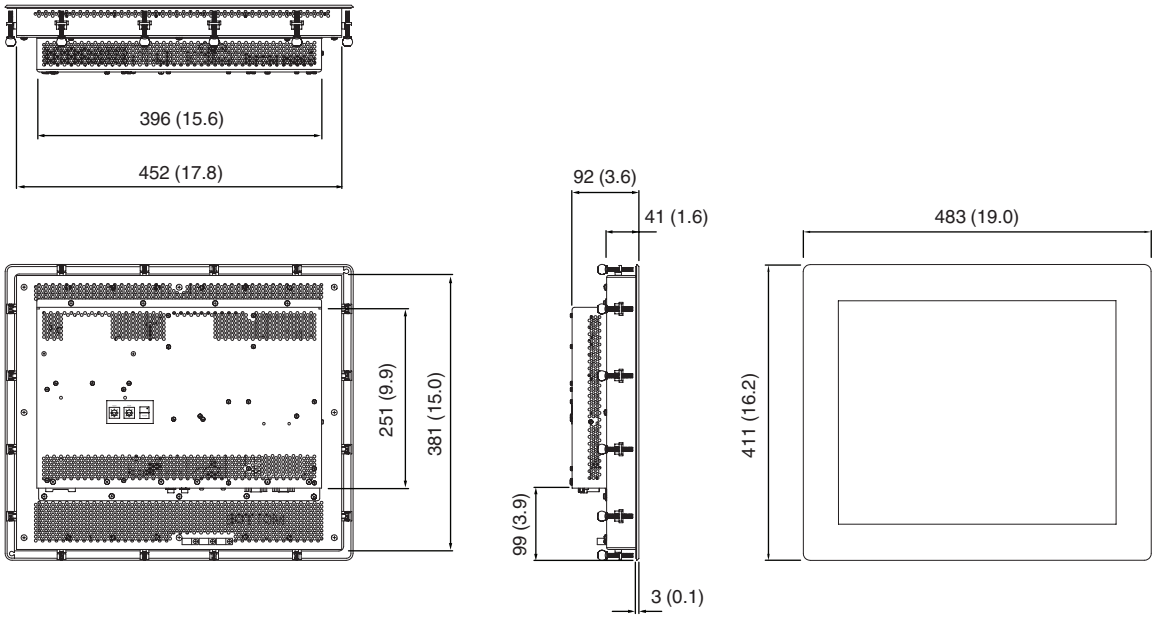
Product specifications

PC 15-INCH DISPLAY
i7

DIMENSIONS in mm (inches)



PC 19-INCH DISPLAY
ATOM™



PEPPERL+FUCHS
Pepperl+Fuchs Group www.pepperl-fuchs.com
Germany: +49 621 776 2222 pa-info@de.pepperl-fuchs.com
USA: 330 486 0002 pa-info@us.pepperl-fuchs.com
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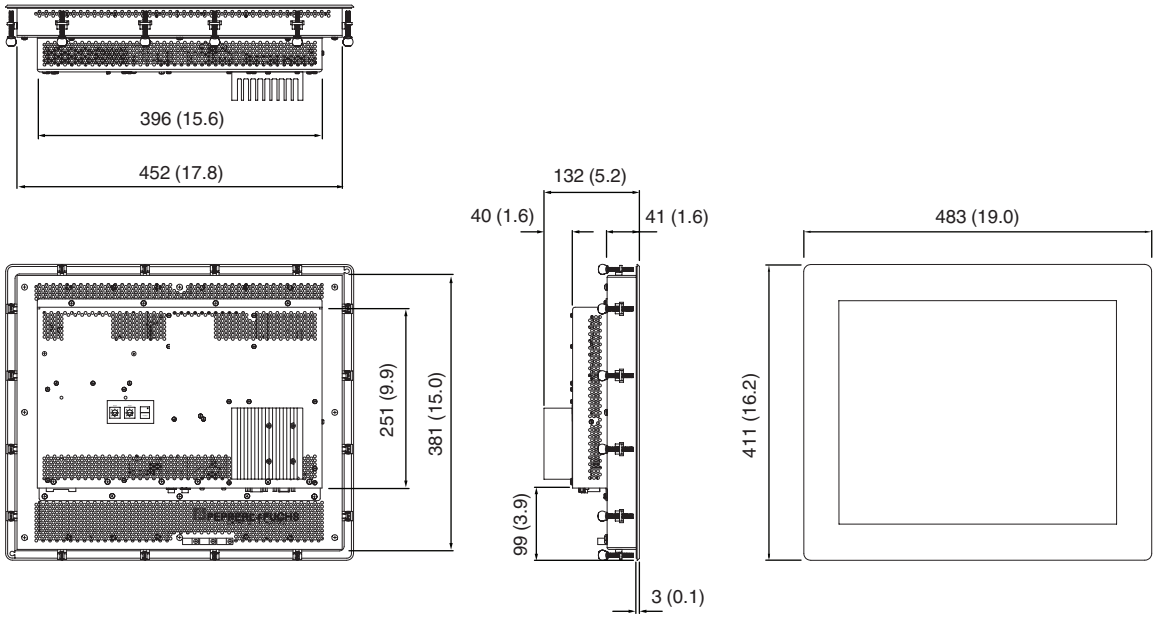
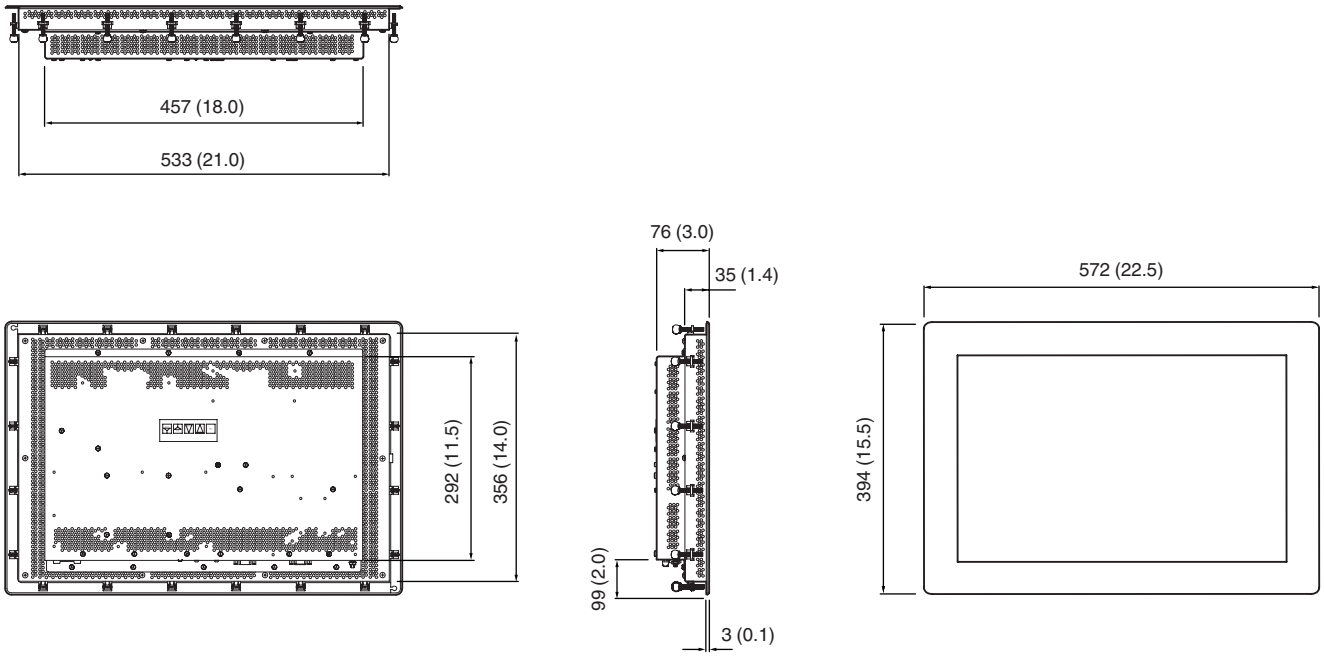
Product specifications

PC 19-INCH DISPLAY
i7

DIMENSIONS in mm (inches)



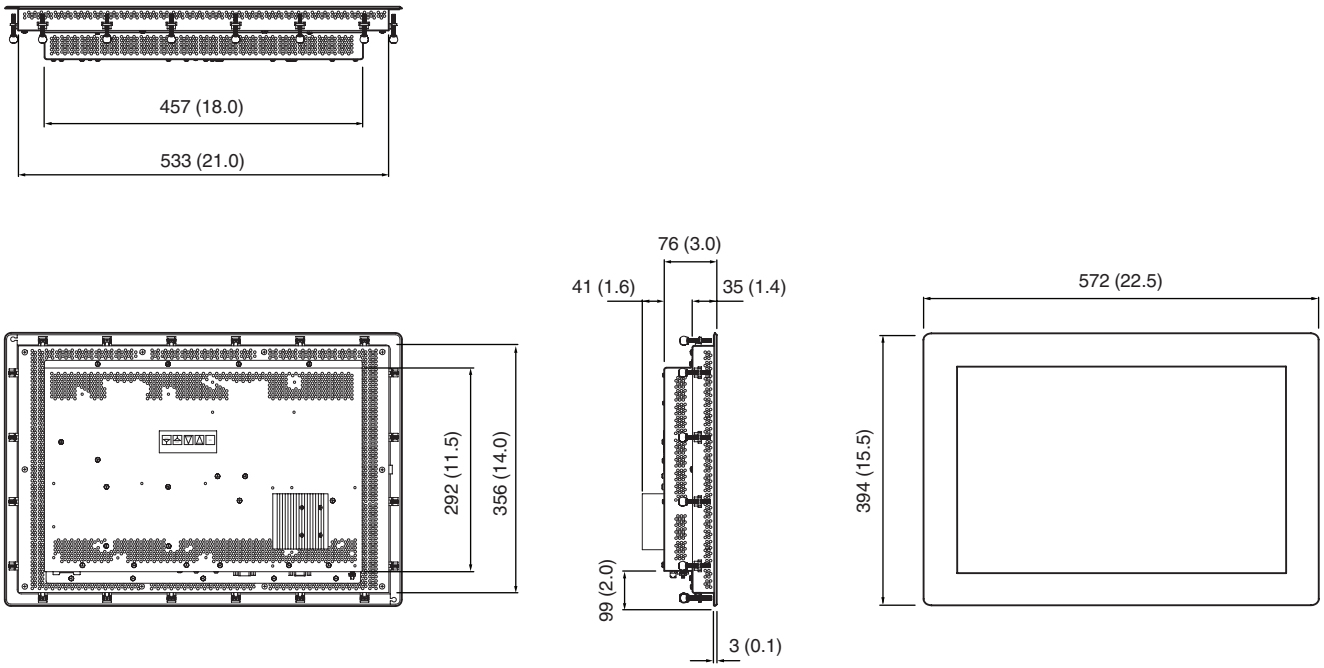
PC 21.5- AND 22-INCH DISPLAY
ATOM™



Product specifications

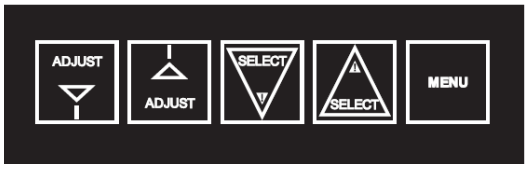
PC 21.5- AND 22-INCH DISPLAY i7

DIMENSIONS in mm (inches)



Interface and connections

FIVE-BUTTON MEMBRANE KEYPAD FOR KM82XX AND DM82XX



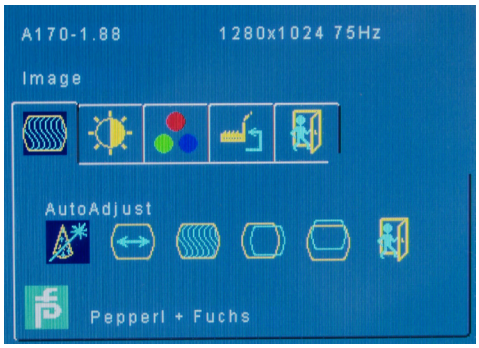
On the rear panel of KM82xx/DM82xx, a five-button membrane switch is provided to control the on-screen menu for making video adjustments on the display.

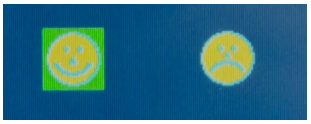
ADJUSTING VIDEO IMAGE - 15" & 19"

Pepperl+Fuchs industrial monitors work right out of the box with no further configuration or setup. However, there are quite a few image, size, and position adjustments available if necessary. Unless you specifically need to adjust another attribute, we recommend you do not use any feature other than the standard Auto Adjust.

Follow these steps to perform an Auto Adjust:

1. Press the Menu button on the keypad. A menu appears on the center of the display, superimposed over the existing computer video image.
2. Press the Menu button again to enable the ‘Image Adjust’ submenu.
3. Press the Menu button once again to start the ‘Auto Adjust’ function.
4. The video image will freeze for up to 5 seconds, sizing and positioning itself, ultimately moving to the center and filling full screen. When complete, either press Menu again at the “Smile”, or do nothing and the settings will be automatically stored and the menu released.
5. If needed, when complete, move to the Save and Exit function by pressing the Select ▲ button 5 times, and then the Menu button once.
6. If you need to use other video modes, follow the same procedure for each mode the computer will operate in (such as 640 x 480).





PEPPERL+FUCHS
Pepperl+Fuchs Group www.pepperl-fuchs.com
Germany: +49 621 776 2222 pa-info@de.pepperl-fuchs.com
USA: 330 486 0002 pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091 pa-info@sg.pepperl-fuchs.com

Interface and connections

ADJUSTING VIDEO IMAGE - 21.5" & 22"

21.5" and 22" KM and DM monitors automatically configure themselves at initial powerup and each subsequent change in video input. So there is usually no need to perform setup or screen adjustments.

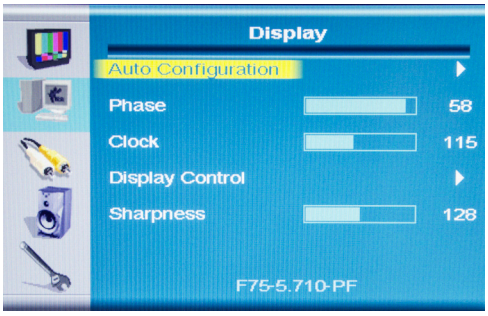
However, there are quite a few image, size, and position adjustments available if needed.

These monitors use an on-screen menu system driven by the membrane keypad on the rear of the display. *Unless you specifically need to adjust an attribute, we recommend you do not use any feature other than the standard auto configuration and factory reset.*

Note: For proper position and sizing, have a graphical image on the display during configuration. Do not use an all black or DOS style text mode background.

Follow these steps to perform auto configuration:

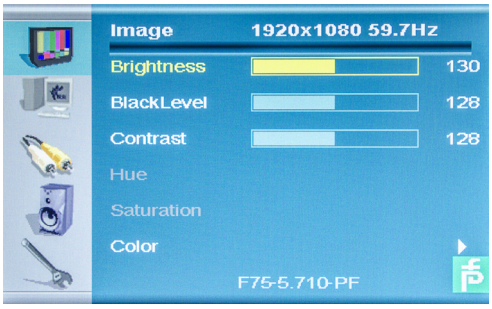
1. Press the Menu button on the keypad. A menu will appear on the center of the display, superimposed over the existing computer video image.



2. Press one of the select buttons to scroll to the Display submenu.
3. Once in the Display submenu, press the Adjust ▲ button once to highlight Auto Configuration. Press the Adjust ▲ button a second time to perform Auto Configuration.

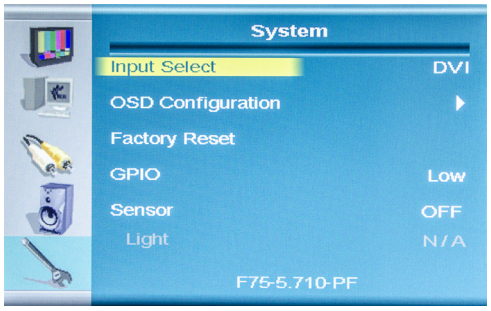
Follow these steps to adjust brightness:

1. Press the Menu button once to make the menu appear. The Image submenu will be selected by default.
2. Press the adjust ▲ button once to highlight Brightness, and press the adjust ▲ button a second time to select it.
3. Use the select buttons to make adjustments.
4. To exit and save changes, press the menu button once. The menu will disappear after a few seconds, and the changes will be saved.



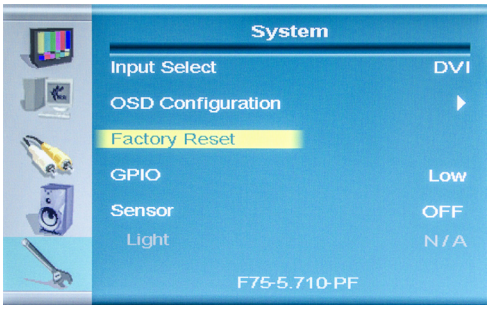
Follow these steps to select input:

1. Press the Menu button once to make the menu appear, then press a select button to scroll to the System submenu.
2. Press the Adjust ▲ button twice to select Input Select.
3. Use the select buttons to scroll through possible inputs.
4. To exit and save changes, press the Menu button once.

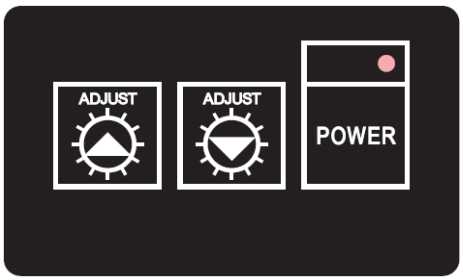


Follow these steps to perform a factory reset:

1. Press the Menu button once, then press a select button to scroll to the System submenu.
2. Press the Adjust ▲ button once and use the select buttons to scroll to Factory Reset.
3. When Factory Reset is highlighted, press the Adjust ▲ button once.



THREE-BUTTON MEMBRANE KEYPAD FOR PC82XX AND RM82XX



On the rear panel of PC82xx/RM82xx, a three-button membrane switch is provided to adjust the brightness of the monitor. For PC82xx/RM82xx, the internal video connection is a direct LVDS connection to internal CPU; therefore, no other video adjustments are necessary.

A power button is also provided for a “hard” shut-down. The PC82xx/RM82xx is configured from the factory as AT-power mode. Unit will automatically start up upon power connection.

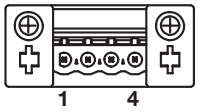
Interface and connections

POWER CONNECTION

The VisuNet Industrial Panel Mount system requires 20-30 VDC from a regulated power supply. Connections are made using a 4-pin socket for connecting input DC power (Phoenix Contact DFK-MSTB 2.5/ 4-GF-5.08).

Matching plug: Phoenix Contact MSTBT 2.5/ 4-STF-5.08

Pin	Signal
1	+
2	+
3	–
4	–



Connection should only have one conductor connected at each pin.

Wire size for input power connection should be at minimum 14 AWG.

Chassis ground should also be 14 AWG minimum and secured via a ring lug connection.

KVM INTERFACE CONNECTION

Whether the internal KVM is fiber optic or CAT5 determines how this should be wired.

FIBER OPTIC KVM CONNECTION

Fiber optic connection is made via 62.5u/125 multi-mode fiber connections.

CAT5 KVM CONNECTION

CAT5 connection is made via RJ45 connection on rear side of panel.

USB CONNECTION FOR KVM

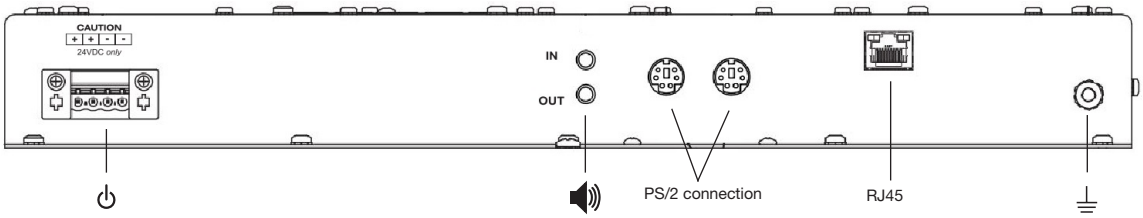
Dual USB connections are provided on rear side of panel for DVI KVM systems. These are not true USB 2.0 interfaces. They are only intended for keyboard or mouse connection.

PS/2 CONNECTION FOR KVM

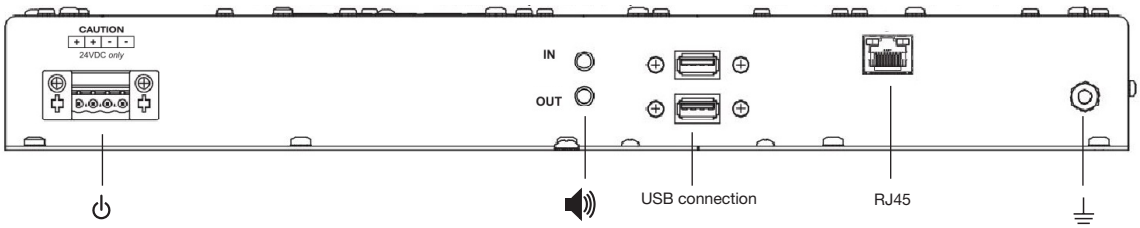
Dual PS/2 connections are provided on rear side of panel for VGA KVM systems. They are only intended for keyboard or mouse connection.

KVM CONNECTIONS

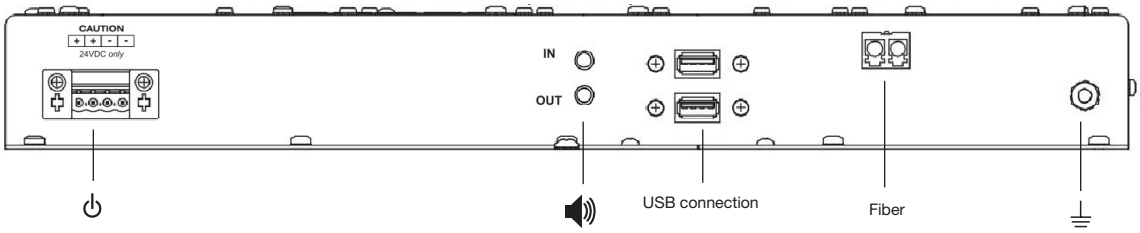
"K3" KVM extender



"K4" KVM extender



"K5" KVM extender

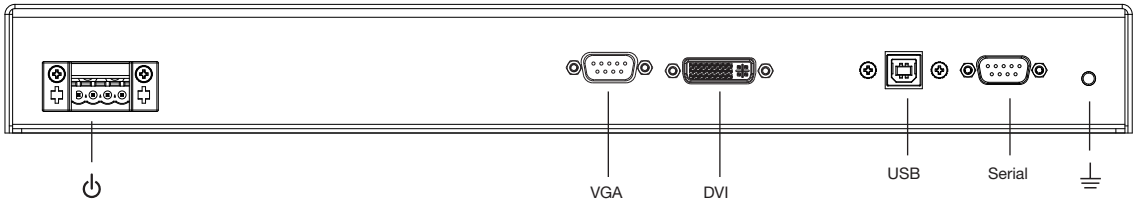


PEPPERL+FUCHS
Pepperl+Fuchs Group
www.pepperl-fuchs.com
Germany: +49 621 776 2222
pa-info@de.pepperl-fuchs.com
USA: 330 486 0002
pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091
pa-info@sg.pepperl-fuchs.com

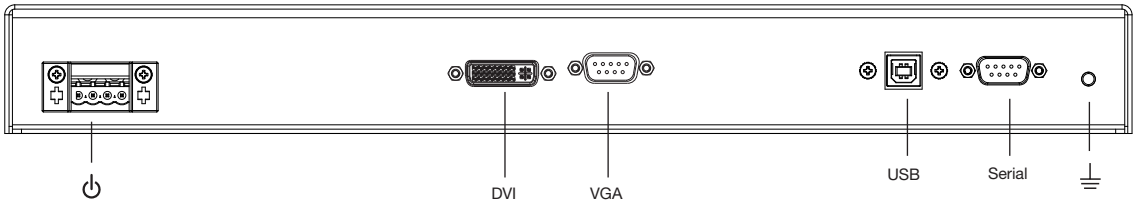
Interface and connections

DM CONNECTION

15" and 19"

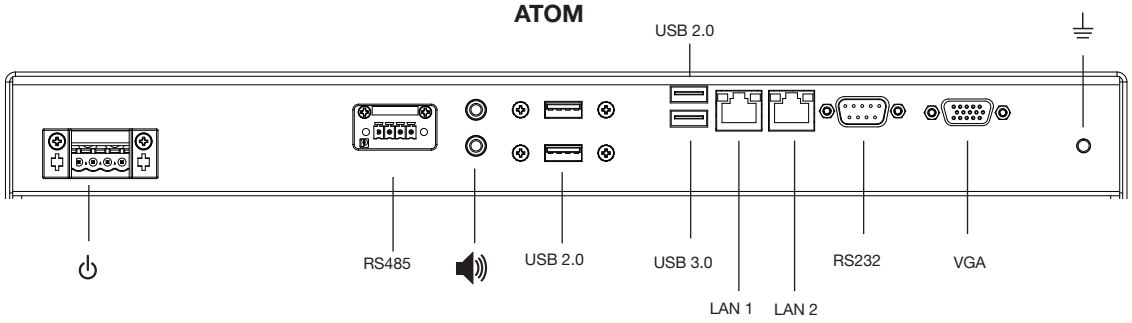


21.5" and 22"

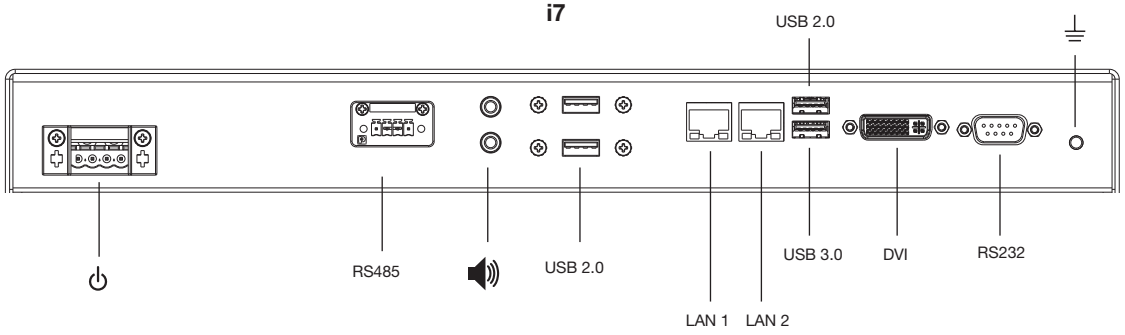


PC CONNECTIONS

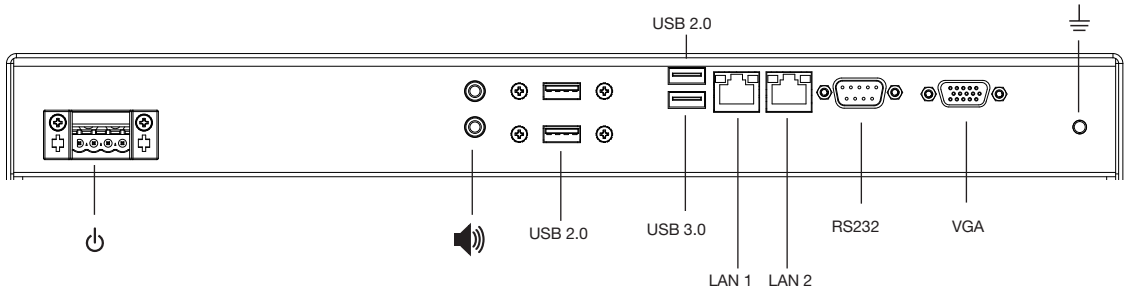
ATOM



i7

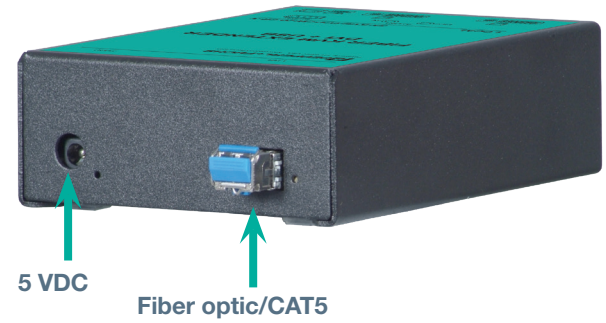


RM CONNECTION



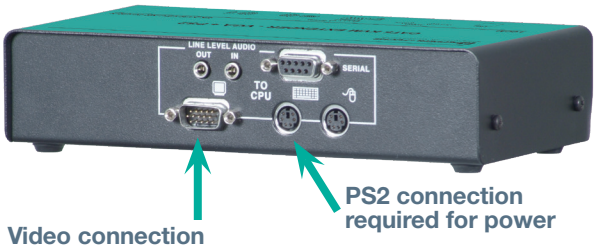
Interface and connections

LOCAL KVM CONNECTIONS



DVI KVM

Using a DVI-D cable, connect the video output of the host PC to the video input of the local KVM unit (transmitter). Note that the host PC must have a DVI-D output. If using a keyboard/mouse combination, connect the USB cable from the host PC (Type A USB connection) to the USB port on the local KVM unit (Type B USB connection). This allows the keyboard and mouse connection to the host PC. Connect the serial port on the Local KVM unit to the host PC. This allows the touch screen interface. ***Touch driver must be installed on host PC.** Using the 5 VDC power supply, connect the power to power input jack of the local unit. Use the LC fiber optic/CAT5 cable and connect the local unit to the KVM monitor unit. The DVI KVM has automatic skew compensation. No video adjustment is needed.



VGA KVM

Using a VGA cable, connect the video output of the host PC to the video input of the local KVM unit (transmitter). Note that the host PC must have a VGA output. If using the keyboard/mouse combination, connect the PS2 cables from the host PC to the PS2 ports on the local KVM unit. This allows the keyboard and mouse connection to the host PC. Connect the serial port on the Local KVM unit to the host PC. This allows the touch screen interface. ***Touch driver must be installed on host PC.** The PS2 cable must be connected to the keyboard port on the KVM and the PC, even if the keyboard is not used on the remote side. This supplies the required power to the transmitter side of the KVM. Use a CAT5 cable and connect the local unit to the KVM monitor unit. The VGA has a manual skew adjustment. Skew adjustment can only be done with a keyboard connection. If your KM82xx was ordered without a keyboard, then you need to temporarily connect an external keyboard to the PS2 connector located inside the rear junction box where the CAT5 and power connection is located. See appendix for image calibration procedure.

WARNING

Local KVM extender units (transmitters) must be mounted in Non-Ex areas. These are not covered under the hazardous location certification.

TOUCHSCREEN INTERFACE

The VisuNet industrial panel mount series can be ordered with or without a touchscreen option. Touchscreens are available as a 5-wire resistive touch, or a 5-wire hardened resistive touchscreen.

For the KM82xx version, standard interface is via RS232/serial connection. ***Touch driver must be installed on host the PC.** The touch driver can be installed from the supplied CD, or from the ELO website: http://www.elotouch.com/Support/Downloads/dnld.asp.

The proper driver to install is determined by the installed operating system. During touch driver installation, be sure to select the serial interface for proper operation. Once the touch driver is installed, the ELO icon will appear on the lower right-hand corner of the screen. Click on this icon to initiate calibration. Contact Pepperl+Fuchs if you need assistance with this.

WARNING

The standard 5-wire resistive touchscreen (option "T") has not been evaluated for potential damage from UV exposure. Therefore, installation preventing direct exposure to sunlight is required. Examples of acceptable installations include indoor applications away from direct sunlight, outdoor applications with shading to prevent direct sunlight, etc. Regular inspections are necessary to check for deterioration of the touchscreen with an indication to repair or replace the device if damage is detected.

This restriction does not include the 5-wire hardened resistive touchscreen (option "R").

Installation, Commissioning, and Troubleshooting

UNPACKING THE UNIT

1. Check that all package contents are present and undamaged. If anything is damaged, inform the shipper and contact the supplier.

2. Check that all items are present and correct based on your order and the shipping documents. If you have any questions, please contact Pepperl+Fuchs.

3. Keep the original packing material for storage or shipment at a later time.

MOUNTING IN THE FIELD

The equipment may be installed in a Class II, Division 2, Class III hazardous location. The equipment shall be installed per the below table and instructions. The rear of the equipment is considered open-type and, as such, shall be installed in a manner that protects it from the Class II, Division 2, Class III hazardous location.

The monitor is designed for panel mounting in a control or machine cabinet. Ensure that the mounting surface is flat so as not to bend or twist the bezel or compromise the seal of the outer gasket. Use the mounting clips provided to secure your monitor from the inside of the cabinet.

SERIES DIMENSIONS

The outer dimensions of the front bezel are:

15” display: 16.9” W x 13.6” H (430 mm x 345 mm)
19” display: 19.0” W x 16.2” H (483 mm x 411 mm)
21.5" and 22” display: 22.0” W x 15.5” H (572 mm x 394 mm)
Max. enclosure wall thickness 0.25” (6.4 mm)

1. CUT A HOLE

Cut or punch a rectangular hole in your cabinet or panel. Clean and deburr the edges.

Panel cut out dimensions
15” display: 15.92” W x 12.60” H ± 0.07” (404 x 320 mm ± 2 mm)
19” display: 17.92” W x 15.17” H ± 0.07” (455 x 385 mm ± 2 mm)
21.5" and 22” display: 21.10" W x 14.10" H ± 0.07” (536 x 358 mm ± 2 mm)

2. PREASSEMBLE THE MOUNTING CLIPS

Preassemble the mounting clips by threading each thumbscrew about 1/4 of the way into a clip. Note the thumb head goes on the 2-prong side of the clip and the threaded side goes towards the single prong side.

3. LOCATE THE MOUNTING SLOTS

Locate the rectangular mounting slots in the rear metal case of your monitor. There are slots located on top, bottom, and each side.

4. INSERT MOUNTING CLIPS AND TIGHTEN

With the monitor placed in the panel cutout, insert the clips, single prong side first, into the rectangular holes in the rear metal case. Tighten the thumbscrews firmly to compress the outer gasket; when tight, the front bezel should almost touch your enclosure surface.

PC AND RM TROUBLESHOOTING

Refer to the RM/PC software manual for setup, functionality, and troubleshooting.

KVM EXTENDER SETUP AND TROUBLESHOOTING

KVM Power-up sequence:
1. Make sure power to PC, Local KVM, and KM82xx is off.
2. Power up local KVM first.
3. Power up KM82xx.
4. Power on PC connected to local KVM.

Calibration and Operation

TOUCH SCREEN INTERFACE

The integrated touch screen uses 5-wire hardened resistive technology that provides long time use without the need to recalibrate. The touch screen can be manipulated with either a finger, a glove, or a stylus. The hardened resistive glass provides exceptional resistance to scratches, impacts, chemicals, and excessive heat.

TOUCH SCREEN CALIBRATION

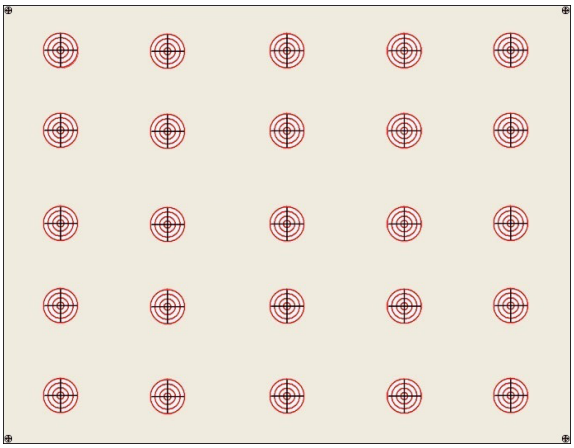
The VisuNet XT touch screen is factory-calibrated and uses factory-installed Elo touch screen software. Calibration/Alignment of the newly installed touch screen should not be necessary.

However, over a period of time the alignment points may wander slightly and you may notice the cursor does not perform properly. This is a good indication that touch screen calibration may be necessary to realign the screen. As a rule of thumb, it is recommended that you calibrate the touch screen if the cursor is more than 0.25 inches from the exact center of the point of touch.

Doing this will increase the accuracy of touch response and make it easier to touch objects with pinpoint accuracy.

An Elo Touchsystems icon can be found on the computer's desktop or in the taskbar, and in the control panel.

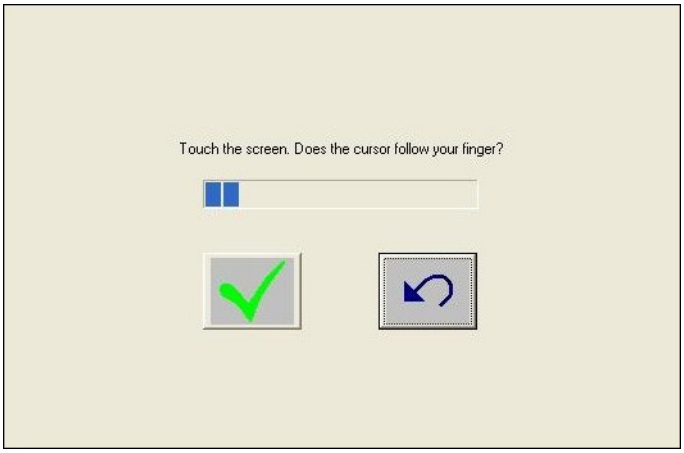
There are 29 calibration target points: 25 main screen targets and four (4) small corner targets. The figure shows the pattern for the 5 x 5 main targets and four (4) corner targets.



Perform the following steps to realign the touch screen using the Elo touch screen software.

1. Close any open programs prior to initiating the Elo program.
2. Right-click the Elo icon and select Align from the dialog box, or double click the Elo Touch screen icon, select the General tab and click the Align button.
3. A white screen appears with a target in the top left corner of the screen.
4. The target calibration points are presented one at a time (25 main screen target points and 4 corner target points). Touch and then release each of the targets as they appear.

5. After the target points have been calibrated, you are prompted to touch the screen in different areas to check calibration and cursor response. The cursor should jump to your fingertip.
6. Run your finger around the screen to make sure the cursor stays with your fingertip.
7. If the cursor responds correctly, touch the green check mark.
8. If cursor response is questionable, press the Repeat icon and repeat the calibration procedure.



Appendix

Configuring VGA KVM

The local unit is powered by connecting the keyboard PS2 port of the host PC to the PS2 port of the SK-KVM-XXX-NR.
The video image quality may be poor at this point due to cable lengths, types, or patch panels. Video adjustments are performed from the remote unit using simple keyboard commands. Command mode must be selected.
The following table shows the keyboard commands and key sequences used to initiate the command.

Keyboard commands	
Command	**Key Sequence**
Command mode	[L-Ctrl] + [L-Shift] + [F10]
Exit Command mode and save Exit Command mode without saving	[ESC] [L-Shift] + [ESC]
Select channel 1, 2, 3, or 4	[1] / [2] / [3] / [4]
Select channel 0	[0] (select all channels)
Reset EQ & delay values	[L-Ctrl] + [Home]
Next assisted EQ setting	[L-Ctrl] + [PgUp]
Previous assisted EQ setting	[L-Ctrl] + [PgDn]
Increase RED delay	[R] + [R-arrow]
Decrease RED delay	[R] + [L-arrow]
Increase Green delay	[G] +[R-arrow]
Decrease Green delay	[G] + [L-arrow]
Increase Blue delay	[B] + [R-arrow]
Decrease Blue delay	[B] + [L-arrow]
Toggle RED delay	[L-Ctrl] + [R]
Toggle GREEN delay	[L-Ctrl] + [G]
Toggle BLUE delay	[L-Ctrl] + [B]
Reset EQ values	[L-Ctrl] + [End]
Increase LF EQ (Course)	[L] + [Up Arrow]
Decrease LF EQ (Course)	[L] + [Dn Arrow]
Increase LF EQ (Fine)	[L] + [R-Arrow]
Decrease LF EQ (Fine)	[L] + [L-Arrow]
Increase HF EQ (Course)	[H] + [Up Arrow]
Decrease HF EQ (Course)	[H] + [Dn Arrow]
Increase HF EQ (Fine)	[H] + [R-Arrow]
Decrease HF EQ (Fine)	[H] + [L-Arrow]
Reset keyboard and mouse	[F1]
Send NULL mouse byte	[F3]
Reset to factory defaults	[L-Ctrl] + [F9]
Toggle Unit Private Mode	[Scroll Lock]

NOTE: All keyboard commands are initiated from the receiver unit. Before any keyboard command can be issued, the unit must be in the command mode and a channel selected.

KEYBOARD COMMAND DESCRIPTIONS

Command mode – [L-Ctrl] + [L-Shift] + [F10]
Entering the command mode sends the receiver units keyboard instructions to the SK-KVM-XXX-NR instead of the connected computer. In the command mode, the yellow LED on the receiver unit's RJ45 connector for channel 1 will light indicating that the unit is in the command mode. The keyboard status LEDs (Num lock, Caps Lock, and Scroll Lock) will flash indicating which channel is selected. The command mode automatically times out after 30 seconds of inactivity, saves all settings, and returns the keyboard to normal functions.

No. of keyboard status LED flashes	Video channel selected
1	Channel 1 (default, all models)

Exit Command mode and save – [Esc]
Pressing the Esc key while in the command mode will save all configuration changes made and exit the command mode.

Exit Command mode without saving – [L-Shift] + [Esc]
Pressing the left shift key and the Esc key while in the command mode will exit the command mode without saving any configuration changes.

Select Channel 1 – [1]
Pressing 1 while in the command mode selects channel one and all configuration adjustments apply to channel 1 only. Keyboard status LEDs flash once.

Reset EQ & Delay values – [L-Ctrl] + [Home]
Issuing this command resets the LF and HF equalization and the red, green, and blue delay values for the selected channel.

Next Assisted EQ setting – [L-Ctrl] + [PgUp]
This command resets the LF and HF equalization settings, then each time the command is issued, incrementally steps through a table of preset LF and HF equalization values for different cable lengths in 25 m increments from 0 to 375 m. After finding the best setting, fine tuning of the HF and LF equalization may be needed. Perform the fine tuning after adjusting for any color skew.

Previous Assisted EQ setting – [L-Ctrl] + [PgDn]
This command decreases the LF and HF equalization settings by 25 m. Use this command in conjunction with the Next Assisted EQ setting command to obtain the best setting for the select channel. (Refer to Figure 2 – Video adjustment test card)

Increase RED delay – [R] + [R-Arrow]
Each time this command is issued, the RED video component is delayed an incremental step from 0 to 42 ns max. in 2.8 ns steps.

Decrease RED delay – [R] + [L-Arrow]
Use this command along with the increase RED delay to properly align the RED video component.

Increase GREEN delay – [G] + [R-Arrow]
Each time this command is issued, the GREEN video component is delayed an incremental step from 0 to 42 ns max. in 2.8 ns steps.

Decrease GREEN delay – [G] + [L-Arrow]
Use this command along with the increase GREEN delay to properly align the GREEN video component.

Increase BLUE delay – [B] + [R-Arrow]
Each time this command is issued, the BLUE video component is delayed an incremental step from 0 to 42 ns max. in 2.8 ns steps.

Decrease BLUE delay – [B] + [L-Arrow]
Use this command along with the increase BLUE delay to properly align the BLUE video component.

Toggle RED delay – [L-Ctrl] + [R]
Each time this command is issued, the RED video component delay is toggled between 0 and 19 ns.

Toggle GREEN delay – [L-Ctrl] + [G]
Each time this command is issued, the GREEN video component delay is toggled between 0 and 19 ns.

Toggle BLUE delay – [L-Ctrl] + [B]
Each time this command is issued, the BLUE video component delay is toggled between 0 and 19 ns.
(Refer to Figure 7 for LF and HF adjustments)

Reset EQ values – [L-Ctrl] + [End]
Issuing this command will reset the HF and LF equalization values for the selected video channel to zero. Color delay values are not affected.

Increase LF EQ (Course) – [L] + [Up Arrow]
Use the Increase LF EQ adjustment to remove black smears to the right of large objects.

Exit Command mode and save – [Esc]
Pressing the Esc key while in the command mode will save all configuration changes made and exit the command mode.

Exit Command mode without saving – [L-Shift] + [Esc]
Pressing the left shift key and the Esc key while in the command mode will exit the command mode without saving any configuration changes.

Select Channel 1 – [1]
Pressing 1 while in the command mode selects channel one and all configuration adjustments apply to channel 1 only. Keyboard status LEDs flash once.

Reset EQ & Delay values – [L-Ctrl] + [Home]
Issuing this command resets the LF and HF equalization and the red, green, and blue delay values for the selected channel.

Next Assisted EQ setting – [L-Ctrl] + [PgUp]
This command resets the LF and HF equalization settings, then each time the command is issued, incrementally steps through a table of preset LF and HF equalization values for different cable lengths in 25 m increments from 0 to 375 m. After finding the best setting, fine tuning of the HF and LF equalization may be needed. Perform the fine tuning after adjusting for any color skew.

Previous Assisted EQ setting – [L-Ctrl] + [PgDn]
This command decreases the LF and HF equalization settings by 25 m. Use this command in conjunction with the Next Assisted EQ setting command to obtain the best setting for the select channel. (Refer to Figure 2 – Video adjustment test card)

Increase RED delay – [R] + [R-Arrow]
Each time this command is issued, the RED video component is delayed an incremental step from 0 to 42 ns max. in 2.8 ns steps.

Decrease RED delay – [R] + [L-Arrow]
Use this command along with the increase RED delay to properly align the RED video component.

Increase GREEN delay – [G] + [R-Arrow]
Each time this command is issued, the GREEN video component is delayed an incremental step from 0 to 42 ns max. in 2.8 ns steps.

Decrease GREEN delay – [G] + [L-Arrow]
Use this command along with the increase GREEN delay to properly align the GREEN video component.

Increase BLUE delay – [B] + [R-Arrow]
Each time this command is issued, the BLUE video component is delayed an incremental step from 0 to 42 ns max. in 2.8 ns steps.

Decrease BLUE delay – [B] + [L-Arrow]
Use this command along with the increase BLUE delay to properly align the BLUE video component.

Toggle RED delay – [L-Ctrl] + [R]
Each time this command is issued, the RED video component delay is toggled between 0 and 19 ns.

Toggle GREEN delay – [L-Ctrl] + [G]
Each time this command is issued, the GREEN video component delay is toggled between 0 and 19 ns.

Toggle BLUE delay – [L-Ctrl] + [B]
Each time this command is issued, the BLUE video component delay is toggled between 0 and 19 ns.
(Refer to Figure 7 for LF and HF adjustments)

Reset EQ values – [L-Ctrl] + [End]
Issuing this command will reset the HF and LF equalization values for the selected video channel to zero. Color delay values are not affected.

Increase LF EQ (Course) – [L] + [Up Arrow]
Use the Increase LF EQ adjustment to remove black smears to the right of large objects.

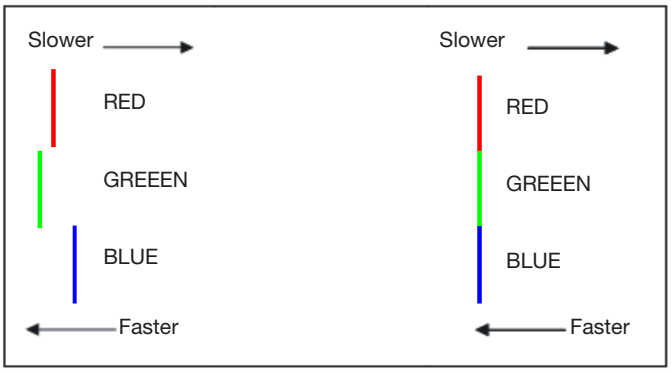
Adjusting the video
All video adjustments are performed from the receiver unit. Make sure all connections are in place and the video from the computer(s) connected to the transmitter unit are powered up and operating properly.

A test card has been developed for assisting in the video skew and color delay adjustments. If possible, display this test card on the receiver unit to adjust. The card can be found on the *Installation and Operation Manual CD*.

If displaying the test card is not possible, display some text in a large font on a white background. Also open a windows application and check the text in the tool bars and icons on the desktop for clarity and correct colors.

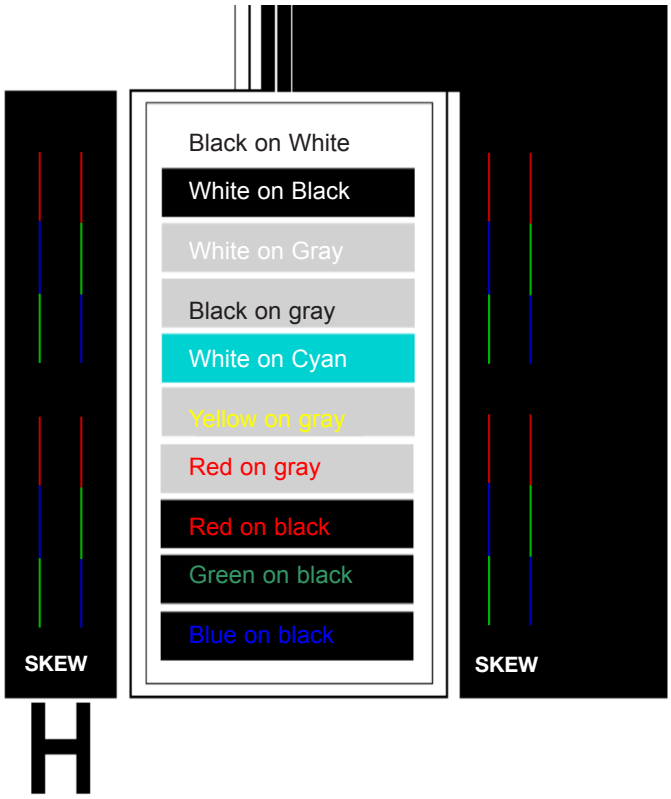
The RED, GREEN, and BLUE delay for a selected channel can be adjusted to obtain the clearest image. If possible, use the online test card to perform the skew adjustments. See Figure 1.

First enter the Command mode ([L-Ctrl] + [L-Shift] + [F10]) then select a channel to adjust [1, 2, 3, 4, or 0) and then display the test card. The color skew adjustment lines on the test card are equally divided into RED, GREEN, and BLUE. If the colors on the line are not aligned, adjust the skew by increasing the color delay for the faster color(s). Refer to the example below



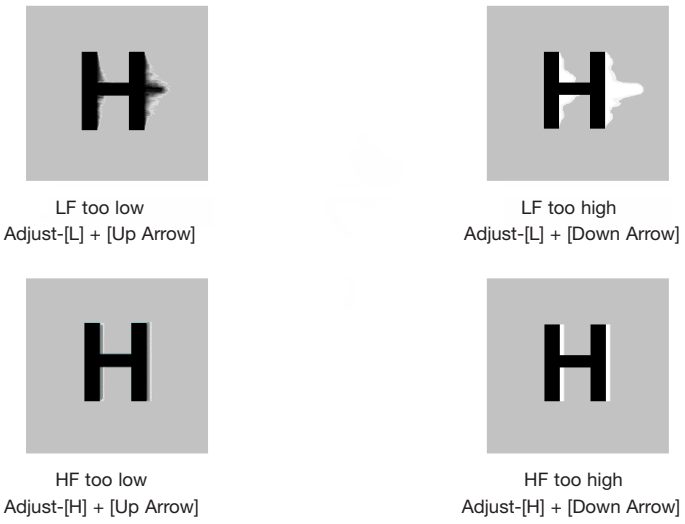
Color skew delay compensation

PEPPERL+FUCHS
Pepperl+Fuchs Group www.pepperl-fuchs.com
Germany: +49 621 776 2222 pa-info@de.pepperl-fuchs.com
USA: 330 486 0002 pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091 pa-info@sg.pepperl-fuchs.com



Video test card

To begin adjusting the LF and HF equalization, display the text card as shown in Figure 2. Observe the "H" in the lower left corner of the test card. Compare it with the example shown in Figure 3 and adjust the LF or HF equalization to obtain sharp clean image edges.



LF / HF adjustment guide

In summary, adjusting the video consists of:

- Entering the Command Mode
- Selecting the video channel to adjust
- Displaying the test card or a created straight line graphic that is equally divided into three color parts, RED, GREEN, and BLUE
- Adjusting the RED, GREEN, and BLUE delay to align the three colors. Observe the “H” in the lower left corner of the test card or display some text on a white background.
- Adjusting LF and HF equalization to eliminate smearing or bright streaks
- Saving the settings

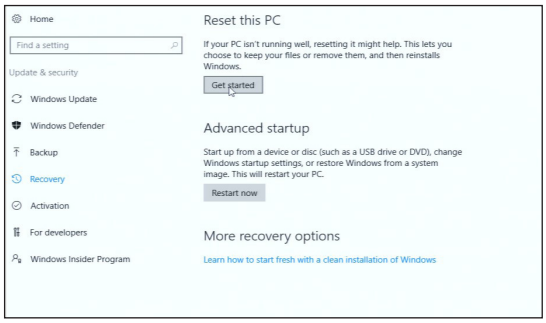
When you enter the "Command Mode" to adjust a channel's video, the yellow LED on the RJ45 connector for channel one will light (not blink). When you are adjusting the video, keyboard commands are directed to the SK-KVM-XXX-NR receiver unit. Mouse activity is temporarily halted until you exit the command mode. When you select a channel to adjust the video, the status LEDs on the keyboard will blink, indicating which channel is selected. (See the *Keyboard Commands* table.)

PC Factory Reset

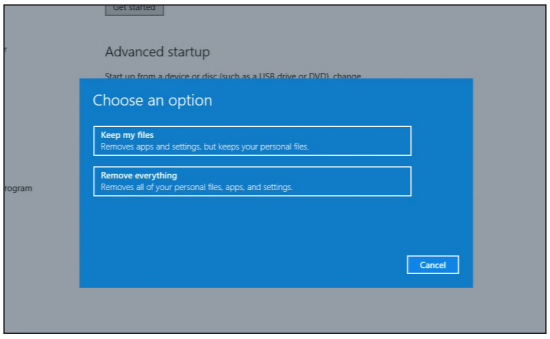
Windows 10 LTSB 1607

To restore the factory settings on VisuNet PCs with Windows 10 LTSB 1607, follow the steps below. For more information, visit https://support.microsoft.com/en-us/help/12415.

1. Select the Start button, then the Settings icon > Update & security > Recovery.



2. Choose an option: "Keep my files" or "remove everything." We recommend that you remove all of your personal files, apps, and settings to perform an overall reset. Make sure to save your important files first!

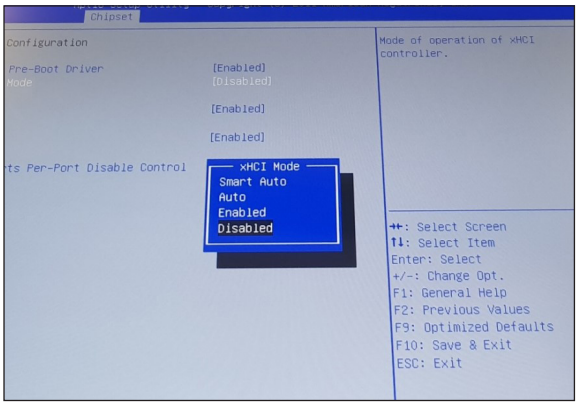


3. Do you want to clean the drives, too? Choose either "Just remove my files" or "Remove files and clean the drive." The device is now ready to be reset. The mechanism will be triggered after you select "Reset" in the "Ready to reset PC" pop-up.
4. The PC is now resetting. During this process, it will restart several times, which could take about half an hour.
5. Follow the guided Windows settings.
6. Download the appropriate driver package for your VisuNet PC from the respective product page at www.pepperl-fuchs.com/hmi. Driver packages are available under the "Software" tab on each product page.
7. Unpack the downloaded ZIP file.
8. Install all drivers by executing Setup.exe in every file. Accept the terms and license agreement.

Windows 7 Ultimate 64 Bit

1. Select the Start button, then the Control Panel icon > Recovery.
2. Under "Restore this computer to an earlier point in time" select "Advanced recovery methods."
3. Choose an option: "Use a system image you created earlier to recover your computer" or "Reinstall Windows."
4. Follow the guided Microsoft recovery process and restart your computer to continue the recovery.
5. The PC is now resetting. During this process, it will restart several times, which could take about half an hour.

   Note! If your keyboard is not working, adjust the settings in BIOS in the Chipset menu. To access the BIOS, push DEL repeatedly while the PC is booting. Choose "PCH-IO Configuration" to then move on to the USB configuration. Disable xHCI mode, then save and exit (F10) the BIOS settings.



6. After installing Windows, follow the Windows setup guide.

Pepperl+Fuchs Group www.pepperl-fuchs.com
Germany: +49 621 776 2222 pa-info@de.pepperl-fuchs.com
USA: 330 486 0002 pa-info@us.pepperl-fuchs.com
Singapore: +65 67799091 pa-info@sg.pepperl-fuchs.com

Notes

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Explosion Protection

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- Remote I/O Systems
- Electrical Ex Equipment
- Purge and Pressurization
- Industrial HMI
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

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- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Fieldbus Modules
- AS-Interface
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