MANUAL

VISUNET INDUSTRIAL 900 SERIES HARDWARE MANUAL

PEPPERL+FUCHS

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Table of contents

General information

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LIMITED WARRANTY:

NO WARRANTY IS PROVIDED FOR THE ACCURACY OF THE INFORMATION CONTAINED IN THIS MANUAL. AS MISTAKES CANNOT BE ENTIRELY AVOIDED DESPITE TAKING THE GREATEST OF CARE, WE WOULD BE GRATEFUL TO RECEIVE INFORMATION ABOUT ANY ERRORS YOU MAY DISCOVER. THE PUBLISHER DISCLAIMS ALL LEGAL RESPONSIBILITY OR LIABILITY FOR ERRORS AS WELL AS FOR SUBSEQUENT DAMAGES AND CLAIMS.

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Safety

SYSTEM OPERATOR AND PERSONNEL

The operator of the system is responsible in terms of planning, mounting, commissioning, operating, and maintenance. Assembly, commissioning, operation, maintenance 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

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

NOTE: TOUCHSCREEN INTERFACE

The standard 5-wire resistive touchscreen (“T” option) has not 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, outdoor applications with shading to prevent direct sunlight, etc. Regular inspections are necessary to check for deterioration of the touchscreen. Return the VISUNET apparatus to factory for repair or replace the VISUNET apparatus if damage is detected. This restriction does not include the 5-wire hardened resistive touchscreen.

INSTALLATION AND COMMISSIONING

Where “ATEX” appears throughout this document, it shall be understood that “ATEX” applies to ATEX installation applications only.

The device must only be operated in the ambient temperature range and at the relative humidity (noncondensing) 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

Use an appropriate 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.

WARNINGS AND CAUTIONS

When so labelled, this equipment is suitable for use in Class I, Division 2, Groups A, B, C, and D; ATEX Zone 2; or nonhazardous locations only. When powered, internal voltages present can be lethal. There are no user serviceable parts inside. Please 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/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.

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

HAZARDOUS LOCATION LABEL

PEPPERL+FUCHS
68307 Mannheim, Germany / www.pepperl-fuchs.com
MODEL: **XX91xx-V3-xxxx-xxxxxxxx-xx-x**
P/N: **547015-xxxx**
SERIAL:
Input: 24VDC ±10%
2.5Amps MAX
-20° <= Ta <= 50°C
TYPE 4X IP64
II 3G Ex ic nA IIC T4 Gc
ITS 14 ATEX48130X
CL I, DIV 2, Groups A,B,C,D T4
3181079
WARNING
POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS
There are no user serviceable parts inside this enclosure.

SPECIAL CONDITIONS FOR SAFE USE

1. For fixed installation only. Not for portable applications.
2. Suitable for use in normal applications with weak static charges, resistive touch screen use, and cleaning with a damp cloth. Not suitable for use in processes having electrons of high voltage electrodes, such as flowing powder particles or liquids.
3. Transient protection to be provided externally to limit transients to maximum 119 Vpk.

Product specifications

OVERVIEW

The VisuNet product family is a series of rugged, local operator terminals for the process industry based on high-resolution color graphic LCD monitors. The Remote Monitor RM9xx allows a user to operate an automation PC installed in the safe area, which is located a long distance from the installation (e.g., the PC of a process control system) and its user programs via an Ethernet TCP/IP connection. It comprises an industry-standard display, optional touchscreen, keyboard, and mouse. The VisuNet IND 900 series features display sizes of 15", 19", 22" widescreen, or 21.5" Full HD. The Industrial PC PC9xx also consists of a display, touchscreen, keyboard, mouse, and additionally includes a powerful industrial PC featuring a Windows 7 or Windows 10 IoT operating system and a 120 GB SSD for storage. It can be connected to the process system via Ethernet. The operator control and monitoring software (e.g., SCADA) is directly installed on the Industrial PC. The RM9xx and PC9xx terminals are available as a Class I/Div. 2 and an ATEX Zone 2 rated device, or for nonhazardous locations.

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

- VGA extension over CAT5, with PS2, RS232, manual skew compensation, and audio (extension up to 1000 ft)
- DVI extension over CAT5 with USB, RS232, auto skew compensation, and audio (extension up to 400 ft)
- DVI extension over fiber optic (multi-mode), with USB, RS232, auto skew compensation, and audio (extension up to 1300 ft)

Housing options include either 316L stainless steel enclosure or black painted steel, allowing for installation in harsh industrial environments. The 100 mm VESA mounting allows the use of industry standard VESA mount apparatus. The VisuNet IND 900 Series is available as a Class I/Div. 2 and an ATEX Zone 2 rated device, or for nonhazardous locations.

Technical data

KM915 specifications	
Power supply	
Power consumption	48 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
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
Touchscreen interface	Serial (RS232)
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	18.84" x 15" x 3.37" (main housing); junction box adds 1.7" to depth; 22" x 10" x 2" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	25 lbs (no keyboard) 37 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
USA/Canada	ETL Listing for Class I Div 2, Groups A, B, C, D, T4
ATEX certification	II 3G Ex ic nA IIC T4 Gc

KM919 specifications	
Power supply	
Power consumption	60 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
Display	
Screen diagonal	19 inches
Response time	12 ms
Resolution	1280 x 1024
Colors	24 bit (16.7 M) color
Contrast	1000 to 1
Brightness	450 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
Touchscreen interface	Serial (RS232)
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	22.32" x 17.44" x 3.37" (main housing); junction box adds 1.7" to depth; 22" x 10" x 2" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	30 lbs (no keyboard) 42 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 80% noncondensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
USA/Canada	ETL Listing for Class I Div 2, Groups A, B, C, D, T4
ATEX certification	II 3G Ex ic nA IIC T4 Gc

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Technical data

KM921 specifications	
Power Supply	
Power consumption	60 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
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
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	25.0" x 16.0" x 3.4" (main housing); junction box adds 1.7" to depth; 22" x 10" x 2" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel); IP66
Mounting	100 mm VESA mount
Weight	35 lbs (no keyboard) 47 lbs (with keyboard)
Ambient Conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% non-condensing
Directive Conformity	
Electromagnetic compatability	Directive 2014/30/EU EN 61326-1:2013
USA/Canada	ETL Listing for Class I Div 2 Groups A, B, C, D, T4
ATEX certification	II 3G Ex ic nA IIC T4 Gc

KM922 specifications	
Power supply	
Power consumption	60 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
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 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typ. half life
Touchscreen	5-wire resistive
Touchscreen interface	Serial (RS232)
Housing	
Material	316L stainless steel (main enclosure)or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	25.0" x 16.0" x 3.4" (main housing); junction box adds 1.7" to depth; 22" x 10" x 2" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	35 lbs (no keyboard) 47 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
USA/Canada	ETL Listing for Class I Div 2 Groups A, B, C, D, T4
ATEX certification	II 3G Ex ic nA IIC T4 Gc

Technical data

KVM extender - DVI/CAT 5 "K4"	
Maximum resolution	1920 x 1200
Video compatibility	DVI-D
Keyboard	USB
Mouse	USB
Transmitter power	90-240 VAC adapter to 5VDC / app. 10W
Connectors	Remote KVM connections internal to 900 series housing Video to PC – DVI-D Video to KVM – DVI-D Keyboard / mouse: MiniDin-6 Serial: Local unit – DB9F (DCE) Remote unit – DB9M (DTE) Audio – 3.5mm stereo audio jacks Interconnect: CAT-5, 5e, 6
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: 5.625in / 14.4 cm

KVM extender - CAT 5/VGA "K3"	
Maximum resolution	1600 x 1200
Video compatibility	VGA to UXGA, RGB
Video levels	0.7V 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	2.8ns steps / 42ns 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	Remote KVM connections internal to 900 series housing 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: CAT-5, 5e, 6

KVM extender - DVI/Fiber Optic "K5"	
Maximum resolution	1920 x 1200
Video compatibility	DVI-D
Keyboard/mouse	USB
Touchscreen	Serial
Power adapter	90-240 VAC adapter to 5VDC / app. 10W
Transmitter power	750 mA
Connectors	Remote KVM connections internal to 900 series housing 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	0.65 lbs / 0.3 kg (each unit)
Dimensions	H: 1.375 in / 3.0 cm W: 4.125 in / 10.0 cm D: 5.625in / 14.4 cm

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Technical data

RM915 specifications	
Power supply	
Power consumption	48 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
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
Interface	RJ45, USB, power
Keyboard	
Connections	USB
Mouse	Touchpad
	Optical trackball (50 mm)
	Joystick
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	18.84" x 15" x 3.37" (main housing); junction box adds 1.7" to depth; 22" x 10" x 2" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	25 lbs (no keyboard) 37 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
USA/Canada	ETL Listing for Class I Div 2 Groups A, B, C, D, T4
ATEX certification	II 3G Ex ic nA IIC T4 Gc

RM919 specifications	
Power supply	
Power consumption	60 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
Display	
Screen diagonal	19 inches
Response time	12 ms
Resolution	1280 x 1024
Colors	24 bit (16.7 M) color
Contrast	1000 to 1
Brightness	450 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
Interface	RJ45, USB, power
Keyboard	
Connections	USB
Mouse	Touchpad
	Optical trackball (50 mm)
	Joystick
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	22.32" x 17.44" x 3.37" (main housing); junction box adds 1.7" to depth; 22.0" x 10.0" x 2.0" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	30 lbs (no keyboard) 42 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
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ATEX certification	II 3G Ex ic nA IIC T4 Gc

Technical data

RM921 specifications	
Power Supply	
Power consumption	70 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
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
Memory	4 GB
CFAST	32 GB
Interface	2 x 1GB Ethernet, 4 x USB, Audio, RS232, Video, Power
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	25.0" x 16.0" x 3.4" (main housing); junction box adds 1.7" to depth; 22" x 10" x 2" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel); IP66
Mounting	100 mm VESA mount
Weight	35 lbs (no keyboard) 47 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% non-condensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
USA/Canada	ETL Listing for Class I Div 2 Groups A, B, C, D, T4
ATEX certification	II 3G Ex ic nA IIC T4 Gc

RM922 specifications	
Power supply	
Power consumption	70 watts max, 100-240 VAC, 50-60 Hz, 24 VDC (ATEX certification only covers the DC version.)
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 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typ. half life
Touchscreen	5-wire resistive
Hardware	
Processor	Intel® Atom™ E3826 1.46 GHz
Memory	4 GB
Compact flash	32 GB
Interface	RJ45, USB, power
Keyboard	
Connections	USB
Mouse	Touchpad
	Optical trackball (50 mm)
	Joystick
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	25.0" x 16.0" x 3.4" (main housing); junction box adds 1.7" to depth; 22.0" x 10.0" x 2.0" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	35 lbs (no keyboard) 47 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
USA/Canada	ETL Listing for Class I Div 2 Groups A, B, C, D, T4
ATEX certification	II 3G Ex ic nA IIC T4 Gc

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Singapore: +65 67799091
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Technical data

PC915 specifications	
Power supply	
Power consumption	48 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
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 1.46GHz Intel® dual-core i7-3517UE 1.7 GHz
Storage	120 GB SSD
Memory	Up to 8 GB
Interface	RJ45, USB, power
Operating system	Windows 7 (32-bit or 64-bit) or Windows 10 IoT Enterprise LTSB (x 64)
Keyboard	
Connections	USB
Mouse	Touchpad
	Optical trackball (50 mm)
	Joystick
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	18.84" x 15" x 3.37" (main housing); junction box adds 1.7" to depth; 22.0" x 10.0" x 2.0" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	25 lbs (no keyboard) 37 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
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ATEX certification	II 3G Ex ic nA IIC T4 Gc

PC919 specifications	
Power supply	
Power consumption	60 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
Display	
Screen diagonal	19 inches
Response time	12 ms
Resolution	1280 x 1024
Colors	24 bit (16.7 M) color
Contrast	1000 to 1
Brightness	450 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 Intel® dual-core i7-3517UE 1.7 GHz
Storage	120 GB SSD
Memory	Up to 8 GB
Interface	RJ45, USB, power
Operating system	Windows 7 (32-bit or 64-bit) or Windows 10 IoT Enterprise LTSB (x 64)
Keyboard	
Connections	USB
Mouse	Touchpad
	Optical trackball (50 mm)
	Joystick

Technical data

Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	22.32" x 17.44" x 3.37" (main housing); junction box adds 1.7" to depth; 22.0" x 10.0" x 2.0" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	30 lbs (no keyboard) 42 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
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Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
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Weight	35 lbs (no keyboard) 47 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
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ATEX certification	II 3G Ex ic nA IIC T4 Gc

PC921 specifications	
Power supply	
Power consumption	60 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
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 or i7-3517UE 1.7 GHz
Storage	120 GB SSD
Memory	up to 8 GB
Interface	RJ45, USB, power
Operating system	Windows 7 Ultimate (32-bit or 64-bit) or Windows 10 IoT Enterprise LTSB (x 64)

PC922 specifications	
Power supply	
Power consumption	60 watts max, 100-240 VAC, 50-60 Hz, 20-30 VDC (ATEX certification only covers the DC version.)
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 nits
Reading angle	160 degrees in all directions
Life span	Back lamp life: 50,000 hrs typ. half life
Touchscreen	5-wire resistive
Hardware	
Processor	Intel® Atom™ E3826 1.46GHz Intel® dual-core i7-3517UE 1.7 GHz
Storage	120 GB SSD
Memory	Up to 8 GB
Interface	RJ45, USB, power
Operating system	Windows 7 (32-bit or 64-bit) or Windows 10 IoT Enterprise LTSB (x 64)

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Technical data

Keyboard	
Connections	USB
Mouse	Touchpad
	Optical trackball (50 mm)
	Joystick
Housing	
Material	316L stainless steel (main enclosure) or black painted steel (main enclosure) w/ 6062 anodized aluminum - marine grade (rear cover)
Dimensions	25.0" x 16.0" x 3.4" (main housing); junction box adds 1.7" to depth; 22.0" x 10.0" x 2.0" (keyboard housing)
Protection degree	Type 4X (stainless steel); Type 4 (painted steel) IP66
Mounting	100 mm VESA mount
Weight	35 lbs (no keyboard) 47 lbs (with keyboard)
Ambient conditions	
Operating temperature	-20 °C to 55 °C
Storage temperature	-20 °C to 60 °C
Relative humidity	0 to 90% noncondensing
Directive conformity	
Electromagnetic compatibility	Directive 2014/30/EU EN 61326-1:2013
USA/Canada	ETL Listing for Class I Div 2 Groups A, B, C, D, T4
ATEX certification	II 3G Ex ic nA IIC T4 Gc

Keyboard options

Keyboard options are available with touchpad mouse, optical trackball mouse, or joystick mouse. All keyboards are chemically resistant and have antimicrobial properties.

CHEMICAL RESISTANCE OF KEYBOARD FOIL

The foil is resistant against the following substances:
(Test method: DIN 42 115)

Alcohols	Hydrocarbons
Dilute acids	Ketones
Dilute alkalis	Household cleaning
Esters	Agents

ANTIMICROBIAL PROPERTIES OF THE KEYBOARD FOIL

The foil passed the antimicrobial effectiveness tested with:
(Test method: AATCC Test Method 100)

Staphyloccus aureus (MRSA)	Streptococcus faecalis
Escherichia coli 0157	Klebsiella pneumoniae
Listeria monocytogenes	Aspergillus niger
Pseudomonas aeruginosa	Penicillium purpurogenum
Salmonella enteritidis	Phoma violacea
Bacillus cereus	Saccharmyyces cerevisiae

TA3-K6 keyboard with joystick — technical data

General specifications	
Type	Keyboard with joystick
Supply	
Rated voltage	Via data line
Indicators/operating means	
Keyboard	105 short stroke keys
Layout	Keyboard Layout: US International, German, French, (further keyboard layouts on request)
Joystick	Capacitive
Driver	Microsoft Mouse ®, USB
Interface	
Interface type	USB
Conformity	
Protection degree	IP65
Ambient conditions	
Operating temperature	-20 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Relative humidity	Max. 85% non-condensing (48 h endurance test)
Mechanical specifications	
Material	Anodized aluminum, polyester foil
Mass	1.2 kg
Dimensions	482.6 mm x 177.8 mm x 45 mm
Cable length	1.8 m, wire end ferrule

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Keyboard TA3-K4 with touchpad — technical data

General specifications	
Type	Keyboard with touchpad
Supply	
Rated voltage	Via data line
Indicators/operating means	
Keyboard	105 short stroke keys
Layout	Keyboard Layout: US International, German, French, (further keyboard layouts on request)
Touchpad	
Active principle	Capacitive
Resolution	0 pts. / mm
Dimensions	66 x 50 mm
Driver	Microsoft Mouse ®, USB
Interface	
Interface type	USB
Conformity	
Protection degree	IP65
Ambient conditions	
Operating temperature	-20 °C to +50 °C
Storage temperature	-20 °C to +70 °C
Relative humidity	Max. 85% non-condensing (48 h endurance test)
Mechanical specifications	
Material	Anodized aluminum, polyester foil
Mass	1.2 kg
Dimensions	482.6 mm x 177.8 mm x 45 mm
Cable length	1.8 m

Keyboard TA3-K8 with trackball — technical data

General specifications	
Type	Keyboard with optical trackball
Supply	
Rated voltage	Via data line
Indicators/operating means	
Keyboard	105 short stroke keys
Layout	Keyboard Layout: US International, German, French, (further keyboard layouts on request)
Trackball	
Diameter	50 mm
Material	Phenolic, polyester, epoxy resin (grey)
Driver	Microsoft Mouse ®, USB
Interface	
Interface type	USB
Conformity	
Protection degree	IP65
Ambient conditions	
Operating temperature	0 °C to +50 °C
Storage temperature	-10 °C to +70 °C
Relative humidity	Max. 85% non-condensing (48 h endurance test)
Mechanical specifications	
Material	Anodized aluminum, polyester foil
Mass	1.2 kg
Dimensions	482.6 mm x 177.8 mm x 45 mm
Cable length	1.8 m

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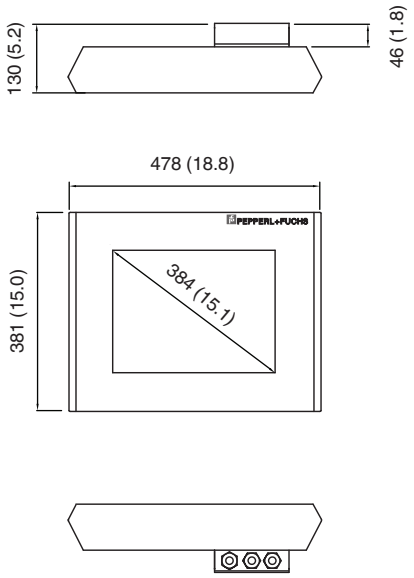
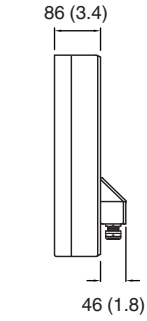
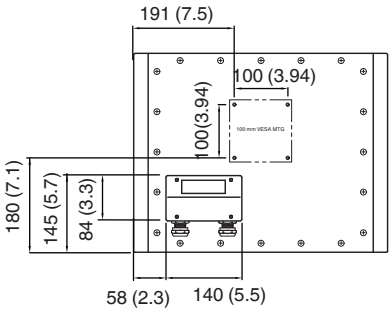
Dimensions—15" no keyboard

Dimensions in inches (mm)



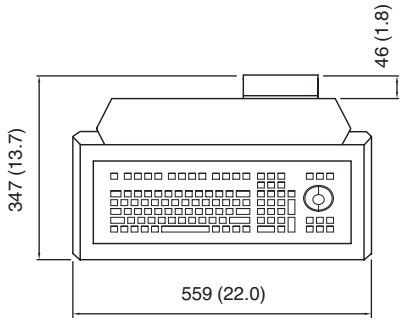


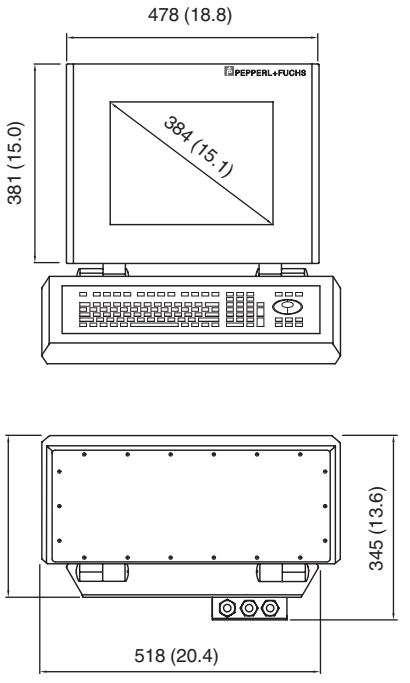
Shown with junction box for general-purpose areas

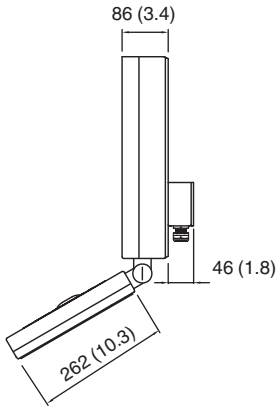


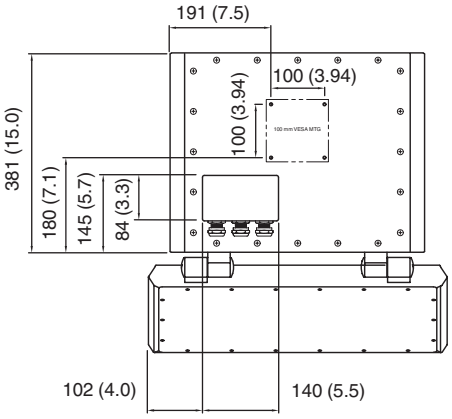
Dimensions—15" with keyboard

Dimensions in inches (mm)



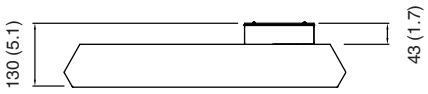


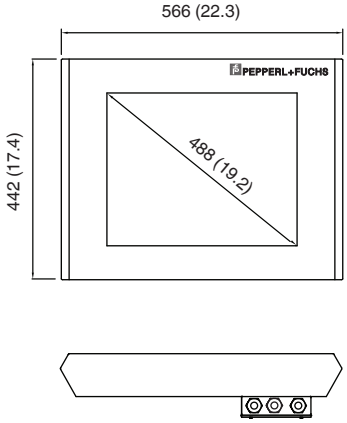


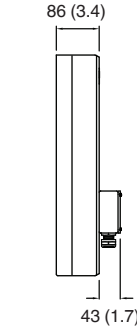


Dimensions—19" no keyboard

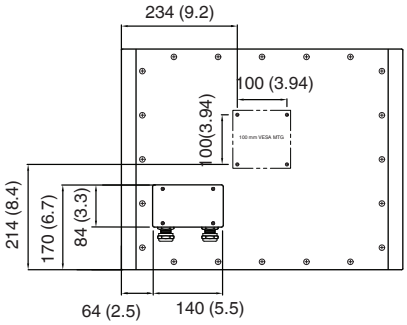
Dimensions in inches (mm)





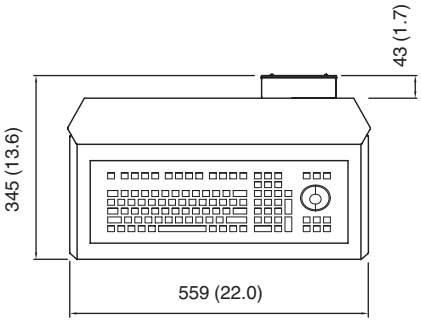


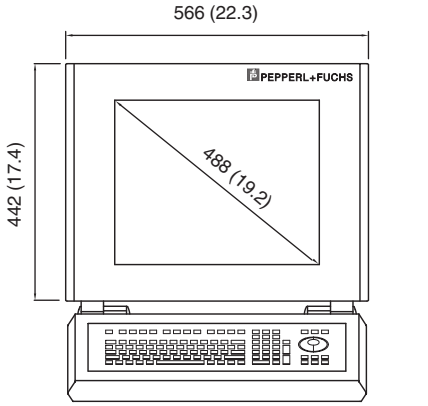
Shown with junction box for Div 2 areas

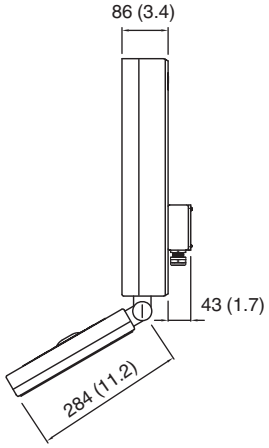


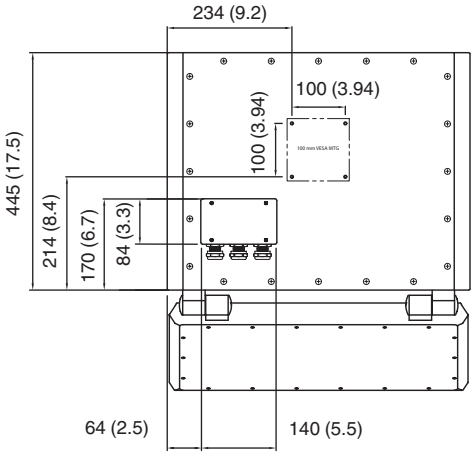
Dimensions—19" with keyboard

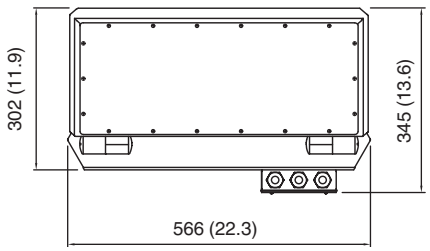
Dimensions in inches (mm)











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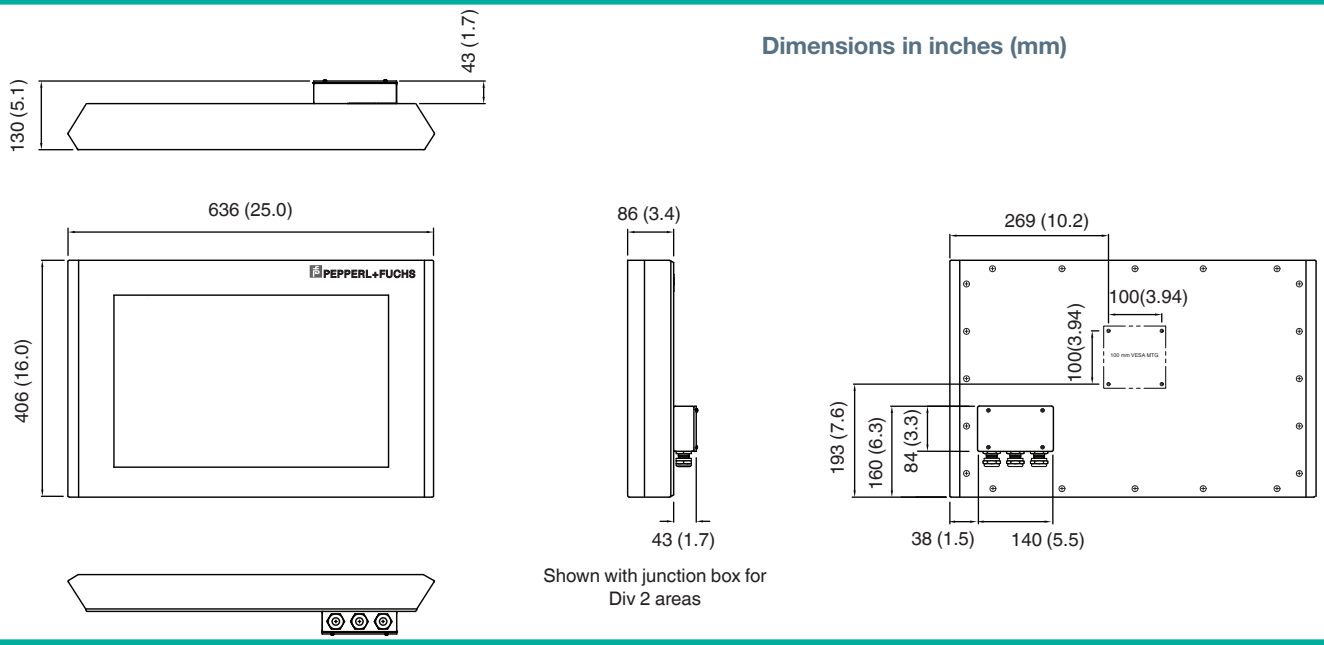
Dimensions—21.5" and 22" no keyboard

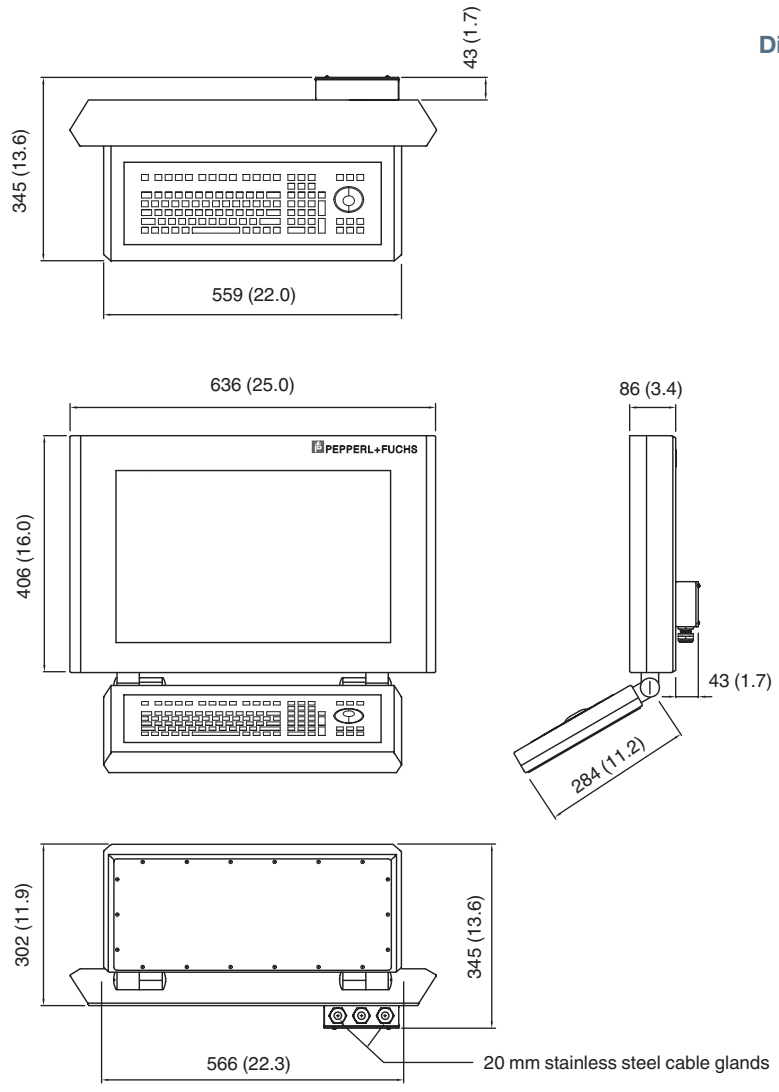
Dimensions in inches (mm)



Shown with junction box for Div 2 areas

Dimensions—21.5" and 22" with keyboard

Dimensions in inches (mm)



Interface and connections

Rear of enclosure supports an external junction box that allows all connections for interface and power. Connections are fed through M20 cable glands, or to IP67 rated connectors, depending on the housing type.

Power connection

CABLE GLAND CONNECTION

When using housing variant with cable glands, connection is done by means of a three-pole terminal block (TB) inside the rear junction box. DC mains polarity is marked near the terminal block. Ground is included on the TB. Connection must only have one conductor at each terminal. Use minimum of 14 (2.08 mm^2) gauge wire and 12 inch pounds torque (1.35 Nm). Wire size for input power connection must be at minimum 14 AWG / 2.08 mm^2.

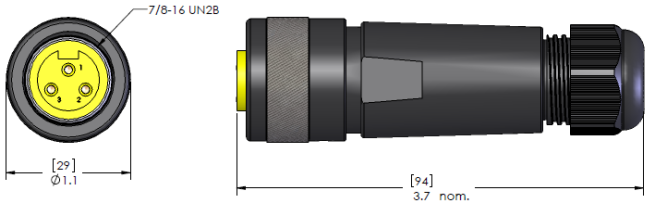
Wiring is as follows:

AC		DC	
Pin-out	**Color**	**Pin-out**	**Color**
Line in	Black	+	Red
Neutral	White	-	Black
Ground	Grn/Yel	⏚	Grn/Yel

Warning: For PERMANENTLY CONNECTED EQUIPMENT, a readily accessible disconnect device shall be incorporated external to the equipment. Connect to maximum 15 A branch circuit.

THREE-POLE CONNECTOR (NON-EX)

When using housing variant with quick disconnect, a 3-pole field wireable female plug is provided to connect to the junction box receptacle 1-grn/yel, 2-black, 3-white for AC, and 1-grn/yel, 2-red, 3-black for DC.



1) Strip cable jacket 1.5”, strip conductors 0.25”
2) If cable is >0.315” [8 mm], remove inner grommet from outer grommet and discard
3) Pass cable through dome nut, grommet, and backshell
4) Insert stripped wire into contact, and tighten (4.4 lbf-in [0.5Nm])
5) Thread backshell onto coupling by inserting a screw driver into head pin, and tighten (20 lbf-in [2.3 Nm])
6) Push grommet into backshell, and tighten dome nut (24 lbf-in [2.7 Nm])

Acceptable cable sizes and types:
PUR & PVC: 14 – 22 AWG
PLTC, SJE, SJT, SE, ST: 14 – 18 AWG

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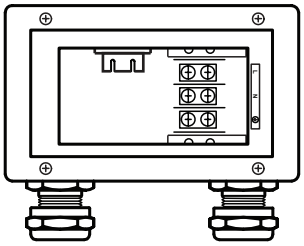
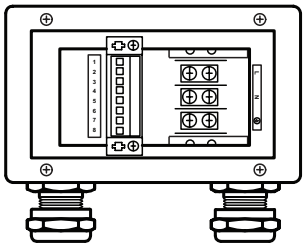
KM connection

DIV 2/Zone 2

CAT5 Terminals	TIA/EIA T568A Description
1.1	BI_DA + WH/GN
1.2	BI_DA – GN
1.3	BI_DB + WH/OR
1.4	BI_DC + BU
1.5	BI_DC – WH/BU
1.6	BI_DB – OR
1.7	BI_DD + WH/BN
1.8	BI_DD – BN

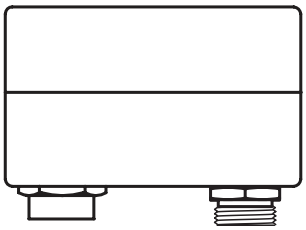


Fiber



CAT5

General Purpose



Fiber

CAT5

KM membrane switch

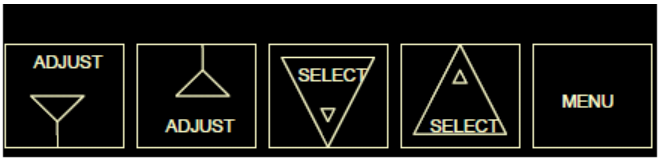
Located on the rear side of the enclosure is a three-button membrane switch. The first two buttons marked with up and down arrows control brightness. They give you direct control of the level of brightness of the LCD screen. The third button for power allows you to safely turn power on or power down the unit. Pushing this button while Windows is running initiates a safe shutdown sequence of the operating system.

KM915 and KM919 adjusting the video image

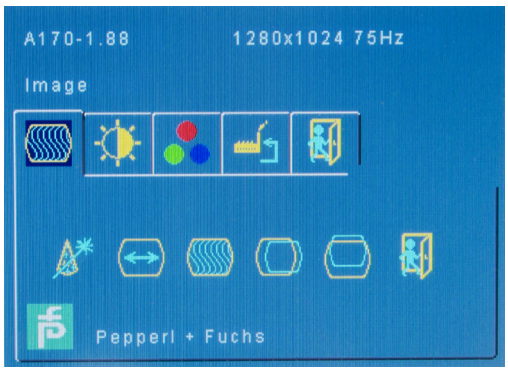
KM9xx monitors use an on-screen menu system driven by the membrane keypad on the rear of the display. Basic adjustment is accomplished with a single "auto adjust" command.
You can configure more subtle attributes using the menu system. Generally, the auto configuration is all that is needed; *unless 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.

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.

Membrane keypad

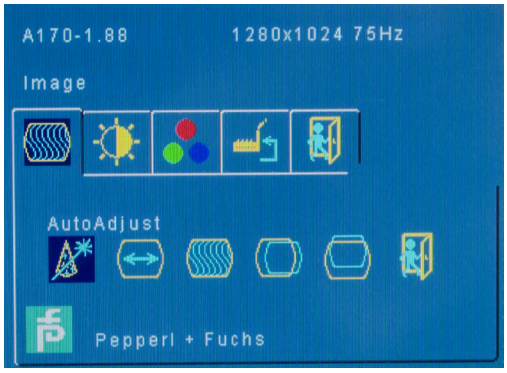


- Press the Menu button on the keypad. A top level menu appears on the center of the display, superimposed over the existing computer video image.
- Press the Menu button again to enable the Image Adjust

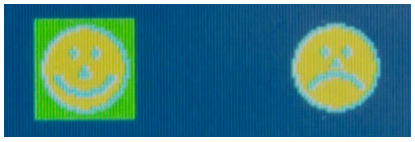


submenu.

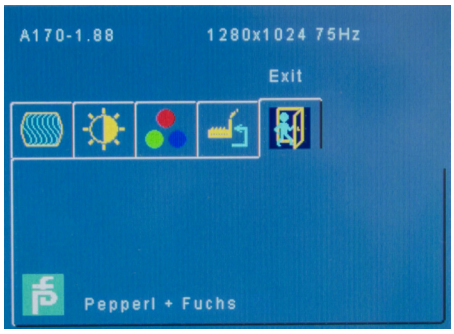
- Press the Menu button once again to start the Auto Adjust function.
- The video image will freeze for up to five seconds while sizing



and positioning itself, ultimately moving to the center and filling the 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.



- If needed, when complete, move to the Save and Exit function by pressing the Select ▲ button five times, and then the Menu button once.



- If you need to adjust other video modes, follow the same procedure for each mode the computer will operate in (such as 640 x 480).

KM921 and KM922 adjusting the video image

The KM921 and KM922 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.

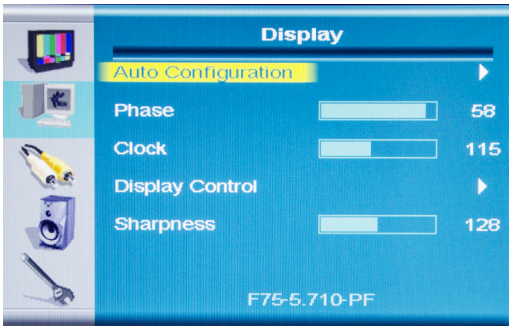
However, there are quite a few image, size, and position adjustments available if necessary.

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.

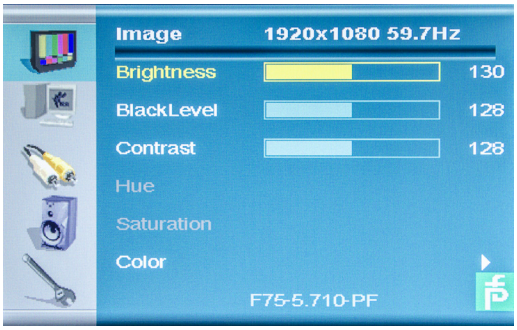
Follow these steps to perform auto configuration:

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.



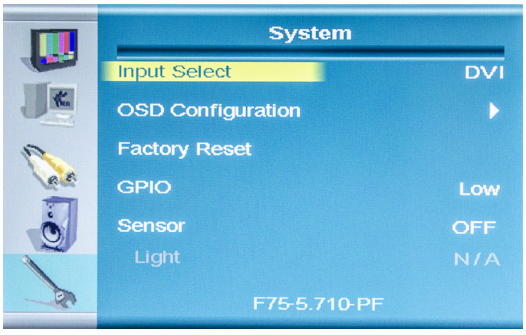
Follow these steps to adjust brightness:

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.



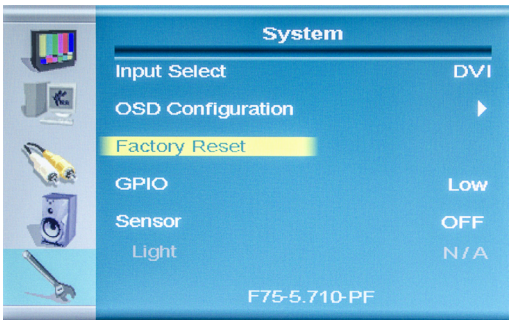
Follow these steps to select input:

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.



KVM interface connection

Whether the internal KVM is fiber optic or CAT5 will determine how the unit should be wired.

FIBER OPTIC KVM CONNECTION (DIV. 2 AND ZONE 2)

Fiber optic connection is made via LC-Type fiber connections. In order to the feed fiber pair through M20 cable gland, the Rx and Tx (A and B) fiber lines will need to be separated from the fiber cable holder, fed though the cable gland individually, then attached back to the cable holder. Once the fiber cable is connected, tighten the cable gland to secure the cable.

CAT5 KVM CONNECTION (DIV. 2 AND ZONE 2)

CAT5 connection is made via a removable terminal block inside the rear of the junction box.

Once the CAT5 cable is connected, tighten the cable gland to secure the cable.

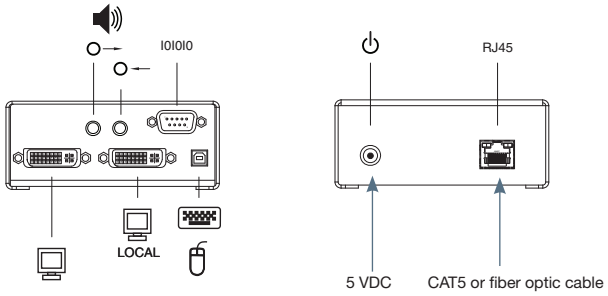
GENERAL-PURPOSE KVM CONNECTION

For general-purpose applications, the KVM media connection is done by means of an external quick disconnect connector. For fiber optic connections, use LC-type multimode cable, and for RJ45 connections, use CAT5/5e/6 cable.

Local KVM connection

DVI KVM

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



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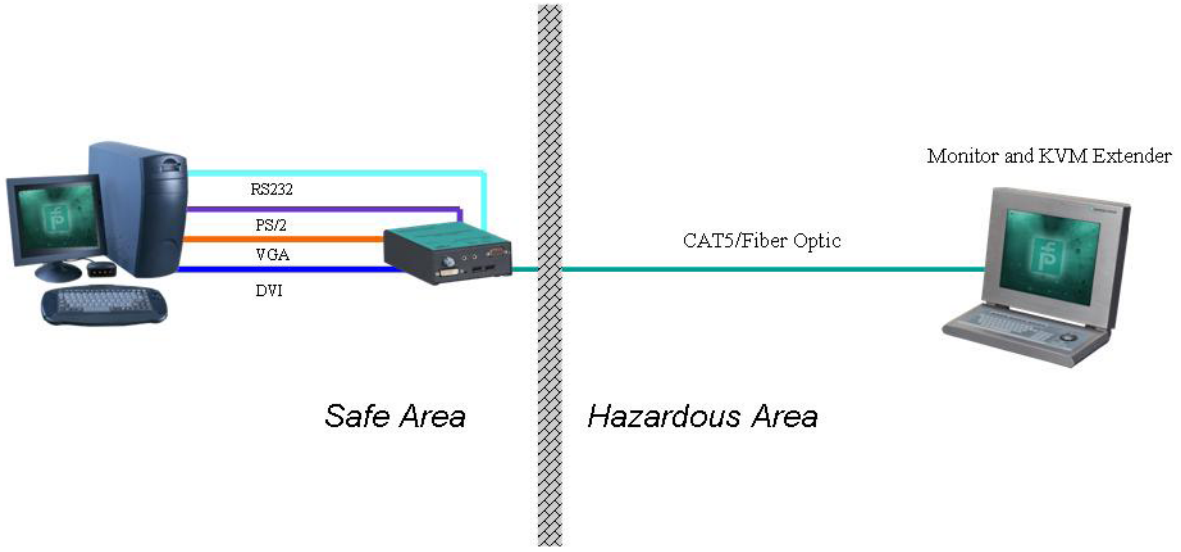
KVM system topology



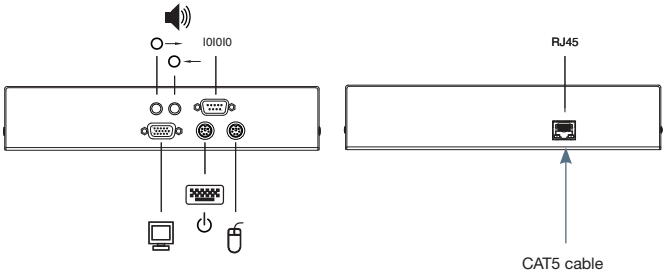
KM900 touch screen interface

The KM900 Series can be ordered with or without a touch screen option. Touch screens are available as a 5-wire resistive touch, or a 5-wire hardened resistive touch screen. **Standard interface is via RS232/serial connection on KVM. **Touch driver must also be installed on host PC.*** Touch driver can be installed from supplied CD, or downloaded from the ELO website: ***http://www.elotouch.com/Support/Downloads/dnld.asp***

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

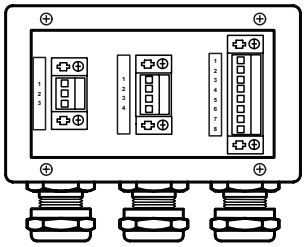
VGA KVM

Using a VGA cable, connect the video output of host PC to Video Input of local KVM unit (transmitter). Note that host PC must have VGA output. If using keyboard/mouse combination, connect the PS2 cables from the host PC to the PS2 ports on the local KVM unit. This allows keyboard and mouse connection to host PC. Connect the serial port on the local KVM unit to the host PC to enable the touch screen interface. ****Touch driver must also 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 CAT5 cable to connect the local unit to the KVM monitor unit. The VGA has manual skew adjustment. Skew adjustment can only be done via keyboard connection. If the KM91x was ordered without a keyboard, then a temporary connection of an external keyboard to the PS2 connector located inside the rear junction box will be required. The PS2 connectors are located next to the CAT5 and power. See appendix for image calibration procedure.

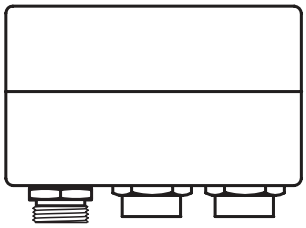


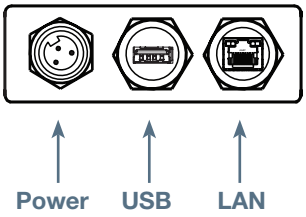
RM/PC connection

SP7/SS7 X1 X2 X3



SP5/SS5





Power

X1 Terminals	AC	DC
1.1	L	+
1.2	N	–
1.3	GND	GND

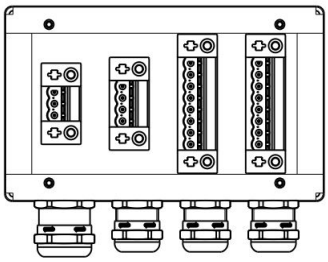
USB

X2 Terminals	Description
2.1	VCC RD
2.2	D + GN
2.3	D – WH
2.4	GND BK

LAN

X3 Terminals	TIA/EIA T568A Description
3.1	BI_DA + WH/GN
3.2	BI_DA – GN
3.3	BI_DB + WH/OR
3.4	BI_DC + BU
3.5	BI_DC – WH/BU
3.6	BI_DB – OR
3.7	BI_DD + WH/BN
3.8	BI_DD – BN

SP7/SS7
Dual LAN X1 X2 X3 X4



Power

X1 Terminals	AC	DC
1.1	L	+
1.2	N	–
1.3	GND	GND

USB

X2 Terminals	Description
2.1	VCC RD
2.2	D + GN
2.3	D – WH
2.4	GND BK

LAN1

X3 Terminals	TIA/EIA T568A Description
3.1	BI_DA + WH/GN
3.2	BI_DA – GN
3.3	BI_DB + WH/OR
3.4	BI_DC + BU
3.5	BI_DC – WH/BU
3.6	BI_DB – OR
3.7	BI_DD + WH/BN
3.8	BI_DD – BN

LAN2

X4 Terminals	TIA/EIA T568A Description
4.1	BI_DA + WH/GN
4.2	BI_DA – GN
4.3	BI_DB + WH/OR
4.4	BI_DC + BU
4.5	BI_DC – WH/BU
4.6	BI_DB – OR
4.7	BI_DD + WH/BN
4.8	BI_DD – BN

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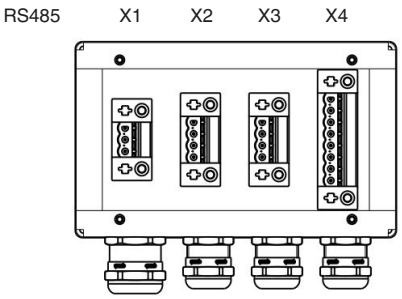


Power

X1 Terminals	AC	DC
1.1	L	+
1.2	N	–
1.3	GND	GND

USB

X2 Terminals	Description
2.1	VCC RD
2.2	D + GN
2.3	D – WH
2.4	GND BK

RS485

X3 Terminals	Description
3.1	D +
3.2	D -
3.3	GND
3.4	N/C

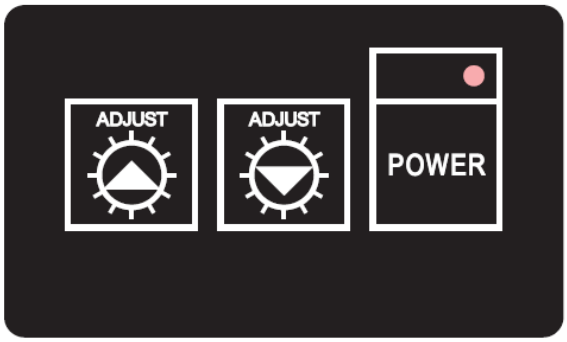
Use appropriate RS485 cable

LAN

X4 Terminals	TIA/EIA T568A Description
4.1	BI_DA + WH/GN
4.2	BI_DA – GN
4.3	BI_DB + WH/OR
4.4	BI_DC + BU
4.5	BI_DC – WH/BU
4.6	BI_DB – OR
4.7	BI_DD + WH/BN
4.8	BI_DD – BN

RM/PC membrane switch

Located on the rear side of the enclosure is a three-button membrane switch. The first two buttons marked with up and down arrows control brightness. They give you direct control of the level of brightness of the LCD screen. The third button for power allows you to safely turn power on or power down the unit. Pushing this button while Windows is running initiates a safe shutdown sequence of the operating system.



RM/PC interface Connection

USB CONNECTION

USB connection is made via removable terminal blocks inside the rear junction box. Feed the USB cable through the M20 cable gland, and terminate the wiring to the terminal block as shown in the connection drawing on the following page. Once wiring is connected, tighten the cable gland to secure the cable.

ETHERNET CONNECTION

CAT5 connection is made via a removable terminal block inside the rear of the junction box.

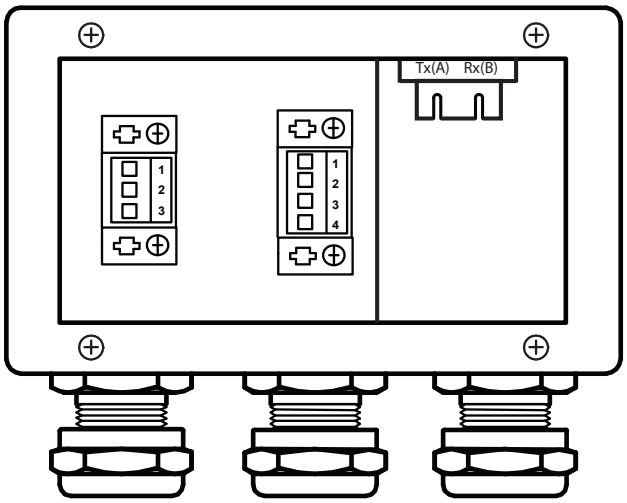
Fiber Optic LAN Connection (RM900 only)

The RM900 has the option for a fiber optic LAN interface as an alternative to standard copper (CAT5/6/6e) connection. Shown in the picture below, the fiber connection is duplex SC-Type for multimode fiber communication. Connect fiber cable (62.5/125 um) to duplex SC connector labled A (Tx) and B (Rx). Maximum transmit distance is 4km.

SC MULTIMODE

Tx: A

Rx: B



Additional external media converter is available to convert fiber back to copper LAN. See part number below:

Model Number	Part Number
SL-2ES-2SC	547365

Installation and commissioning

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 VisuNet IND 900 Series is designed for operation in confined spaces.

The cooling of VisuNet IND 900 Series does not require active components like a CPU fan or water cooling systems. For that reason, there are no ventilation slots in the housing.

To avoid overheating during operation, follow the field installation suggestions below:

- As the heat will dissipate via the housing of the VisuNet 900, provide sufficient air circulation.
- Keep the ambient temperature below the specified maximum value.

MOUNTING THE VISUNET IND 900 SERIES

1. On the back of the housing, screw the VisuNet IND 900 Series with four countersunk head screws (M5) on the VESA adapter.
2. Feed the power cable and fiber optic/CAT5 cable though the cable glands on the rear junction box.

OPERATION

VisuNet KM900 will display images from host PC once power and fiber/CAT5 cable are connected. Touch screen can be used as active mouse control as an alternative to touchpad mouse on keyboard.

For the RM/PC 900, once power line is connected to junction box on rear side of unit, the power button can be turned on to initiate Windows startup. Please reference our software manual, included on this disc, for operation and configuration of RM900 and PC900 systems.

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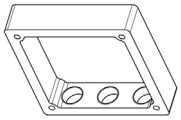
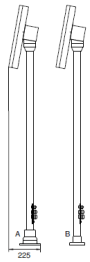
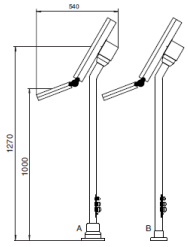
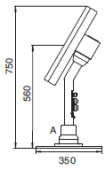
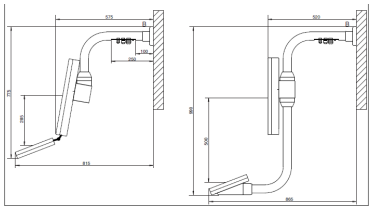
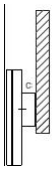
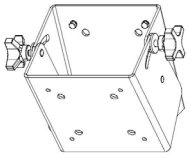
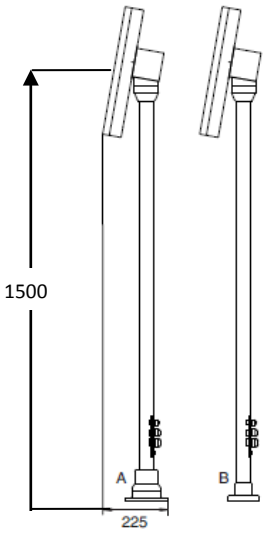
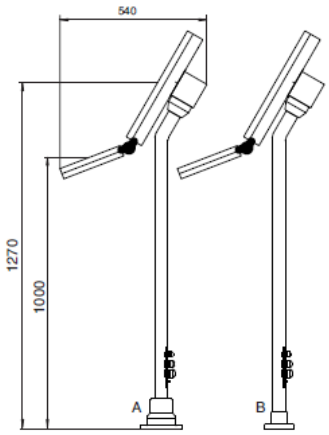
Mounting options for VisuNet IND 900 Series

	Model Number	Description
	**VESA CABLE FEEDTHROUGH**	Adaptor plate with 3 x M20 cable glands for installing cables through pedestal
	**PEDESTAL 1-150-1V-NP-G-T-304** (340° turnable) **PEDESTAL 1-150-1V-NP-G-F-304** (fix mounted)	Pedestal inclination of monitor 10°
	**PEDESTAL1-130-3V-NP-G-T-304** (340° turnable) **PEDESTAL1-130-3V-NP-G-F-304** (fix mounted)	Pedestal, inclination of monitor 30° (Optional with adjustable keyboard at monitor housing)
	**PEDESTAL1-56-3V-NP-G-T-304** (340° turnable)	Pedestal for table Pedestal, inclination of monitor 30° With mounting plate 350 x 350 mm
	**WALL-ARM1-55-1V-NT-G-T-304** (350° turnable) **WALL-ARM1-55-1V-NT-G-F-304** (fix mounted)	Wall arm inclination of monitor 10°
	**WALL-BRACKET5**	Wall mount bracket
	**VESA TILT MOUNT**	Wall mount bracket with +/- 30° tilt

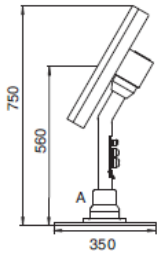
Dimensions



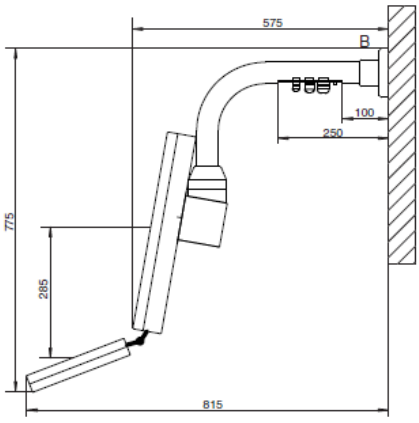
PEDESTAL1-150-1V-NP-G-x-304



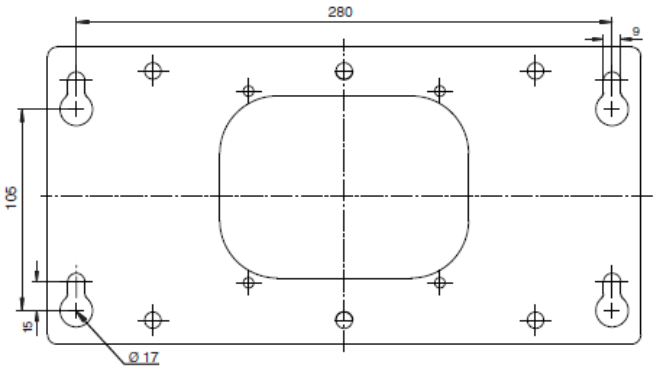
PEDESTAL1-130-3V-NP-G-x-304



PEDESTAL1-156-3V-NP-G-T-304



WALL-ARM1-155-1V-NT-G-x-304



WALL-BRACKET5

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Included in delivery

Pedestal for VisuNet IND
Pedestal with 3 mounted cable glands and a wire pull which helps to pull the cable through the pedestal
3 caps for unused cable glands
4 countersunk screw with hexagon socket M5 x 16 to mount the VisuNet GMP on the pedestal 1 gasket
For pedestal for table PEDESTAL1-56-3V-NP-G-T-304 mounting plate 350 x 350 mm screws M8 x 20 lock washer

Tools required for assembly

Allen key 3 mm
* fork wrench for cable glands
* 4 screws M8 for floor mount (Choose the appropriate screws depending on type of floor)
* 2 people

Choose the appropriate wrench size to tighten the cable glands.

	Wrench size	Cable diameter	Torque
M 16	20	4.5 mm – 10 mm	10 Nm
M 20	24	7 mm – 13 mm	12 Nm
M 25	29	9 mm – 17 mm	12 Nm

1. Mounting a pedestal on the ground

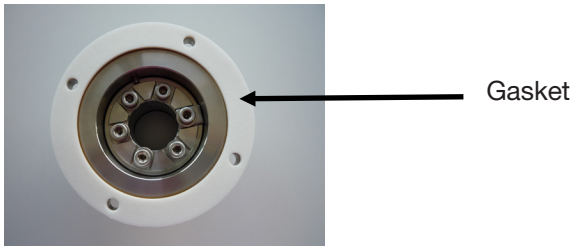
Find four M8 screws for floor mount.

Four M8 screws are used to mount the pedestal to the floor.

Use the enclosed gasket.

Place the enclosed gasket before attaching the pedestal at the base.

Pedestal turnable



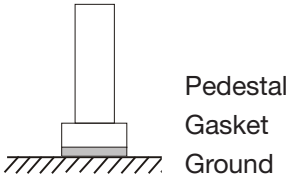
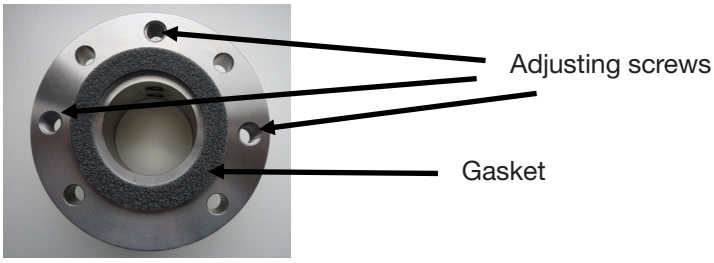


Fig. 1: Pedestal view from the bottom

Pedestal fix mounted



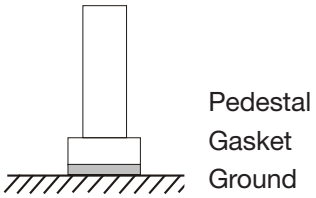
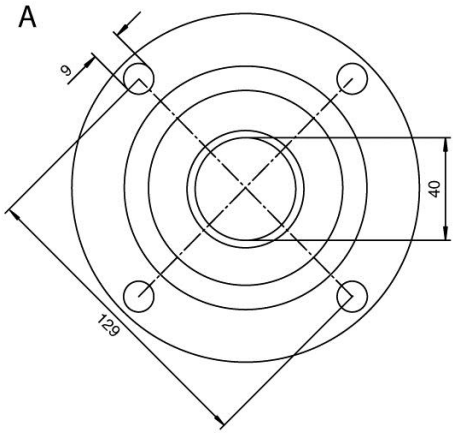


Fig. 2: Wall arm view from the bottom

1.1 Floor mounting, turnable



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Angle of turn

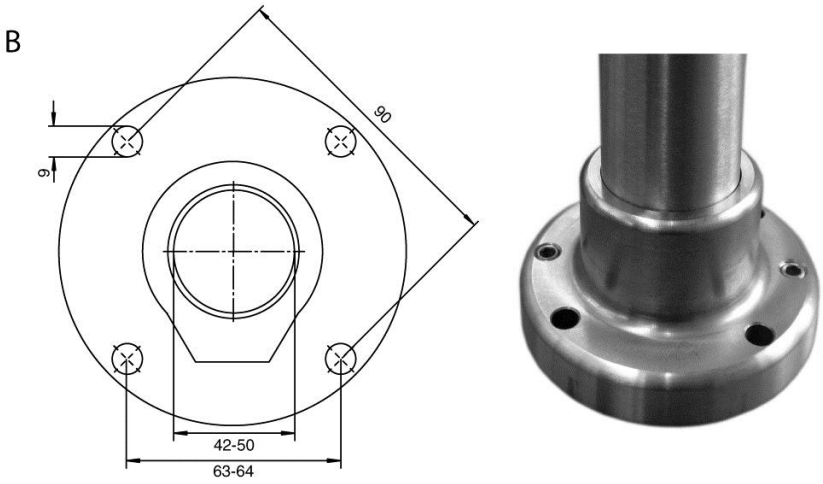
The first stop plate is premounted and provides a max. rotation of 330°.
With the second enclosed stop plate, choose the amount of rotation in 60° increments.

(This is accomplished by placing a stop plate under the appropriate screw in relation to the stop screw.)

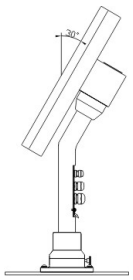
Premounted stop plate

Fig. 3: Pedestal view from the bottom

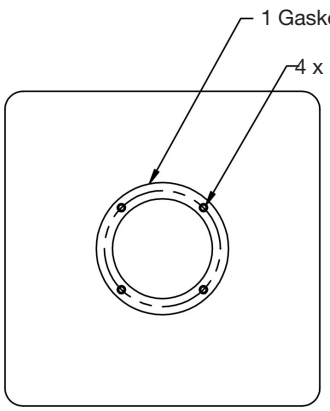
1.2 Floor mounting, fixed



1.3 Pedestal for table



PEDESTAL1-56-3V-NP-G-T-304
340°C turnable



Mounting plate

Place the enclosed gasket before attaching the pedestal at the mounting plate with the screws and lock washer.

2. Connect all cables

VisuNet IND
This requires two people.
Correctly connect all cables at the VisuNet GMP. (See VisuNet GMP manual, *Interfaces and connections*) One person holds the VisuNet GMP while the other person connects the cables.

3. Mounting the VisuNet GMP on pedestal

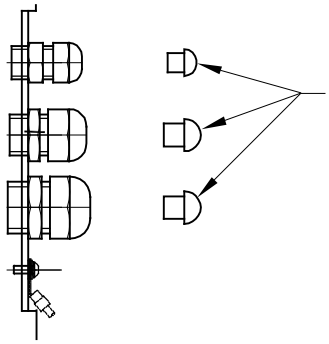
VisuNet GMP
Torque 5 - 6 Nm
4 countersunk screws with hexagon socket M5 x 16
Allen Key 3 mm

4. Close the cable glands

Screw the cable glands with a fork wrench.

	Wrench size	Cable diameter	Torque
M 16	20	4.5 mm – 10 mm	10 Nm
M 20	24	7 mm – 13 mm	12 Nm
M 25	29	9 mm – 17 mm	12 Nm

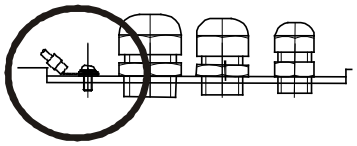
Cap the unused cable glands with a cap. Ensure the order of the mounting steps 1 to 3.



Note:
IP protection is ensured only if either a cable is run or a cap is put on.

1.) Lightly tighten the cable gland.
2.) Put the caps in.
3.) Firmly tighten the cable gland.

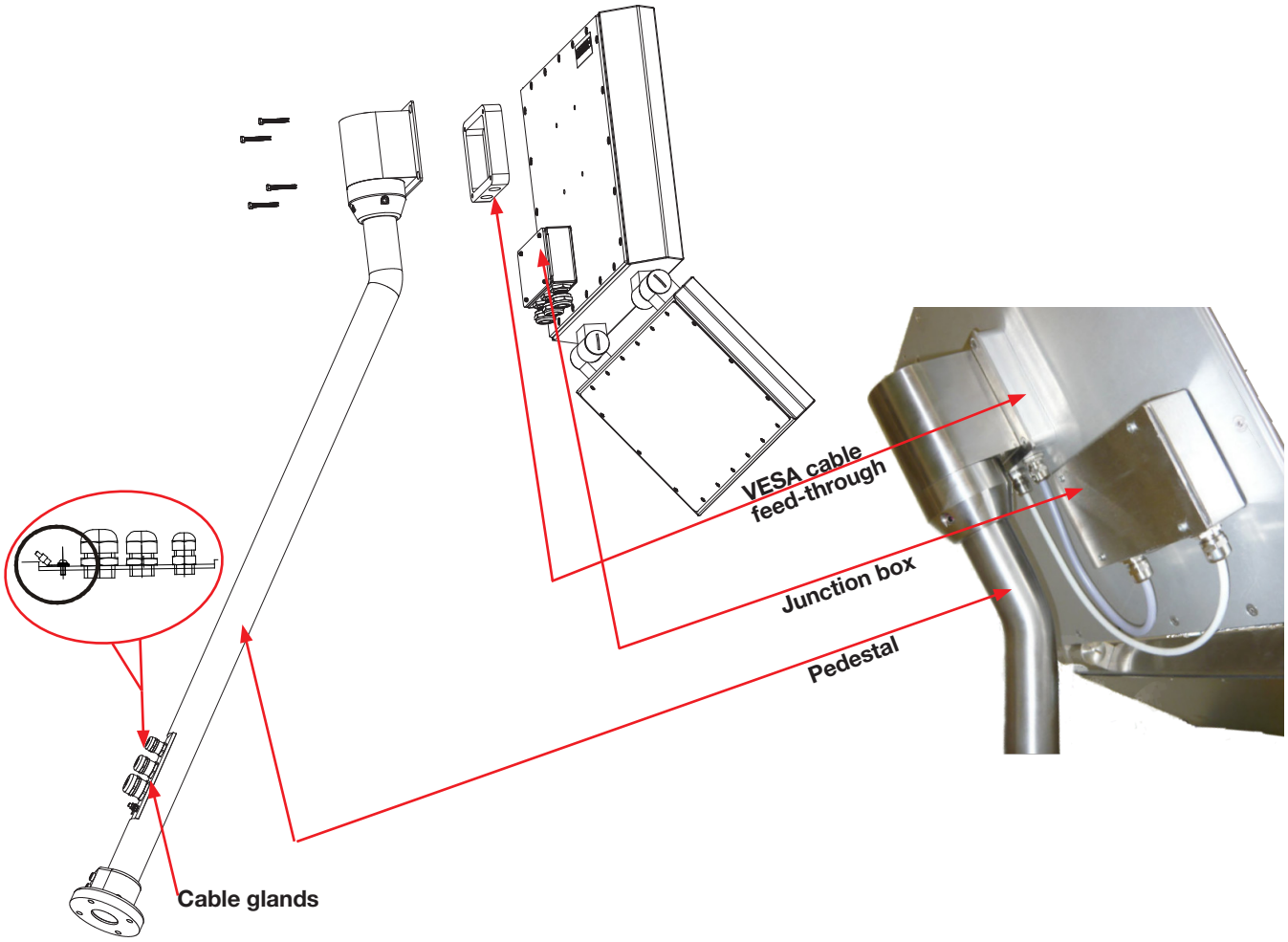
5. Grounding at pedestal



Pepperl+Fuchs recommends that you use a cable with a core cross section of 4 mm² (min.) for grounding.

6. VESA cable feed-through mounting

1. Using a wire pull, run the cable into the cable gland at the bottom of the pedestal. Pull cable through VESA opening of pedestal. Do not tighten cable glands yet.
2. Route cable through the cable gland of the VESA CABLE FEED-THROUGH as shown in the picture.
3. Run enough cable through the cable gland so you have enough length to terminate to junction box as shown in the picture. Do not tighten cable gland yet.
4. Using M5 x 40 mm screws, attach the 900 series housing, VESA CABLE FEED-THROUGH adaptor, and pedestal together as shown in the picture.
5. Terminate cable to junction box through cable glands located on rear side of 900 series housing.
6. Once cables are in place and terminated, tighten cable glands using torque force as shown on previous page.



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

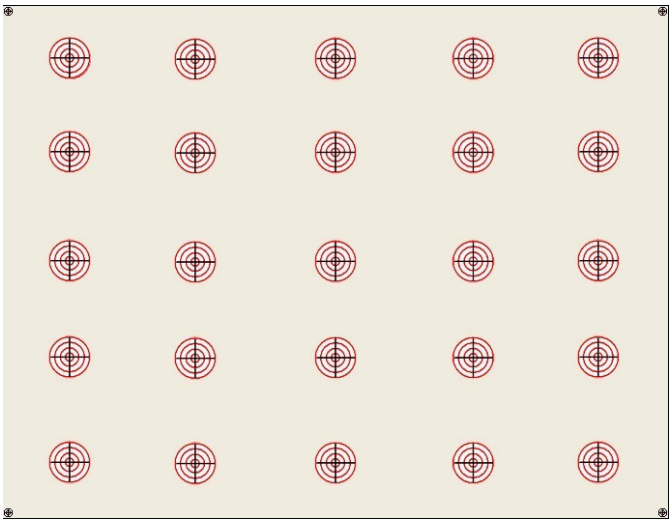
The VisuNet IND touch screen is factory-calibrated and uses factory installed Elo touch screen software. Calibration/Alignment of the newly installed touch screen should not be necessary.

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.

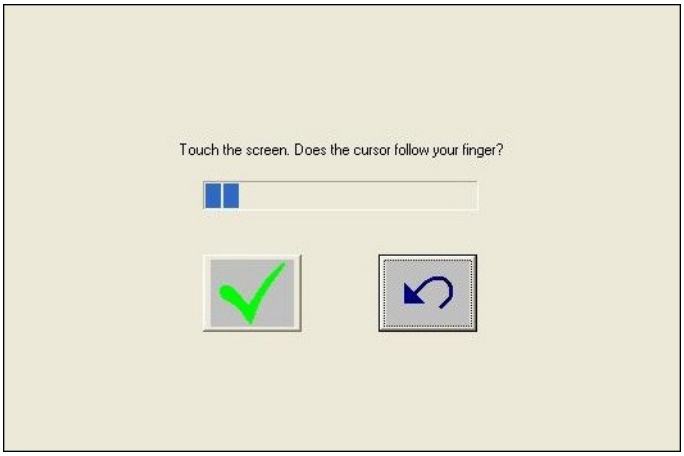
There are 29 calibration target points: 25 main screen targets and four (4) small corner targets. The figure shows the pattern for the 5 x 5 main targets and four (4) corner targets.



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 the VGA KVM

Power the local unit 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. Perform video adjustments 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 commands.

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 unit's 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 to indicate that the unit is in the command mode. The keyboard status LEDs (Num Lock, Caps Lock, and Scroll Lock) will flash to indicate 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 saves all configuration changes made and exits 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 exits the command mode without saving any configuration changes.

Select Channel 1 – [1]
Pressing 1 while in the command mode selects channel 1. 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 m to 375 m. After finding the best setting, you can fine tune the HF and LF equalization. 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 selected 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 ns 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 ns 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 ns 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 ns and 19 ns.

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

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

Reset EQ values – [L-Ctrl] + [End]
Issuing this command resets 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.

Decrease LF EQ (Course) – [L] + [Dn Arrow]
Use the Decrease LF EQ adjustment along with the Increase LF EQ to obtain the sharpest image.

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

Decrease LF EQ (Fine) – [L] + [L-Arrow]
Use the Decrease LF EQ adjustment along with the Increase LF EQ to obtain the sharpest image.

Increase HF EQ (Course) – [H] + [Up Arrow]
Use the Increase HF EQ adjustment to sharpen the image.

Decrease HF EQ (Course) – [H] + [Dn Arrow]
Use the Decrease HF EQ adjustment along with the Increase LF EQ to obtain the sharpest image.

Increase HF EQ (Fine) – [H] + [R-Arrow]
Use the Increase HF EQ adjustment to sharpen an image.

Decrease HF EQ (Fine) – [H] + [L-Arrow]
Use the Decrease HF EQ adjustment along with the Increase LF EQ to obtain the sharpest image.

Reset keyboard and mouse – [F1]
Pressing the [F1] key while in the command mode resets the keyboard and mouse, then exits the command mode. Use this command if the keyboard or mouse lock up or the mouse does not initialize properly.

Send NULL mouse byte – [F3]
Pressing the [F3] key while in the command mode sends a NULL byte to the system and then exits the command mode. Use this command to resynchronize an out-of-sync mouse. You may need to issue this command several times to resync the mouse.

Reset to factory defaults – [L-Ctrl] + [F9]
The Reset to factory default command resets the HF and LF equalization values, all color delay values, and configurations for all channels to the original factory defaults, and exits the command mode.

Toggle unit private mode – [Scroll Lock]
SK-KVM-XXX-NR models have a private mode available which can inhibit the transmitter or receiver unit. When the transmitter or receiver unit issues this command, it blanks the monitor and prevents the other unit from being used until the private mode command is issued again. To indicate that a unit is in the private mode, the scroll lock LED will slowly flash. To cancel the private mode, enter the Command Mode and press the Scroll Lock key again.

Adjusting the video

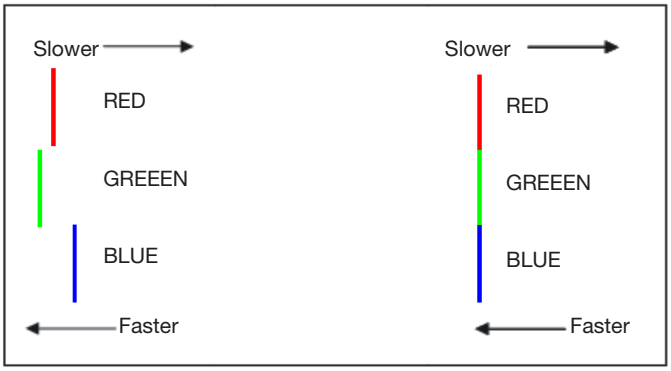
All video adjustments are performed from the receiver unit. Make sure all connections are in place and the video from the computer(s) connected to the transmitter unit are powered up and operating properly.

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]). Next, select a channel to adjust [1, 2, 3, 4, or 0). 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 in the figure below.



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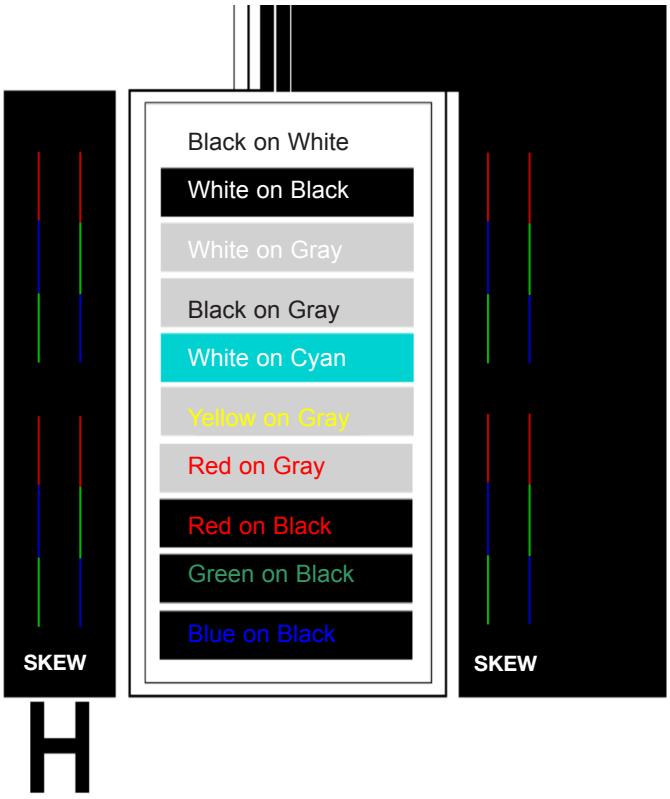

To begin adjusting the LF and HF equalization, display the text card as shown in the figure above. Observe the “H” in the lower left corner of the test card. Compare it with the example shown in the figure below and adjust the LF or HF equalization to obtain sharp, clean image edges.

LF too low
Adjust-[L] + [Up Arrow]

LF too high
Adjust-[L] + [Down Arrow]

HF too low
Adjust-[H] + [Up Arrow]

HF too high
Adjust-[H] + [Down Arrow]

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 1 will light (not blink). When you are adjusting the video, keyboard commands are directed to the SK-KVM-XXX-NR receiver unit. Mouse activity temporarily halts until you exit the command mode. When you select a channel to adjust the video, the status LEDs on the keyboard blink to indicate which channel is selected. (See the *Keyboard Commands* table.)

Troubleshooting

Troubleshooting - VGA KVM

The troubleshooting section is used as a guide to understanding the capabilities of the units and for general troubleshooting.

Image is not sharp / smeared

- Improper video equalization adjustment.
- Check CATx cable connections.
- If you are using an LCD panel, adjust the panel's clock and phase.

Separated colors / colored borders on text and icons

- Improper skew settings, adjust color delays.
- Check CATx cable connections.

No video on receiver monitor

- No power applied to transmitter unit.
- Check keyboard connection on transmitter unit, local unit power is obtained from the host PC keyboard connection.
- CPU's keyboard port does not supply adequate power for the local unit. Use an external 5 V power adapter.

Monitor goes blank for a few seconds

- Check CATx cable routing to ensure it is not routed near power lines or other power sources that can cause interference.
- Check the system grounding.

Incorrect graphic mode on boot-up

- If the CPU's graphic card supports VESA DDC, configure the graphic driver for the exact make and model of the video monitor. The KM900 series does not support plug-and-play (DDC) monitor selections.

Video is unstable / excess jitter

- If you are using an LCD panel, adjust the panel's clock and phase.
- Power off and on the receiver unit.

Only video is required, but no picture appears

- The probable cause is that power is not being applied to the local unit. The local unit obtains its power from the CPU's keyboard port. A keyboard cable must be connected from the local unit to the CPU even if no keyboard is required. A supplementary power supply that connects to the local unit's keyboard connector is available.

System does not detect a PS/2 mouse

- Keyboard and mouse cables reversed on the local unit.
- Cable is loose; reseat mouse cable on the host PC and the local unit.
- Ensure that the keyboard cable to the local unit is connected to provide adequate power to the local unit.
- If you are connecting the local unit to a host PC with power applied, connect the mouse cable to the host PC before you connect the keyboard cable to ensure the mouse is correctly detected.
- Reboot PC.

Keyboard error on boot-up

- Press [F1] or [Esc]. If this corrects the problem, modify the BIOS setting to disable keyboard testing during boot-up.

Serial device does not function

- Serial cable loose or defective.
- Flow control incorrectly set on unit or host PC.
- Connect serial device directly to the host PC's serial port and check to determine if the problem is a PC or KVM problem.

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Troubleshooting - DVI KVM

There isn't a picture

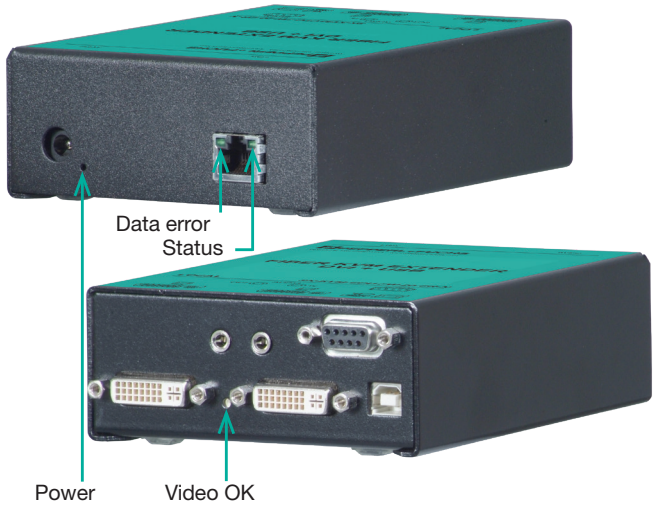
- Check the power supply connection at the local unit. Is the Power (Red LED) at the local unit illuminated? If not, the internal power supply may be damaged or there may be an internal error.
- Check the power supply connection at the remote unit. Is the Power (Red LED) at the remote unit illuminated? If not, the internal power supply may be damaged or there may be an internal error.
- Check that the interconnection cable is connected at the local unit and the remote unit. Is the Link Status LED illuminated? If not, there may be a problem with the interconnection cable:
- Are there errors through data transmission over cable (cable too long, too high attenuation, or too much EMI interference)? Is the Data Error LED illuminated or blinking? If yes, check cable length and environment.
- Video OK, LED is dark: CPU does not provide a video signal – Check the graphic card settings. Try connecting a monitor to the local output to see whether there is a signal or not.

Keyboard

The PC boots fine with no error messages, but the keyboard does not work.

- Wrong cable plugged in, keyboard and mouse cables reversed.
- Try a different model of keyboard. If the new keyboard works then the original one may be incompatible.

Check that the interconnection cable is connected at the local unit and the remote unit.



LED indicators

Power (Red)

- Off – No power applied, device not ready
- On – Power applied, device ready

Data Error (Green)

- Off - No errors, device ready
- Blinking / On – Transmitter / Receiver communication not established, cable to long, attenuation to high, excess EMI interference

Link Status (Green)

- Blinking – No CATx cable connection detected
- On – transmitter / receiver communication established, device ready

Video OK (Green)

- Off – No video signal detected
- On – Video signal detected, device ready

NOTE: The USB models support only USB keyboards and mice. Other USB devices such as touch screen, graphic tablets, barcode readers or similar devices are supported but not guaranteed. Scanners, web cams, USB drives, etc., are not supported. The KVM (USB models) support only two USB devices at the same time.

Notes

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