Benutzerhandbuch/ User's Manual

19" Industrial LCD Monitor KFM19_e

User's Manual
Version 1.10

Kontron Embedded Computers GmbH

0-0096-3279

kontron

Contents

Introduction

Kontron Embedded Computers would like to point out that the information contained in this manual may be subject to technical changes, particularly as a result of continuous product upgrades.

The attached documentation does not entail any guarantee on the part of Kontron Embedded Computers with respect to technical processes described in the manual or any product characteristics set out in the manual. Kontron Embedded Computers does not accept any liability for any printing errors or other inaccuracies in the manual unless it can be proven that Kontron Embedded Computers is aware of such errors or inaccuracies or that Kontron Embedded Computers is unaware of these as a result of gross negligence and Kontron Embedded Computers has failed to eliminate these errors or inaccuracies for this reason. Kontron Embedded Computers expressly informs the user that this manual only contains a general description of technical processes and instructions which may not be applicable in every individual case. In cases of doubt, please contact Kontron Embedded Computers.
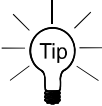
Symbols used in this Manual

Symbol   **Meaning**

This symbol indicates the danger of injury to the user or the risk of damage to the product if the corresponding warning notices are not observed.

This symbol indicates that the product or parts thereof may be damaged if the corresponding warning notices are not observed.

This symbol indicates general information about the product and the user manual.

This symbol precedes helpful hints and tips for daily use.

Important Instructions

This chapter contains instructions which must be observed when using your industrial LCD monitor KFM19_e.

The manufacturer's instructions provide useful information on your industrial LCD monitor KFM19_e.

Note on the Warranty

Due to their limited service life, parts which, by their nature, are especially subject to wear (wearing parts) are not included in the guarantee beyond the legal stipulations. This applies to the display backlighting, for example.

Exclusion of Accident Liability Obligation

Kontron Embedded Computers shall be exempted from the statutory accident liability obligation if the user fails to observe the safety instructions.

Liability Limitation / Exemption from the Warranty Obligation

In the event of damage to the device caused by failure to observe the hints in this manual and eventually on the device (especially the safety instructions), Kontron Embedded Computers shall not be required to honor the warranty even during the warranty period and shall be exempted from the statutory accident liability obligation.

⚠ **Safety Instructions**

Please read this section carefully and observe the instructions for your own safety and correct use of the device.

This chapter also contains information on approval and interference suppression of your device.

Please observe the warnings and instructions on the device and in the manual.

The industrial LCD monitor KFM19_e has been built and tested by Kontron Embedded Computers in accordance with EN 60950/VDE 0805 and left the company in a perfectly safe condition.

In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this manual.

❏ The device must be used in accordance with the instructions for use.

❏ The electrical installations in the room must correspond to the requirements of the respective regulations.

❏ Take care that there are no cables, particularly power cables, in areas where persons can trip over them.

❏ Do not use a power cable in sockets shared by a number of other power consumers. Do not use an extension cable.

❏ Only use the power cord supplied.

❏ The unit is only completely disconnected from the power source when the power cord is disconnected from the power source. Therefore the power cord and its connectors must always remain easily accessible.

❏ Do not place the device in direct sunlight, near heat sources or in a damp place. Make sure the device has adequate ventilation.

❏ Only devices and components which fulfill the requirements of a SELV circuit (Safety Extra Low Voltage) in accordance with EN 60950 may be connected to the interfaces of the system.

❏ All plugs on the connection cables must be screwed or locked to the housing.

❏ The device is designed to be used in vertical position.

❏ Repairs may only be carried out by a person authorized by Kontron Embedded Computers.

❏ Maintenance or repair on the open device may only be carried out by qualified personnel authorized by Kontron Embedded Computers familiar with the associated dangers.

❏ It is not allows to open the device.

❏ Only approved original accessories approved by Kontron Embedded Computers may be used.

❏ It must be assumed that safe operation is no longer possible,
  • if the device has visible damage or
  • if the device no longer functions.
  In these cases the device must be shut down and secured against unintentional operation.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Electromagnetic Compatibility

This product has been designed for industrial, commercial and office use, including small business use. The most recent version of the EMC guidelines (EMC Rules 89/336/EEC) and/or the German EMC laws apply. If the user modifies and/or adds to the equipment (e.g. installation of add-on cards), the prerequisites for the CE conformity declaration (safety requirements) may no longer apply.

Scope of Delivery

❏ Industrial LCD monitor KFM19_e (A or B)

❏ This user manual for the industrial LCD monitor KFM19_e

❏ KFM - OSD-Menu - Description

❏ AC power cord or DC Phoenix plug (depending on the ordered KFM19_e)

❏ VGA cable connector (2 m)

❏ 8x M4 nuts (for panelmount version only)

Optional Parts

❏ USB or serial (COM) touchscreen cable connector depending on the ordered
touchscreen terminal configuration (optional)
Available lengths for:
USB cable connector (Type A, male - Type A, male): 2m, 5m
COM (RS232) cable connector: 2 m, 5 m, 10 m

❏ VGA cable connector
Available lengths: 2 m, 5 m, 10 m

❏ DVI cable connector
Available lengths: 2 m, 5 m

❏ CD-ROM with the installation software and the driver for touchscreen (if the
KFM19_e is ordered with the optional touchscreen)

Type Labels and Product Identification

The type label of your monitor KFM19_e is attached at the back of the device.

Type label	Product identification
KFM19_e - A	Industrial LCD Monitor KFM19_e with AC power supply unit
KFM19_e - B	Industrial LCD Monitor KFM19_e with DC power supply unit

Product Description

The KFM19_e is an industrial LCD monitor designed for high-performance industrial applications. The solid type of enclosure offers to the monitor a mechanical stability. KFM19_e is therefore proper for industrial use. Excellent image representation, simple menu-driven handling and plug & play ability round off the qualities of this monitor.

The built-in display is a 19" TFT SXGA display with 1280 x 1024 resolution and 300 cd/m^2 luminance (brightness). The protection pane built in front of the display is made of special glass and protects the display from destruction of mechanical manner, for example get dirty or scratches at the display surface. The representation quality of the display is optimised also by the antireflection property of the protection pane.

The monitor can be optionally equipped with a touchscreen.

The KFM19_e comes with VGA (analog), DVI (digital), S-Video (analog), Composite-video (analog) signal inputs and provides therewith compatibility with the existing and the future computer-generation.

The KFM19_e can be alternatively equipped with an AC or a DC power supply unit. The supply voltage range is indicated on the type label. The type label is located on the back of the unit.

Fig. 1: KFM_19e – Frontal installed controls and LED indicator (shown as panelmount version)

Fig. 1a: KFM_19e – Laterally installed controls and front side installed LED (shown as panelmount version)

☞ When installing and switching on the monitor, make sure that the air openings at the bottom and upper side of the device (behind the front panel) are not obstructed by objects.

Front Panel

The front plate of the KFM19_e is available alternatively as 19" front plate or in panelmount version.

The 19" front plate version is suitable for the installation of the monitor in 19" industrial cabinets. Therefore are available four mounting holes.

The panelmount version is suitable for the installation of the monitor in an instrument panel or other cabinets. Therefore at the rear side of the front plate are available eight threaded studs.

Depending on the ordered KFM19_e configuration at the front side are located the control elements of the on screen displays (OSD), the "On/Off" button with the "Status LED" (refer to the "Controls and LED Indicator" section), the 19" front plate and the 19" display with the protection pane or touchscreen (optional).

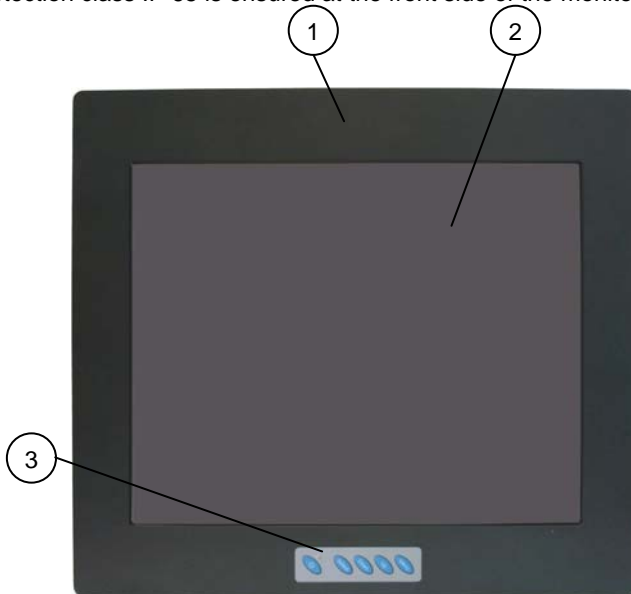The protection class IP 65 is ensured at the front side of the monitor.

Fig. 2: KFM19_e – Front side (shown as panelmount front plate version)

1   Front panel

2   19" display with protection plate or touchscreen (optional)

3   Controls and LED Indicator

Display

The built-in display is a 19" TFT SXGA display with a resolution of 1280 x 1024 and 300 cd/m^2 of luminance (brightness).
In front of the display is installed a glass protection pane with antireflection properties. This protects the display surface from dirt and scratches also. The technical specifications of the built-in display are specified in the "Technical Data" chapter.

Display with Touchscreen

The KFM19_e can be optionally equipped with a resistive touchscreen. The installed touchscreen is a 4-wire resistive touchscreen. The terminal configuration of the touchscreen can alternatively be an USB or a COM interface. The touchscreen is connected by means of supplied cables via the COM (RS232) or USB interface to an external PC with corresponding interface.

The display surface of the KFM19_e is also mechanically protected through the touchscreen. The touchscreen registers contact of a finger or a pen and moves the mouse pointer. This functions only under integration of the necessary software (refer to the "Touchscreen Software Installation" chapter).

You get the corresponding touchscreen driver for your operating system on a storage media (CD-ROM).

☞ Do not use a hard or a pointed object to operate the touchscreen, since it can damage the touchscreen surface.

Controls and LED Indicator

At the front plate are situated the control buttons of the **O**n **S**creen **D**isplay (OSD), the "On/Off" button and the "Status LED".

 The keys of the OSD and the "On/Off" button can be optionally attached to the right side (rear-mounted) of the monitor (refer to Fig. 3a). For this device configuration the "Status LED" is installed at the front side.

Fig. 3: KFM_19e – Controls and LED indicator at the front side
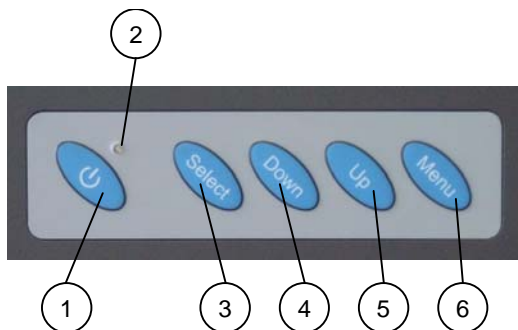
Fig. 3a: KFM_19e – Laterally installed controls

Fig. 4: Controls and LED indicator

1   **On/Off** button

2   Status LED

3   **Select** button

4   **Down** button

5   **Up** button

6   **Menu** button

"On/Off" Button and Status LED

"On/Off" Button   Press this button, in order to switch on or off the monitor KFM19_e.

Even if you switch the monitor off with the "On/Off" button, a standby voltage is further present in the device.

The unit is complete disconnected from the power source, only when the power cord is disconnected from the power source. Therefore the power cord and its connectors must always remain easily accessible.

Status LED (green)   Lights up green when the device is switched on by pressing of the "On/Off" button and a video signal is present at the selected video input.

Prerequisite:
The power cord must be connected to a corresponding power source.

Status LED (orange)   Lights up orange, when the monitor is switched off or no video signal is present at the selected video input.

Prerequisite:
The power cord must be connected to a corresponding power source.
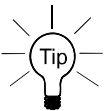
If this LED does not light up after turning on the device, then you must check the main power source and the presence of the video signal at the monitor video signal input.

On Screen Display Buttons

The OSD buttons allow you to select, to scroll, to install in the OSD main menu or OSD submenu (refer to the "On Screen Display (OSD)" chapter.

Left Side

The interfaces and the power plug (AC or DC) are located at the left side of the monitor.
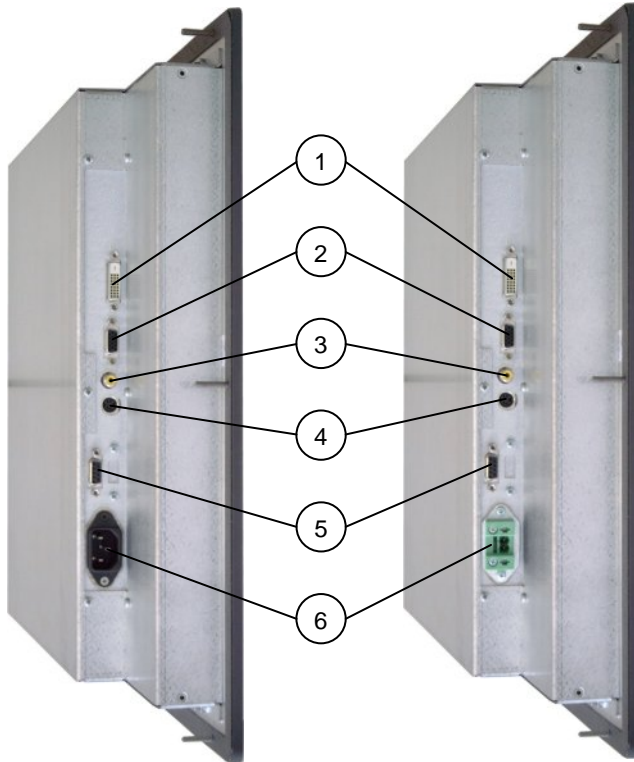
Fig. 5: KFM19_e
Left side (with AC power plug)

Fig. 5a: KFM19_e
Left side (with DC power plug)

1   DVI-D (digital) interface

2   VGA (analog) interface

3   C-Video (analog) interface

4   S-Video (analog) interface

5   Touchscreen terminal (USB or COM) (shows with serial touchscreen interface)

6   AC or DC power plug (depending on the ordered version)

Interfaces

The following interfaces with standard pin assignments are available:

❏ VGA (analog) input

❏ DVI-D (digital) input

❏ S-Video (analog) input

❏ C-Video (Composite Video) (analog) input

❏ USB / COM interface as the touchscreen terminal

$\boxed{i}$ You can connect one corresponding signal source to each video interface at the same time. By means of the OSD Menu function "Select" you can select which of the signal source shall be represented on the display.

VGA Input

The VGA input is a 15-pin D-SUB connector (female), and allows you to connect an analog graphics card using the supplied VGA cable connector. The industrial LCD monitor KFM19_e supports at this interface data transfer with up to a resolution of 1280 x 1024, 85 Hz (SXGA) and Sync-On-Green (SOG).

DVI-D Input

This input is configured as a DVI-D "digital" (female) interface. This interface supports digital data transfer.
The industrial LCD monitor KFM19_e supports at this interface data transfer with up to a resolution of 1280 x 1024 (SXGA).

S-Video Input

The S-Video input is a 4 pin Mini DIN connector (female), and allows you to connect external analog signal sources as e.g. DVD or video player.
The industrial LCD monitor KFM19_e supports at this interface TV pictures format PAL (768 x 576), NTSC (640 x 480) and SECAM.

Composite-Video Input

The Composite-Video input is a cinch connector (yellow, female), and allows you to connect external analog signal sources as e.g. DVD or video player.
The industrial LCD monitor KFM19_e supports at this interface TV pictures format PAL (768 x 576), NTSC (640 x 480) and SECAM.

USB / COM Touchscreen Terminal

i This interface is available (as an USB or serial COM interface) only if the industrial LCD monitor KFM19_e is equipped with touchscreen.

Depending on the ordered configuration of the touchscreen connector this interface is provided as:

❏ USB interface (version 1.1, type A, female) or as

❏ Serial (COM) interface (9-pin D-SUB socket), configured as RS232.

Power Plug

The power plug is an AC or a DC inlet connector (depending on the ordered version) and allows the connection to the corresponding power source via the power cord (only AC cord is supplied).

Rear Side

At the rear side of the KFM19_e are the threaded studs (available only at panelmount front plate version) and the rubber seal.
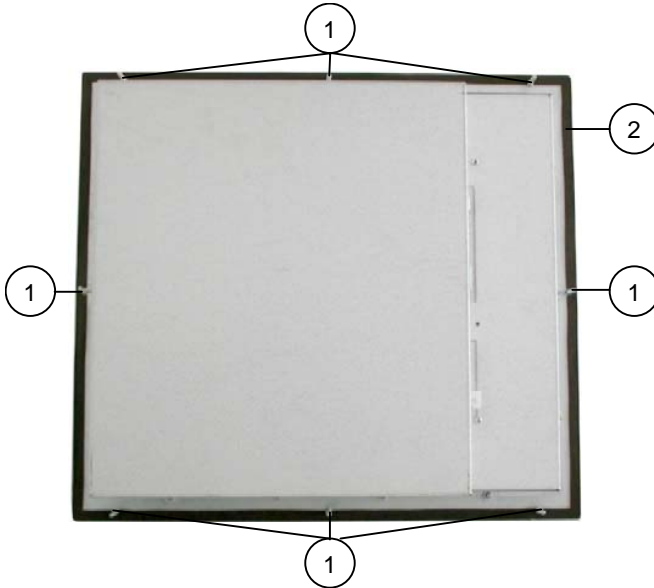
Fig. 6: Rear side of the KFM19_e (shown as panelmount front plate version)

1	Threaded studs metric (available only at panelmount front plate version)
2	Rubber seal

Air Openings

Behind the front plate, at the housings upper and bottom side are the air openings.

Fig. 7: Air openings (top side)

Fig. 8: Air openings (bottom side)

☞   When installing and switching on the monitor, make sure that the air openings at the bottom and upper side of the device (behind the front panel) are not obstructed by objects.

On Screen Display (OSD)

Over the On Screen Display (OSD) can be installed the features, as OSD position and time, brightness, contrast, color, sharpness and others.
Some of these menus have sub-menus.

The push buttons allow you to select, to scroll, to install in the OSD main menu or OSD-submenu.

Operation of the OSD Menu

1. Press <Menu> to display the main-menu.

2. The buttons <Up> and <Down> allows moving between the functions of the main-menu by use of.

3. Press the button <Menu> to choose a main-menu function.

4. The buttons <Up> and <Down> allow moving between the sub-function.

5. Press the button <Menu> to choose a sub menu function.

6. The button <Up> (to increase) and the button <Down> (to decrease) allows the adjustment of the sub-menu values.

7. Press the button <Menu> to choose the sub menu values.

8. To save a new setting, press the button <Menu> of the KFM19_e.

9. Press the button <Select> to leave the sub-menu.

10. Press the button <Select> to leave the main-menu.

The OSD menu and the possible settings are described in the provided "KFM - OSD Menu Description" documentation.

Power Supply

The KFM19_e can be optionally equipped with an AC PSU or a DC PSU.

The supply voltage range is indicated on the type label. The type label is located on the rear of the unit.

System Version	Integrated PSU	Input
KFM19_e - A	AC Power Supply	100 - 240 VAC 50 - 60 Hz max. 0.6 A
KFM19_e - B	DC Power Supply	20 - 34 VDC max. 2.3 A

i

The suffix "-A" on the type label (System Version, KFM19_e-A) of the system stands for the marking of the Kontron-devices, which are equipped with an AC power supply unit.

The suffix "-B" on the type label (System Version, KFM19_e-B) of the system stands for the marking of the Kontron-devices, which are equipped with a DC power supply unit.

Power Cord Connection

☞ Please observe the hints described in the chapter "Safety Instructions".

AC Connection
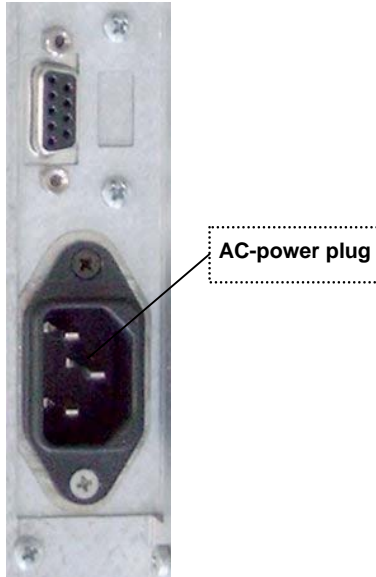
Fig. 9: AC power plug

1. Connect the supplied AC power cord into the system AC power plug.

2. Connect the other end of the AC power cord into a corresponding outlet.

Use the power cord suitable for the power supply in your country.

Do not remove or alter the grounding prong on the power cord. In situations where a two-slot receptacle is present, have it replaced with a properly grounded three-prong grounding type receptacle.

DC Connection

For the DC connection prepare the connecting wires using the supplied Phoenix plug terminal.

☞ The length of the DC connecting wires may not exceed 10 m.

Fig. 10: DC Phoenix connector

Fig. 10a: DC Phoenix connector with plug terminal (supplied)

1. Cut the required length of two isolated wires ($\varnothing$ up to 1.5 mm^2).

2. Strip each end 5 –7 mm.

3. Twist the striped wire ends and tin it with solder.

4. Loosen the two slotted pan head screws of the DC plug terminal far enough so that you can insert the end of the power cord.
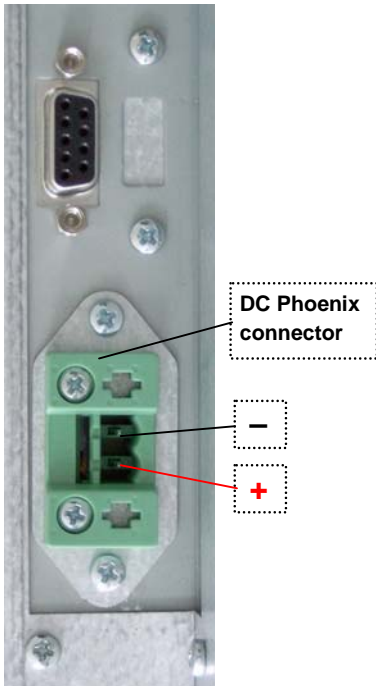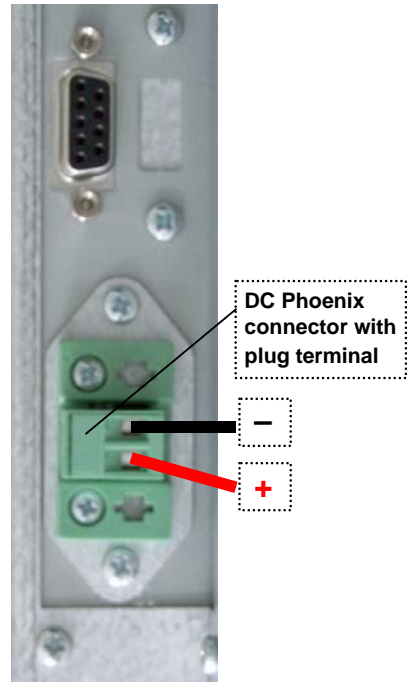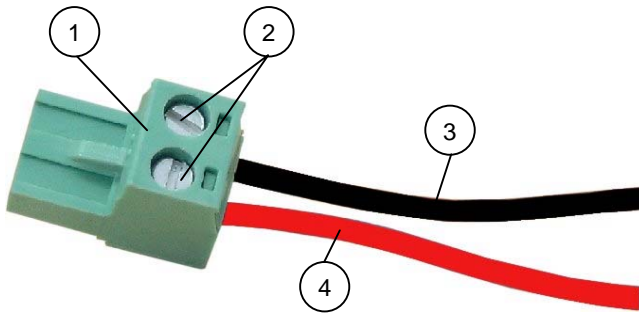

Fig. 11: Phoenix plug terminal with positive and negative voltage wire (example)

1	Phoenix plug terminal	3	Negative voltage wire (black)
2	Slotted pan head screws	4	Positive voltage wire (red)

5. Insert the negative and positive voltage wire into the corresponding clamp of the Phoenix plug terminal. Make sure that you have the right polarity of the connection (see *Fig: 10a*).

6. Fasten the screws to secure the negative and positive voltage wire into the clamps of the plug terminal.

☞ The second end of each wire will be prepared as required for the connection to the DC power supply.

Connect the KFM19_e to the DC power source as follows:

1. Plug the one end of the DC cable connection (Phoenix plug terminal) to the Phoenix plug of the KFM19_e.

2. Connect the other end of the DC cable connector to a corresponding DC power source.

Installation Instructions

☞ Please observe the described hints in the "Safety Instructions" chapter and the specification listed in the "Technical Data" chapter.

Instruction for Mounting

☞ Please take into consideration the needed free space on the interface side, before you install the monitor into an industrial cabinet, an instrument panel or other cabinets.

For detailed information about the available interfaces refer to the section "Interfaces".

Important Instructions!
The installation of the KFM19_e may only be carried out by qualified personnel.

Ensure there is sufficient air circulation around the device when installing the KFM19_e.
The openings for the device cooling (on upper and bottom side) must not be obstructed. Blocked air openings, can cause overheat of the monitor.
When installing KFM19_e into an industrial cabinet, leave at least 5 cm of free space around the unit to prevent the device from possibly overheating!

The 19" industrial cabinet must stand firmly in place.
If further stabilisation is necessary, then bolt the industrial cabinet to the floor or anchor it on the wall.

The voltage feeds must not be overloaded. Adjust the cabling and the external overcharge protection to correspond with the electrical values indicated on the type label.
The type label is located on the left side of the monitor.

Panelmount Version

If you install the panel version of the KFM19_e into an instrument panel or other cabinets, use the eight threaded M4 metric studs on the rear side of the front plate.

For the panel assembly cut a window and pre-drill holes according *Fig. 12*. The monitor must be attached firmly with eight M4 metric nuts.

The contact surface with the rubber seal must be clean and flush.
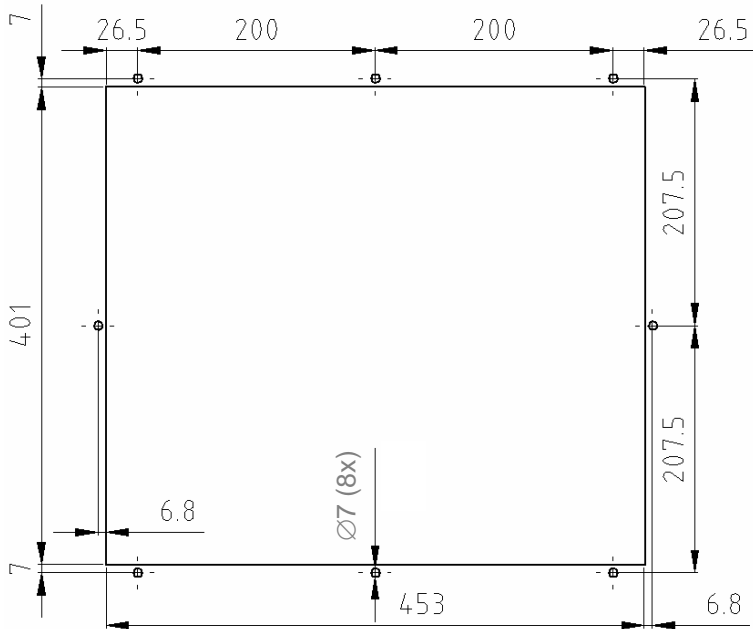
Fig. 12: Hole pattern for the KFM19_e mounting
(all values in mm)

Rackmount Version

If you install the rackmount version of the KFM19_e into a 19" industrial cabinet, use the four mounting holes of the front plate.
The system has a height of 9U and must be secured with four screws in the 19" industrial cabinet.

Monitor Connecting and Turning On

The industrial LCD monitor KFM19_e can be connected to IBM PC systems equipped with corresponding graphics capability.

1. Connect the PC system's video signal output interface to the video signal input of the KFM19_e using the supplied video signal cable (depending on your ordering).

2. If your KFM19_e is equipped with touchscreen (with COM or USB connection) you have to connect the touchscreen to the corresponding interface of the PC system using the supplied touchscreen cable connector.

3. Connect the power cord as described in the "Power Cord Connection" chapter.

4. Push the "On/Off" button to turn on the monitor.

The PC should be set to an appropriate graphics mode that has the same resolution with the LCD panel to have a clear screen image.

The colour representation of the image on each monitor can differ by physically causes and is dependent on the video signal source.
If you prefer another colour temperature or want to adapt the colour representation of images on two monitors, you have to install these features in the OSD menu under "Color".
Execute these settings only after reaching of the full operating temperature of the monitor (approx. 30 minutes).

When the screen is not in use, it must be turned off or the pattern must be frequently changed by a screen saver.
If it displays the same pattern for a long period of time, brightness down or "image sticking" may develop due to the structure of LC-Displays.

Touchscreen Software Installation

The driver for Windows® 2000 / XP operating system for the touchscreen installation is included on the CD-ROM supplied.

Insert the CD-ROM, double-click on "setup.exe" to start the installer. During the installation sequence, some screens will appear ("Welcome", "Select Folder", "Select Destination Directory", "Number of devices").

☞　　　　　　Follow the instructions displayed on the screen and select the type of the connection for the touchscreen controller (serial or USB).

Selecting the Touchscreen Controller

During the installation, the screen for selecting the controller will appear. Select the serial or USB connection of the touch controller, depending on the ordered KFM19_e configuration.

For serial connection, select: [DMC TSC-10 Series, Serial].
For USB connection, select: [DMC TSC-10 Series, USB].

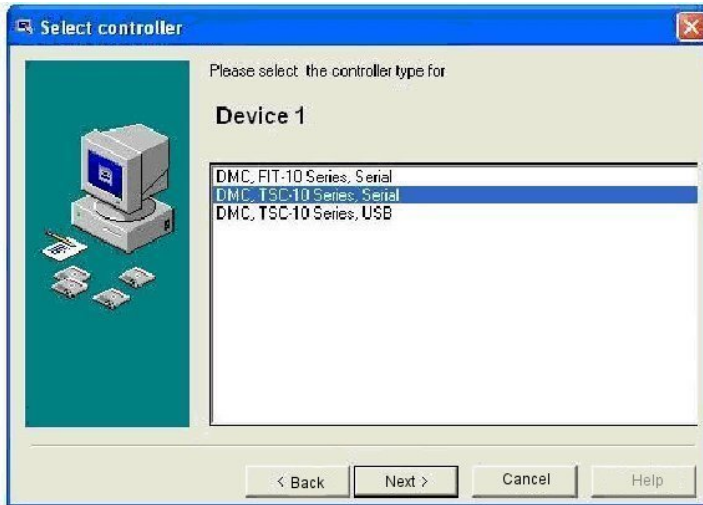*Fig. 13: Selecting the touchscreen controller*

If you choose [DMC TSC-10 Series, Serial], the "Serial port" setting window appears. Choose the corresponding port from popup menu.
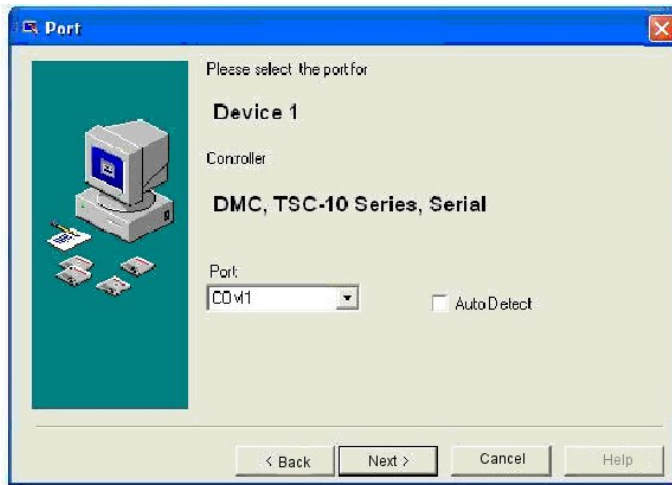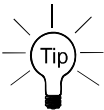

Fig. 14: Selection of the corresponding port

After installing the touchscreen driver, be sure to restart your computer to load and activate the touchscreen driver. Afterwards the calibration of the touchscreen has to be carried out.

Calibrating the Touchscreen

After the installation of the touchscreen driver, you have to calibrate the
touchscreen. The calibration serves two purposes:

❏ Sets the active area of the touchscreen.

❏ Aligns the active area of the touchscreen to the screen's image.

i
Before you calibrate the touchscreen, let the KFM19_e warm up for
30 minutes.

☞
Do not use a hard or a pointed object to operate the touchscreen,
since it can damage the touchscreen surface.

Calibration aligns the active touch-sensitive area of the touchscreen with the
image on the display. Calibration also determines the edges of the screen's image
and locates the center of the touchscreen.

If the touchscreen is not calibrated properly, the active area of the touchscreen
may not be aligned with the screen's image.

To calibrate the touchscreen, open the touchscreen control panel program, and
then select "Calibration". Follow the instructions displayed on the screen. Fore
more information on calibration, refer to the user documentation enclosed on the
supplied CD with the touchscreen driver.

You can adjust the calibration of the touchscreen by running the program at [Start] → [Program] → [UPDD] → [Control setting]. Use your finger to touch the crosshair on the light gray screen. Touching the crosshair lets it appear at another position. Similarly, touch that position too.
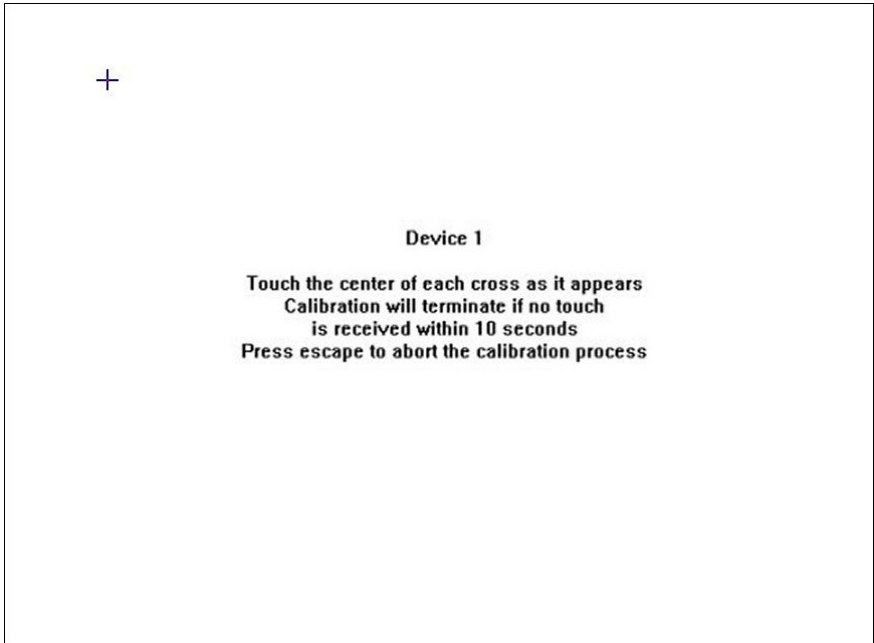
Fig. 15: Touchscreen displaying information

After calibrating the touchscreen you can test the alignment by pressing the "Test**"** button to view the tracking accuracy.

Whenever you change the resolution, you have to calibrate the touchscreen.

Maintenance and Prevention

Kontron Embedded Computers systems only require minimal maintenance and care to keep them operating correctly.

❏ Occasionally wipe the system with a soft dry cloth.

❏ Remove persistent dirt by use of a soft, slightly damp cloth (use only a mild detergent).

☞ Use no abrasives, abrasion sponges, steel wool, metal threads, or solvent like alcohol, acetone, washing gasoline to clean the displays protection pane or the surface of the touchscreen.

Technical Data

TFT LCD Display	Diagonally (Size) active area	19" (376.0 x 301.1 mm)
	Resolution	1280 x 1024
	Pixel Pitch	0.294 mm x 0.294 mm
	Color depth /Colors	16 M colors
	Backlight	4x CCFL
	Brightness	300 cd/m^2
	Viewing angle (r / l / u / d)	85° / 85° / 85° / 85°
	Contrast ratio	700:1
Touchscreen (optional)	Type: 4-wire resistive with COM (RS232) or USB connector (optional)	
Interfaces	At the left side (rear mounted): 1x VGA (analog) input 1x DVI-D (digital) input 1x S-Video (analog) input 1x Composite Video(analog) input	
Controls	At the front side or optional right side (rear mounted): 1x "On/Off" button for image representation adjustment on-screen: 1x Menu button of OSD 1x Up button of OSD 1x Down button of OSD 1x Select button of OSD	
LED Indicator	At the front side: 1x Status LED	
Plug & Play Compatibility	VESA DDC1/2B EDID Ver. 1.3	
AC or DC Power Plug	At the left side (rear mounted)	
Backlight Lifetime	40,000 h	
Protection Class	IP65 frontal	

Mechanical Specifications

Dimensions	Panelmount	19" Front plate
Front Plate:	H x W x D 431 x 482.6 x 5 (mm) 16.97" x 19" x 0.197"	H x W x D 399.2 x 482.6 x 5 mm 9U x 19" x 0.197"
Material	steel zinc-plated Frontal: black powder coated	steel zinc-plated Frontal: black powder coated
Chassis		
Height	372 mm (14.646")	372 mm (14.646")
Width	427.5 mm (16.831")	427.5 mm (16.831")
Depth	70 mm (2.756")	70 mm (2.756")
Material	steel zinc-plated	steel zinc-plated
Weight	approx. 9.8 kg (21.605 lbs.) (without packing)	approx. 9.8 kg (21.605 lbs.) (without packing)

Electrical Specifications

System Designation	Integrated PSU	Input
KFM19_e - A	AC Power Supply	100 - 240 VAC 50 - 60 Hz max. 0.6 A
KFM19_e - B	DC Power Supply	20 - 34 DC max. 2.3 A

Environmental Specifications

Operating Temperature	0 … +50 °C (32 … 122 °F
Storage / Transit temperature	–20 … +60 °C (–4 … 140 °F)
Relative Humidity (operating)	20 – 85 % (non-condensing)
Humidity (storage)	5 – 85 % (non-condensing)
Operating Altitude	10,000 ft (3,048 m)
Storage / Transit Altitude	40,000 ft (12,191 m)
Operating Shock	15 G, 11 ms duration, half sine
Storage/Transit Shock	30 G, 11 ms duration, half sine
Operating Vibration	10 – 58 Hz, ± 0.075 mm 58 – 500 Hz, 1.0 G
Storage / Transit Vibration	10 – 58 Hz, ± 0.15 mm 58 – 500 Hz, 2.0 G

CE Directives and Standards

CE Directives	
Low Voltage Directive (Electrical Safety)	73/23/EEC
EMC Directive	89/336/EEC

Electrical Safety	Standards
EUROPE	EN 60950-1: 2000

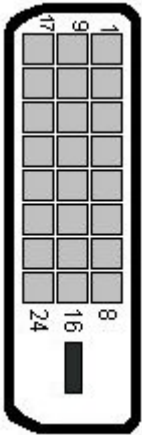| EMC	Standards
EUROPE	Emission: EN 61000-6-4: 2001 Immunity: EN 61000-6-2: 2001
USA	FCC 47 CFR Part 15, Class A

Technical Appendix – Interfaces

The following tables show the plug assignments for the external connections of the KFM19_e.

Low-active signals are indicated by a minus sign.

VGA Connector

Pin	Signal Name	15-pin D-SUB Socket (female)
1	red	
2	green	
3	blue	
4	4 is NC	
5–8	GND	
9	Fused VCC	
10	GND	
11	NC	
12	DDC Data	
13	HSYNC	
14	VSYNC	
15	DDC Clock	

DVI-D Connector

Pin	Signal Name	Description	DVI-D Connector (female)
1	TMDS2–	Differential TMDS Data 2–	
2	TMDS2–	Differential TMDS Data 2+	
3	GND	TMDS Shield	
4–5	NC	Reserved for future use	
6	DVI_SCL	DDC EDID data clock	
7	DVI_SDA	DDC EDID data	
8	DVI_VS	Analog VSYNC	
9	TMDS1–	Differential TMDS Data 1–	
10	TMDS1+	Differential TMDS Data 1+	
11	GND	TMDS Shield	
12–13	NC	Reserved for future use	
14	DVI_5V	5V / 100mA Power Supply	
15	GND	Ground	
16	DISPDET	Hot Plug Detection	
17	TMDS0–	Differential TMDS Data 0–	
18	TMDS0+	Differential TMDS Data 0+	
19	GND	TMDS Shield	
20–21	NC	Reserved for future use	
22	GND	TMDS Shield	
23	TMDSSCL–	Differential TMDS Clock–	
24	TMDSSCL+	Differential TMDS Clock +	
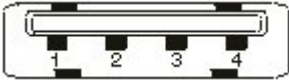
S-Video Connector

Pin	Signal Name	Description	4-pin Mini-DIN Connector (female)
1	GND	Ground	
2	GND	Ground	
3	Y	Luminance	
4	C	Chrominance	
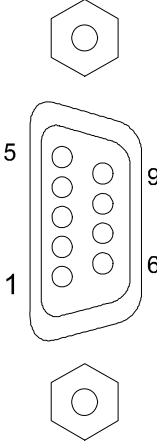
C-Video (Composite) Connector

Pin	Signal Name	Description	Cinch Connector (yellow) (female)
1	GND	Ground	
2	CVBS	Composite video signal	

USB Touchscreen Connector

Pin	Signal Name	4 pin USB Socket Type A Version 1.1
1	VCC	
2	Data–	
3	Data+	
4	GND	

Serial Touchscreen Connector (RS232)

Pin	Signal Name	9-pin D-SUB Socket
1	DCD (Data Carrier Detect)	
2	RXD (Receive Data)	
3	TXD (Transmit Data)	
4	DTR (Data Terminal Ready)	
5	GND (Signal Ground	
6	DSR (Data Set Ready)	
7	RTS (Request to Send)	
8	CTS (Clear to Send)	
9	RI (Ring Indicator)	

Technical Support

For technical support, please contact our Technical Support department.

Tel: +49 (0)9461 950-104
Fax: +49 (0)9461 950-200
e-mail: support@kontron.com

Make sure you have the following information on hand when you call:
- the unit part id number (P/No #),
- and the serial number (S/No #) of the unit (provide the serial number found on the type label, placed on the rear side of the system).

Be ready to explain the nature of your problem to the service technician.

If you have questions about Kontron Embedded Computers or our products and services, you may reach us at the aforementioned numbers, or at: www.kontron.com or by writing to:

Kontron Embedded Computers GmbH
Oskar-von-Miller-Str. 1

85386 Eching

Returning Defective Merchandise

Before returning any merchandise, please:

1. Contact our Customer Service department
to obtain an RMA (Return Material Authorization) number.
Fax: (+49) 8165-77 412
e-mail: service@kontron.com

2. Make sure that you receive an RMA number from Kontron Embedded
Computers-Service before returning any merchandise. Clearly write or mark
this number on the outside of the package you are returning.

3. Describe the device failure behavior.

4. When returning goods, include the name and telephone number of a person
whom we can contact for further explanations if necessary. Where applicable,
always include all duty papers and invoice(s) associated with the item(s) in
question.

5. When returning a unit:
• Ensure that the unit is properly packed in the original box.
• Include a copy of the RMA form.