Manual

Work Station EExd 850 MHz

Version 1.00 / Series 17-71KD-4601

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Contents

1.   General

1.1   Products forming the PC range

The **Work Station EExd**, series 17-71KD-4601 is an industrial PC which is approved for use in zone 1 hazardous area.

The flameproof EExd type protection is used for the main enclosure with Intrinsically safe barriers added to supply and connnect with the ancillary equipment. Flameproof cable glands are fitted to the unit for connection purposes.

The complete range consists of the following components:

EEx d-Screen enclosure	Front part of the enclosure	Typ 17-71K1-....	KEMA 98 ATEX 1246 X
EEx d-Computer	Rear part of the enclosure	Typ 17-71K2-....	KEMA 98 ATEX 2217 X
EEx i-Input apparatus	Keyboard , mouse	Typ 17-71K3-....	KEMA 98 ATEX 2558 X
Energy limiting unit	Barrier, Key board and mouse	Typ 17-71K4-1...	KEMA 98 ATEX 1988 X
Seperation module	Barrier Control buttons	Typ 17-71K4-2...	KEMA 98 ATEX 2425 X

For special conditions also see the appropriate test certificates.

1.2 Basic installation Manual

The following points must be taken into account for safe commissioning:

The Ex d enclosure with the appropriate electronic components must be mounted and connected before commissioning in the hazardous area. The mounting of the Ex d enclosure can be carried out within the hazardous area.

- **The unit may only be opened when it is certain that no potentially explosive atmosphere is present.**

- **The blanking plugs are to be replaced by cable glands as required.** When glands are mounted instead of blanking plugs they are closed from the inside by gland stopping plugs which must be removed before the cable is inserted.

- The unit may only be brought into operation when it is certain that the enclosure is fully closed and that all screws have been tightened.

- **The outer earthing connection must be integrated into the earthing system at the place where the unit is mounted.**

1.3 Mounting and disassembly of the equipment

Please ensure safe and secure mounting of the apparatus and that access is good to all of the serviceable parts.

- **The apparatus should be isolated from the supply before any assembly or dis-assembly.**

During assembly, the user must ensure that a distance of at least 30mm is maintained around all of the flame gap areas of the lids in accordance with EN60079-14. Furthermore, a free distance of at least 30mm must be maintained around the flame gaps on the computer enclosure. This means that the overall thickness of the wall of the front panel together with the relevant fixings elements must not be more than 14 mm.

1.4 Maintenance, Modifications and Servicing

The computer inside this Work Station EExd is a complex piece of equipment and maintenance and repair work should only be carried out by BARTEC or a BARTEC authorised company/ repairer.

1.5   Installation / Putting into service

The delivered Work Station EExd includes an operating system (Windows NT or Windows 2000) with integrated network

In order for the Work Station EExd to be put into service, the cover of the EExd computer enclosure must be removed. This will enable the power connections and the interface connections to be made to the correct connection terminals (See interface connections section). Following the completion of the connections, the cover must be re-fitted and all of the screws secured.

- **The apparatus may only be opened when the user has determined that there are no gases present in the area.**

These tasks may only be carried out by qualified / authorised personnel. The connection terminals are located , for ease, at the top/ rear of the computer enclosure.This also ensures that the user does not work in the vicinity of the hardware. The connection box lid is removable to allow access to the connection terminals. This enables simple , quick terminations to be carried out for the supply and the interface units. The correct EExd cable glands must be fitted. The lid faces should be clean and all of the lid screws must be fitted and tightened equally , when the lid is replaced prior to putting the computer into service.

- **The apparatus must be closed before it is put in to service in the hazardous area.**

1.6   Software installation

The user can install his software via the network interface.

If the user wishes to use a different (or updated) operating system on the Work Station EExd, or if he wishes to install new software, then a disc drive or CD-ROM drive is required as a data source.

In a case like this, the flameproof enclosure must be opened. This should only be carried out either, in the safe area or after a gas free pernmit has been issued for the area. (See section on putting the unit back into service.)

the new hardware is integrated embraced by the system via the motherboard which includes the CD-ROM or Disc drive interface (See section describibg interfaces) After completion of the new software installation, the Work Station can be put into service in the Ex area.

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The apparatus may only be operated on completion of asembly of the enclosure when a hazardous area is not present.

Connection cable:

The connection cables of the intefaces and the supply are to be installed in compliance with EN 60079

General Important Information:

- **The unit may only be opened when it is certain that no potentially explosive atmosphere is present.**

- **The user is only allowed to attach the necessary cables to the terminals which are accessible to him. Any further dismantling is only permitted to be carried out by the manufacturer or by a person authorised by him.**

- **The cables connecting to it (Ethernet interface and serial interface, etc.) are only to be laid within buildings.**

- **Any unit with a damaged glass panel must immediately be taken out of operation.**

- **For Ex d cable glands or Ex d cable entries only NPT screw connections are provided for and marked. By contrast, unmarked screw connections are made in accordance with ISO standards.**

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2. Technical Data

2.1 Data

- Description : Work Station
- Type : 17-71KD-4601
- Protection type : EEx d [ia] IIB T4
- Ex-Certification : KEMA 98 ATEX 1246 X und KEMA 98 ATEX 2217 X
- Display type : − 15" TFT-Colour display, XGA-resolution
  1024 x 768 Pixels
  − Brightness 250 cd/m²
  − Viewing angle: left / right 65°,bottom 50°, top 50°
  − Long life CCFL-lighting
- Computer performance : Intel Celeron 850 MHz, 256 MB DRAM
  graphics board XGA, 1024 x 768 pixels, 65536 colours
- Hard drive : 2,5", ≥ 20 GB
- Serial Interface : − Com 1: RS-232
  − Com 2: RS-422 (default) optional RS 232
  − Com 3: RS-232
  − Com 4: RS-232
- Keyboard Interface : To be connected to an Intrinsically safe PS/2 MF II Keyboard with PS/2 MouseType 17-71K3-11.1
- Floppy and CD ROM-Drive Interfaces : For installing software from outside the hazardous area.
- Network Interface : Ethernet, Novell NE 2000 compatible. 100 BaseT
- Operating system : Windows NT or Windows 2000 (further on request)
- Power supply voltage : AC 100V to AC 120V   50 - 60 Hz or
  AC 200V to AC 240V   50 - 60 Hz
- Output : ca. 60 Watt
- Maesurements : 456 x 378 x 468 mm
- Weight : ca. 38 kg
- IP protection : IP 65 at the front, IP 54 at the back
- IP-Rating : IP 65 Front only
- Ambient temperature range : 0 °C to +50 °C
- Mounting options : − Mounted doirectly onto a swivel arm.
  − In a control panel with a swivel arm.
- Other Options : − Special keyboard
  − Operating systems

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2.2 Front panel mounting Work Station EExd

The appartaus has been designed for front panel mounting.

To ensure the unit is mounted correctly, please note the following:

- The enclosure and the location into which the computer is to be fitted/ mounted, must be sufficiently rigid and stable to support the weight of the unit.

- The enclosure cut out should have all burrs removed and the overall surface should be flat. If this is not achieved, the IP Rating of the panel could be affected.

- It is essential to mechanically secure the computer into the enclosure with suitable fixings to support the weight of the computer.
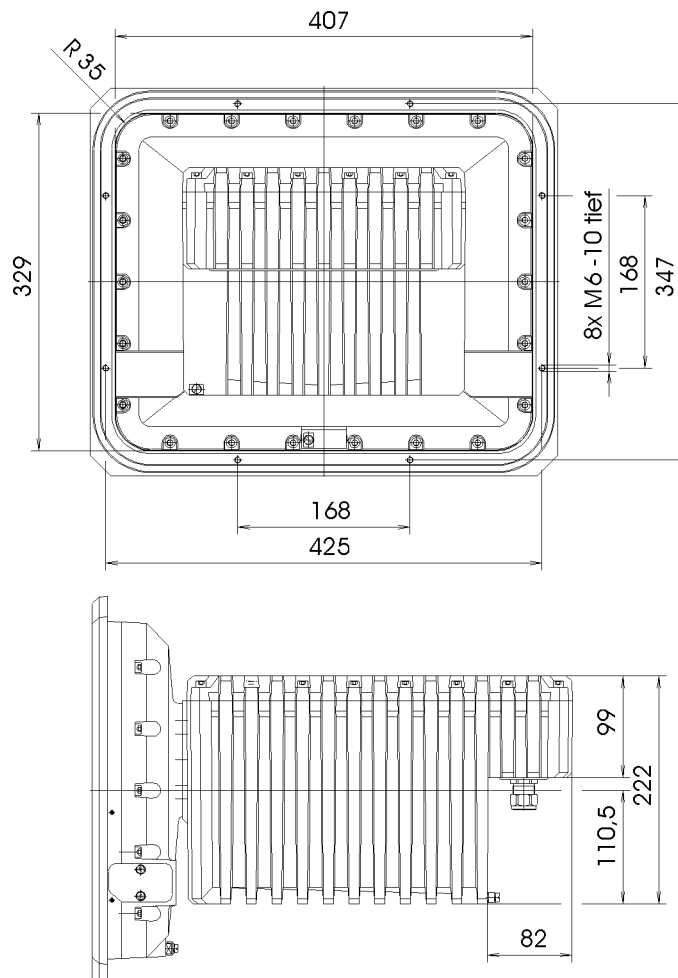
3. Connection Cables

3.1 Overview

The connection cables are to be installed in accordance with EN 60079-14.

The interfaces are marked in the P.C enclosure as follows:-

X3	Supply Voltage
X4.1A	COM 1 (RS 232)
X1	EEx i Keyboard and Mouse
X4.3A	COM 3 (RS 232)
X4.4A	COM 4 (RS 232)
X6A	Network (Ethernet 100Base-T)
X4.2A	COM 2 (RS 422)
X9A	Disc drive
X8A	CD-ROM

X7A optional
for customer solutions

parallele port for dongle
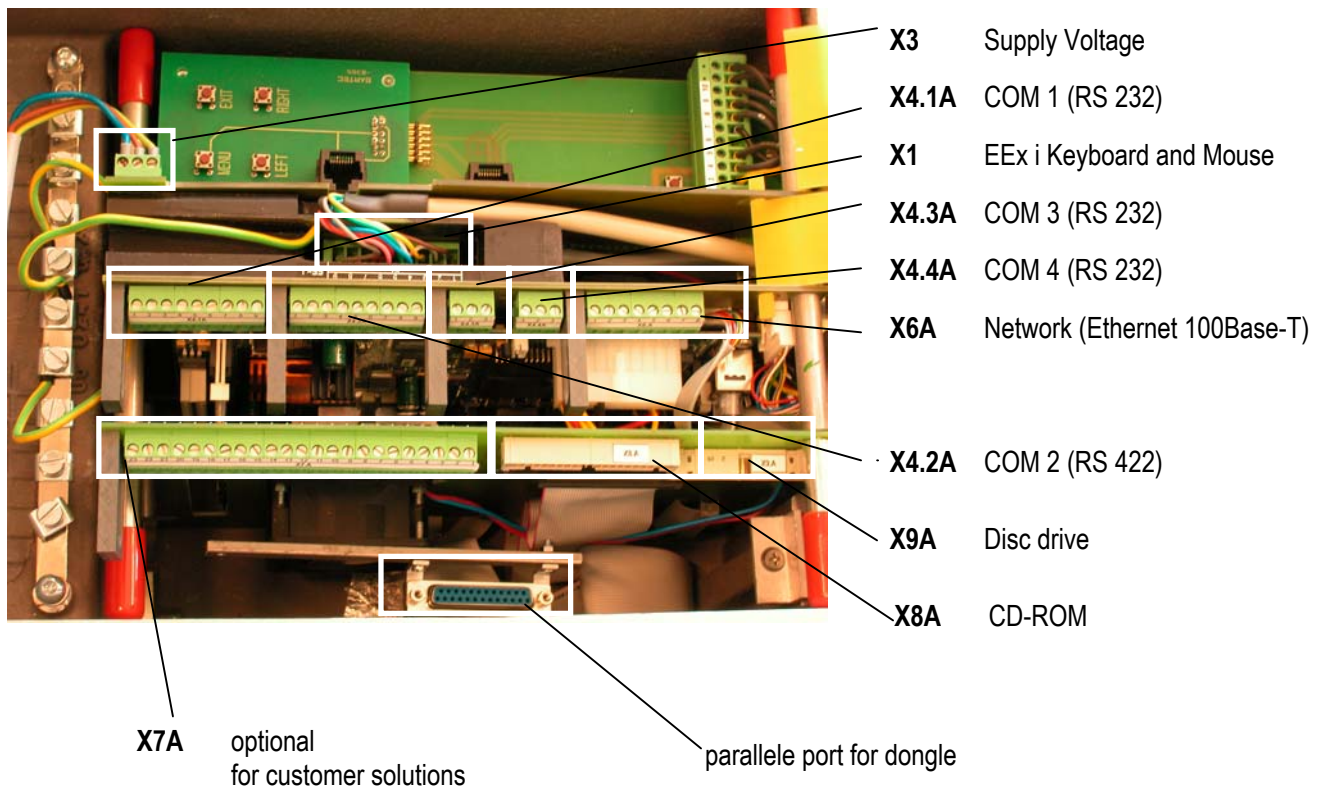
Any remaining terminals are for internal use only and must not be connected to any external cables.

3.2   Terminal connections

3.2.1   Supply

Terminal strip X3	Connection values
L	AC 100 V to AC 120 V 50 - 60 Hz or AC 200 V to AC 240 V 50 - 60 Hz
N	Neutral
PE	Protective earth

- **The power supply is to be fused to a maximum 16 A.**

- **The power supply must be supplied via a switch**

- **Plastic cover for terminal X3 (mains connection)**

    – do not damage or remove

    – protects the access to terminal X1 (for intrinsically safe, electrical circuits "EEx i" for the power limiting unit) and terminal X2A (for intrinsically safe, electrical circuits "EEx i" for the disconnector module)

    For opening: open upwards in direction of the monitor enclosure

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3.2.2   EEx i-Keyboard and Mouse

The following functions are assigned to the individual terminals at interface X1 (keyboard and mouse):

Terminal strip (power limiting unit)		Keyboard with corresponding lead colours	
Designation	**Signal**	**BMF 12**	**BMF 102**
X1.1	Keyboard 5V	Brown	Brown
X1.2	Tastatur Data	White	White
X1.3	Tastatur Clock	Yellow	Yellow
X1.4	Tastatur earth	Green	Green
X1.5	Screen	Screen	Screen
X1.6	Maus earth		Blue
X1.7	Maus 5 V		Red
X1.8	Maus Data		Pink
X1.9	Maus Clock		Grey

Note: If you have a separated version (Typ 17-71KD-4601) connect the keyboard at the e-box of the screen enclosure (see connection arrangement seperated version).

Power limiting unit

- create access by opening the plastic cover

- connect at terminal X1

    – either with ready-made connection cable of the PC input unit BARTEC type 17-71K3-...1/....

    – or with cable of equivalent type (suitable for the cable entries used) and with equivalent quality of the cable ends

- used for protecting cable leading to terminal X1 in its enclosure channel and for protection of the earth connection cable of the power limiting unit.

3.2.3 Serial interface COM 1 (RS 232)

The individual terminals for this connector X4.1.A are as follows;

Connector X4.1A (COM1)	
Label	**Signal**
X4.1A.1	DCD
X4.1A.2	DSR
X4.1A.3	RxD
X4.1A.4	RTS
X4.1A.5	TxD
X4.1A.6	CTS
X4.1A.7	DTR
X4.1A.8	RI
X4.1A.9	GND

3.2.4 Serial interface COM 2 (RS422)

The individual terminals for this connector X4.2.A are as follows;

The default communication setting is RS 422.

Connector X4.2.A (COM2)			
Label	**Signal**		Factory settings
	RS232	**RS422**	
X4.2A.1	DCD	TXD-	In use.
X4.2A.2	DSR		N/C
X4.2A.3	RxD	TXD+	In use.
X4.2A.4	RTS		N/C
X4.2A.5	TxD	RxD+	In use.
X4.2A.6	CTS		N/C
X4.2A.7	DTR	RxD-	In use.
X4.2A.8	RI		N/C
X4.2A.9	GND		N/C

If RS485 is to be employed then a link has to be placed from X4.2A.1 to X4.2A.7 also a further link from X4.2A.3 to X4.2A.5

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3.2.5 Serial interface COM 3 (RS 232)

The individual terminals for this connector X4.3.A are as follows;

Klemmleiste X4.3A (COM3)	
Label	**Signal**
X4.3A.1	RxD
X4.3A.2	TxD
X4.3A.3	GND

3.2.6 Serial interface COM 4 (RS 232)

The individual terminals for this connector X4.4.A are as follows;

Klemmleiste X4.4A (COM4)	
Label	**Signal**
X4.4A.1	RxD
X4.4A.2	TxD
X4.4A.3	GND

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3.2.7 Network

The individual terminals for network connections X6.A are as follows;

Connector X6A (Ethernet 100 Base-T)	
Label	**Signal**
X6A.1	XMT+
X6A.2	XMT-
X6A.3	RCV+
X6A.4	NC
X6A.5	NC
X6A.6	RCV-
X6A.7	NC
X6A.8	NC

8 7 6 5 4 3 2 1

RJ 45 Stecker

RJ 45 Stecker

8 7 6 5 4 3 2 1   Kontakte

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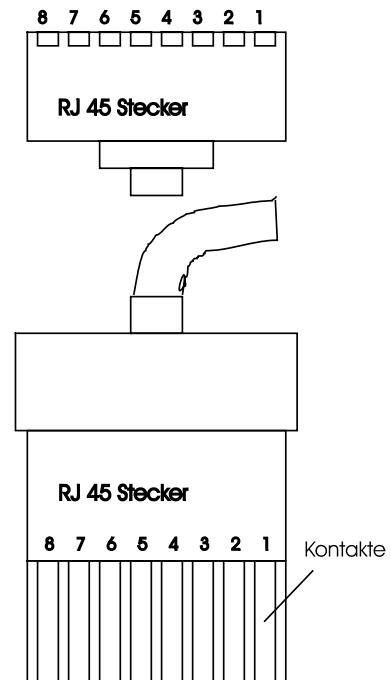
3.3 Connections for Installing software;

3.3.1 Basic settings

If a CD –ROM disc drive or 3.5" floppy is to be connected then they must be functional within the BIOS system. Only then can the drives be accessed from the keyboard. For BIOS changes please refer to the User Manual PCM-6890B, Chapter Standard CMOS Setup.

CD-ROM : "Primary-Slave"　　　set "TYPE" to "AUTO" and "MODE" to "AUTO".

Diskette : "Dive A" to "1.44M, 2.5 in"„

For instructions to operate the PC from drive A: Please see user manual "BIOS FEATURES SETUP"

Set boot field BOOT SEQUENCE to A,C.

IF THE FLOPPY OR DISC DRIVES ARE REMOVED THEN ALL SETTINGS MUST BE RESTORED TO THE ORIGINAL VALUES.

3.3.2 AT-Bus / IDE

The connection X8A is an (upward leading) AT-bus interface and is used toconnect an IDE CD-ROM disc drive. If a CD-ROM disc drive is to be connected, then it is necessary to set it as a slave disc drive. The connection is via the usual ribbon flex for AT-bus(IDE).

3.3.3 Diskette

The connection X9A is a standard floppy interface,a 3.5" disc drive may be connected to this connector .

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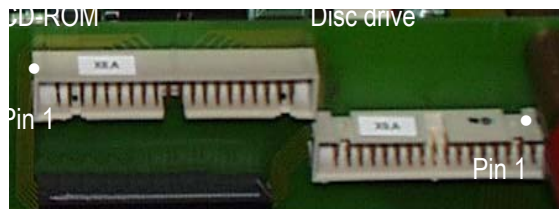
4. Operating Systems

Information about the OEM operationg system can be taken from the software manufacturers manuals.

5. Input Apparatus

5.1 Keyboard BMF 102

5.1.1 Technical Data EEx i-Keyboard

- Description : MF II Keyboard with PS/2 mouse
- Type : 17-71K3-11.1
- Type of protection : EEx ia IIC T4
- Ex-Certification : KEMA 98 ATEX 2558 X
- Supply via : Energy limiter unit as per KEMA 98 ATEX 1988 X
- Number of keys : Standard MF II keyboard with PS/2 Mouse
- Mounting possibilities : − Front panel mounting
  optional
  − Built into a keyboard desk housing
- Measurements : ca. 550 x 170 x 30 mm
- Weight : ca. 1,5 kg
- IP-Rating : IP 65 front of unit only
- Ambient temperature range : 0 to 50 °C

5.1.2 Installation

The EExi keyboard BMF 102 is connected via an eight core cable to the energy limiting terminal block X1 in the computer.

The cores of the cable are to be connected to the keyboard interface in the computer in accordance with paragraph 3.2.2 of the enclosed table. Please Note:- The the cable's screen must be connected to the screw at the rear of the computer.

Note: If you have a separated version (Typ 17-71KD-4601) connect the keyboard at the e-box of the screen enclosure (see connection arrangement seperated version).

The 8 core cable is of type LiYCY. The individual cores have the following functions;

Keyboard - Core Number	Colour of core	Function
1	Brown	Keyboard supply voltage(+ 5V)
2	White	Keyboard Data transmission (Data)
3	Green	Keyboard (Ground)
4	Yellow	Keyboard synchronisation (Clock)
5	Blue	Mouse (Ground)
6	Red	Mouse Data transmission (Data)
7	Green	Mouse synchronisation (Clock)
8	Red	Mouse supply voltage (+5V)

5.1.3   Front panel mounting EEx i-Keyboard BMF 102

The apparatus is designed for front panel mounting

To ensure the unit is mounted correctly please note the following:-

- The enclosure and the location into which the keyboard is to be fitted/ mounted,
  must be suffciently rigid and stable to support the weight of the unit.

- The enclosure cut out should have all burrs removed and the overall surface should be flat.
  If this is not achieved, the IP Rating of the panel could be affected.