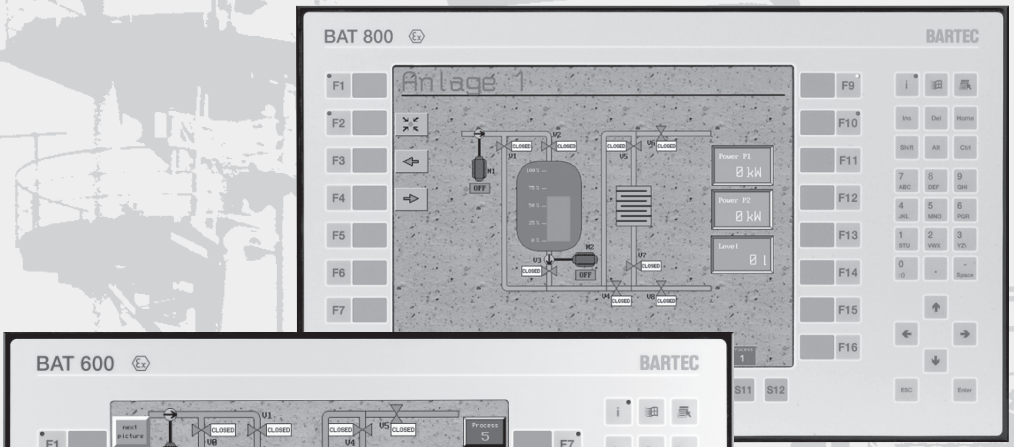
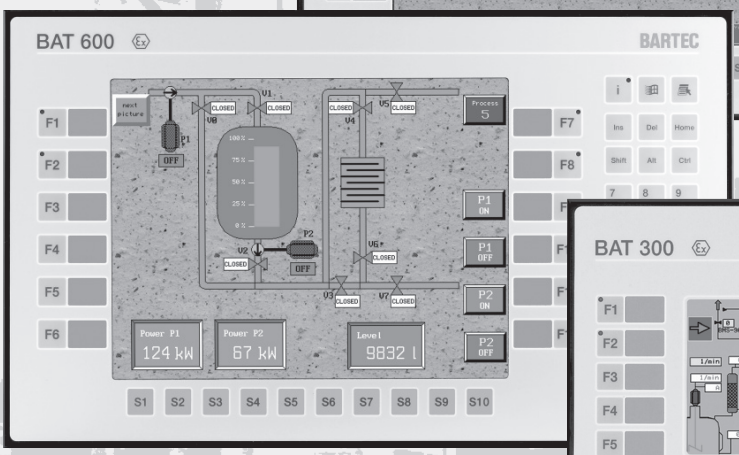
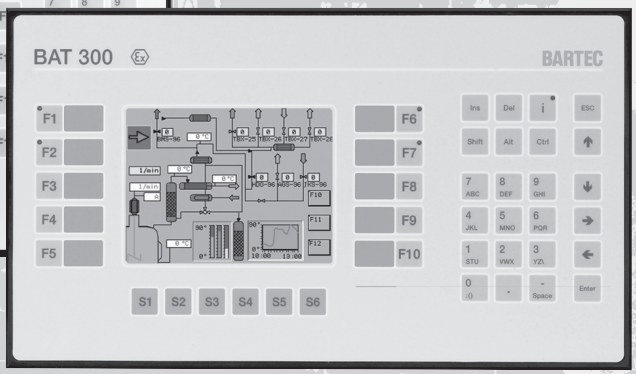
BARTEC







Gerätebegleitheft Installation Manual Notice Descriptive

BAT 300 17-71PC-.... BAT 600 17-71PE-.... BAT 800 17-71PF-....

BARTEC

Operator’s Manual

Graphic displays

BAT 300 / BAT 600 / BAT 800

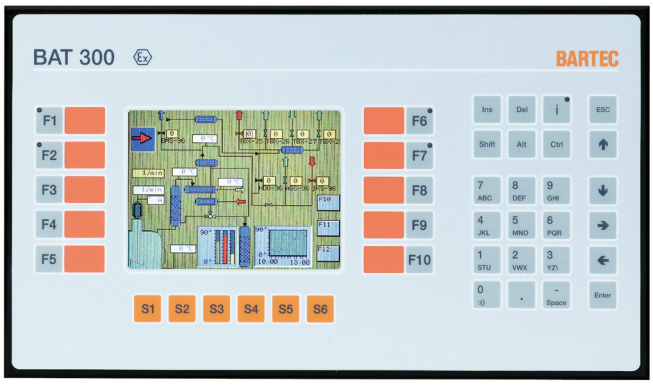
english

Contents

Contents

1. Technical data

1.1 Graphic display BAT 300



Explosion protection	⟨Ex⟩ II 2G EEx me [ib] IIC T4 resp. ⟨Ex⟩ II 2D T80°C IP6X
Test certificate	IBExU 03 ATEX 1096 X
CE Mark	CE0032
Display	262144 colours
Resolution	¼ VGA (320 x 240 pixels)
Visible surface	Diagonal 5.5" TFT (approx. 111.4 x 83.5 mm)
Brightness	400 cd/m²
Keypad	- expanded 10 block - 6 special keys - 10 function keys able to be labelled
Memory	for several 100 images
Interfaces	Ethernet 10BaseT COM 1: RS232 COM 2: RS232
Optional interface modules	TTY, RS422/RS485, PROFIBUS DP intrinsically safe for hand held scanner
Illumination	CFL illumination, able to be replaced separately
Dimensions	335 mm x 194 mm x 170 mm
Wall cut-out	321 mm x 179 mm + 0.5 mm
Protective system	IP 65 (front side)
Gewicht	approx. 9 kg
Power supply	DC 24 V / 1 A
Cable length	Depends on power supply cable cross section approx. 50 m with 0.75 mm² approx. 170 m with 2.5 mm²
Permissible ambient temperature	Storage temperature -20 °C to +50 °C Operating temperature 0 °C to +50 °C

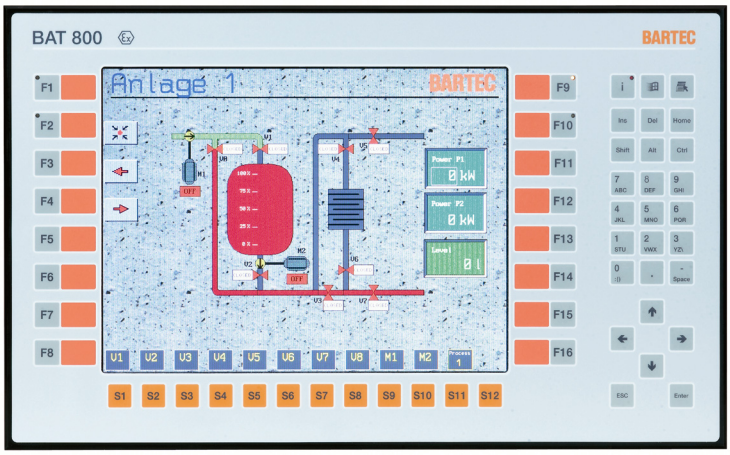
Below +10 °C the device has to be heated in order to guarantee the lifetime of the background lighting.

1.2 Graphic display BAT 600

Explosion protection	Ⓔx II 2G EEx me [ib] IIC T4 resp. Ⓔx II 2D T80°C IP6X
Test certificate	IBExU 03 ATEX 1096 X
CE Mark	CE0032
Display	262144 colours
Resolution	VGA (640 x 480 pixels)
Visible surface	Diagonal 10.4" TFT (approx. 212 x 159 mm)
Brightness	220 cd/m²
Keypad	- expanded 10 block - 10 special keys - 12 function keys able to be labelled
Memory	for several 100 images
Interfaces	Ethernet 10BaseT COM 1: RS232 COM 2: RS232
Optional interface modules	TTY, RS422/RS485, PROFIBUS DP intrinsically safe for hand held scanner
Illumination	CFL illumination, able to be replaced separately
Dimensions	400 mm x 280 mm x 170 mm
Wall cut-out	386 mm x 226 mm + 0.5 mm
Protective system	IP 65 (front side)
Gewicht	approx. 10 kg
Power supply	DC 24 V / 1 A
Cable length	Depends on power supply cable cross section approx. 50 m with 0.75 mm² approx. 170 m with 2.5 mm²
Permissible ambient temperature	Storage temperature -20 °C to +50 °C Operating temperature 0 °C to +50 °C

Below +10 °C the device has to be heated in order to guarantee the lifetime of the background lighting.

1.3 Graphic display BAT 800



Explosion protection	⟨Ex⟩ II 2G EEx me [ib] IIC T4 resp. ⟨Ex⟩ II 2D T80°C IP6X
Test certificate	IBExU 03 ATEX 1096 X
CE Mark	CE0032
Display	262144 colours
Resolution	SVGA (800 x 600 pixels)
Visible surface	Diagonal 12" TFT (approx. 247.5 x 186.0 mm)
Brightness	300 cd/m²
Keypad	- expanded 10 block - 12 special keys - 16 function keys able to be labelled
Memory	for several 100 images
Interfaces	Ethernet 10BaseT COM 1: RS232 COM 2: RS232
Optional interface modules	TTY, RS422/RS485, PROFIBUS DP intrinsically safe for hand held scanner
Illumination	CFL illumination, able to be replaced separately
Dimensions	440 mm x 270 mm x 170 mm
Wall cut-out	425 mm x 255 mm + 0.5 mm
Protective system	IP 65 (front side)
Gewicht	approx. 11 kg
Power supply	DC 24 V / 1 A
Cable length	Depends on power supply cable cross section approx. 50 m with 0.75 mm² approx. 170 m with 2.5 mm²
Permissible ambient temperature	Storage temperature -20 °C to +50 °C Operating temperature 0 °C to +50 °C

Below +10 °C the device has to be heated in order to guarantee the lifetime of the background lighting.

2. Terminal assignment

2.1 Basic model

2.1.1 BAT 300 / BAT 600 / BAT 800 terminal assignment

Pin	Signal		Description	
1	PE		Earth cable and shielding	
2	PE		Earth cable and shielding	
3	GND		Earth	Graphic display
4	GND		Earth	Graphic display
5	+24 V		± 10% supply	Graphic display
6	+24 V		± 10% supply	Graphic display
7	Background	BL – (GND)	+12 V supply for	
8	lighting	BL + (+12V)	background lighting	
9		BL select	Cable for switching background lighting on and off	
10	Ethernet	RD +	10 Base T	Receive positive
11		RD -	10 Base T	Receive negative
12		TD -	10 Base T	Transmit negative
13		TD +	10 Base T	Transmit positive
14	Serial	+5 V	Supply	for COM-module
15	interface 1	+12 V	Supply	for COM-module
16		GND	Earth reference	for COM-module
17		TxD	RS232	Transmit data
18		RxD	RS232	Receive data
19		CTS	RS232	Clear to send
20		RTS	RS232	Ready to send
21		DTR	RS232	Data terminal ready
22		DSR	RS232	Data set ready
23		DCD	RS232	Data carrier detect
24		RI	RS232	Ring indicator
25	Serial	+5 V	Supply	for COM-module
26	interface 2	+12 V	Supply	for COM-module
27		GND	Earth reference	for COM-module
28		TxD	RS232	Transmit data
29		RxD	RS232	Receive data
30		CTS	RS232	Clear to send
31		RTS	RS232	Ready to send

2.2 Modules (optional)

2.2.1 TTY module terminal assignment (Type 17-2111-0100)

Pin	Signal	Description
1	20 mA	Signal power supply for transmitter
2	Collector	Collector
3	Emitter	Emitter
4	GND	Signal ground for transmitter
5	20 mA	Signal power source for receiver
6	Anode	Anode
7	Cathode	Cathode
8	GND	Receiver signal ground

2.2.2 RS422 module terminal assignment (Type 17-2111-0200)

Pin	Signal	Description
1	TxD B (TxD +)	Transmission cable input
2	TxD A (TxD –)	Transmission cable input
3	RxD B (RxD +)	Receiving cable input
4	RxD A (RxD -)	Receiving cable input
5	TxD B (TxD +)	Transmission cable output
6	TxD A (TxD –)	Transmission cable output
7	RxD B (RxD +)	Receiving cable output
8	RxD A (RxD -)	Receiving cable output
9	Termination ON/OFF	Bridge to GND
10	GND	for activating the network termination

2.2.3 PROFIBUS DP module terminal assignment (Type 17-2111-0300)

Pin	Signal	Description		
1	In A	PROFIBUS DP	signal A	input
2	In B	PROFIBUS DP	signal B	input
3	Out A	PROFIBUS DP	signal A	output
4	Out B	PROFIBUS DP	signal B	output
5	Network terminating bridge A1	Bridge for terminating network		(A1-A2)
6	Network terminating bridge B1	Bridge for terminating network		(B1-B2)
7	Network terminating bridge A2	Bridge for terminating network		(A1-A2)
8	Network terminating bridge B2	Bridge for terminating network		(B1-B2)
9	PE	Additional ground		

2.2.4 Supply module hand-held scanner BCS 03ex terminal assignment (Type 17-2111-0500)

Pin	Signal	Description
1	PA	Grounding
2	GND	Signal ground (internal bridge to supply ground existing)
3	TxD	Data input RS232 signal
4	$+U_B$	Supply voltage hand-held scanner BCS 03ex
5	GND	Supply ground (internal bridge to signal ground existing)

2.2.5 INTERBUS module terminal assignment (Type 17-2111-0600)

Pin	Signal	Description
1	$\overline{DO1}$	INTERBUS transmission cable input
2	DO1	INTERBUS transmission cable input
3	$\overline{DI1}$	INTERBUS receiving cable input
4	DI1	INTERBUS receiving cable input
5	GND1	INTERBUS common ground input
6	SHD1	INTERBUS shielding input
7	$\overline{DO2}$	INTERBUS transmission cable output
8	DO2	INTERBUS transmission cable output
9	$\overline{DI2}$	INTERBUS receiving cable output
10	DI2	INTERBUS receiving cable output
11	GND2	INTERBUS common ground output
12	SHD2	INTERBUS shielding output
13	RBST	Bridge for activating the INTERBUS-output
14	+5 V	

2.2.6 Supply module terminal assignment hand-held scanner BCS 302ex (Type 17-2111-0700)

Pin	Signal	Description
1	PA	Grounding
2	GND	Signal ground (internal bridge to supply ground existing)
3	TxD	Data input RS232 signal
4	$+U_B$	Supply voltage hand-held scanner BCS 302ex
5	GND	Supply ground (internal bridge to signal ground existing)

3. Notes on the installation of the graphic display

3.1 Safety instructions

For electrical appliances, the appropriate regulations for setting-up and operation have to be observed (e.g. directive 1999/92/EC, directive 94/9EC, ElexV, IEC/EN 60 079-14 and VDE 0100).

The operator of an electrical appliance in an area where there is an explosion hazard has to maintain the resources in a proper condition, operate them correctly, monitor them and carry out maintenance and repair work (ElexV and EN 60 079-14).

Where the IP rating is concerned, only original replacement parts may be used (e.g. lid seal).

3.1.1 Safety-relevant notice

Inside areas of explosive atmospheres any electrostatic charging mechanism on the surface of the indicating terminals have to be excluded if they are stronger than manual rubbing (e.g. cleaning by hand).

Do not open the device while connected to an electrical supply !

3.2 Maintenance

For the maintenance, servicing and checking of associated resources, adhere to the valid regulations in accordance with directive 1999/92/EC, IEC 60079-19 and EN60079-17 !

Installation / dismantling, servicing and maintenance work may only be carried out by trained specialists. The general statutory regulations and other binding directives on workplace safety, accident prevention and environmental protection must be adhered to.

Observe the national disposal of waste regulations when disposing of this equipment at the end of its usefull life.

3.2.1 Servicing

If operated correctly, in accordance with the installation instructions and environmental conditions, no regular servicing is necessary.

3.2.2 Inspection

In accordance with IEC 60079-19 and EN 60079-17, the site operator has an obligation to ensure that any electrical appliance installed within, an area containing gases and dust, which could be potentially explosive, is correctly installed by trained personnel and that the installation is regularly inspected and correctly maintained to ensure the safety of the operatives in the area.

3.2.3 Repair

Repairs to explosion protected resources may only be carried out by authorised persons using original replacement parts and in accordance with up-to-date technology. The appropriate valid regulations are to be adhered to. If in doubt contact BARTEC.

3.3 Installation options

The grapgic terminal can be installed directly in

- switch cabinet doors
- mimic panels
- housings

The enclosures may be made of plastic or metal. Only synthetic material with a surface resistance lower then $10^9\ \Omega$ is acc. EN 50014 allowed.

In order to guarantee IP 65, the housing's own IP rating has to be suitable for the application

The following points should be taken into consideration when installing the graphic display:

- convenient height for operation
- good lighting so that the display will be easily readable
- at ambient temperatures below 0°C, the graphic display has to be heated
- below +10°C the Graphic display needs to be heated to maintain the lifetime of the background lighting.
- avoid installing in the immediate vicinity of switching devices or converters.

Note: Only use heating systems, which are certified for explosive areas !

The following factors should be taken into consideration in order to ensure proper and workmanlike installation:

- the installation location must be sufficiently stable / fixed
- the housing in which the graphic display is mounted must be strong enough to support its weight
- following the cutting out of the opening into which the graphic display is to be fitted, the surface must be dressed to ensure it is smooth, level and undamaged so as to preserve the integrity of the seal.

3.3.1 Cable glands / Conduits

When connecting cables and leads to supplies / communications equipment in increased safety protected areas, Ex certified cable entries must be used which are suitable for each type of cable and lead. You must maintain the protection concept "e" and include a suitable sealing element so that an IP rating of at least IP 54 is maintained.

3.4 Mechanical installation

In order to achieve an even clamping pressure, it is recommended that the reinforcement frame (not included in the scope of the delivery) be inserted between the mounting clamps (included in scope of the delivery) and the housing .

- Tighten the fixing screws in the mounting brackets slightly.
- Check the position of the display and the seal.
- Tighten the set screws so as to ensure an adequate seal. This will be achieved when there is a gap of approx. 0.5 mm between the surface of the housing and the front frame of the graphic display.
- Do not overtighten the fixing screws.

3.4.1 Recommended enclosure

- **Plastic enclosure or switch cabinet as from 3 mm wall thickness.** In this case the reinforcement frame between the retaining clips and enclosure material should always be used.
- **Sheet steel enclosure as from 2 mm wall thickness.** In this case the reinforcement frame between the retaining clips and enclosure material should be used.
- **Stainless steel enclosure as from 1.5 mm wall thickness.** In this case the reinforcement frame between the retaining clips and enclosure material should be used.

3.4.2 Special installation instructions

In order to guarantee the IP degree of enclosure protection = IP 54 for installation in 2G enclosures of EEx e type of protection (e.g. control equipment), and = IP 6X for installation in 2D enclosures in areas where combustible dusts exist - with "protection through the enclosure" type of protection - the reinforcement frame should be used for fastening on the front side.

3.5 Electrical installation

3.5.1 EMC notes

Caution!
This device is class A equipment and may cause interference in domestic electrical equipment. If this occurs, the installer of the device may be required to implement appropriate counter measures.

All connection cables must be shielded. This applies both to data lines and to other cables.

The data cables must be twisted in pairs. Example: 2 x 2 x 0.75 mm² LIYCY TP

If possible, cables for power supply and data must be laid separately.

3.5.2 Power supply

A stabilised power supply unit delivering at least 2 A must be used. The voltage supply at the point of installation must not be outside the voltage tolerance of DC 24V ±10%. Account must be taken of voltage drop in the supply line and, if necessary, appropriate corrective measures must be taken.

Line voltage drop is calculated in accordance with the following formulae:

ΔU	Line voltage drop at power supply unit voltage 24V DC	max. 2.4 V
ΔU	Line voltage drop at maximum permissible power supply unit over voltage 24 V DC +10% (26,4V))	max. 4.8 V (until 10% under voltage is reached)
I	Current for one graphic display	min. 0.8 A
A	Conductor cross-section of supply cable	
κ	Specific conductivity of copper	$56\frac{m}{\Omega \cdot mm^2}$
l	Length of the power cable (supply and return)	

$$R = \frac{l}{\kappa \cdot A} \qquad R = \frac{\Delta U}{I} \qquad \Delta U = \frac{l}{\kappa \cdot A} \cdot I$$

Examples	Conductor cross-section	Maximum cable length
Supply voltage 24 V DC	0.75 mm²	approx. 50 m
	1.5 mm²	approx. 100 m
	2.5 mm²	approx.. 170 m

If the voltage drop cannot be compensated for or if the calculation gives a conductor cross-section which is too large, a separate power supply unit must be installed close to the point of installation.

Example: Explosion protected housing or outside of the hazardous area on the outer wall of the building.

Connecting the power supply to the graphic display connects the earth of the power supply cable with PE! If the power supply cable earth is not electrically isolated, it must be ensured that there is no difference in potential between it and PE/PA.

3.5.3 Installation guidelines

- The external earth connection facility should be connected to the equipotential bonding conductor of the potentially explosive area. Since the intrinsically safe circuits are direct-connected to earth, equipotential bonding must be maintained during complete installation of the intrinsically safe circuits.
- All current safety and accident prevention regulations must be observed.
- Devices must only be operated after proper installation in a sealed housing.
- It must be possible to de-energise the products at any time (in fixed installations by means of an mains switch or fuse which isolates each of the supply cables). The PE terminals on the back of the device must be connected to the protective earth conductor.
- It must be ensured that supply voltage is the same as that stated in this manual and that the tolerances are adhered to.
- Malfunctions may occur if the stated tolerances are either exceeded or are insufficient.
- Steps must be taken to ensure that the system is not put into hazardous, undefined states in the event of power failures.
- EMERGENCY STOP switches must remain effective in all operating modes and conditions.
- Connection cables (especially data transmission cables) must be selected and installed so as to preclude impairment of the system's functionality by capacitive or inductive interference. Appropriate measures must be taken to deal with open circuit states in such a way that the system cannot enter undefined states.
- Wherever malfunctions are liable to cause injury to persons or damage to property additional external safety circuits must be installed (e.g. limit switches, mechanical interlocks, etc.)

3.5.4 Interference suppression

Certain basic measures must be taken to ensure freedom from interference when the graphic display are installed:

- Interference voltages injected into the device via power and signal cables and static charges caused by contact are to be conducted to earth (e.g. grounding screw terminal fixed to the back of the device). This earthing point must be connected to the PE conductor by means of the shortest possible low resistance copper conductor or must be integrated in the equipotential bonding. If this point is not observed, the measures taken to suppress interference and preclude damage to the device effectively will be impaired.
- The installation point should be as far as possible away from fields of electromagnetic interference. This is especially important if there are frequency converters in the vicinity. Under certain circumstances it will be advisable to set up partitions to isolate the graphic display from interference.
- If inductive devices are fitted in the vicinity (e.g. contactor, relay or solenoid coils), especially if they are powered from the same source, protective circuits (e.g. RC elements) must be installed.
- Power supply and data cables must be laid so as to avoid interference. This can, for example, be achieved by avoiding laying such cables in close proximity to high current carrying cables.

3.5.5 Shielding

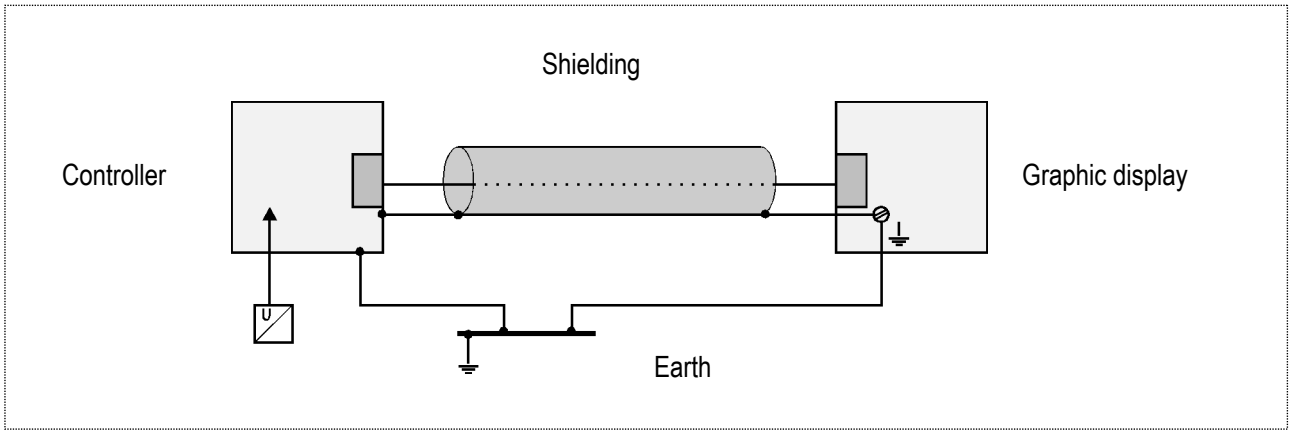
- Only cables with braided shielding should be used (recommended cover density > 80%).
- Sheet shielding should not be used.
- Generally, connection of the shielding at both ends results in optimum damping of all interference frequencies.
- Connection of the shielding at one side only may be more advisable if a difference in potential exists and no equipotential bonding cable can be laid.

3.5.6 Connection of shielding

- A low impedance connection to the circuit protective conductor is important to ensure a low current fault path.
- When sub-D connectors are used, the shielding should always be connected to the metal casing of the sub-D plug.
- The plug casing of some controllers is not always well connected to earth. In such cases it may prove advantageous to insulate the shielding from the sub-D plug of the controller and connect it directly with the protective earth conductor by means of a cable that should be kept as short as possible (0.75 mm² …1.5 mm²).

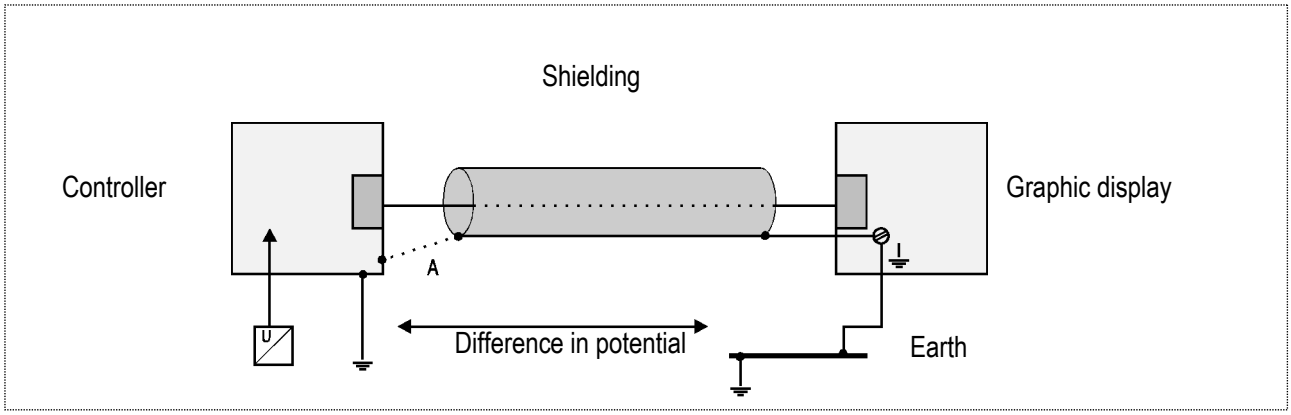
3.5.7 Examples of how shielding can be connected

Connection of shielding at both ends of the cables linking the controller and graphic display:



Generally, connection of the shielding at both ends results in optimum damping of all interference frequencies. This method is to be recommended when there is good equipotential bonding between the individual units. In such cases it is possible to make use of the controller's voltage supply cable even if this is not electrically isolated.

Connection of shielding at one end only of the cables linking the controller and graphic display:



Connection of the shielding at one end only is recommended when there is inadequate equipotential bonding, or none at all. In such cases an electrically isolated power supply unit must be used.

If the shielding were connected at both ends, the equipotential bonding current would flow to point A and this must be avoided at all costs, as the resultant interference pulses could be passed on to the devices via the data cable. When shielding is connected at one end only it must be on the side that has the lowest resistance earth connection.

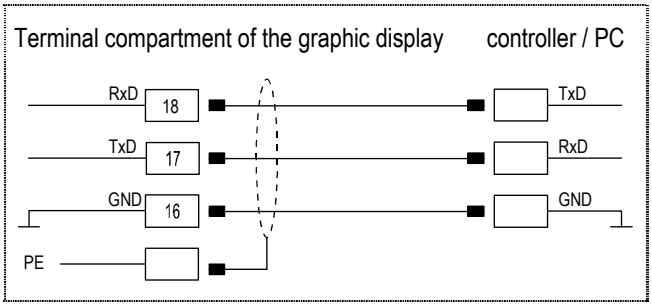
Before the equipment goes into service the directions from the controller manufacturer regarding proper assembly and operation must be read carefully. They should then be applied taking full account of the recommendations we make here.

4. Connection cables (pin assignment)

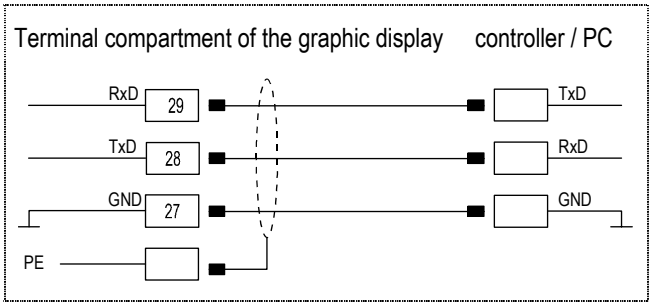
4.1 RS 232 interface

Connection of a controller or of the configuration PC via the RS 232 interface of the graphic display.

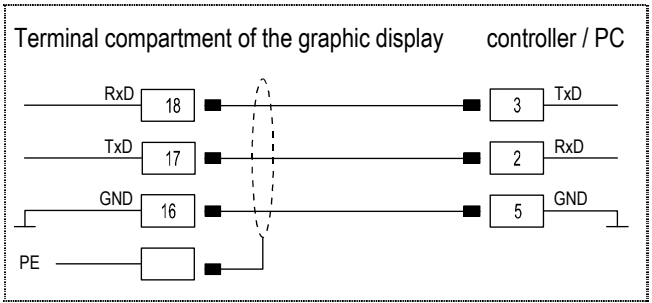
COM 1 RS 232 generally



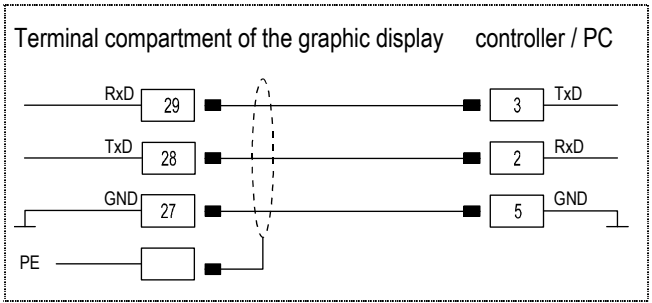
COM 2 RS 232 general



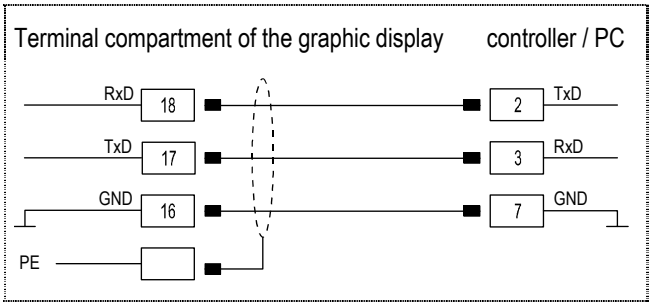
COM 1 RS 232 9-pole sub-D



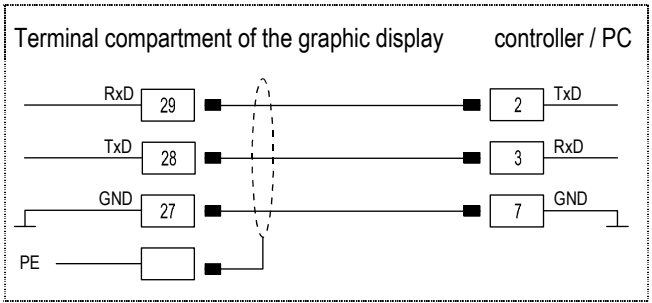
COM 2 RS 232 9-pole sub-D



COM 1 RS 232 25-pole sub-D



COM 2 RS 232 25-pole sub-D



See the interface description of the controller manufacturer for the relevant pin assignment of the controller.

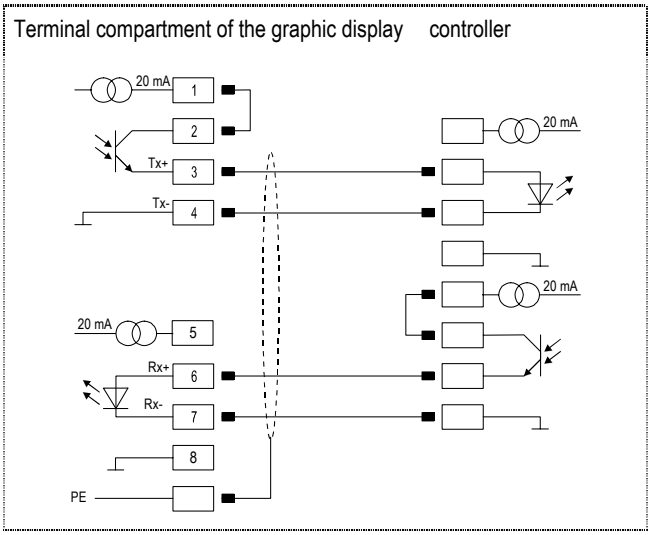
Maximum length of the data cable is 15 m

4.2 TTY interface

Connection of a controller via the TTY interface of the graphic display.

⇨ For both the graphic display and the controller, the **transmitter is active** and the **receiver passive**

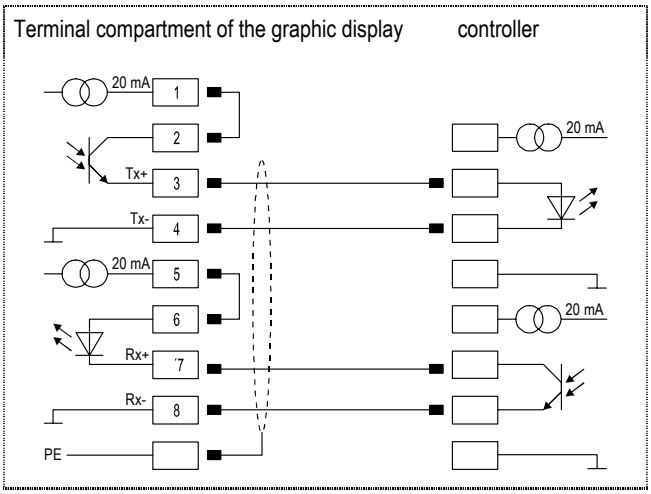
TTY module



Connection of a controller via the TTY interface of the graphic display.

⇨ For the terminal, the transmitter and the receiver are active. The controller is **completely passive.**

TTY module

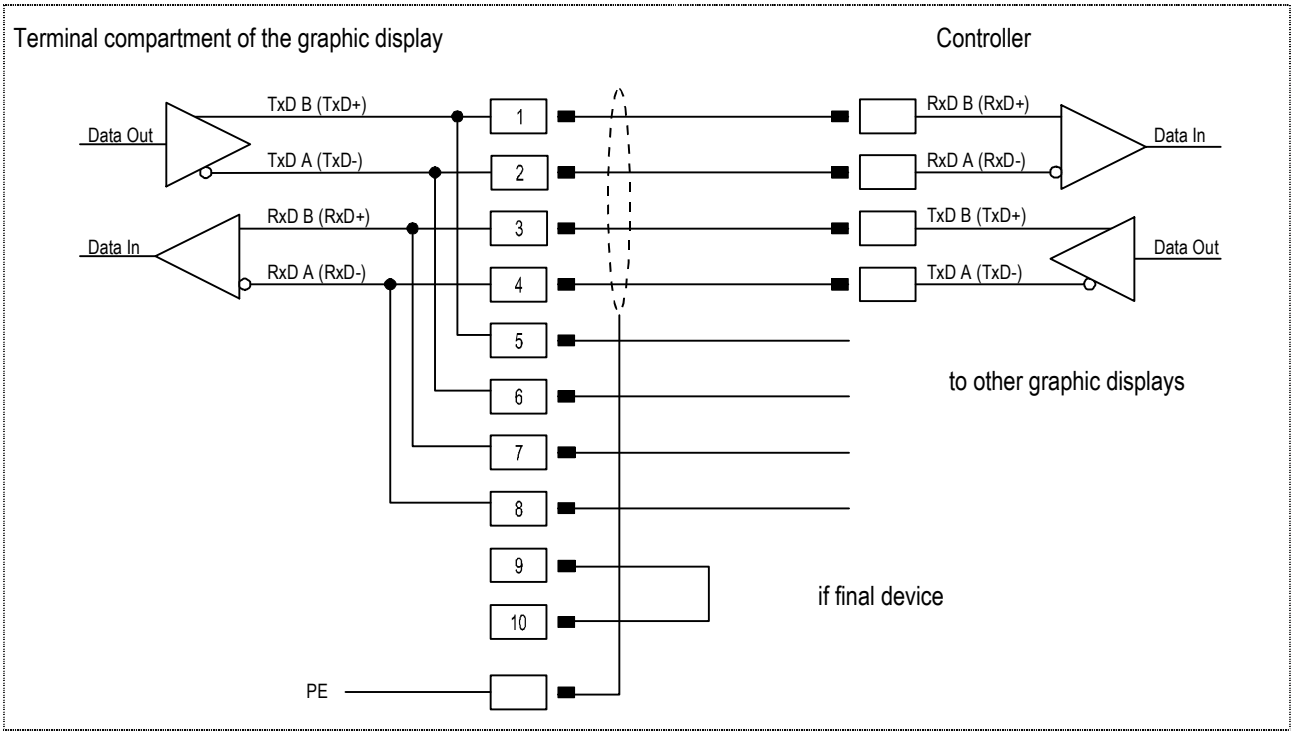


See the interface description from the controller manufacturer for the relevant pin assignment of the controller. Depending on baud rate, the maximum cable length can be up to 1 000 m.

4.3 RS 422 interface

Connection of a controller via an RS 422 interface of the graphic display.

RS422 module



Pins 1 - 5, 2 - 6, 3 - 7, 4 - 8 are already connected inside.

In most cases, internal EMC measures allow the installation of termination resistors at the beginning and the end of the bus line to be dispensed with.

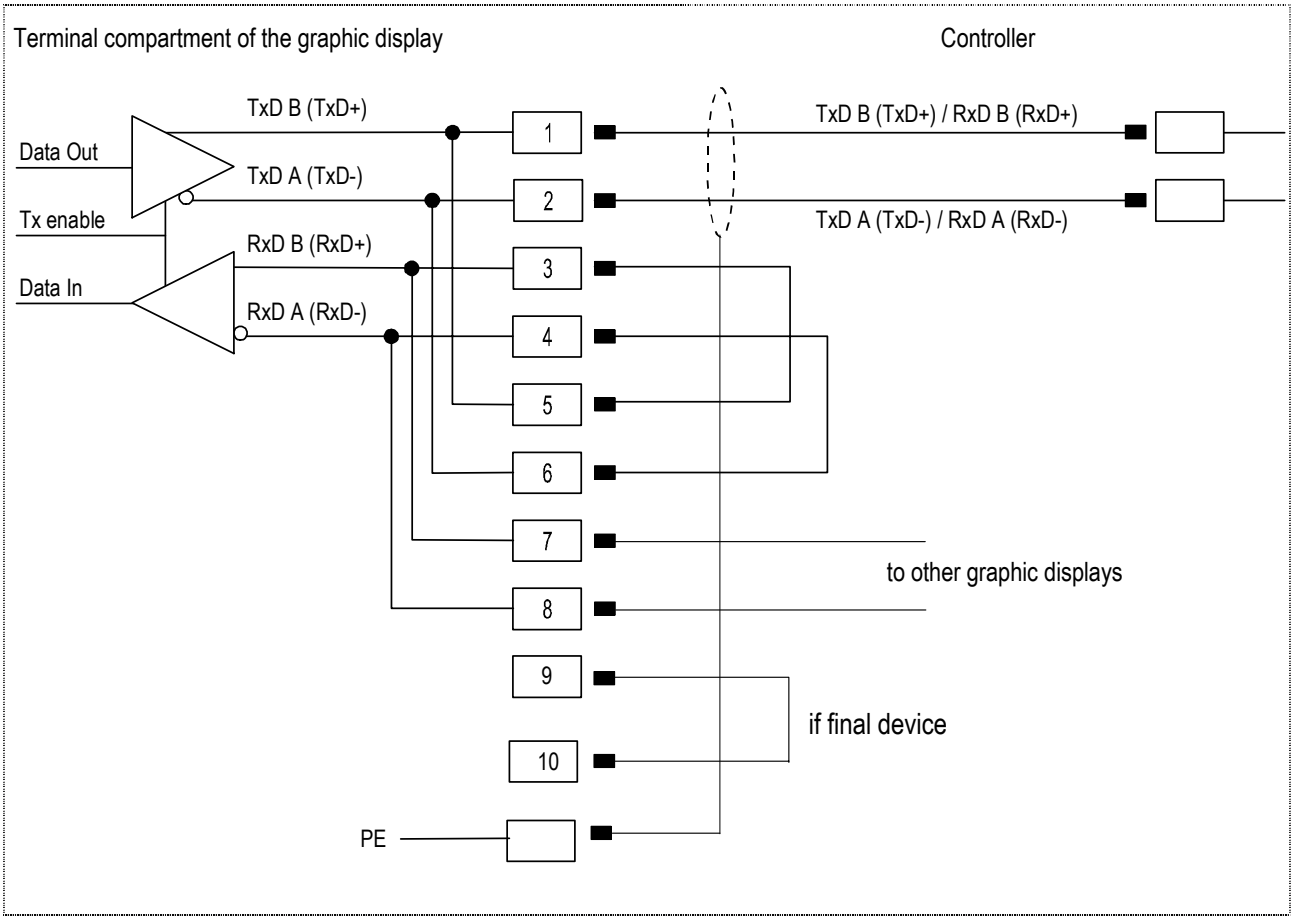
Depending on local conditions, there might occasionally be impairment of data transfer.

4.4 RS 485 interface

BARTEC supplies all the RS 485 interfaces as RS 422.

Connection of a controller via an RS 485 interface of the graphic display.

RS485 module



See the interface description from the controller manufacturer for the relevant pin assignment of the controller.

If it is intended to use the RS 422 as an RS 485 interface, pin 3 / pin 5 and pin 4 / pin 6 must be bridged externally. Pins 1-5, 2-6, 3-7, 4-8 are already connected inside.

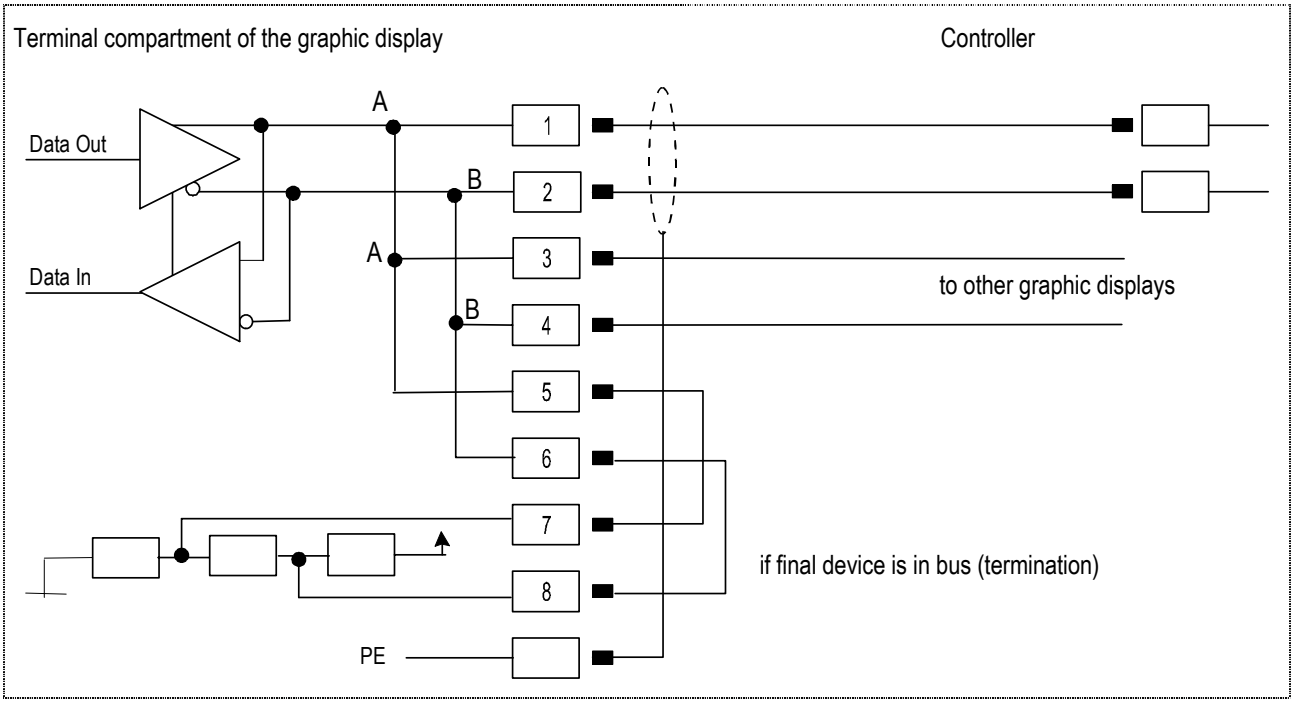
In most cases, internal EMC measures allow the installation of termination resistors at the beginning and the end of the bus line to be dispensed with.

Depending on local conditions, there might occasionally be impairments of data transfer.

4.5 PROFIBUS DP interface

Connection of a controller via a PROFIBUS DP interface of the graphic display.

PROFIBUS DP module



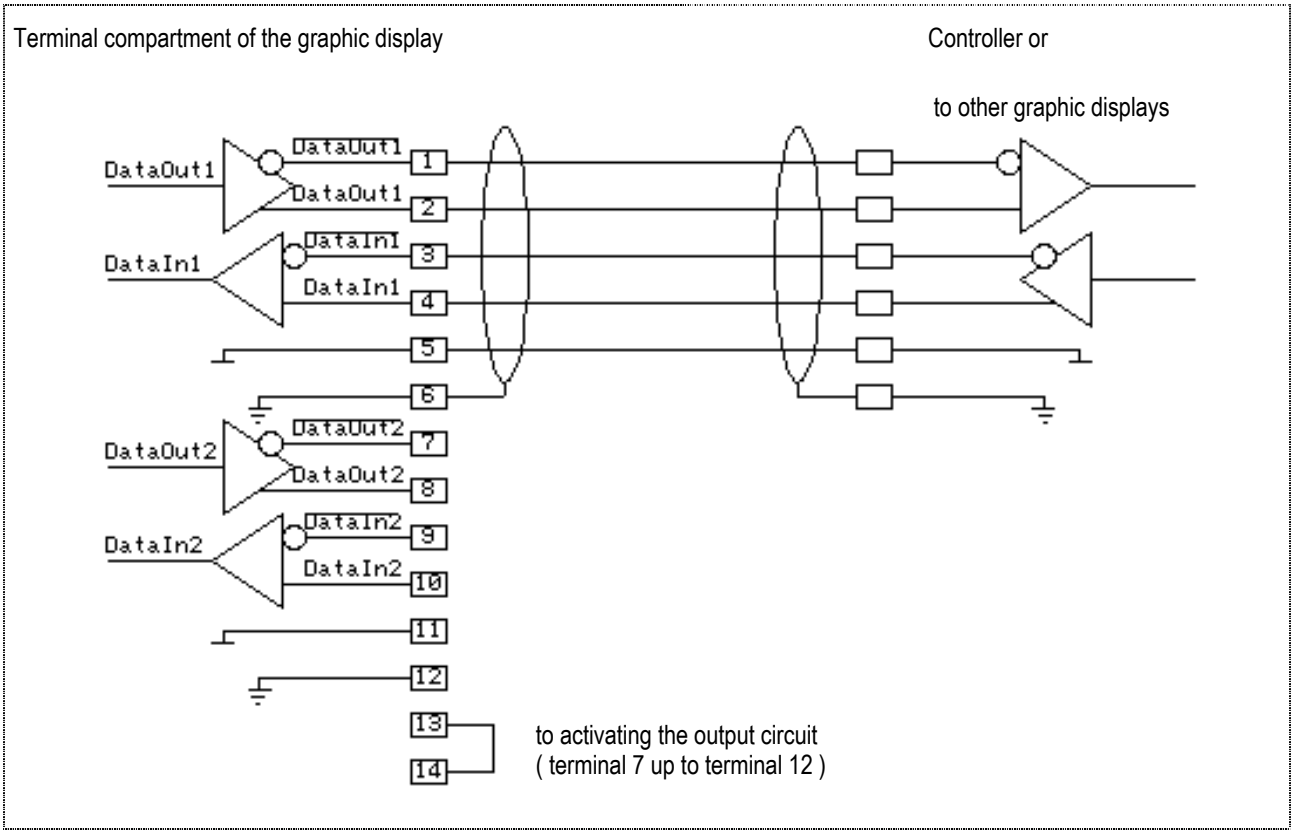
See the interface description from the controller manufacturer for the relevant pin assignment of the controller.

Pins 1-3, 2-4 are already connected inside.

4.6 INTERBUS interface

Connection of a controller via a INTERBUS interface of the graphic display.

INTERBUS module

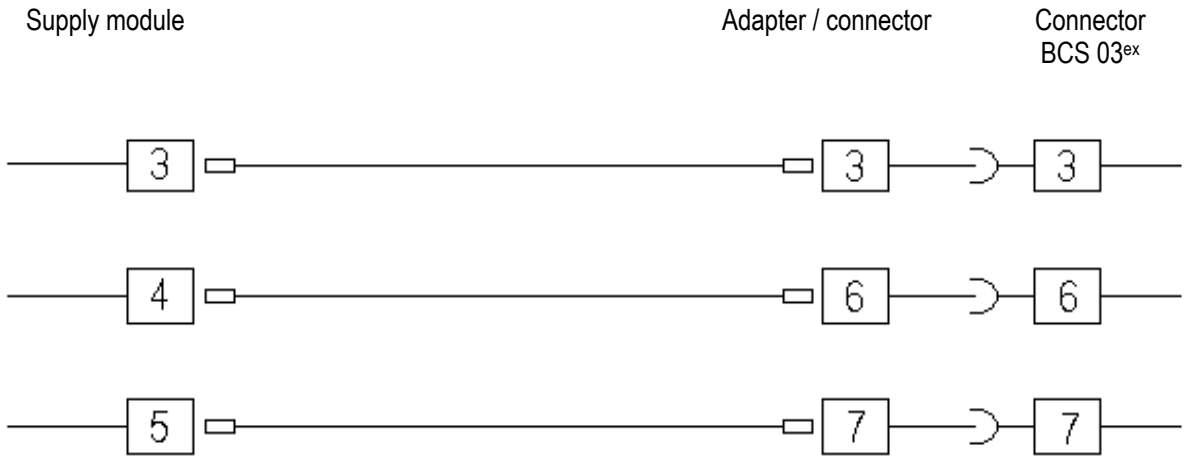


See the interface description from the controller manufacturer for the relevant pin assignment of the controller.

4.7 Supply module for BCS 03ex

Terminal connection diagram for hand-held scanner BCS 03ex to supply module via a connector/adapter.

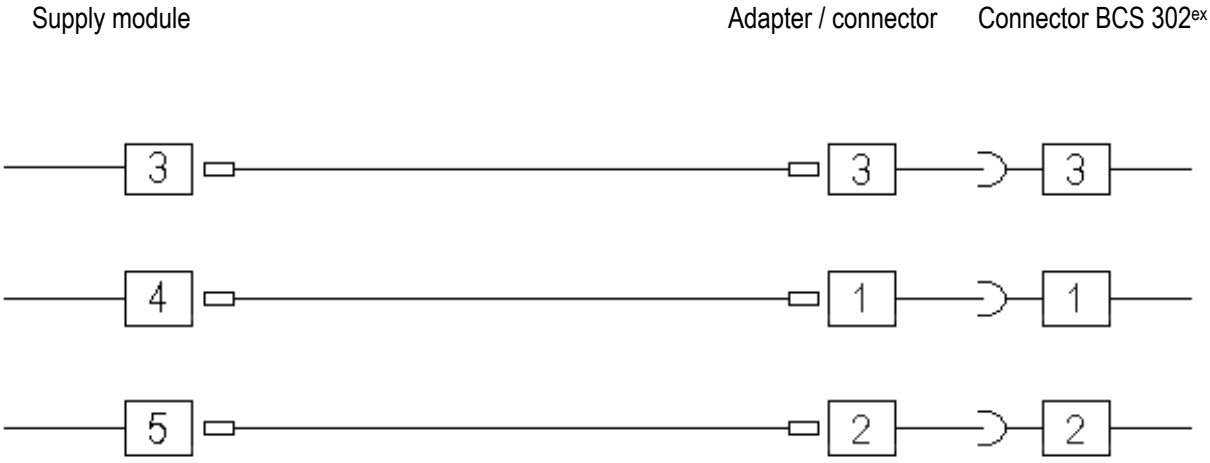
Supply module BAT terminal No	Description	Adapter / connector PIN	Description	BCS 03ex PIN	Description
3	TxD	PIN 3	TxD / RxD	PIN 3	TxD RxD
4	$+U_B$	PIN 6	Ucc / $+U_B$	PIN 6	Ucc
5	GND	PIN 7	GND	PIN 7	GND



4.8 Supply module for BCS 302ex

Terminal connection diagram for hand-held scanner BCS 302ex to supply module via a connector/adapter.

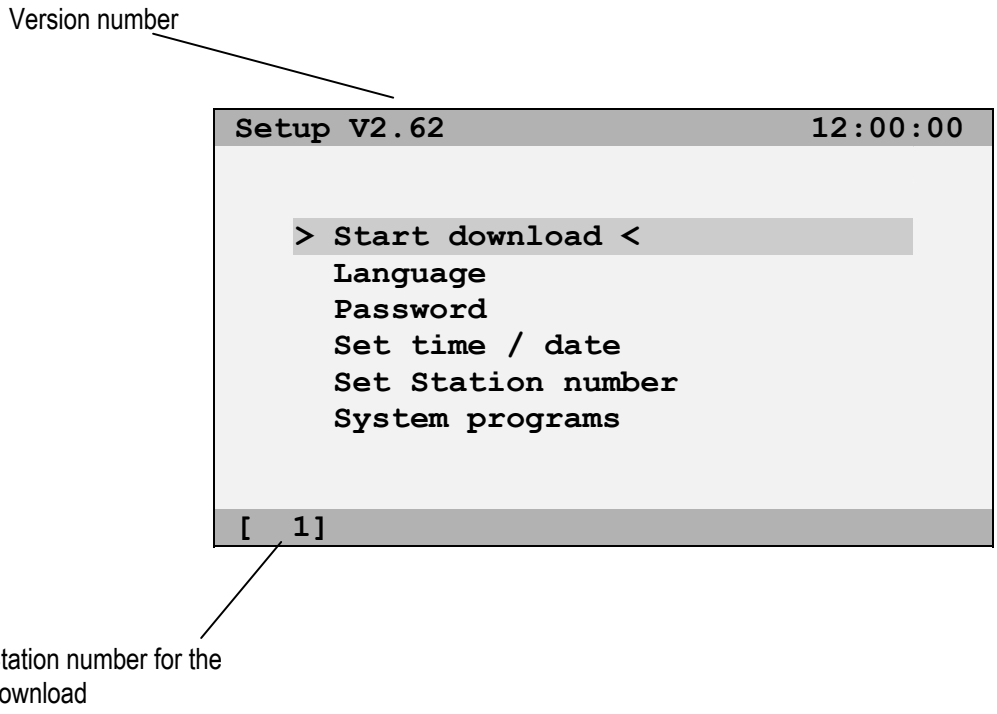
Supply module BAT terminal No	Description	Adapter / connector PIN	Description	BCS 302ex PIN	Description
3	TxD	PIN 3	TxD / RxD	PIN 3	TxD / RxD
4	$+U_B$	PIN 1	Ucc / $+U_B$	PIN 1	Ucc
5	GND	PIN 2	GND	PIN 2	GND



5. Configuration of the graphic display "setup"

5.1 Terminal configuration / setup

When the power is switched on the graphic display shows the following SETUP menu for 5 seconds.



SETUP is used for the basic configuration of the graphic display. For example, it enables you to download your own programs.

Select a menu item using " ↑""„↓" and confirm with "**Enter**".

To what extent settings can be made during normal operation will depend on the installed software. The settings possible in this SETUP are mostly very similar. See the relevant manuals and operating instructions for help.

5.1.1 Menu item > Start download <

- Use this item to transfer your own software to the graphic display. The customer-specific software can be downloaded into the graphic display with the aid of a special tool package via the serial interface of an IBM compatible PC.
- Press **"ENTER"** to select this menu item.
- Enter your password to start downloading.
- Press **"ESC"** to quit when you have finished.

5.1.2 Menu item > Language <

- Press **"ENTER"** to select this menu item.
- All available languages will then be displayed.
- Press "**Enter**" to select the language you want.

5.1.3 Menu item > Password <

- Press **"ENTER"** to select this menu item.
- Having first entered the current password, you can alter it at will.
- Confirming your changes will return you to the SETUP menu.

5.1.4 Menu item > Set time / date <

- Press **"ENTER"** to select this menu item.
- Enter the password and then use the cursor keys to change the time and date.
- Press **"ENTER"** to confirm your new time and date.

5.1.5 Menu item > Set station number <

- Press **"ENTER"** to select this menu item.
- Having entered the password, you can enter a new station number using the numerical keypad.
- The substation number is used to clearly identify the graphic display when downloading programs and projects.
- Press **"ENTER"** to save the new number to memory.

5.1.6 Menu item > System programs <

- The system programs are used for diagnosis and servicing.
- These programs are not required for graphic display operation.

Notice:

1. Erklärung der EG-Konformität

   Declaration of EC-Conformity

   Attestation de conformité CE

2. EG-Baumusterprüfbescheinigung

   Certificat d'essai de modèle type – CE

   EC-TYPE-EXAMINATION CERTIFICATE

Erklärung der EG-Konformität
Declaration of EC-Conformity
Attestation de conformité CE

BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim

Wir	We	Nous
BARTEC GmbH,		
erklären in alleiniger Verantwortung, dass das Produkt	declare under our sole responsibility that the product	attestons sous notre seule responsabilité que le produit
Grafikdisplay BAT 300/600/800	**Graphic** display BAT 300/600/800	**Afficheur de** graphique BAT 300/600/800

Typ-Nr.: 17-71PC-1.../....
Typ-Nr.: 17-71PE-1.../....
Typ-Nr.: 17-71PF-1.../....

auf das sich diese Erklärung bezieht den Bestimmungen der folgenden Richtlinien entspricht	to which this declaration relates is in accordance with the provision of the following directives	se référant à cette attestation correspond aux dispositions des directives sulvantes
94/9 EG 89/336/EWG	**94/9 EC** 89/336/EEC	**94/9 CE** 89/336/CEE
und mit folgenden Normen oder normativen Dokumenten übereinstimmt	and is in conformity with the following standards or other normative documents	et est conforme aux normes ou documents normatifs ci-dessous

EN 50014: 1997 +A1 +A2; EN 50019: 2000; EN 50020: 2002;
EN 50028: 1987; EN 50281-1-1: 1998 +A1
EN 55022: 1998-09; EN 55024: 1998-09

Kennzeichnung	Marking	Marquage

CE 0032

Ex II 2G EEx me [ib] IIC T4
bzw. II 2D T80°C IP6X

IBExU 03 ATEX 1096 X

Bad Mergentheim, den 14.10.2004

Dipl.-Ing. Gisbert Schmahl
Geschäftsleitung Technik

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[1] **EC-TYPE EXAMINATION CERTIFICATE**
according to Directive 94/9/EC, Annex III

(Translation)

[2] Equipment and Protectiv Systems intended for use in Potentially Explosive Atmospheres, Directive 94/9/EC

[3] EC-Type Examination Certificate Number: **IBExU03ATEX1096 X**

[4] Equipment: Indicating terminal BAT 300/800 Typ 17-71P.-1.../....

[5] Manufacturer: BARTEC GmbH

[6] Address: Max-Eyth-Straße 16
D-97980 Bad Mergentheim

[7] This equipment and any acceptable variation thereto are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 in accordance with article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in confidential test report IB-03-3-357 of 14.07.2003.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 50014:1997+A1 +A2, EN 50019:2000, EN 50020:1994, EN 50028:1987 and EN 50281-1-1:1998.

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified under [17] in the schedule to this EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned in [4] shall include the following:

Ex II 2G EEx me [ib] IIC T4
bzw. Ex II 2D T80°C IP 6X

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - D-09599 Freiberg
Tel.: 00493731 3805-0 - Fax: 00493731 23650

Authorised for certifications Explosion protection

By order

(Dr. Lösch)

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH Kenn-Nr. 0637

- Seal-
(ID no. 0637)

Freiberg, 15.07.2003

Certificates without signature and seal are not valid.
Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Schedule

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[13] **Schedule**

[14] **to the EC-TYPE EXAMINATION CERTIFICATE IBExU03ATEX1096 X**

[15] **Description of equipment**

The Indicating terminal BAT 300/800 type *** serves to visual representation and manual data input of control functions. It is used as a control panel in potentially explosive areas which require apparatus of the category 2G/2D. The Indicating terminal consists of an electronic unit, the display and a built-in keyboard. It can be equipped optionally with the mentioned interface converters in the EEx-e connecting enclosure.

Ambient temperature range	0 °C bis +50 °C
Electrical data Type designations:	BAT 300 type 17-71PC-1.../... BAT 800 type 17-71PF-1.../...
Degree of protection:	IP 65 front side and terminal compartment IP 43 reverse side
Supply electric circuit (terminals X1:5, X1:6 (+24V) X1:3, X1:4 (0 V)	24 ±10 % V DC, ≤ 2 A U_m = 253 V
Data interface (Ethernet) (terminals X1:10 to X1:13)	up to 5 V DC/AC U_m = 253 V
COM-Data interface (terminals X1:14 to X1:31)	up to 30 V DC/AC U_m = 253 V
Earthing connection (PA) (terminals X1:1 to X1:2)	
Background lighting (terminals X1:7 to X.1:9)	internal electrical circuit appr. 12 V

Interface converter 17-2111-01../....

Supply electric circuit I (wires 2 and 3)	12 ±10 % VDC 40,5 mA
Supply electric circuit II (wires 1 and 3)	5 ± 10 % VDC 17,6 mA
Digital input-electric circuit (TxD) (wires 5 and 3)	± 12 V, 4 mA
Digital output-electric circuit (RxD) (wires 4 and 3)	± 10 V, 3 mA
Interface- electric circuits COM 1 or COM 2 (terminals 1 to 8)	per electrical circuit 12 V max. 20 mA 12 V max. 30 mA

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An-Institut der TU Bergakademie Freiberg

Interface converter 17-2111-02../....

Supply electric circuit (wires 1 and 3)	5 V ±10 % VDC < 100 mA
Digital input-electric circuit (TxD, RTS) (wires 4, 6 and 3)	± 12 V, 4 mA
Digital output-electric circuit (RxD) (wires 5 and 3)	± 10 V, 4 mA
Interface- electric circuits (TxD, RxD) (terminals 1 to 8; 9, 10) (bridge for internal connection)	per electrical circuit up to 12 V, up to 5 mA

Interface converter 17-2111-03../....

Supply electric circuit I (wires 2 and 3)	12 ±10 % VDC 36 mA
Supply electric circuit II (wires 1 and 3)	5 ±10 % VDC 200 mA
Digital input-electric circuit (TxD) (wires 4 and 3)	±12 V, 4 mA
Digital output-electric circuit (RxD) (wires 5 and 3)	±10 V, 4 mA
Interface- electric circuits (terminals 1 to 4, 5 to 8, No.9) Bus-Abschluss, Schirm	per electrical circuit up to 12 V, 60 mA

Interface converter 17-2111-05../....

Supply electric circuit I (wires 2 and 4)	12 ±10 % VDC 160 mA
Supply electric circuit II (wires 1 and 3)	5 ±10 % VDC 17,6 mA
Digital output-electric circuit (RxD) (wires 5 and 3)	±12 V, 4 mA
Earthing connection (PA) (wire ge/gn, PIN PA resp. X10)	
Data- and supply electric circuits Scanner (terminals 1 to 4)	type of protection " intrinsic safety" EEx ib IIC U_o = 6,5 V I_o = 417 mA P_o = 1,53 W R_i = 36 Ω characteristic curve: trapezoid
maximum external capacity/inductivity	C_o = 2,5 µF with L_o = 0,1 mH resp. C_o = 24 µF with L_o = 2 µH

The electrical circuits are galvanic earthed. During the complete course of the establishment of the instrinsic circuits has to exist equirpotential bonding.

Further details are contained in the test documents (see test report).

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[16] **Test report**
The test results are recorded in detail in the confidential test report IB-03-3-357 of 14.07.2003.

[17] **Special conditions**
The stiffening frame for the front side mounting has to be used for maintaining of the degree of protection:

- ≥ IP 54 at the installation in 2G-enclosures of the type of protection EEx e (for example controls) and
- ≥ IP 6X at the installation in 2D-enclosures in areas of combustible dusts with the type of protection "Protection by enclosures".

[18] **Essential Health and Safety Requirements**

Confirmed by norms (see [9]).

By order

Freiberg, 15.07.2003

(Dr. Lösch)

Page 4 of 4
IBExU03ATEX1096 X

IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[1] **1st Addition to**
EC-TYPE EXAMINATION CERTIFICATE IBExU03ATEX1096 X
according to Directive 94/9/EC, Annex III (Translation)

[2] Component: Indicating terminal BAT 300/800 Typ 17-71P.-1.../....

[3] Manufacturer: BARTEC GmbH

[4] Address: Max-Eyth-Straße 16
D-97980 Bad Mergentheim

[5] **Modification/Addition**

The indicating terminal mentioned in [2] can be equiped also the interface converter type 17-2111-07../.... The electrical data are listed on according to the explosion groups IIC or IIB below.
The documents are component of the test report IB-04-3-094 from 30 March 2004.

Interface converter 17-2111-07../....

Supply electric circuit (wires no.2 and 3) maximum r.s.m. voltage (U_m)	12 VDC+10 % 220 mA 253 VAC
Digital output-electric circuit (RxD) (wires no. 5 and 3)	± 12 V, 4 mA
Equipotential bonding conductor (PA) (wire GNYE, terminal no. 1)	
Data- and supply electric circuits (Terminals no.2 up to 5)	type of protection " intrinsic safety" EEx ib IIC/IIB U_o = 5,5 V I_o = 440 mA P_o = 1,25 W R_i = 25 Ω characteristic curve: trapezoid
maximum external capacity (L_o = 0)	C_o = 55,8 µF for IIC resp. 997,8 µF for IIB

permitted maximum value for mixed reactances:

	IIC		IIB	
C_o	1,6 µF	100 nF	5,3 µF	117,8 µF
L_o	0,1 mH	0,2 mH	1 mH	0,01 mH

[6] The marking of the indicating terminal mentioned in [2] shall include the following:

Ex II 2G EEx me [ib] IIC resp. IIB T4
resp. **Ex II 2D T 80 °C IP 6X**

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7 - D-09599 Freiberg
Phone: +49 3731 3805-0 - Fax: +49 3731 23650

Freiberg, 30 March 2004

Authorised for certifications
- Explosion protection -
By order

(Dr. Lösch)

Zertifizierungsstelle Explosionsschutz * IBExU Institut für Sicherheitstechnik GmbH * Kenn-Nr. 0637 *

- Seal-
(ID no. 0637)

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IBExU Institut für Sicherheitstechnik GmbH
An-Institut der TU Bergakademie Freiberg

[1] **2nd Addition to**
EC-TYPE EXAMINATION CERTIFICATE IBExU03ATEX1096 X
according to Directive 94/9/EC, Annex III
(Translation)

[2] Equipment: Indicating terminal BAT300/800 type 17-71P.-1.../....

[3] Manufacturer: BARTEC GmbH

[4] Address: Max-Eyth-Str. 16
97980 Bad Mergentheim, Germany

[5] **Addition/Modification**

The indicating terminal mentioned under [2] is added to the indicating terminal BAT600 type 17-71PE-1.../.... .
The electrical connected values, also for the respective interface converters, remain unchanged.

[6] **Test documents**

The documentation is recorded in the test report IB-04-3-075 of 22 September 2004 according to specifications EN 50014+A1+A2, EN 50019:2000, EN 50020:2002, EN 50028:1987 and EN 50281-1-1:1998+A1.
The already specified special conditions are valid for all indicating terminals type 17-71P.-1.../.... .
They are completed with the safety-relevant notice standing below (also in the operating instruction).

[7] **Safety-relevant notice**

Inside areas of explosive atmospheres any electrostatic charging mechanism on the surface of the indicating terminals have to be excluded if they are stronger than manual rubbing (e.g. cleaning by hand).

[8] The marking of indicating terminal mentioned in [2] shall include the following:

Ex II 2G EEx me [ib] IIC T4
res. **Ex II 2D T 80 °C IP 6X**

IBExU Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7, 09599 Freiberg, Germany
Phone: +49 3731 38050 - Fax: +49 3731 23650

Authorised for certifications
-Explosion protection-

By order

(Dr. Lösch)

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH * Kenn-Nr. 0637 *

- Seal -
(ID no. 0637)

Freiberg, 23 September 2004

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