Operating Instructions
Power Pack
Type 17-21BA-170x

Description

The power pack was developed specially for direct installation in hazardous areas and it is ATEX-certified.
The power pack is a permanently installed piece of electrical operating equipment. It serves to supply power to intrinsically safe operating equipment and components inside hazardous areas (e.g. the BCS 3800ex hand-held scanner). The power pack is installed in areas designated for the use of devices from Equipment Group II, Category 2G and 2D.

It is used exclusively in combination with operating equipment that meets the requirements for Overvoltage Category I.

The power pack was developed specially for use in hazardous areas in Zones 1 and 21. The power pack may not be installed in Zone(s) 0 / 20.

The system supplies intrinsically safe supply voltage at the output and converts serial data to RS232 and RS422.

At the input side there is a choice of two data interfaces (RS232 and RS422); for the supply voltage three variants are available:
- AC 100 V to 250 V with RS232 and RS422 interface
- DC 24V with RS232 and RS422 interface
- DC 12 V with RS232 and RS422 interface

It is not necessary to install it in an Ex e or Ex iD enclosure.

Explosion Protection

Ex protection type
- II 2G Ex e q [ib] IIC T4
- II 2D Ex tD A21 IP64 T135 °C

Certification
- IBEExu 09 ATEX 1091

Standards
- EN 60079-0:2006
- EN 60079-5:2007
- EN 60079-7:2007
- EN 60079-11:2007
- EN 61241-0:2006
- EN 61241-1:2004
- EN 61000-6-2:2005
- EN 61000-6-4:2007

Directives
- 94/9/EC
- 2002/95/EC
- 2004/108/EC

Safety Instructions

If it is installed incorrectly without protection, it may malfunction and the Ex protection can be lost.

The power pack must be connected and assembled/disassembled by qualified personnel who are authorised and trained to assemble electrical components in hazardous areas.

Use in areas other than those specified or the alteration of the product by anyone other than the manufacturer will exempt BARTEC from liability for defects or from any further liability.
The generally applicable statutory rules and other binding directives relating to workplace safety, accident prevention and environmental protection must be adhered to.
The power pack may only be used if it is clean and free of damage.

Marking

Particularly important points in these instructions are marked with a symbol:

- Danger!
  Non-observance leads to death or serious physical injury.
  The necessary safety measures must be taken.

- Caution!
  Warning of damage to property and financial and penal disadvantages (e.g. loss of guarantee rights, liability etc.).

- Attention
  Important instructions and information on preventing disadvantageous behaviour.

- Note
  Important instructions and information on effective, economical and environmentally compatible handling.

Technical Data

Enclosure material
- Aluminium

Protection class
- IP64

Electrical connections
- Connecting terminal 2.5 mm², fine-stranded

Dimensions (W x H x D)
- 140 mm x 250 mm x 56 mm

Weight without connection cable
- approx. 3.1 kg

Ambient temperature range
- -20 °C to +60 °C

Storage and transport temperature
- -20 °C to +60 °C outside the hazardous area

Relative air humidity
- 5 to 95% non-condensing

Electrical input data

<table>
<thead>
<tr>
<th>Type</th>
<th>Supply voltage</th>
<th>Power consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-21BB-1700</td>
<td>AC 90 V to 253 V, 50 to 60 Hz</td>
<td>3.3 W (max. 6.6 W)</td>
</tr>
<tr>
<td>17-21BB-1701</td>
<td>DC 24 V ± 25 %</td>
<td>3.7 W (max. 7.1 W)</td>
</tr>
<tr>
<td>17-21BB-1702</td>
<td>DC 12 V ± 10 %</td>
<td>4 W (max. 16 W)</td>
</tr>
</tbody>
</table>

Electrical output data

Maximum fault voltage
- \( U_{m} = 253 \text{ V} \)

Maximum output voltage
- \( U_{o} = 5.5 \text{ V} \)

Maximum output current
- \( I_{o} = 440 \text{ mA} \)

Internal resistance
- \( R_{i} = 25 \text{ Ohm} \)

Maximum output power
- \( P_{o} = 1.25 \text{ W} \) (trapezoidal characteristic curve)

Maximum external capacitance
- \( C_{e} = 55.0 \mu \text{F} \)

Maximum internal capacitance
- \( C_{i} = 2.2 \mu \text{F} \)

Maximum external capacitance
- \( L_{i} = 0.1 \text{ mH} \)
**Electrical Data Interface**

<table>
<thead>
<tr>
<th>Interface</th>
<th>Connecting terminal</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS 232</td>
<td>Only transmitter TxD</td>
<td>X4, X5</td>
</tr>
<tr>
<td>RS 232 TTL</td>
<td>Only receiver RxD (0.5 V)</td>
<td>X9, X10</td>
</tr>
<tr>
<td>RS 422</td>
<td>Only transmitters</td>
<td>X7, X8</td>
</tr>
</tbody>
</table>

**Assembly and Commissioning**

Any work on explosion-protected operating equipment may only be done by authorised persons using original spare parts and working in accordance with the latest developments in technology. The relevant regulations must be observed. Please direct any questions you may have to BARTEC GmbH.

When using electrical systems, the relevant installation and operation regulations, such as e.g. Directive 1999/92/EC, Directive 94/9EC, Ordinance on industrial health and safety (BetrSichV, EN 60079-14, the DIN VDE 0100 series or other applicable national standards or regulations must be observed. The operator of an electric plant in a hazardous environment must keep the operating equipment in an orderly condition, operate it correctly, monitor it and do the required maintenance and repairs.

On account of the risk of dangerous electrostatic charging, wear suitable clothes and footwear. Do not use any rubber gloves or suchlike.

**Fixing to a stable supporting surface**

The four mounting holes on the Power Supply unit’s baseplate make safe assembly easier. See fig. 1 for the drilling pattern. It is not necessary to open the terminal connection chamber for assembly.

**Rated connection capacity of the spring-loaded terminals**

- **Permissible core cross-sections**
  - Conductor cross-section rigid: 0.2 mm² to 2.5 mm²
  - Conductor cross-section flexible: 0.2 mm² to 2.5 mm²
  - Conductor cross-section flexible with wire-end ferrule without plastic cover: 0.25 mm² to 1.5 mm²
  - Conductor cross-section flexible with wire-end ferrule with plastic cover: 0.25 mm² to 1.5 mm²
  - Conductor cross-section AWG/kcmil: 24 to 14

- **Permissible connection cable diameters**
  - Cable gland Ex e M20x1.5 (black): 6 - 13 mm
  - Cable gland Ex e M16x1.5 (black): 4 - 9 mm

**Terminals for external conductors**

In the GasEx area the EN 60079-14: 2008 (Explosive Atmospheres - Part 14: Electrical Installations Design, Selection and Erection) must be observed when connecting the external conductors to the terminals.

In the DustEx area the EN 61241-14: 2004 (Electrical Apparatus for Use in the Presence of Combustible Dust. Part 14: Selection and Erection) must be observed.

The conductors must be connected in accordance with the terminal connection diagram.

**Installation**

1. Use a screwdriver to loosen and remove the screws from the terminal connection chamber’s cover plate.
2. Feed the voltage supply conductor through the cable gland (M20x1.5).
3. Feed the conductor for load (terminals X9 - X13) and host system (terminals X4 - X8) through the cable gland (M16x1.5).
4. Connect the voltage supply conductor as shown in the terminal connection plan (terminals X1 to X3).
5. Connect the conductor for load (terminals X9 - X13) and host system (terminals X4 - X8) as shown in the terminal connection plan.
Terminal connection plan Ex e

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Marking</th>
<th>Description</th>
<th>Type/Note</th>
</tr>
</thead>
</table>
| X1       | +/-L    | L = AC 100 V bis 250 V  
           |          | + = DC 24 V  
           |          | = DC 12 V   |
|          |         | 17-21BB-1700  
           |          | 17-21BB-1701  
           |          | 17-21BB-1702 |
| X2       | -/N     | N = Neutral conductor  
           |          | - = Minus  
           |          | = Minus   |
|          |         | 17-21BB-1700  
           |          | 17-21BB-1701  
           |          | 17-21BB-1702 |
| X3       | PE      | PE                   |
| X4       | GND     | PE                   |
| X5       | TxD     | RS-232               |
| X6       | Shield  | RS-232/RS-422        |
| X7       | Shield  | RS-422               |
| X8       | T+      | RS-422               |

Terminal connection plan Ex i

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Marking</th>
<th>Description</th>
<th>Type/Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>X9</td>
<td>RxD</td>
<td>RxD</td>
<td></td>
</tr>
<tr>
<td>X10</td>
<td>GND</td>
<td>RS-232</td>
<td></td>
</tr>
<tr>
<td>X11</td>
<td>PE</td>
<td>Shield</td>
<td></td>
</tr>
<tr>
<td>X12</td>
<td>GND</td>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>X13</td>
<td>+UB</td>
<td>Intrinsically safe output voltage</td>
<td></td>
</tr>
</tbody>
</table>

(6) Check the connections and terminal assignment.
(7) Close the cover on the terminal connection chamber and tighten the screws to finger-tightness.
(8) Connect conductor to load and host system.
(9) Connect the voltage supply conductor to the all-pole mains disconnecting switch or fuse.

Equi-potential bonding conductor

The equi-potential bonding conductor must be connected to the potential equalisation bonding (fig. 1). Since the intrinsically safe circuits are galvanically connected to earth, there must be equi-potential bonding throughout the entire course of setting up intrinsically safe circuits.

Before commissioning check that:
- The device has been installed in compliance with regulations.
- The device is not damaged.
- The connection has been established properly.
- The terminal connection chamber is closed.

Commissioning

- Connect supply voltage.
- Disconnect the terminal connection chamber from voltage before opening.

Maintenance

No maintenance is required if the device is operated appropriately and the instructions relating to installation and ambient conditions are observed.

Dust-EX: Dust deposits on and in the immediate vicinity of the enclosure must be removed at regular intervals.

Repairs

Any work on explosion-protected operating equipment may only be done by authorised persons using original spare parts and working in accordance with the latest developments in technology. The relevant regulations must be observed. Please direct

If you wish to send in a defective device for repair, please read the RMA procedure guidance first. Then fill in and sign the RMA (Return Merchandise Authorisation) form and send it to our “Retouren Center” any questions you may have to BARTEC GmbH.

Email: services@bartec.de
Fax: +49 7931 597-119

We cannot guarantee any contractually agreed processing times for devices that are sent in without an RMA number.

The RMA guide and the RMA form are available on our homepage for downloading.

http://www.bartec-group.de

Quality and culture

Have you any questions? Write us an e-mail or call us.
E-mail: services@bartec.de
Phone: +49 7931 597-444

Disposal

The power pack contains metal parts, plastic parts and electronic components. The statutory requirements for electrical scrap must be observed therefore (e.g. disposal by an approved disposal company).

Order Number

Power Pack
- with supply voltage AC 100 V to 250 V  
  Type 17-21BB-1700
- with supply voltage DC 24 V  
  Type 17-21BB-1701
- with supply voltage DC 12 V  
  Type 17-21BB-1702

Service address

BARTEC GmbH
Max-Eyth-Straße 16
97980 Bad Mergentheim
Germany

Phone: +49 7931 597-0
Fax: +49 7931 597-119

info@bartec.de
www.bartec-group.com

Reservation Technical data subject to change without notice. Changes, errors and misprints may not be used as a basis for any claim for damages.
Erklärung der Konformität
Declaration of Conformity
Attestation de conformité

Wir
We
Nous

BARTEC GmbH,
declare under our sole responsibility that the
attestons sous notre seule
produit...
responsabilité que le

Versorgungseinheit
Power Pack for hand
für Handskaner
scanner BCS3800ex
BCS3800ex

Typenbezeichnung:
17-21BB-1700
17-21BB-1701
17-21BB-1702

to which this declaration
se référant à cette attes-
relates in accordance
ration correspond aux dispo-
with the provision of the
sitions des
following directives (D)
directives (D) suivantes

ATEX-Richtlinie
94/9/EG
ATEX-Directive
94/9/CE

EMV-Richtlinie
2004/108/EG
EMC-Directive
2004/108/CE

RoHS-Richtlinie
2002/95/EG
RoHS Directive
2002/95/EC

und mit folgenden Normen
and is in conformity with
et est conforme aux
oder normativen Doku-
the following standards or
nomes ou documents
mente übereinstimmt
other normative docu-
ment
ments

EN 60679-0:2006
EN 60679-11:2007
EN 61241-0:2006
EN 61241-1:2004 und
CENELEC-Cor.1:2006

Kennzeichnung
II 2G Ex.eq [ib] IIC T4
II 2D Extd A21 IP64 T135°C
between 20 °C ≤ Ta ≤ +60 °C
Verfahren der EG-
Baumusterprüfung
Procedure of Ex-
IBExU9AATEX1091
Type Examination
CE 0044
CE de type

Bad Mergentheim, den 05.11.2009

ppa. Ewald Warnath
Geschäftsführung / General Manager